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ENVIRONMENT DIRECTORATE  
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**Working Party on Pollution Prevention and Control**

**Environmental Objectives and Alternatives to Regulation:**

**WHAT DO STANDARDS FOR ENVIRONMENTAL MANAGEMENT SYSTEMS  
OFFER?**

**Proceedings from the WPPPC Special Session, 4 May 1998**

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## **ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT**

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## FOREWORD

Over the past decade, increasing attention has been paid to the use of economic instruments and the role of voluntary industry standards, *inter alia* environmental management standards, to achieve environmental policy targets. In April 1998, the OECD's Environment Ministers have requested OECD to investigate new environmental policy approaches, including those involving the use of such standards, that effectively reconcile environmental quality objectives with economic activity.

The International Organization for Standardization (ISO), a non-governmental organisation principally concerned with harmonising varied technical norms used world-wide, has recently released a new series of international standards in the field of environmental management. This is known as the *ISO 14000 Standards Series on Environmental Management*. Since its official introduction in September 1996, the ISO 14000 standards series, in particular the ISO 14001 standard on environmental management system (EMS), have caught the interest of many businesses and industries around the world. For those companies hoping to attract more environmentally conscious customers by demonstrating better environmental stewardship and accountability, this voluntary EMS standard was just the tool they needed. The standard also offered a new means to anticipate and meet growing environmental performance expectations, including compliance with national and / or international environmental requirements.

Over the past several years, the development of these ISO environmental management standards has been monitored within the context of the project on "Sustainable Product Policies and Life Cycle Management" of the Pollution Prevention and Control Group (PPCG). As part of the ongoing exercise, the PPCG held the Special Session on "*ISO Environmental Management Standards and Implications for Policy-Making*" on 4 May 1998 at the OECD Headquarters. It grew out of the recognition that a good understanding of the development and implementation of EMS standards was necessary by the Member countries, in light of the positive effects such standards may have on the environment, business and trade. The Special Session was an occasion for the country Delegates to exchange information and examine the effects of environmental management standards. It presented an overview of issues related to the development and implementation of voluntary environmental management standards in order to facilitate OECD Member Country governments in evaluating the policy opportunities offered by such standards.

This publication presents the proceedings of the Special Session, together with the OECD background paper containing a detailed examination of the ISO 14000 standards series and its policy implications. The papers that were presented by the invited experts to the Special Session are also included in this report. The opinions expressed in these presentation papers are those of the authors, and do not necessarily represent those of the OECD or its Member countries. This report has been prepared by Masato Hayashikawa and Carlo Pessa, consultants to the OECD Environmental Directorate. It is published on the responsibility of the Secretary-General of the OECD.



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## EXECUTIVE SUMMARY

### 1. Background

OECD Member countries have traditionally put in place “command-and-control” mechanisms to reduce the pollution burden stemming from industrial activity. While effective in reducing certain types of pollution, these policies alone were not sufficient enough to reduce global pollution levels to an environmentally sustainable level. Today, a number of OECD Member countries have engaged in several regulatory reform programmes. They are aimed at improving economic efficiency while increasing public management effectiveness, as well as, to achieve environmentally sustainable economic systems.

Within these programmes, increasing attention has been paid to the use of both economic instruments and voluntary approaches to achieve environmental policy targets. The OECD’s work, however, has mostly concerned the use of economic instruments for environmental policy purposes giving them considerable theoretical and practical analysis, and only recently, are voluntary approaches coming under close scrutiny. Consequently, a variety of this approach is beginning to be explored more systematically. Voluntary international environmental management standards have emerged from this on-going exercise as potentially important environmental policy tools and have been monitored over the past several years by the Pollution Prevention and Control Group (PPCG) project on “Sustainable Product Policies and Life Cycle Management.”

This task was confirmed in April 1998 by the OECD’s Environment Ministers who have requested OECD to investigate new environmental policy approaches that effectively reconcile environmental quality objectives with economic activity -- and in particular, to focus on voluntary approaches and integrated policies.

#### *The PPCG Special Session on ISO Environmental Management Standards*

The PPCG organised the Special Session on “*ISO Environmental Management Standards and Implications for Policy-Making*” which was held at the OECD Headquarters on 4 May 1998. The meeting was assembled to facilitate the understanding of the development and implementation of environmental management system (EMS) standards in light of the positive effects such standards may have on the environment, business and trade. It was an occasion provided for detailed discussion among the Delegates to the PPCG and the invited experts who attended the Special Session. More broadly, the Special Session aimed at defining and examining the role of Government in the development and implementation of EMSs, and what OECD could do to support such a role.

To provide the basis for a discussion, the Secretariat had prepared an OECD report which served as a background document for the Special Session. This report provides an overview of issues related to the development and implementation of voluntary environmental management standards to facilitate the PPCG delegates in evaluating the policy opportunities offered by such a voluntary standard, and in understanding the implementation effects of these standards which may have on the environment, business

and trade. By underlining some of the major issues, the report aimed to expand and sharpen debate among PPCG delegates and experts attending the Special Session.

The Special Session was divided into three sessions, and nine experts from the public and private sectors were invited to make presentations on the following topics:

Session 1: Review of environmental management systems (EMSs)

- Role and development of international standards: ISO 14000
- Environmental NGO's perspective on environmental management systems
- ISO 14000 standards and their implications for US environmental programmes
- Implementation of ISO 14001 and Japan's perspectives
- [The European] Eco-Management and Audit Scheme (EMAS): Outcomes and perspectives

Session 2: Practical experiences with EMSs

- Groupe Danone's strategy on the adoption of ISO 14000 and EMAS
- Exploring regulatory innovation in State environmental programmes through application of EMSs

Session 3: Major issues related to EMS implementation

- Trade implications of the ISO 14000 series
- Small and medium sized enterprises and ISO 14001: What are the implications?

These presentations expanded many of the issues identified in the background paper prepared by the Secretariat, in particular: *adequate stakeholder participation; standard certification; use of EMSs by developing countries and SMEs; and transparent and cost effective information diffusion.*

***A Word on ISO Standards***

Environmental management standards are but one type of standard used by businesses to organise and co-ordinate their actions in complex and competing markets. Such standards are useful to businesses since they help to establish stability, reliability and continuity in an otherwise fluctuating and unpredictable business environment. With strong and widely accepted standards in place, businesses can expect reduced transaction costs and greater compatibility amongst products, processes, services or organisations. As a result, businesses can undertake investment programmes allowing them to achieve greater economies of scale. Finally, by reducing the variability of accepted technical processes and norms, standards enable businesses to operate with confidence in international markets and, thus, help to spur global economic activity.



In some cases however, standards can *reduce* economic efficiency by preventing market access of competitors that can not -- or choose not to -- conform to standards, or by stifling technological innovation that does not fit with current standards. Also, complying with standards can sometimes generate considerable costs to businesses, further discriminating against those companies that cannot afford such outlays. These limitations derive from the very nature of technical standards as both private and public goods. Businesses in the private sector often invest heavily in the creation of standards in order to reduce the unpredictability of markets. Once developed, however, standards serve as a reference to all other businesses and become *de facto* public goods. As such, they should be universally accessible by all players at a relatively low cost, though this has not always been the case in practice. Nevertheless, Professor Giacomo Elias, ISO President-Elect, stated in his presentation that the ISO is currently preparing to improve the accessibility of its information on international standards by making them available on the Internet.<sup>1</sup> ISO is also planning to conduct all voting processes via Internet to eliminate the incoming of any late votes from the Member bodies.

In order to overcome these limitations, standards have gradually evolved from design standards (e.g., based on technical and / or process prescriptions) to performance standards that focus on the desired function and / or outcome of the product or process and, recently, to generic standards that focus more on setting organisational frameworks rather than functional product- or process-related goals. These general trends among all standards also characterise the recent evolution of environmental management standards.

## 2. Major Issues Regarding Environmental Management Standards

### *The Role of Environmental Management Standards*

International environmental management standards were first developed as a private sector response to the challenges posed by the UN Conference on Environment and Development (UNCED). Building on the experience developed in the United Kingdom with quality management system standards (ISO 9000), the British Standard, *BS 7750: Specification for Environmental Management Systems*, was published by the British Standards Institution (BSI) in 1992, which provided much of the basic framework for the current ISO 14001 standard. The goal of BS 7750 was to develop a consistent and recognisable set of practices seeking to take into account the environmental impacts of businesses activities. However, the nature of environmental management issues is such that standards for environmental management are necessarily broad-based and cover issues more typically addressed through public policy (e.g. such as environmental labelling).

To-date, two approaches characterise developments in environmental management standards: that adopted by the International Standard Organisation through the ISO 14001 standard, and the other by the European Union's Eco-Management and Audit Scheme (EMAS) Regulation (see Annex A.2 for the full text of the Regulation). These two standards differ principally in the latter's requirement to achieve real and measurable *improvements in environmental performance*, whereas the former calls for "continual improvement" in the *environmental management system* -- without any reference to actual environmental performance. This point was particularly emphasised in the presentations by the European Commission DG-XI "*Eco Management and Audit Scheme: outcomes and perspectives*" and the United States Environmental Protection Agency "*ISO 14000: Implications for US environmental programs.*"

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<sup>1</sup> ISO Technical Committee 207 on Environmental Management has its own Internet Homepage (<http://www.tc207.org>).

General perception held by the participants on Environmental Management Systems was rather a positive and a promising one, in the sense that it is considered to be a useful tool to improve overall environmental performance and regulatory compliance of companies. However, ISO EMS standard, even with certification by competent verifiers, will not by itself ensure regulatory compliance. There was a general consensus that an EMS is only one of a number of voluntary approaches that are used to improve environmental performance and enhance regulatory compliance, and is a supplement to the existing system of laws and regulations.

It was expressed by some participants that an EMS must remain as a voluntary tool, and that governments must retain a primary responsibility for developing, enforcing and receiving regulatory requirements for legislative needs. However, a suggestion was made that governments could play a facilitator-type of role in supporting the auditing/certification aspect of ISO EMS standard.

Due to lack of, or limited hard data and accurate measures on physical-based environmental performance of EMSs, many participants felt that any regulatory relieve based on ISO EMS certification at this moment is not a feasible option. One delegate went further to question the need of providing government incentives, expressing that “since ISO EMSs are a market-driven system, the market should take care of the future course of EMSs.” In any event, the participants agreed that how this particular management tool could effectively fit into the overall framework of improving environmental performance in the country is a challenge facing governments.

### ***Major Benefits of EMSs***

During discussions, participants identified a number of potential benefits of EMSs that may result in better environmental performance by industry. Almost all seemed to agree that a well functioning EMS in a company may bring the company to perform at a level that is beyond the minimum environmental requirement delineated by the government for regulations. At the same time, they recognised that there are substantial benefits to businesses implementing EMSs and applying for certifications as well. For instance, a company can enhance its image by demonstrating its ability to deal with environmental issues, and by rising its employees’ environmental awareness.

Another possible benefit was that such pro-active attitudes taken by companies toward environmental issues by adopting EMSs could by itself facilitate communications between industry and governments and regulatory authorities. A Dutch example was given to support this point that those companies in the Netherlands certified to ISO 14001 retained a higher awareness of the problems faced by the regulators in dealing with the environmental performance of companies. Finally, the delegates seemed to share a common understanding that if an EMS becomes a common feature of daily business operations, this may create a flexible climate where governments have more room to demonstrate the benefits deriving from various enforcement actions and possibly ease those particularly strict environmental requirements sometimes imposed on companies.

Other advantages for major transnational companies include justification (because of EMS certification) for reduced government environmental oversight and control, public relations and motivation for the work force, etc. An example of this was presented at the Special Session by the Groupe Danone “*Groupe Danone’s strategy on the adoption of ISO 14000 and EMAS*”, world’s largest dairy products and biscuits maker. Less apparent are these standards’ specific environmental impacts. However, these should become more clear over time as governments support the diffusion of these broad-based standards, and more importantly, as they apply these standards to public administrations themselves.

### *Issues Related to the Development of Standards*

Ensuring the effective development of these standards raises the important issue of the nature of stakeholder representation in the standard-setting process. Many fear that elevated development and expert costs may prevent many stakeholders (among which developing countries and small business interests) from being able to adequately participate in the process. This lack of broad-based participation has the potential to lead to biased and / or discriminatory standards which, in turn, would preclude their broad adoption and ultimate usefulness, a point which was strongly stressed by the World Wide Fund for Nature (WWF) in its presentation “*Environmental NGO’s perspective on environmental management systems.*” It stated that environmental matter is a public policy issue and involves a greater number of stakeholders. Therefore, any standard development processes dealing with environmental issues must involve and be transparent to the public concerned. ISO 14000 meetings, as WWF pointed out and also mentioned in the background paper, are rarely attended by developing countries due to their lack of funds and expertise.

*Accessibility* and *transparency* of the information provided by an EMS are also very important, and the participants expressed the need for ensuring that information provided by companies is indeed reliable. In this context, as presented by the European Commission, EMSs under the European Union’s EMAS Regulation has a requirement to publish a verified environmental statement that discloses to the public a company’s objectives and achievements towards environmental protection.

Of the numerous issues addressed and discussed at the Special Session, the most frequently mentioned barrier to the effectiveness of ISO EMS was the *inadequacy of its certification process.*<sup>2</sup> This was also linked to the issue of developing countries and small businesses which are generally disadvantaged or faced with difficulties in getting EMS certifications. Some participants, in particular, the WWF and the Business and Industry Advisory Committee to the OECD (BIAC) expressed that there is clearly a need for the clarification of the notion that certification in itself does not give a company superiority in its environmental performance. Many felt that opportunities provided by the EMS certification must prove itself through the market, and again, governments in furthering the EMS development in companies should play a role of facilitators. The notion of using EMS certifications as a leverage in the context of government procurement, was also mentioned in the closing discussion.

Also, the participants in general recognised the issue of SMEs as an important item to be considered since the SME sector plays a very important role in the global economy. For example, while certification costs could be prohibitive for developing countries and SMEs, they can be more readily covered by larger companies more able to link EMS implementation to existing processes for quality standards such as ISO 9000. This point was supported and further elaborated by Dr. Ruth Hillary of the Imperial College in her presentation “*Small and medium sized enterprises and ISO 14001: what are implications?.*” Issues facing SMEs are very similar to those encountered by developing countries, in that much of these companies lack the financial resources and properly trained personnel to adequately digest and implement ISO EMSs. In her presentation, Dr. Hillary claimed that any SMEs would never use the standard and some would develop inappropriate systems as a result of pressures through a supply chain to adopt ISO EMSs. If these small companies were to be encouraged to pursue ISO EMS or EMAS, they would require assistance. In relation to this, some delegates reported their on-going activities in providing such assistance to SMEs in their countries.

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<sup>2</sup> The issue of ISO 14001 certification was a focal point of many of the presentations, in particular, those by WWF, UNCTAD, and Dr. Hillary Ruth of the Imperial College.

### **3. Conclusions and Outcomes of the Special Session**

In the course of discussion, the following key points were identified.

- An EMS is a voluntary approach that is used to enhance regulatory compliance with the intent of improving environmental performance.
- Governments could play a facilitator-type of role in supporting the auditing / certification aspect of ISO EMS standard.
- An EMS provides a measure for an organisation (with a noticeable exception for the EU's EMAS Regulation), but how this management tool can fit into the overall framework of improving environmental performance of companies, remains an important issue to be examined.
- Pro-active attitudes taken by companies toward environmental issues by adopting EMSs could by itself facilitate communications between industry and governments and regulatory authorities.

The concluding session acknowledged that this was still an early assessment of the implications of this particular EMS international standard; certainly too early to draw any specific conclusions about whether or not EMS / certification will become an effective environmental management tool in the business community. Nevertheless, PPCG agreed that the issues related to EMSs should be discussed in its regular meetings, and underlined the need for a further exchange of information and review of experiences on actual implementation of EMSs.

Therefore, as this was also indicated in the background paper, OECD Member country governments may want to continue play an important role in the development and implementation of EMSs in light of the positive effects such standards may have for the environment, business and trade. In particular, they are to ensure that:

- standards are developed through adequate stakeholder representation and participation;
- ISO 14001 certification may effectively indicate a measure of objective environmental performance;
- appropriate support mechanisms (including financial) are established so as to support the development and implementation of EMS standards by SMEs and developing countries; and,
- information on the development of standards is diffused in a timely, transparent and cost effective way (i.e. Internet, etc.)

#### ***The Role of OECD***

The participants of the Special Session developed a number of recommendations on the role of OECD/PPCG and the tasks of the Secretariat:

- To explore how concepts such as life-cycle consideration, private stewardship and pollution prevention, are taken up voluntarily by companies in the course of developing EMSs, and how this action might be associated by the government.

- To examine how the adoption of EMSs affects the environmental performance of companies and how governments can play a role in affecting such adoption.
- To look into what extent an EMS by itself provides an appropriate platform for extending environmental performance of companies in the areas of product development and design.

PPCG also recommended that a monitoring exercise for the implementation of ISO 14001 EMS standard should be carried out on an ad hoc basis. It is anticipated that given the business-oriented approach, the ISO EMS may help capture *eco-efficiency* through promoting resource use reduction and enhancing productivity. The term “eco-efficiency” describes the efficiency with which ecological resources are used to meet human needs. It is a concept that is being promoted amongst the business community world-wide.<sup>3</sup>

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<sup>3</sup> OECD Environment Directorate has carried out some work on eco-efficiency, and thereafter, has published a report, entitled *Eco-efficiency*, in March 1998.



**BACKGROUND PAPER:**

*Review of the Development of International  
Environmental Management Systems  
- ISO 14000 Standards Series -*

## 1. Introduction: Policy Integration through Regulatory Reform

Today, most OECD Member countries are engaging in ambitious regulatory reform programmes aiming to improve economic efficiency while increasing public management effectiveness. These same countries are tackling ever more complex environmental issues as they strive to achieve environmentally sustainable economic systems. Hence, environmental policies appear to offer considerable opportunities for reaching these two objectives. Increasing attention is being paid to the use of both economic instruments and voluntary approaches to achieve environmental policy objectives. While the former have been the subject of considerable theoretical and practical analysis, a close examination of the latter is still relatively recent and scarce. Even work conducted by the OECD mostly concerns the use of economic instruments for environmental policy purposes. Recently, however, voluntary approaches have been coming under close scrutiny and their considerable variety is starting to be explored in a systematic way (see the bibliography for further references on these issues). In particular, the role of international voluntary standards development appears to offer especially promising opportunities both for the attainment of environmental policy objectives and to avoid international trade disputes on environmental grounds. Key to the success of standards in reducing environmental impacts is the way in which governments anticipate and address the environmental effects of regulatory reform as highlighted in the OECD's Report on Regulatory Reform.<sup>4</sup> Following-up on this conclusion, this paper aims at examining the development and role of management standards for the environment so that delegates to the OECD Group on Pollution Prevention and Control may evaluate the policy opportunities offered by such a voluntary process.

While the introduction has simply described the policy-making framework within which this new and original set of standards are being devised, the next chapter will very briefly illustrate the issues raised by international standard-making activities taken in their generality. The third chapter aims at describing the issues at the heart of environmental management systems development (namely, that of stakeholder participation and of benefits for the environment). Finally, the fourth chapter examines how these standards are being implemented.

## 2. Major Functions of International Standards

Environmental Management Standards (EMS) are but one of a variety of standards helping to organise business interactions in a complex and ever changing global market. As such, EM standards share many broad features of international standards in general. The scope of this paper only allows a summary review of these features. A detailed analysis of advantages and disadvantages of voluntary or mandatory international standards has been conducted through the previously mentioned OECD work on Regulatory Reform.<sup>5</sup>

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<sup>4</sup> OECD, 1997; and on how these effects were tackled in other policy areas, Vogel, 1996.

<sup>5</sup> Also important is SG/DNME/TC(97)3's discussion of the effects of product standards, conformity assessment, and regulatory reform.



### *Trade Facilitators*

As highlighted in a number of works on the subject, standards play an essential role in supporting economic activity. They convey **structured information** to both producers and purchasers concerning the characteristics they may expect of a product, system, material, methodology or production process. In practice this means that standards can express market-demand and, by doing so, communicate this demand to producers. It also implies that, through standards, producers can operate and provide the information needed for purchasers to express their choices in terms of quality, function and performance characteristics of the products, processes or services. Few aspects of economic activity are not concerned with standards.

Most product and process related standards are established internationally by the International Organisation for Standardisation (ISO). For example, the film exposure sensitivity is measured according to an ISO scale. Similarly the FAO/WHO Codex Alimentarius Commission<sup>6</sup> establishes norms for food products, the International Telecommunications Union (ITU) for telecommunication systems, and the International Electrotechnical Commission (IEC) for electrical and electronic engineering. Furthermore, accounting practices are codified by the International Accounting Standards Committee<sup>7</sup>, while the exchange of data on chemical testing are made in accordance with OECD guidelines (Test Guidelines, GLP Principles and Compliance Monitoring). The harmonisation of standards is also achieved through regional organisations such as the Comité Européen de Normalisation (CEN, the European standardisation committee), or the Comité Européen de Normalisation Electrotechnique (CENELEC). All these activities are generally co-ordinated at the national level through organisations such as the American National Standards Institute (ANSI), the Association Française de Normalisation (AFNOR), etc.

Not only do standards play a key role in facilitating transactions on the market place, since they **reduce transaction costs**, but they are also key in ensuring **technical compatibility** amongst products (e.g. between the camera and the film), and their operational connectivity (e.g. colour television standards PAL, SECAM, NTSCM or computer software standards). As highlighted in *Armonizzazione Tecnica e Liberalizzazione degli Scambi* (Technical Harmonisation and Trade Liberalisation, Lunati<sup>8</sup>, 1995), standards allow for increases in the supply of goods by expanding available markets, which causes the most competitive companies to reach for considerable **economies of scale** (the automotive industry provides a good example).

### *Warrantors of a Level Playing Field*

By ensuring that all enterprises providing a product or service do so within a verifiable and measurable set of technical or professional norms, standards can level the playing field in areas of collective concern ranging from public health, safety, environment and product/process/service quality. In this way, a number of standards become mandatory either as an expression of regulatory intention or, more spontaneously, through the interplay of market forces (i.e. technical regulations and “de facto” mandatory standards).

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<sup>6</sup> <http://www.fao.org/waicent/faoinfo/economic/ESN/codex/codex.htm>

<sup>7</sup> <http://www.iasc.org.uk/>

<sup>8</sup> Mrs. Lunati is our colleague in DEV who generously provided much of the underpinning economic analysis.

As pointed out during the recent “Workshop on Trade Policies and Trade Relations: Regulatory Reform and International Market Openness” (Paris, 2-3 December 1997), these characteristics contribute to making standards essential **drivers of the global economy**. In the absence of standards, cultural and economic diversities and the lack of co-ordinated institutional frameworks would lead to reduced efficiencies in the global market. Standards may help bridge the increasing distance between the producer of a product and its consumer whether this distance depends on geography or on information asymmetry. In this sense branding is also considered as a particular form of standardisation: an identically predictable product or service can be expected all over the world (e.g. Holiday Inn’s etc.).<sup>9</sup>

### *Limits and Potential Drawbacks to International Standards*

Standards are almost always developed so as to respond to certain practical concerns relating to the variability of products or processes on the market. As indicated in the previous paragraphs, responding to these concerns can contribute positively to the global economy, particularly if the standards are international thus avoiding a multitude of different national requirements which may effectively segment markets.

However, in certain cases avoiding such differences may be difficult (e.g. specific national perceptions of risks). These cases reflect deeply imbedded cultural traditions or religious beliefs, or, even more simply, different climatic “realities.” Typically this is the case for environment related standards. Not only do they reflect different viewpoints on environmental issues, but they are based on radically diverse local physical environments generating unique sets of issues.

Similarly, at a company level, many marketing strategies are entirely based on a deliberate segmentation of the market. Such strategies require that certain 'elements' of the product or service have sufficient degrees of liberty to cater for 'original' if not entirely distinct solutions. In this case, technical harmonisation may be a barrier to product and process development. Conversely, businesses may be tempted to impose their standard in order to exclude competitors -- who cannot meet the standard -- or else to capture potential economies of scale before competitors.

Hence, the greatest challenge encountered by international standard-makers is -- in many ways - - similar to that which faces policy-makers as they devise rules or guidelines: to achieve next to 'universal' validity while maintaining sufficient flexibility to accommodate for local specifications. Standards themselves may be a reflection of a market sector, too. The fact that voluntary standards are usually written by volunteers, means that a certain level of implicit agreement exists before the standard is ever put on paper.

In conclusion, whether voluntary or mandatory, standards generally support international trade by reducing transaction costs and ensuring technical compatibility, which in turn liberates considerable economies of scale. However standards also can introduce considerable distortions to economic efficiency by:

- limiting or distorting competition;
- preventing market access of (foreign) competitors; and
- limiting technological innovation.

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<sup>9</sup> Hine, 1995.

Economic evaluations of distortions caused by standards are hard to make. In fact, rigorous cost-benefit analysis of standards are very rare. The evaluation of standards, however, indicates that these costs are real and should be dealt with.

### *Evolution of Standards*

To address some of the fore-mentioned limitations, standards have progressively evolved. Preference is increasingly given to **performance standards** -- i.e. providing measurable system descriptions -- over **design standards** -- i.e. strict technical prescriptions. This means that instead of detailing the characteristics of a product or a process, and locking possible outcomes into a very rigid solution, standards provide a technical performance framework within which a variety of economic results can be devised.

In recent years, much attention has been paid to concepts such as Total Quality, Total Quality Management, and Lean Production, that have resulted in a very consistent number of publications. Such activity has underlined the notion that the quality of an economic output is closely linked to the quality of the economic organisation providing the good. In parallel, standard-makers' attention has shifted towards '**generic standards**'<sup>10</sup>. Generic standards are also described as 'behavioural standards': they determine the *process* an organisation should develop, and follow, to achieve a certain qualitative performance. The principal advantage of this type of standard is that performance levels are set by the organisation implementing the standard, through internal and external dialogue. Such has been the case for the ISO 9000 series on Quality Management Standards.

### *Conformity Assessment and Certification*

Both voluntary and mandatory standards are of use in the market-place only if they are used by organisations operating in the market. "Conformity assessment" is the process which enables these organisations to effectively demonstrate that the product, process or service provided does indeed reflect the standard's requirements. In brief, conformity assessment ensures that a standard is effectively applied by an organisation.

There are two major types of conformity assessment:

- **self-declarations** which consist in an organisation's unilateral assertion of conformity. In this case, an organisation autonomously decides to take all the steps necessary to verify that a certain standard is effectively applied either by using its own internal resources or by calling for external verification (i.e. through an internal or external laboratory, internal or external audit etc.). This form of self verification can be accompanied and reinforced by independent controls such as those provided by, for instance, consumer organisations or public sector surveillance organisms.

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<sup>10</sup> The term generic means that the standards' requirements can be applied to any organisation, regardless of the product it makes or the service it provides.

- **independent verification and certification** as a pre-requisite for a company or organisation to access a certain market (e.g. product safety requirements, financial auditing, etc.). The *de facto* mandatory nature of these controls may derive from "best-practice" professional customs which either ensure enforcement control, or provide a rationale for members to abide by the standards.

Whenever national or regional standards differ from international standards, conformity assessment may generate a separate set of costs for companies seeking certification (e.g. by imposing additional control costs, delays, etc.). Hence conformity assessment, when based on a qualitatively unjustified standard, may simply mask protectionist aims. However, an evaluation of these costs is very difficult to establish and probably varies enormously from one sector to another. As a matter of reference, the automotive industry evaluated the costs of compliance with regulation at 10% of design and development costs (they did not provide any estimate for the benefits).<sup>11</sup> What is certain is that conformity assessment requires infrastructure which, particularly in the initial implementation phases of a standard, may not be evenly available across the globe, thereby penalising those companies that are the furthest away.

### ***Public-policy Role***

As pointed out earlier, one of the principal conclusions of ongoing works examining standard-setting is that by promoting a globalised economy, standards -- particularly if international -- offer a number of clear economic advantages. Conversely, if standards are not used correctly, they can hamper competition and limit international trade. These characteristics derive from the very nature of standards as **both private and public goods**.

The private nature of standards derives from the fact that they are established voluntarily by private organisations with the objective of facilitating commercial transactions on a technical basis. Private organisations bear the costs of developing standards (these being generally greater for the development international standards). In some cases, the standard can be exclusively private, as when an organisation holds proprietary rights over the technical standard (e.g. the Music Compact Disk standard produced by Philips). In the case of most international standards, these are made available on an equal footing so as not to exclude any economic players.

The public nature of international standards is based on the fact that they aspire to constitute a reference for all economic actors ('universal validity'). Hence they should be easily available at a very low cost so that they do not generate any distortions between competitors. More importantly, many standards affect the technical characteristics of products, processes or services in areas that have major public policy implications. The technical quality of goods can affect, for example, their public safety and health performance, or their ability to satisfy national defence requirements. Similarly they also affect environmental performance.

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<sup>11</sup> SG/DNME/TC(97)3, p. 41.

### 3. International Standards for Environmental Management: an Evolutionary Perspective

#### *Background*

Rising public awareness and concern about environmental problems (and the ensuing change in consumption patterns<sup>12</sup>) has led businesses to improve their environmental performance -- or give the appearance of doing so -- in order to gain or retain market share for their products and services. As a result, many companies are re-evaluating the environmental aspects of product design, production, packaging, distribution and disposal. In parallel, governments have sought to reduce the environmental impacts of their operations, and in particular, to reinforce their environmental policy objectives through the “greening” of their purchasing decisions. These twin concerns are driving the establishment of environmental standards and, in particular, standards promoting the applications of life cycle approaches such as eco-labelling and Life Cycle Assessment standards.

As indicated earlier, traditional standard making activity has mostly covered themes and provided structured information on issues that fall within the purview of private firms: products, processes, accounting, management systems, etc. For instance, the ISO 9000 series examines whether an economic organisation functions according to certain principles and, when certified, attests that these principles are being followed within the company. It is as much in the interest of clients to know their suppliers are indeed performing well on the organisational quality scale, as it for suppliers to be able to prove the same to their clients. In other words, the 9000 series is closely connected to the bottom-line of an economic organisation. Environmental management systems provide a new dimension. The environmental performance of an organisation is not entirely defined by the organisation itself: it is related to the specific social, economic, and natural “environment” in which it finds itself. Hence environmental management standards have much broader implications (many of which are, for instance, related to public health and safety issues) than traditional technical standards, i.e. measurement standards, or even the more recent management system quality standards as expressed through the ISO 9000 series.

#### *Standardising Environmental Management: the Short Story*

The first environmental management standard was developed by the British Standards Institution (BSI) in 1992 and was largely based on the ISO 9000 standards that dealt with quality management systems. The *BS 7750: Specification for Environmental Management Systems*, came as an extension of the ISO 9000 standard in order to cover the environment dimension of an organisation’s activities. *BS 7750* laid the groundwork for the voluntary Eco-Management and Audit Scheme (EMAS) developed in the following year by the European Union (see Annex A.2). This more comprehensive approach came into effect in April 1995. The developers of EMAS clearly intended that most of the practical requirements be resolved through voluntary standards (hence the scheme called for CEN, the European Standardising body, to develop the appropriate norms).

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<sup>12</sup> There are several studies demonstrating increased consumer interest for the environment, among which a particularly interesting and rich analysis can be found in: Rochefort, 1995.

In this context, the Business Council for Sustainable Development (BCSD)<sup>13</sup> was instrumental in promoting industry-consensus standards as, it proclaimed, a “means to improve *environmental performance* of companies” and in bringing this concern to the attention of the international standards development bodies. At the preparatory meetings of the UN conference on Environment and Development (UNCED) in Rio de Janeiro, the BCSD identified the need to develop international standards addressing *environmental performance* for the business community. It also approached ISO with the request that a strategic plan be drawn up to develop such international standards. The interest in voluntary environmental management schemes was also impelled by several other factors, including<sup>14</sup>:

- the need for industry and commerce to address their environmental impacts and to meet rising expectations for improved environmental performance in these sectors;
- the opportunity to extend the application of the Quality Management Systems (ISO 9000 series) approach to include environmental management; and the emergence of new environmental management tools to identify the environmental aspects of an organisation’s activities, products and services.
- the emergence of new environmental management tools to identify the environmental aspects of an organisation’s activities, products and services.

In order to support UNCED, ISO made a commitment to determine ways in which it might support the concept of “sustainable business development” through the standard-setting process.

As a result, ISO and IEC jointly founded an ad hoc group, the Strategic Advisory Group on the Environment (SAGE), in June 1991 in order to define environmental management standards. Its principal task was to investigate whether an international environmental standard could promote a common approach to environmental management similar to that of the quality management.<sup>15</sup> By the middle of 1993 SAGE concluded that there were indeed considerable reasons to develop international standards for environmental management. In its conclusions, the group stressed the role for environmental management standards to help settle international trade disputes centred around environmental concerns.

Furthermore, since international standards typically take precedence over regional or national standards, many transnational companies considered that ISO offered a unique opportunity to influence a process that had been initiated and was rapidly developing within the European Union -- and as a result, allegedly reflected only European concerns. Many feared that European-based companies would capture and distort the standard-setting process to their advantage. On a parallel front, companies concerned with the European domination of the EMAS process sought to influence the technical basis of the EMAS scheme.<sup>16</sup>

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<sup>13</sup> The BCSD is an emanation of the International Chamber of Commerce, ICC, later to become the World Business Council for Sustainable Development (WBCSD).

<sup>14</sup> “ISO/TC 207 Strategic Policy Statement” [ISO/TC 207 N137R].

<sup>15</sup> Tibor 1995.

<sup>16</sup> These statements mostly reflect the opinions expressed on the margins of ISO meetings by a number of participants, more than concrete technical proposals.

As a result of SAGE's deliberations, a new technical committee (ISO Technical Committee 207) was formed in 1994 to develop the series of international environmental management standards known today as the ISO 14000 series.

### **The International Organisation for Standardisation (ISO)**

Based in Geneva, Switzerland, the International Organisation for Standardisation (ISO) is a non-governmental organisation established in 1947. ISO, a name derived from the Greek word *isos* - or equal -- is a federation of national standards bodies representing some 120 countries. Altogether these countries are responsible for 95% of the world's industrial production. Because, as indicated earlier, standards facilitate trade and provide a technical benchmark for commercial transactions, export-oriented industries have long sensed the need to agree on international standards to help rationalise the global trading process. Hence the establishment of an international process for the making of standards follows from the fact that non-harmonised standards can result in *technical barriers to trade* known in the trade community as *non-tariff barriers to trade*.

In practice, ISO operates through a number of Technical Committees (TCs), each of which is responsible for a subject area that, needless to say, has strong technical components mostly linked to the manufacturing industry. The Committees draw on the expertise provided by those enterprises directly affected by the making of a standard (i.e. either as producers, users etc.) channelled through national standardisation bodies. So far, nearly 11 000 International Standards have been developed. Their nature is such that they are often described as being industry-driven or, somewhat more extensively, as being market-driven.

Proposals for the development of a new ISO standard must be developed and approved either by the members of an existing technical committee, whose scope of work contains the subject of the proposed standard, or by the ISO Technical Management Board (TMB) when there is no existing technical committee with an appropriate scope. Once a technical committee is established, and has had its scope approved by the TMB, it may establish sub-committees and working groups to carry out the work eventually leading to an "International Standard." Today, over 200 technical committees oversee the development and implementation of ISO standards on subjects ranging from TC 1 on 'Screw threads' to TC 211 on 'Geographic information/Geomatics'.

Once approved, following a procedure which will be described later in some detail, standards are made available to ISO member bodies to adopt or adapt as they see fit to cater for their national needs. Their major characteristic is that of being developed and adopted on voluntary basis. However, since they have become an internationally acceptable technical reference for the settlement of trade disputes, they are increasingly being perceived as "de facto" mandatory standards.

*ISO Technical Committee 207 on Environmental Management (TC 207)*

The mandate of Technical Committee 207<sup>17</sup> (TC 207) given by ISO's Technical Management Board (TMB) is the following:

Scope:	Standardisation in the field of environmental management tools and systems.
Excluded:	Test methods for pollutants. <sup>18</sup> Setting limit values regarding pollutants or effluents. Setting environmental performance levels. All forms of product standardisation. (Occupational health and safety issues.) <sup>19</sup>

In practice, TC 207, based on the recommendations of SAGE, is currently comprised of sub-committees (SC) in six areas and two working groups (WG) (see Figure 1), covering the following broad range of issues:

- SC 1 - Environmental Management System (EMS)
- SC 2 - Environmental Auditing and Related Environmental Investigations (EA)
- SC 3 - Environmental Labelling (EL)
- SC 4 - Environmental Performance Evaluation (EPE)
- SC 5 - Life Cycle Assessment (LCA)
- SC 6 - Terms and Definitions (T & D)
- WG 1 - Environmental Aspects in Products Standards (EAPS)
- WG 2 - Forest Management

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<sup>17</sup> TC 207 maintains close co-operation with TC 176 (responsible for the ISO 9000 series) in the field of environmental systems and audits.

<sup>18</sup> These are the responsibility of ISO/TC 146 (Air Quality), ISO/TC 147 (Water Quality), ISO/TC 190 (Soil Quality), and ISO/TC 43 (Acoustics).

<sup>19</sup> The international workshop on Occupational Health and Safety (OH&S) Management Systems standardisation was held by ISO in September 1996. It indicated, however, that there was little support from the main stakeholders of ISO to develop International Standards in this field. Although a need for the development of such standards may arise in the future, TMB decided that no further action should be taken at the present time to initiate activities within ISO in the field of OH&S management systems.



TC 207s activities reach much farther than “environmental management” as a function for the operations of a private or public organisation. For instance, establishing a standard for different types of ‘environmental labelling’ implies defining the institutional arrangements and conditions allowing for the attribution of such a label. Such a prerogative lies, in many OECD Member countries, with democratically elected governments and parliaments rather than with the private sector. This broad-based approach to environmental standard-setting is reflected in TC 207’s work on the ISO 14000 standard series.

### *ISO 14000 Environmental Management Systems (EMS)*

An EMS is defined under the ISO 14001 standard as: “the part of the overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy” (the standard’s *table of contents* is presented in the Annex A.1). ISO 14001 gives a set of criteria and their definitions to be included in any management system intended for certification under this standard. Further guidelines and principles were published in ISO 14004

ISO 14001 creates a framework for self-regulation at the company-level, with the emphasis on voluntary participation. It provides guidelines on how to implement six core elements or steps to establishing and maintaining an EMS: environmental policy - environmental planning - implementation and operation - checking and corrective action - management review - continual improvement. These elements are drawn together into a cyclical process known as the Deming Cycle (*Plan - Do - Check - Act*) aimed at ensuring **continual improvement** - a recurrent theme of the standard. Ideally, under this framework, a business defines its own environmental goals, monitors its own performance, and accepts a commitment to continually improve its environmental performance.

This notion of *continual improvement* has been defined as the “process of enhancing the environmental management system to achieve improvements in overall environmental performance in line with the organisation’s environmental policy.”<sup>20</sup> In this context, what is being improved is not the company’s *environmental performance* but, rather, the *processes* whereby the company seeks to improve its performance. Indeed, **ISO 14001 states that, “this [international] standard does not establish absolute requirements for environmental performance beyond commitment, in the policy, to compliance with applicable legislation and regulations and to continual improvement.”** This important distinction means that companies meeting the ISO 14001 standard need not display any actual improvements in environmental performance beyond those legally required by legislation or, alternatively, that two organisations carrying out similar activities but having different environmental performance may both conform with ISO 14001 requirements.

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<sup>20</sup> ISO 14001, Clause 3.1.

The developers of the standard explicitly intended that the lack of specific environmental performance objectives would allow organisations to take a gradual approach to implementing the 14001 standard based on their own capabilities (“an organisation can set up an EMS at a performance level at which it is capable of, and then progress from there using the principle of continual improvement”<sup>21</sup>). It is for the individual user of the standard to determine which of its activities have, or can have, the most significant impact on the environment and to set their targets for improvements in these areas. The objective is to give the organisation’s management and its customers confidence that the organisation is in control of the *way in which* it operates. Nevertheless, the fact that ISO 14001 is a generic management system standard that does not address specific performance issues on an objective basis is a difficult concept to convey to the public.

Here lies probably the greatest difference with the European Union’s voluntary Eco-Management and Audit Scheme. The basic requirements of EMAS Regulation are: to set up an EMS, to conduct environmental audits, and to issue a public environmental statement which must be validated by an accredited environmental verifier. The latter requirement -- **to publish verified environmental statement that discloses to the public an organisation’s objectives and achievements towards environmental protection** -- is fundamental to the EMAS and is what distinguishes EMAS from other management system standards such as ISO 14001.

*Progress to-date in Establishing the ISO 14000 Series*

All international standards are reviewed by the responsible sub-committees at least once every five years. The review process of ISO 14001 and ISO 14004 standards has been scheduled to commence in 1999.

The ISO 14000 family of standards comprises about two dozen standards. The first parts of the ISO 14000 series -- defining the elements of a sound EMS -- were published in the fall of 1996<sup>22</sup>. ISO 14001 has been regarded as the keystone document with the supporting documents as ISO 14004 (an in-depth guide), ISO 14010, ISO 14011 and ISO 14012 (guides to auditing in general and auditing management systems in particular). Most recently, the first LCA standard was also published in August 1997, after five years of international meetings and workshop activities.

Other standards still being developed, at the time of this writing, include environmental labelling, environmental performance evaluation, life cycle assessment, and the related terms and definitions.

STANDARD	SUBJECT	FUNCTION
ISO 14001	Environmental management systems	Specification with guidance for use
ISO 14004	Environmental management systems	General guidelines on principles, systems and supporting techniques
ISO 14010	Environmental auditing	General principles
ISO 14011	Environmental auditing	Audit procedures - Part 1: Auditing of environmental management systems
ISO 14012	Environmental auditing	Qualification criteria for environmental auditors
ISO 14040	Life cycle assessment	Principles and framework

21 Dixon, 1996.

22 Although it usually takes five years to develop a standard, the first five were completed within just 3 years.

### *Ensuring Effective Standards through Broad-based Participation*

Presently, membership of TC 207 is made up of 71 national standards bodies and 40 liaison organisations which represent special interests and also help to provide balance to the technical committee. (Annex A.3 contains a list of the TC membership). The national standards bodies pay for the operation of the individual technical committees in which they are involved. To give an idea of the cost of these operations, it is estimated that the operating budget of the Central Secretariat alone was in the order of SFr. 27 million (~ US\$18.3 million) -- this represents only about one-fifth of the total cost of financing the ISO administrative operations. However, the real cost of ISO's activities includes the value of the voluntary contributions of some 30 000 experts in terms of time, travel and organisation of meetings. While no precise calculation has ever been made to assess this knowledge-based contribution to the ISO work in figures, it is nevertheless certain that this expenditure amounts to several hundred million Swiss francs each year.<sup>23</sup> These costs are covered by the enterprises and organisations participating in the development of the standards.

Further costs are engendered by the travel and time requirements necessary for holding and/or attending sub-committee meetings. In 1996, TC 207 sub-committees had convened a total of 36 international meetings in places from Stockholm, London, Washington DC, to Rio de Janeiro. While the travel costs may be a big enough deterrent, another one is the volume of information that must be dealt with. In fact, **those who normally participate are those who can afford the expertise, the time and money to participate.** If a country or 'stakeholder' is not represented at all at the sub-committee and working group meetings, it cannot, obviously, influence the process. Similarly it cannot influence the process if the expertise is not available.

A few national delegations have clearly recognised and addressed this concern and are now comprised of experts from industry, government and other stakeholders with a direct interest. This was done in order to ensure that the standards reflect the requirements of the market players who will implement them. Achieving consensus amongst members of these delegations can become a difficult task (delegations can include over 40 people). At this stage, however, most national delegations do not reflect this intention, contrary to the ISO's own admonishment -- "participation in standardisation processes, at all levels, shall be accessible to materially and directly interested persons and organisations within a coherent process."<sup>24</sup>

The ISO process as a whole has not fully involved all countries or levels of business. In particular, the participation of developing countries and environmental NGOs in the development and the drafting work of ISO 14000 series has not been very substantive (though there has been some increase). A report by the World Wide Fund for Nature (WWF) International<sup>25</sup> claims that such participation stated in ISO rules is far from being implemented in environmental management standardisation process. It goes on to say that the current ISO procedures fail to reflect the interests of many stakeholders in environmental issues. This lack of broad-based participation in the standard-setting process, if left unaddressed, may adversely affect the future credibility and value of international environmental standards.

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<sup>23</sup> ISO 1997.

<sup>24</sup> ISO/IEC Guide 59, Clause 6.1.

<sup>25</sup> Hauselmann 1997, WWF.

#### 4. Implementing EMS Standards: Some Challenges

##### *In the Private Sector*

The establishment and maintenance of an effective EMS should enable an organisation to

- anticipate and meet growing environmental performance expectations;
- to ensure ongoing compliance with national and/or international environmental requirements; and
- to support the continual improvement of its environmental performance.
- In practice, the establishment of an environmental management system can also procure gains in economic efficiency as environmental and resource-based costs are reduced.

However, in a recent survey conducted by a UK-based certification body, of more than 500 companies operating in France, Germany, the Netherlands and the UK indicated that *external concerns* (such as compliance with legislation, improved market share, customer recognition and public recognition) were most responsible for convincing these companies to implement such EMS standards as ISO 14001 and EMAS.<sup>26</sup> The operational and economic improvements in their overall business performance that could potentially arise from EMS certification were viewed only as of secondary importance.

The survey also found that the least-considered motivating factor for implementing an EMS was the need to satisfy the company's shareholders, the local community, financiers and pressure groups. This finding ran contrary to the common belief that stakeholders' satisfaction was one of the principal reasons why companies would want to adopt an EMS standard. On the other hand, improved staff awareness of environmental management was indicated as the clearest benefit of going through the EMS process; other major benefits included reduced pollution, legislative compliance, reduced risks, less waste and better working conditions. On the whole, EMS certification seems to influence companies in redefining and/or redirecting their organisational priorities. As for the overall value of the standards, ISO 14001 was considered to be cost-effective by the majority of survey participants.

However, stating the poor link between ISO 14000 certification and absolute improvements in environmental performance, many companies are hesitant to seek certification without specific compelling reasons to do so. For instance the Japanese electronics company Fujitsu, based on its certification experience for one of its North American manufacturing facilities argues that "certification does not demonstrate performance; it only documents the fact that the facility has an [operative] EMS [conforming to ISO 14001]."<sup>27</sup> Consequently, the company prefers to seek ISO 14001 certification only when there are competitive reasons for doing so. Other firms seem to share this view and only seek certification when marketplace drivers, such as customer expectations, push them in that direction - i.e. the market dictates the path of these companies.

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<sup>26</sup> BATE's ISO 14000 Update, December 1996.

<sup>27</sup> "ISO 14000 - Industry Perspectives: Fujitsu" Pollution Prevention Northwest, June/July 1997.

Generally, the implementation of the ISO 14000 series appears to have been spreading more rapidly in some parts of the world (see Annex A.4 for the number of ISO 14001 certification around the world) relative to ISO 9000 at a similar stage in its development. In Japan, for instance, the number of certifications obtained quadrupled in the past year, and over 800 firms have been certified to the ISO 14001 EMS standard to date. These companies are mostly in the electric machinery industry (nearly 60%), but other industries such as transportation (including automobile-related industries), chemical and construction are also becoming active in the ISO 14000 implementation. Japanese firms are acquiring certification to the EMS at a rate twice that of certification to the quality standards in the early days of the ISO 9000 standards.<sup>28</sup> The nation's Basic Environment Plan established in accordance with the Article 15 of its Basic Environment Law, encourages the introduction of an EMS into companies as an effective tool to deal with environmental issues and specifies taking ISO into account.<sup>29</sup> Keidanren (Japan Federation of Economic Organisations), a private and non-profit business association representing over 1 000 corporations from virtually all economic sectors, has also appealed to Japanese industries, both manufacturing and non-manufacturing, that they "should utilise the standards as an effective means of environmental improvement."<sup>30</sup>

### Corporate Examples

1. Japan-based Sony Corporation states in its environmental report that the adherence to the ISO 14001 standard is a solid base for upgrading measures to deal with waste, energy conservation and pollutants-release minimisation, and for achieving other objectives. All Sony Group companies (manufacturing and non-manufacturing) are expected to obtain EMS certification (ISO 14001 and EMAS for EU-areas) by year 2001.<sup>31</sup>
2. Another US-based electronics giant, IBM Corporation has decided to seek one single, corporate-wide ISO 14001 certification - covering its headquarters and the operations at 28 IBM manufacturing, hardware development and research sites in 12 countries - by the end of 1998. IBM has facilities certified to ISO 14001 in UK and Japan and several others to EMAS.<sup>32</sup>

### *ISO 14000: Implementation in the Financial Sector*

Following a US-EPA meeting titled "Potential utility of the ISO 14001 EMS to the financial community" in 1997 and a UN-sponsored conference on finance and the environment in December of the same year, it was widely recognised that the financial sector has a significant role to play in implementing sound environmental management practices, and also has an important stake in the development and widespread adoption of the ISO 14001 EMS by industry.

<sup>28</sup> globeNet: <http://www.iso14000.net>

<sup>29</sup> The Basic Environment Plan, Environment Agency Government of Japan, 16 December 1994.

<sup>30</sup> "Declaration on Voluntary Action of Japanese Industry Directed at Conservation of Global Environment in the 21st Century", Keidanren, 16 July 1996.

<sup>31</sup> Sony Environmental Report 1997.

<sup>32</sup> IBM Environmental Annual Report 1996; Nikkei Sangyo Shinbun 15 July 1997; ISO 14000 Update, January 1998.

In a recent report, however, a small group of commercial and investment bankers, bank regulators and bank trade associations in the US seemed to show a very little enthusiasm for endorsing or actively promoting industry's adoption of the ISO 14001 EMS standard. **The underlying reason for their wait-and-see stance comes from the lack of a methodology for quantitatively relating environmental performance to financial risk.** This particular group of banks view activities devoted to obtaining environmental performance information as overhead and as ultimately dispensable in an increasingly competitive business environment.<sup>33</sup>

Some European banks are also feeling indifferent about using ISO 14001 EMS as a credit evaluation tool. ING Group of the Netherlands, for instance, consider ISO 14000 to be **insufficient due to its non-performance-based nature.** The bank together with five other leading European financial service firms are currently developing a system specific for the financial services sector-use based on EMAS Regulations. This system, tentatively called the financial EMAS or "FEMAS", would cover ISO 14001 EMS regulations but would also go farther to include performance requirements.<sup>34</sup>

The likeliness of the ISO 14001 EMS standard eventually becoming an integral part of the world-wide standard credit evaluation process is rather slight, but such trend might be realised at the regional or national-level. It is important that the linkage between environmental and financial performance is clearly demonstrated first. Only then, ISO/EMS might serve as a positive indicator for those company clients which are certified. The standard might also serve as a signalling device, whereby warranting non-certified companies additional environmental scrutiny as part of the credit evaluation process.

### ***Conformity to ISO 14000***

TC 207 claims that the ISO 14000 standards take into account the problems of industries in lesser developed countries and those of small companies by offering a gradual, baseline approach to managing environmental systems. However, the prospective costs of compliance with ISO 14000 standards may be relatively high for SMEs, developing countries and economies in transition. This is especially so, if they must rely on the services of overseas consultancy firms.<sup>35</sup>

### ***In Developing Countries***

At the fifth ISO/TC 207 plenary, a record increase in participation by developing nations, of which some were sponsored by the Dutch standards organisation and by the Swiss government, was observed (with Mongolia participating for the first time). More than one-third of the 70 national delegations represented on TC 207 are from developing countries.<sup>36</sup> Although this reflects a strong evidence of their growing awareness of the importance of the 14000 series to their economies and environmental performance, this awareness is not being equally shared by all geographical regions.

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<sup>33</sup> Mary McKiel, US-EPA, 1997, personal communication with M. Hayashikawa.

<sup>34</sup> Pieter M. Kroon, ING Group, 1997, personal communication with M. Hayashikawa.

<sup>35</sup> UNCTAD 1997.

<sup>36</sup> While all developed countries have membership in the ISO, only 50 developing countries are full members. 25 of them have voting rights in TC 207.

The difficulties faced by developing countries in formulating national environmental policies are significant, while the associated costs and benefit of ISO 14001 are still difficult to predict. A study done by UNCTAD (1997) indicated that companies in developing countries are generally brought to implement EMS in order to demonstrate conformity to legislation and to meet foreign environmental legislation and/or customer expectations. Finally, some firms in developing countries may seek ISO 14001 certification as a business tactic to increase export competitiveness and strengthen market positions, even in the absence of explicit pressure from their foreign markets.

Malaysia, for example, being an exporting country, considers ISO 14000 series as an important element in order to remain competitive in today's global market place. ISO 14001 has been implemented on a voluntary basis by large multinationals, mostly due to requests by their parent companies of other nations (US, Japan, etc.). The Malaysian government focuses its ISO 14000 activities on the industrial sector, especially in the categories of electrical and electronic products which account for 65.7% of the total revenue.<sup>37</sup>

In principle, the adoption of international standards should favour international trade and provide for an international level playing field. However, analysis carried out by the Secretariat<sup>38</sup>, confirmed that the concerns relating to the market-distorting potential of standards remain valid for the development of environmental management standards in developing countries. In particular, UNCTAD considered that the scarce participation of developing countries in the development of the standards may have negative effects on their trade interests, particularly if these result in *de facto* mandatory standards accompanied by elevated certification costs.

#### ***The Concerns of Small and Medium Sized Enterprises (SMEs)***

ISO 14001 was developed so that "any organisation, regardless of type, size, or region can apply (it)". To verify whether these ambitions were effectively attained, a team was formed at the 4th Plenary meeting of TC 207 in Rio de Janeiro to monitor the application of the standard to SMEs. Ten countries, belonging to all geographic areas except Africa, surveyed and reported on the implementation of the 14001 standard. Presentations of the preliminary results were made at a special workshop on SMEs. The studies generally provided a healthy "reality check," since standard-makers were verifying the validity of their own product. Surveys agreed that:

- the "lack of financial resources" was the greatest barrier to the adoption of the standard by SMEs; and,
- the "lack of properly trained personnel" was a close second hurdle.

The Mexican and UK surveys also reported that SMEs were principally reactive to environmental regulations, and that broad adoption of the standard would require simple, manageable and economical environmental management system requirements. This is because small and medium sized enterprises generally have limited available managerial resources to tackle environmental issues, which therefore need to be as straight-forward as possible.

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<sup>37</sup> Koh 1996.

<sup>38</sup> TD/B/COM.1/EM.4/2, 19 August 1997.

Subsequent analysis sometimes diverged: while Mexico and Brazil asked for a more precise and detailed standard that would avoid dependence on external consultants, the US, on the other hand, concluded that greater flexibility of the standard was needed so as to avoid having a consultant in the first place. No estimate was made on how these different approaches could affect the environment. Participants saw that governments could take up the role to support the diffusion of the ISO standard by financing the consultants in charge of the standard's diffusion. Austria provided the best example of how this should happen: since April 1, 1995, US\$ 4 million have been set aside per year to support SMEs wishing to register for EMAS. Support ranges from 15% to 50% of the project costs depending on the size of the company or on the number of employees.

In conclusion, the issues facing small and medium sized companies are very similar to those encountered by developing countries and examined above. Some of the solutions may, however, be different: the development of detailed 'guidances' could solve a number of the problems faced by SMEs.

### *EMS Standards and Public Policy*

OECD Member country governments have been considering EMS standards from two very different points of view, namely:

- as a process to complement regulatory approaches with voluntary ones with industry; and,
- to a lesser extent, as an instrument to implement environmental management practices within public institutions.

Reflecting the former objective and concern, local German authorities have begun to ease administrative enforcement requirements on EMAS certified sites.<sup>39</sup> This policy has a further positive effect in that it frees control resources and enables to concentrate efforts on non-EMAS certified sites. Many Asian countries have government funded ISO 14000 support programmes already in place<sup>40</sup>, and some of them are hoping that in the long run, an ISO 14000 system will assist them in monitoring industry. Of these countries, Singapore, Thailand, Taiwan, Korea, Japan and China also offer technical or financial assistance to companies taking up ISO 14000. The US-EPA has also been very actively involved -- through its participation in the US Technical Advisory Group (TAG) for ISO/TC 207 -- in the development and the drafting of all key documents in the ISO 14000 series. The US Technical Advisory Group is also running a series of pilot programmes to incorporate voluntary action into alternative compliance approaches. Some pro-active countries had their pilot projects put in place prior to the official publication of ISO 14001, to prepare their national certification bodies and industry for a quick implementation of the standard.

Local government administrations are also taking a number of measures to promote the use of ISO 14000. In Japan, for example, Kanagawa Prefectural government, a leading proponent of environmental administration in the country, issued an *Ordinance on Conservation of Living Environment* which contains new incentives for company sites certified to ISO 14001. The Ordinance allows these company sites to be exempted from frequent inspections and reporting requirements.<sup>41</sup>

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<sup>39</sup> Rubik, 1998, personal communication with C. Pessa

<sup>40</sup> These countries include: Japan, China, South Korea, Taiwan, Hong Kong, Thailand, Malaysia, Singapore, Indonesia, Vietnam, and Sri Lanka.

<sup>41</sup> Yano, Tomosaburo 1998.



**Case 1: United States**

US-EPA is considering ways to incorporate ISO 14000 into its Common Sense Initiative, which aims to develop regulations that address *multi-media* permitting for specific industry sectors. ISO 14000 might also become a benchmark for its recently launched Environmental Leadership Programme, which seeks to recognise and reward business leaders who have initiated proactive programmes. US-EPA will waive routine inspections when companies can prove they have a programme in place to meet environmental standards. ISO 14000 certification could be a basis for judging the adequacy of a company's compliance programme. Meanwhile, industry representatives are also seeking US-EPA to take certification into account when issuing fines and sentencing guidelines.

**Case 2: Switzerland**

The Federal government of Switzerland is considering reinforcing its current procurement guidelines to favour products and services which are environmentally sound, as well as suppliers who have EMSs installed. In its Strategy Plan for a sustainable development in Switzerland (1997) the Federal government proposes to promote the introduction of effective EMS by favouring high standards in both product quality and training (used in conjunction with technical specifications for products). The plan, however, does not require suppliers to obtain certifications to ISO 14001 (the most widely used EMS standard in Switzerland), EMAS or BS 7750. This is to take into consideration those SMEs that lack financial resources to apply for a certification.

As part of efforts to support initiatives to improve the environmental performance of their governments, and implement the OECD Council Recommendation [C(96)39/FINAL] to that effect, a number OECD Member countries are conducting activities which include the design and implementation of EMSs in government agencies<sup>42</sup>. Examples include:

- The North **Holland** Regional Directorate of the Ministry of Public Works in the Netherlands already had instituted many environmental guidelines for their operations, but lacked a systematic approach. With the help of a local environmental consulting group, this regional directorate is working to implement an EMS in accordance with ISO 14001 standard. Whether or not the directorate will apply for certification to the ISO 14001 EMS is not yet certain at the time of this writing.
- The **United States** Environmental Protection Agency (US-EPA) has set up an ISO 14000 Policy Group, an internal group, to develop proposals to promote the role of ISO 14001 in furthering compliance and enforcement programmes. The agency has launched several pilot programmes to ascertain the overall benefits of EMSs based on the ISO 14001 standard so that regulatory schemes can incorporate them in appropriate and constructive ways. The Office of Wastewater Management at the US-EPA has made partnership with eight States to test and evaluate the effectiveness of EMS based on the ISO 14001 standard. This Office is also working with the US-EPA's Office of

<sup>42</sup> OECD Workshop on "Environmental Management Systems for Government Agencies", 14-15 January 1998, in Stockholm, Sweden

Compliance to test and assist the EMS implementation concept among nine *local governments* in the US. This pilot project is based on the assumption that the public sector is also faced with the same resource shortages and constraints found in the private sector. These projects have also been a useful way to collect solid data as to how EMS implementation affects the overall operations.

- The **Swedish** Ministry of the Environment has embarked on a one-year pilot project to promote the integration of EMS into government operations in January 1997. The Ministry provides guidance to the 25 national government agencies selected for this project in setting up their own EMSs based on the provisions of EMAS and ISO 14001. They hosted a number of educational seminars and workshops on policies seeking to reduce environmental impacts. Certification to EMAS or ISO 14001 is not mandatory but remains as an option for those agencies that find such certification necessary or useful. A similar pilot project for the national ministries has also been scheduled to commence in the same year.
- **Non-OECD Member countries** are also moving ahead with the implementation of EMS into their government operations. The Chinese government, for example, is very active in experimenting with the implementation of the ISO 14000 standards and has indicated an interest in eventually incorporating the standards into the country's regulatory structure. The Chinese National Environmental Protection Agency has initiated a pilot certification in some of the major Chinese cities. The country expects that the adoption of ISO 14000 standards will strengthen the government's supervision of companies' environmental management and improve the companies' competitiveness in the global market. While adopting the standard is currently voluntary, one can imagine the potential improvement in public awareness of environmental protection if even one fraction of the 8 million government-run and private industries were to adopt the ISO 14000 standards.<sup>43</sup>

## 5. Conclusions

Environmental management systems are increasingly being used by private and public sector organisations, and the trend is now well established. These systems are being implemented on a voluntary basis so as to assist organisations in setting and monitoring their commitment to environmental performance. As a consequence, international environmental management standards may hold an important role for public policy purposes since their major objectives are:

- to create an internal mechanism for achieving commitments to improved environmental performance;
- to provide enterprises with guidance on how to incorporate their environmental objectives and regulatory obligations into a management system; and,
- to facilitate competition by defining a level playing field.

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<sup>43</sup> globeNet: <http://www.iso14000.net>

By providing this role, international environmental management standards may help bridge more traditional command-and-control approaches with the flexibility and efficiency provided by a system approach to environmental performance. ISO 14001 serves as a voluntary archetype for this approach. Performance levels will rely on the environmental objectives of the organisation implementing the standard. At a minimum, ISO 14001 certification (or self-declaration of conformance to ISO 14001) requires a commitment to environmental regulatory compliance. Once sufficient data has been gathered from various EMS pilot projects which can substantiate a linkage between certified EMS and superior environmental performance, authorities may wish to re-allocate some of their inspection and control efforts towards organisations that are not ISO or EMAS certified.

As pointed out in this review of issues generated by the development and implementation of international management standards, many of these **expected benefits will only be obtained if**:

- standards are developed through adequate stakeholder representation and participation (i.e. including environmental and consumer organisations, developing countries, small and medium sized business interests);
- ISO 14000 certification may effectively indicate a measure of objective environmental performance;
- appropriate support (including financial) mechanisms are established so as to assist the development and implementation of EMS standards by SMEs and developing countries; and,
- information on the development and the use of standards is diffused in a timely, transparent and cost effective way (i.e. Internet, etc.).

**Figure 1a. TC 207 Sub-committees and Working Groups**

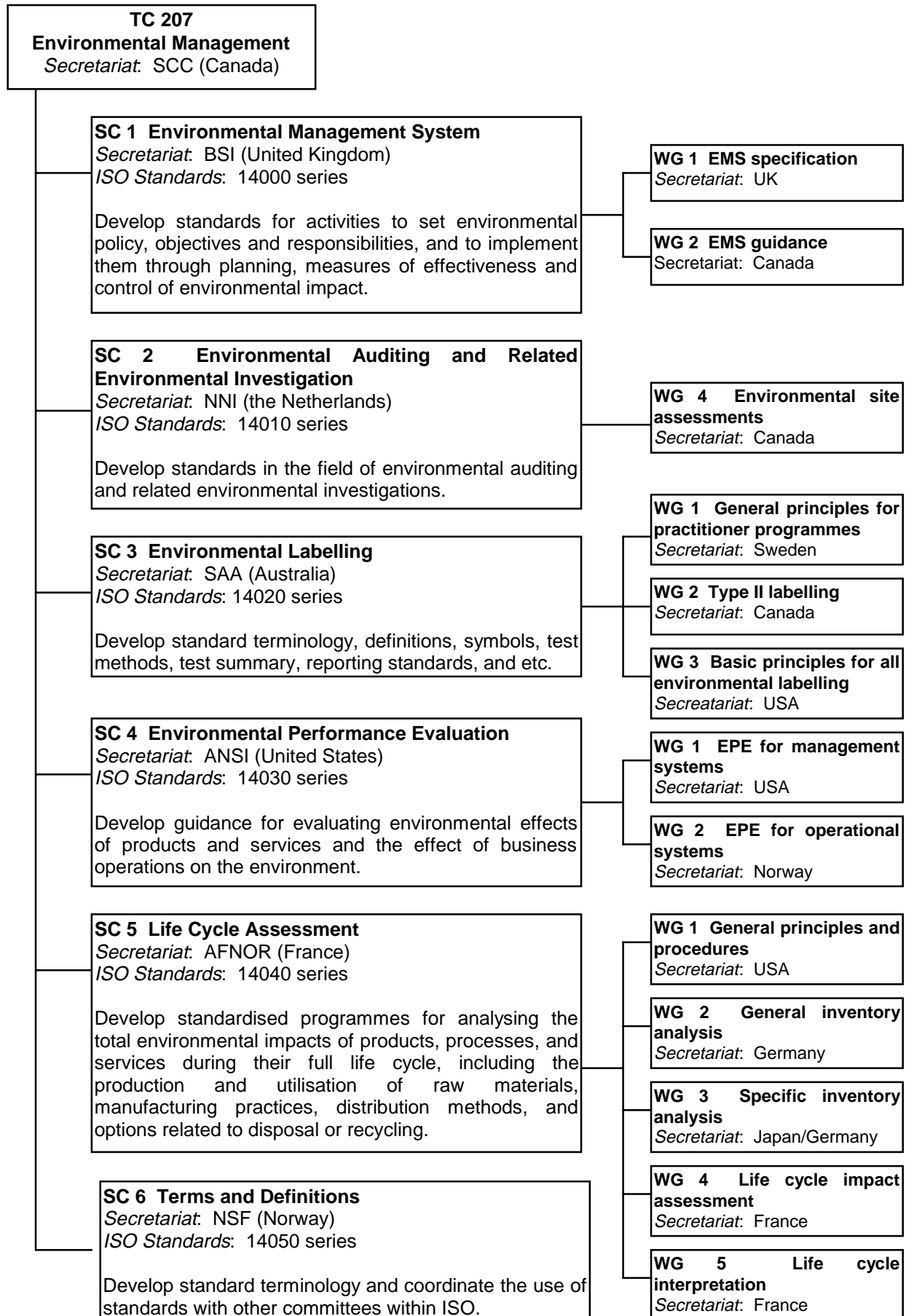
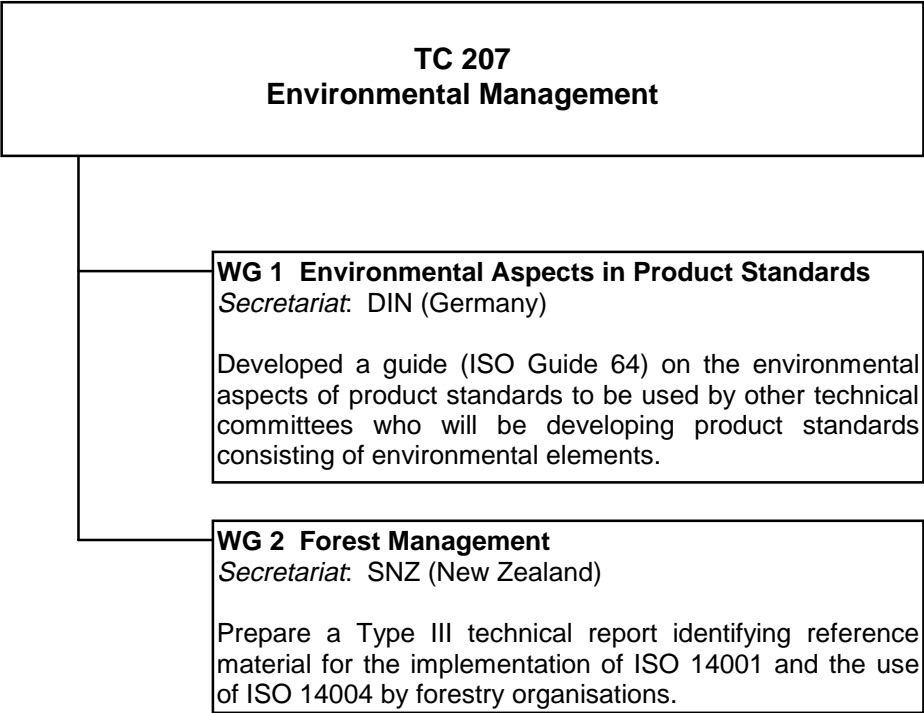


Figure 1b.



## 6. References and Bibliography

- ASIAN ENVIRONMENTAL REVIEW (April 1997), Vol. II Issue 10, Asia Environmental Trading, London, UK
- BATE'S ISO 14000 UPDATE (December 1996), Cutter Information Corporation, Massachusetts, USA
- BATE'S ISO 14000 UPDATE (May 1997), Cutter Information Corporation, Massachusetts, USA
- BATE'S ISO 14000 UPDATE (August 1997), Cutter Information Corporation, Massachusetts, USA
- CASCIO, Joe, "Conformity Assessment for EMS and EL - Case for International Harmonization" (taken from *Stoller ISO 14000 Information: Papers and Presentation*, <http://www.stoller.com>)
- CEN (1997), "The 'bridging' document between the EN ISO 14000 series and the EU regulation for 'EMAS'", Brussels, Belgium, July 1997
- CONSULTANCY AND RESEARCH FOR ENVIRONMENTAL MANAGEMENT (Spring/Summer 1997), *CREM Newsletter*, 8th edition, the Netherlands
- DELGADO (1997), Dora, "Mexico plans national certification system, lower cost alternative to ISO 14000 series", *International Environmental Reporter*, 25 June 1997
- DIXON (1997), James L., "Environment: ISO/TC 207 Plenary Meeting in Kyoto", *ISO Bulletin*, Vol. 28, No. 3, International Organisation for Standardisation, March 1997
- DIXON (1996), James L., "ISO 14000 - Management Standards for the Environment", Secretary ISO/TC 207, *Workshop for Small and Medium Enterprises on ISO 14000 Environmental Management System*, Hong Kong, September 1996
- EEC Council Regulation No. 1836/93 Community Eco-Management and Audit Scheme. Official Journal of the European Communities No. L168 10 July 1993
- ENVIRONMENT AGENCY (1994), Government of Japan, "The Basic Environment Plan", 16 December 1994
- FELDMAN (1997), Ira, gt strategies + solutions, "ISO 14000 can underpin a new 'dual-track' regulatory system", *Environmental Business Journal*, January 1997
- FOCUS ON 14000* (1996), Vol. 1, No. 1, the American Society for Quality Control and ML Strategies, Inc.
- FORD (1996), Glenna, "Voluntary Agreements and Environmental Regulation", *GreenVIEWS*, Spring 1996 (reproduced in *ISO 14000 News & Views*, 28 April 1997)
- FOWLE (1996), Tom, "ISO 14000 from the lender's perspectives", paper delivered at Canadian Institute Conference, March 19, 1996

- GALE (1996), Robert J.P., "ISO 14000 to Tackle Green Triangle", taken from <http://www.web.net/eoeco/iso14000.htm>, 28 February 1996
- HAKLIK (1997), James E., "ISO 14000 Environmental Management: Benefiting Companies, Saving the Environment", Transformation Strategies (<http://www.trst.com>), 2 April 1997
- HAUSELMANN (1997), Pierre, "ISO inside out - ISO and environmental management", WWF International discussion paper, WWF-UK, January 1997
- HINE (1995), Thomas, "The Total Package", Little, Brown and Company, Boston, 1995
- IBM (1996), "Environmental Annual Report 1996"
- ICF KAISER INTERNATIONAL, INC. (1996), "Does improving a firm's environmental management system and environmental performance result in a higher stock price?"
- IISD (1996) - International Institute for Sustainable Development, "Global Green Standards: ISO 14000 and Sustainable Development", Canada
- ISO (1997), "ISO: In brief", Geneva, Switzerland
- ISO/IEC Guide 59
- ISO/TC 207 N137R
- ISO/TC 207 N 159
- ISO/TC 207 N 166, "DEVCO Progress Report 1996"
- ISO/TC 207 N 187
- ISO/TC 207 N190
- ISO/TC 207/SC 1 N 102
- ISO/TC 207/SC 1 N 118
- ISO/TC 207/SC 3/WG 3 N 18
- KEIDANREN (1996), "Declaration on Voluntary Action by Japanese Industry Directed at Conservation of Global Environment in the 21st Century", 19 July 1996, Tokyo, Japan
- KOH (1996), Augustine, "Implementation of ISO 14000 (EMS) in Malaysia", Niche Training Network S.B., *Workshop for Small and Medium Enterprises on ISO 14000 Environmental Management System*, Hong Kong, September 1996
- LI (1997), Clement, Hong Kong Productivity Council, "ISO 14000 (EMS) Pilot Programme for Non-Manufacturing SMEs", *Green Productivity*, March 1997
- LUNATI (1994), Mariarosa, "Armonizzazione Tecnica e Liberalizzazione degli Scambi", Istituto di Economia Politica, Università Luigi Bocconi, Milano, 1994

ENV/EPOC/PPC(98)6/FINAL

McCALLUM (1995a), David and Isis Fredericks, "ISO 14000: A Reality Check", *Hazardous Materials Management*, October/November 1995

McCALLUM (1995b), David and Isis Fredericks, "International Standards for Environmental Management Systems: ISO 14000", *Canadian Environmental Protection*, August 1995

MROZ (1996), James G., "Will ISO 14001 bring you more harm than good?", taken from <http://www.qualitydigest.com/jan97/iso14000.html>

OECD (1997), "Reforming Environmental Regulation in OECD Countries", OECD, Paris

OECD/COM/TD/ENV(97)111

OECD/ENV/MC/CHEM(98)4

OECD/EPOC/GEEI(97)8

OECD/GD(97)105 [OECD/ENV/TD(96)69/REV1]

Official Journal of the European Communities No. L104 22 April 1997

ROCHEFORT (1995), Robert, "La société des consommateurs", Editions Odil Jacob, Paris, 1995

SCOTT, Alex, "Europe weighs its standards options; ISO 14000 versus EMAS", *Chemical Week*, 2 April 1997

SMITH (1996), William R. and Raymond J. Patchak, "ISO 14000 Perspective" (taken from <http://qn.net/~achmm/iso14000.html>), 1996

SONY Corporation (April 1997), "1997 Environmental Report", Japan

SPEIR (1997), Jerry, "Are We Canonizing ISO Prematurely?", *The Environmental Forum*, March/April 1997, Environmental Law Institute, Washington, DC

STRIFE (1997), Polly T., "ISO 14000 and the 'Competitive Edge'", *The Environmental Forum*, March/April 1997, Environmental Law Institute, Washington, DC

TIBOR (1995), Tim and Ira Feldman, "ISO 14000: A Guide to the New Environmental Management Standards", Irwin Professional Publishing, Illinois, USA, 1995

UNCTAD's Commission on Trade in Goods and Services, and Commodities (May 1997), "Environmental Management Standards, In Particular the ISO 14000 Series: Trade and Investment Impacts on Developing Countries", *preliminary note for the expert meeting discussion*, Geneva, Switzerland

UNIDO (1995), "Trade Implications of International Standards for Quality and Environmental Management Systems - Survey Results", Vienna, Austria, 1995

UNIDO (1997), "Implications of International Standards for Quality and Environmental Management Systems - Survey Results", Vienna, Austria, October 1997



VOGEL, Steven K., "Freer Markets, More Rules: Regulatory reform in Advanced Industrial Countries", Ithaca: Cornell University Press, 1996

YANO (1998), Tomosaburo, "Overview of ISO 14000 development in Asia", *ISO 9000 News*, January 1998, Switzerland

## ISO 14000-related Information on the Internet

### Standards Bodies

- **ISO Online:** <http://www.iso.ch/>

The Homepage of the International Organisation for Standardisation. It contains descriptions on the ISO structure, and on its world-wide members, technical committees, standards and other relevant information about ISO activities.

- **Standards Council of Canada:** <http://www.scc.ca/>

The Homepage of the ISO/TC 207 Secretariat.

- **British Standards Institution:** <http://www.bsi.org.uk/>

The Homepage of the TC 207/SC 1 Secretariat.

- **Nederlands Normalisatie-instituut:** <http://www.nni.nl/>

The Homepage of the TC 207/SC 2 Secretariat.

- **Standards Australia:** <http://www.standards.com.au/>

The Homepage of the TC 207/SC 3 Secretariat.

- **American National Standards Institute:** <http://www.ansi.org/public/iso14000/default.htm>

The Homepage of the TC 207/SC 4 Secretariat.

- **AFNOR:** <http://www.afnor.fr/>

The Homepage of the TC 207/SC 5 Secretariat.

### Selected ISO 14000 Online Resources and Links

- **CEEM, Inc.:** <http://www.ceem.com/>

CEEM, Inc. is a US-based, training, information and marketing services provider for ISO 14000 EMS and ISO 9000 QMS standards. It features FAQs about ISO 14000 standards.

- **Environment International ISO 14000:** <http://www.envintl.com/iso14000.htm>

A source of information on ISO 14000 standards series, featuring papers on ISO 14000 and links other sites.

- **EPA Standards Network:** <http://es.epa.gov/partners/iso/iso.html>

The Homepage of the US Environmental Protection Agency's Standards Network. It features a general introduction to ISO and its 14000 standards series and US-EPA's involvement in the development of these standards.

- **globeNet:** <http://www.iso14000.net/>

A source of ISO 14000-related articles and reports from around the world, featuring a regularly updated list of ISO 14001 certified companies in the United States, links to other ISO 14000-related Internet sites, and the information on EMS implementation.

- **GreenLinks:** [http://www.greenware.ca/env\\_link.htm](http://www.greenware.ca/env_link.htm)

A web site developed by a private environmental consulting firm in Canada. It features links to different online environmental resources around the world categorised by subject areas in government, law, business and etc. It has a link to ISO 14000 related Internet page.

- **ISO 14000 Environmental Management System:** <http://silk.tisi.go.th/14000/14000.html>

A source of ISO 14000 information provided by the Thai Industrial Standards Institute, Thailand's national standards body (both in Thai and English).

- **ISO 14000 Info Center:** <http://www.iso14000.com/>

A source of ISO 14000 information, featuring several articles and reports about various issues relating to the ISO 14000 standards, lists of certified companies, and links to other major ISO 14000-related internet sites.

- **ISO 14000 West Coast Working Group:** <http://www.wcwg.org/>

A web site developed by an ad-hoc committee, formed by a group of environmental managers, analysts, attorneys, consultants, and specialists associated with organisations located on the west coast, to track ISO 14000 and provide input to the US TAG on TC 207. It features information on ISO 14000 development process and on the Group's activities, and links to other online resources.

- **ISO World:** <http://www.ecology.or.jp/isoworld/>

Features an analysis of the ISO 9000/ISO 14000 certified industry in Japan, plus a regularly updated list of ISO 14000/EMAS certification number by country (provided by the Federal Environmental Agency of Germany).

- **The Law Offices of S. Wayne Rosenbaum:** <http://lawinfo.com/law/ca/environmentallaw/>

The Homepage of a law firm specialising in environmental law and ISO 14000 management systems. The web site features an online bi-weekly newsletter "ISO 14000: News & Views."

- **MGMT Alliances Inc.:** <http://www.mgmt14k.com/>

MGMT Alliance is a US-based consulting, training and auditing service provider for environmental management systems, ISO 14000 and ISO 9000. This web site features articles and papers on EMS and ISO 14000 standards.

- **NGO Initiative: ISO 14000:** <http://www.ecologia.org/iso14000/>

A web site developed by Ecologia and the Community Nutrition Institute in response to the lack of NGO participation in the ISO 14000 standards setting process. It provides a forum for sharing information and getting NGOs involved. It features an introduction to this initiative programme, about the NGO Working Group, articles and speech papers on ISO 14000-related topics, and links other relevant online resources.

- **Quality Network Homepage:** <http://www.quality.co.uk/quality/home.html>

An online information source for ISO 14000/BS 7750/EMAS and ISO 9000 provided by Quality Network, a UK-based quality and environment management consulting firm.

- **Quality Resources Online:** <http://www.quality.org/html/iso14000.html>

Provides links to online resources related to ISO 14000 standards, e.g. a directory of companies registered to ISO 14000/BS 7750/EMAS, etc.

- **Taylor Engineering: ISO 14000:** <http://ieti.com/taylor/iso14000.html>

Features articles about various issues relating to the ISO 14000 standards and links to other ISO 14000 online resources.

- **Transformation Strategies:** <http://www.trst.com/>

Provides a forum for sharing knowledge about the benefits of ISO 14000 and EMSs, features articles, case studies, and links to other ISO 14000-related internet sites.

#### EMAS Online Resources

- **EMAS Help Desk:** <http://www.emas.lu/>

An official EMAS information providing internet site which features an introductory overview of the scheme, official technical and supporting documents and a monthly updated lists of EMAS registered sites and accredited verifiers.

- **List of EMAS Registered Sites in Finland:** <http://www.vyh.fi/syke/yritys/emas/emslist.htm>

- **Standorte und Gutachter gemäß Öko-Audit-Verordnung der EU (EMAS):** <http://www.ubavie.gv.at/info/register/emas.htm>

An EMAS web site developed by the Federal Environment Agency of Austria. Revised and updated by the Agency, this site features the lists of EMAS registered sites (also includes sites registered on experimental basis) and accredited environmental verifiers in Austria.

- **The Swedish Environmental Management Council Homepage on EMAS (English-version):** [http://www.miljostyrning.se/english/eng\\_emas.htm](http://www.miljostyrning.se/english/eng_emas.htm)

The Council administers EMAS in Sweden. This web site features a list of EMAS registered sites in Sweden and guidelines for preparing EMAS statement.

- **Umweltmanagement - Standorte in Deutschland:** <http://www.ihk.de/oekoaud/diht545.htm>

Features lists of EMAS registered sites in Germany (in German).

#### Other Related Online Resources

- **Global Ecolabelling Network (GEN) Homepage:** <http://www.interchg.ubc.ca/ecolabel/gen.html>

A non-profit association of environmental labelling organisations from around the world (currently 14 from Europe, Asia, North and South America). This web site provides a means for various labelling programmes to exchange information about criteria and provide technical assistance to developing programmes.



**PAPERS PRESENTED  
AT  
THE SPECIAL SESSION**

## **Role and Development of International Standards: ISO 14000,**

*by Professor Giacomo ELIAS<sup>44</sup>*

According to a definition given by ISO itself, standards are “documented agreements containing technical specifications and other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose”. This definition contains, at its core, the intention that serves as the basis both for standardisation as a principle and for its “products”: standards are meant to be appropriate tools to reduce differences, remove barriers and thus set a common ground for ongoing activities and new developments.

The same view and the same spirit have characterised - and are still marking with ever greater conviction - the approach to be taken in a field which has become remarkably important, at both national and international levels: the environment.

Its significance lies not only in the current situation, but above all in its consequences for the future and has well-defined roots. It depends, in fact, neither on the current fashion and interest, nor on an intention to exploit opportunities in this sector, nor even on a presence to be justified by a political agenda or profit motive. On the contrary, it is the result of an overall consciousness, convinced that intervention in this field has become urgent and necessary for all of humanity, and also determined to safeguard, preserve and believe that the environment - taken in the broadest sense of the word - represents our great heritage.

Environmental awareness has inevitably had an impact on the world of standardisation, as well. Careful observers and interpreters of trends and needs coming from industry, governments and institutions, as well as standards bodies have responded to needs that, in this case, reflect those of the community at large: simple citizens, first users and actual beneficiaries of what the environment offers, of its richness and its potentialities. Standards in this field have therefore taken on an even greater importance and convey a new sense of responsibility.

ISO has selected two major orientations in defining its approach to the environmental question, related conduct and its management.

The first orientation is purely technical, based on the need to treat - from the normative point of view - the strictly scientific aspects related to testing, methods, analysis and sampling. The objective is to reach a common basis for the drafting and use of assessments and data which biologists, agronomists and scientists in general will find valid and reliable.

This approach has resulted in the development, to date, of some 350 international standards (out of a total number of around 11 300), focusing on levels of quality and analysis of the air, water and soil.

The effectiveness of what was gathered together and examined in these standards has, however, gone beyond specific scientific fields. Their content has turned out to be a precious tool in the hands of governments and industry, to observe and assess the effects that economic, manufacturing and trade activities may have on the environment.

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<sup>44</sup> Professor Elias is currently the President of the Ente Nazionale Italiano di Unificazione (UNI) which is the Italian standards organisation, and is also the President Elect of the ISO for the period 1999-2000. He also holds the Chair of Applied Physics at the Faculty of Agriculture of the University of Milan.

In some countries the content of these standards has been taken as technical reference for regulations and decrees, thus assisting in the accomplishment of a legislative and legal task.

The second orientation chosen by ISO in its approach to the environmental sector is more strategic in nature, its main purpose being to define guidelines for developing the most suitable “environmental management” systems. These terms are meant, again, in the broadest sense, to cover objectives and applications on many levels, involving companies, institutions and bodies in both the public and private sectors; and fully in line with the criteria of the ISO 9000 series of standards, through which ISO has become well-known as an interpreter and standing surety for quality.

ISO/TC 207, the “Environmental management” technical committee, was set up in 1993. A TC of this kind is not to be considered as a new creation, but rather as the realisation - in a specific standardising body - of trends and “materials” or elements brought together at two earlier and well-defined moments in time.

The first of these goes back to 1991, with the setting up of SAGE (the Strategic Advisory Group on Environment), attended by representatives from 20 countries, 11 international bodies and over 100 experts. Its participants were charged with and motivated by the specific intention of defining, for the first time, the basic requirements for standards in a field that had, as yet, no consensus on overall rules or guidelines.

The second moment occurred the following year, in 1992, when the Conference promoted by the United Nations on Environment and Development took place in Rio de Janeiro.

The choice of the venue was a meaningful event in itself because, on the one hand, it underlined the awareness and urgency of finding solutions to environmental problems in this global framework and, on the other hand, it highlighted the determination and interest coming not only from the economically powerful, but also from the so-called developing countries to make a contribution to such an important cause.

Today 55 participating member countries, with representatives from government and industry, take an active part in the work of ISO/TC 207, while a further 16 are present as observers. The activity of this committee, structured into subcommittees and working groups, ranges over a wide field, from management to monitoring systems, from labelling to the evaluation of performance requirements, from life cycle assessment to the forest heritage, along with the specific aspects of terminology and definition.

These are the subjects covered in a new series of standards, launched in Geneva: the ISO 14000 series. They can easily be combined and applied together with the better-known ISO 9000 series, since the two sets of standards have the same quality principles as a common basis, oriented in ISO 14000 to a specific field and sector.

From 1996, the year of publication for the first of these new standards, a total of 15 have appeared (including standards and drafts), plus one Guide, as follows:

#### Standards

- 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

- 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
- ISO 14040:1997 Environmental management - Life cycle assessment - Principles and framework

#### Drafts

- FDIS 14020: Environmental labels and declarations - General principles
- DIS 14024: Environmental labels and declarations - Type I environmental labelling - Guiding principles and procedures
- DIS 14031: Environmental management - Environmental performance evaluation- Guidelines
- FDIS 14041: Environmental management - Life cycle assessment - Goal and scope definition and inventory analysis
- CD 14042: Environmental management - Life cycle assessment - Life cycle impact assessment
- CD 14043: Environmental management - Life cycle assessment - Life cycle interpretation
- NP 14049: Environmental management - Life cycle assessment - Examples for the application of ISO 14041 (future type 3 technical report)
- FDIS 14050: Environmental management - Vocabulary
- WD 14061: Guidance to assist forestry organisation in the use of ISO 14001 and 14004 (future type 3 technical report)

#### Guides

- ISO 64:1997: Guide for the inclusion of environmental aspects in product standards

ISO 14001 and ISO 14004, the first two standards in the series to be published (in 1996), have quite a special value, as they deal with management systems in the most general terms.

Consequently, they represent a kind of milestone in this sector, the first tangible mark of a new spirit and a new approach to managing and assessing: the impact that services, products and activities may have on the environment, the damage that has or may be done, which can be now evaluated according to scientific criteria, and the consequences of specific action, the extent of which can be monitored and assessed in prospective terms.

The main scope of ISO 14000 is not that of specifying performance levels in the environmental field, but rather - with the widest and most general intent - of supplying a reference framework, in order to set objectives and targets. This choice is deliberate and intentional: it enables many more people to take the same systematic approach, without any risk of exclusion. On the contrary, it provides a strategy that may be used by a wide range of different bodies with distinct and varied levels of "maturity", knowledge and awareness of the environmental question and of all its related issues.

It is self-evident, however, that the choice of this approach is not meant to be misdirected and misused as a convenient way to avoid the commitment of practical application: these standards provide means to comply with rules and regulations to protect the environment.



The approach is to be integrated with a view to continuous improvement and development, in line with purposes that constitute a sort of philosophy, according to which, being in conformity with rules, although important, is not enough. What counts and is required can better be seen as moving towards the promotion and encouragement of a more “pro-active” approach, to be taken by all of the parties involved, no matter what the specific methods, rights or roles of each may be.

ISO intends and expects such an approach to be fruitful not only in the “microcosm” of any individual company, institution or body, but also in the “macrocosm” of the community and humanity as a whole. This more general form of awareness is, in fact, indispensable. It enables people to learn how the environment is to be approached - and acted upon with due respect and interest - as a unique present, all the more precious as it cannot be replaced. Moreover, a wider vision makes it possible for people to accept the idea that this gift does not constitute an endless resource, but it can be made to seem endless if its store of energy is kept untouched and preserved. This will only happen if it is handled properly and used according to criteria that may, indeed, be defined and taught by all those involved in the work of standardisation.



## **ISO Inside Out**

### **WWF's Experience in Following ISO's Work on Environmental Management,**

*by Pierre Hauselmann<sup>45</sup>*

#### **WWF's Participation in the ISO Process**

World Wide Fund for Nature (WWF), the world largest independent environmental organisation with more than five million supporters, started to take part in the work of the International Organization for Standardization (ISO) on environmental management in 1994. This was within the year of the establishment of the Technical Committee 207, the body responsible for this activity. WWF has focused its participation on Sub-Committee 3 of TC207, which deals with environmental labelling, but also followed closely the deliberations and outcomes of SC 1, the Sub-Committee that elaborated the ISO 14001 standard on Environmental Management Systems (EMS).

#### **Expected Results**

While WWF's initial concerns were centred on forest certification issues, it quickly became evident that ISO's work on environmental management (EM) was going to be key in orienting the economic activities towards – or away from – sustainability, in a framework much broader than just forests. On one hand, good ISO standards can be useful tools to foster sustainable activities. From this point of view, WWF is actively and positively working for these standards to be environmentally significant. On the other hand, weak ISO standards – and their misuse – would undermine many of WWF's policy related activities and WWF's participation can be seen as a damage control operation.

#### **ISO Inside Out**

WWF published *ISO Inside Out* in early 1997. This report relates the experience gained during the first three years of collaboration with ISO. This discussion paper identified both positive and negative aspects of ISO's work. The present paper summarises these findings and indicates how the situation has evolved in the last year.

#### **Environmental Management Systems**

The implementation of an EMS by an organisation is a positive step. It includes the incorporation of environmental concerns in the organisation's policy, the commitment to continuous improvement, the allocation of resources to implement a programme to reach the objectives and the monitoring and review of the management system, all very desirable elements.

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<sup>45</sup> Mr. Hauselmann is the Director of the Π (pi) Environmental Consulting which specialises on the use of incentives to foster conservation and sustainable use of the environment, including voluntary market instruments. He is also the co-ordinator of the Certification Monitoring Network (CMN), an international NGO that monitors the use of certification in advertising world-wide. He has been also following and participating in the ISO 14000 standards development processes for the WWF International since 1994. A copy of the *ISO Inside Out* can be obtained from the author, Avenue Samson-Reymondin 30, CH-1009 Pully, Switzerland.

It is important however to remember that EMS standards, notably ISO 14001, do not prescribe performance level and that the notion of continuous improvement relates to the system, not the performances. As such, organisations set their own objectives and *two organisations carrying out similar activities, but having different environmental performances may both comply with its [ISO 14001] requirements*<sup>46</sup>.

As such, EMS certification – or registration – is very different from environmental labelling (where companies have to reach a pre-set threshold to be awarded the label). Unfortunately, this distinction is not always clear to the public and there are fears – substantiated by examples – that companies may wish to present their system certification as a proof they have reached a good level of environmental performance<sup>47</sup>.

### **Does ISO 14001 Certification Ensures Compliance with Legislation?**

The difference between system and performance certification, and typical misrepresentation of what ISO 14001 certification means can be illustrated by analysing whether it ensures legal compliance of certified companies.

In ISO 14001, the following clauses refer to compliance with legal requirements:

- 4.2: Top Management shall define the organisation's environmental policy and ensures that it...includes a commitment to comply with relevant environmental legislation and regulations.
- 4.3.2: The organization shall establish and maintain a procedure to identify and have access to legal and other requirements to which the organization subscribes, that are applicable to the environmental aspects of its activities, products or services.
- 4.3.3: When establishing and reviewing its objectives, an organization shall consider the legal and other requirements...
- 4.5.1: The organization shall establish and maintain a documented procedure for periodically evaluating compliance with relevant environmental legislation and regulation.

An auditor, will thus verify that there is a commitment to compliance, that there is a process for identifying the legal requirements, that the process of setting objectives consider legal requirements – but not necessarily addresses them, and that there is a procedure for evaluating compliance. He or she will not assess the actual compliance on the ground. At a maximum, the certification demonstrates that the organisation has not the excuse of ignorance of legal requirements for not complying with them.

This has been confirmed by many representatives of certification organizations<sup>48</sup>. The recent US EPA official statement on EMS and ISO confirms further this analysis, declaring that, since EMS in general, and ISO 14001 in particular, do not guarantee compliance with legal requirement, EPA regulators will not give special treatments to certified companies and will continue “taking enforcement actions

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<sup>46</sup> ISO 14001: 1996. Introduction

<sup>47</sup> See <http://www.cmnet.org> for further information on the subject of misuse of certification.

<sup>48</sup> Notably by Mr Peter Johnson (QMI) at a conference on certification in British Columbia, in September 1997.

where appropriate.<sup>49</sup>” If the standard was performance based, it would include a simple clause stating that the organization shall comply with relevant legislation and auditors would have to check the factual compliance.

Despite these evidences, it is often claimed that ISO 14001 certification ensures compliance with legislation. This argument, heard notably during presentations made at the UNCTAD “Expert Meeting on Trade and Investment Impacts of Environmental Management Standards, particularly the-ISO 14000 series, on Developing Countries” in Geneva, 29-31 October 1997 is very attractive for governments that lack resources to fully enforce their environmental legislation, particularly developing countries. But any policy based on this assumption which would promote EMS certification as a way to diminish the burden of control would likely result in even lower compliance. The only beneficiaries of such measures would be certification organisations, certainly not the people nor the environment.

Tools have to be used for their purpose in order to operate correctly. Just as fixing a nail with a screwdriver is likely to damage the screwdriver, the nail and the object to be fixed, and physically injure the operator, claiming performance based on EMS implementation will damage the image of the company, the certification body, the accreditor if any and ultimately the ISO itself.

It is therefore essential, if the positive potential of EMS implementation is to be fully realised, that information on these systems is factual and indicates clearly their limitations as well as their benefits. Information that oversells EMS, including ISO 14001, may well annihilate all the advantages that EMS implementation could achieve.

### **Participation and Consensus**

While traditionally, ISO standards deal with very technical matters, such as screw threads, film sensitivity or computer parts which impact on few parties – usually the provider and its clients, the 14000 series has broader implications. The environmental impact of economic activities can reach far from their source, which implies that the number of stakeholders is much greater than for usual standards. In addition, the EM series addresses policy issues that often are the competence of democratically elected governments (the issue of compliance with legal requirements is a point in case, but other examples can be found). In these circumstances, it is imperative that the process be participatory, transparent, and involves the civil society at large and a broad spectrum of nations.

### **Developing Countries**

The participation of developing countries in TC 207 is much lower that of developed countries. The following example, provided in *ISO Inside Out*, shows how this has had consequences on the content of the standards.

The concept of equivalency is based on the fact that social, economic and environmental conditions vary from country to country. It is therefore appropriate that environmental objectives and the means to achieve them may be different between countries, while being equivalent in their environmental benefits. Mutual recognition can take place between certificates based on equivalency of procedures and objectives. These concepts are generally recognised as requirements for alleviating possible trade distortions and are therefore of particular relevance for developing nations.

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<sup>49</sup> ISO 14000 Update, April 1998, Cutter Information Corp.

The United Nations Conference on Trade and Development secretariat (UNCTAD) proposed to include these notions as desirable objectives for environmental labelling in ISO 14020. After much discussion, this proposal was rejected by the working group by a vote of 9 to 7. All developing nations delegations were in favour. However, since they represented 4 in a total of 22 delegations, they were in a minority and their view was not accepted, in contradiction to ISO's definition of consensus.

The situation has improved during the last year and more representatives from Asia and Latin America participate regularly in the process. However, the balance is still far from being reached.

### **Non Governmental Organisations**

NGOs are an important component of civil society, which is well recognised by the international community. Given the subject of the 14000 series, one might expect a broad participation of environmental NGOs. In the contrary: WWF, the international environmental NGO that follows the process most closely, can only attend three working groups adequately (TC 207 counts 18 WGs).

The situation is not likely to improve. ISO has issued new directives which makes it more difficult for external organisations to be accepted as liaison organisations. For example, the Certification Monitoring Network, an organisation which objective is to monitor misleading claims of certification in advertising, was not received as new liaison member – the decision now needs a positive vote of the unanimity of ISO members. The Forest Stewardship Council, an accreditation organisation for the certification of forest management, was announced recently that its status of liaison organisation would be downgraded, a situation which would preclude it to receive copies of ISO documents. The final decision is not yet known.

### **Consensus**

ISO decisions are claimed to be based on consensus. ISO's own definition of consensus is the absence of sustained opposition. However in reality, decisions are taken by vote and a two third majority becomes the practical definition. This leads to sentences in ISO documents such as: *Despite earlier advice to the contrary, it has now been confirmed that the vote [on DIS 14020] achieved the necessary consensus for approval. Apparently some late votes were delayed in the mail and added to the tally after the normal closing date...This include 9 negative votes from "P" members of ISO TC 207/ SC 3*<sup>50</sup>. If there is a choice between following ISO procedures rigorously and moving ahead rapidly, the pressure to produce standards quickly has tended to predominate.

It is clear that the ambitious objectives set for the work of TC 207 need an adaptation of ISO procedures to accommodate the numerous stakeholders of environment related issues. Broader participation and transparency, as well as a more strict application of consensus are prerequisite to give some legitimacy to the process.

### **What Can Be Done**

#### ***Political Will to Address the Issues***

None of the problems mentioned above is impossible to solve. They require a true political will to address them.

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<sup>50</sup> ISO/TC 207/SC 3 N180 rev 1, (1997). *Report on Results of Voting and Comments on DIS 14020*.

***Participation***

Efforts have been made to help finance developing nations representatives to attend meetings. These include donations by companies or governments. They should be intensified and also attributed to NGOs. The liaison status to ISO should be made easier to access, not more complicated.

***Information***

The issue of wrong claims, be they in advertisements or at meetings should be vigorously addressed. ISO TC 207 should adopt strong resolutions in this direction and collaborate fully with organisations trying to address part of the problem. The information policy should be more transparent. Notably, the media should be allowed in the meetings.

***Compliance with Legislation***

If indeed, ISO 14000 certification was demonstrating actual compliance with legislation, this would be a great progress. To this effect, a stronger and more direct language, such as the suggestion made above, should be adopted during the revision of ISO 14001, process that is scheduled to start in 1999 already.





## **ISO 14001: Implications for US Environmental Programs,**

*by Mary C. McKiel, Ph.D.<sup>51</sup>*

### **Introduction**

The US Environmental Protection Agency (EPA) and many State environmental agencies are exploring programs to augment the traditional command and control approach to environmental protection. Effective partnerships with the private sector and public interest groups are already in effect. Increasingly, environmental management systems come into play as possible frameworks for enhancing regulatory effectiveness and improving overall environmental performance.

This paper presents an overview of US interests and activities in the area of environmental management systems, particularly those based on the international standard, ISO 14001. Additionally there is consideration of the possible contribution of the OECD to broader illumination of issues that are being explored in the US and other member countries relative to the interplay between environmental management systems, global and national environmental conditions, trade and economics.

This is not a research document nor a comprehensive catalogue of activities, but a single snapshot in time. There is no attempt to fully vet some of the most interesting and controversial aspects of the possible link between US public policy and ISO 14001. Discussion of specific problems facing Small and Medium Sized Enterprises (SMEs) or delineation of how environmental Non-Government Organizations (NGOs) view ISO 14000 standards are subjects worthy of separate consideration. Likewise a discussion of the compatibility of ISO 9000 quality management standards and the 14001 standard is left for another venue.

The aim here is to present a small but relevant bit of information which stimulates questions rather than defines a set of answers.

### **Seeds of Change**

In the 1970s environmental protection was codified through legislation establishing the US EPA. Catastrophic and persistent pollution from point-source emissions came under regulatory command and control. Since that time, the most egregious environmental problems have been eliminated or significantly reduced. Many of the remaining problems are now either diffuse in nature, i.e. non-point-source or cross media in nature, or shifted from one media to another through technology applications designed to address only a single source. For examples, air scrubbers which help a facility meet air quality standards may cause problems which shift the environmental burden to land or water.

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Regulations which set emission standards and acceptable pollution limits are not necessarily outmoded in what they are intended to address, but the problems are more diverse and complex than regulations can handle. Regulators, the public and private sector enterprises all are increasingly aware of the stove pipe approach to regulation and how costly that is to everyone. US stakeholders are looking for technological and policy solutions to better address complex environmental problems. Suggested approaches include but are not limited to:

1. A more flexible regulatory system (such as allowing for multi-permitting or emissions 'trading');
2. Aggressive public policies to encourage development and use of pollution prevention technologies;
3. Incentives for non-governmental solutions, including increased use of environmental management systems.

### **Innovation Not Substitution**

Everyone agrees that solutions, regardless of how innovative and attractive must first uphold and strengthen fundamental levels of environmental protection. Cleaner, cheaper and smarter is the current mantra of the US EPA. Each element of the phrase is essential.

Even before the recent emergence of voluntary environmental management standards on the international scene, the US had already begun to look at tools beyond regulations and enforcement for protecting human health and the environment. This was partially forced by economics. The complex nature of many environmental burdens makes enforcement of numerous, sometimes conflicting, regulations costly to the government (as well as to the regulated community) in terms of time and resources, and too often does not result in the best protection possible.

Another factor impacting effective protection is the role of the trade agreements: the World Trade Organization (WTO) and the North American Free Trade Agreement (NAFTA). Government rules effecting products in trade are subject to the disciplines of the agreements. This includes regulations for environmental purposes as well. The basic right of the government to set national levels of protection is guaranteed, but disputes can arise when one country's standards appear to impose trade restrictions on products and production methods in another country. The US, and presumably other countries as well, is challenged to set regulations which uphold national levels of protection without unnecessarily causing barriers to trade.

The US EPA is particularly keen on exploring the possibilities of a more performance based approach to environmental protection. That is: determining the 'what' (such as a specific limitation standard) and leaving the 'how to' to experts in the regulated community. An attractive angle of this concept is that EPA would not have to spend so much time and energy in determining technology issues which are better left to the private sector. Additionally, it could help avoid some kinds of trade problems if product testing were harmonised under good laboratory practices, such as those promulgated through the OECD.

The key factor here is the credibility of any new approach with the public. Public interest groups are wary of innovation which might result in the lessening of the protection and enforcement that they fought hard to establish. Their concerns are valid and easily match some of the natural reluctance within the EPA itself. However, the need for more effective protection, increased compliance and economic viability of the entire system demand that EPA explore possibilities, albeit carefully, beyond the traditional tool box.

## Partnership for Environment

Partnership programs involving government, private sector enterprises, and public interest groups as well as Environmental Non-Government Organizations (ENGOS) were introduced in EPA as a mechanism for testing out new methods and carving new, more productive relationships aimed at improving compliance and overall environmental performance. Since 1997 EPA's partnership programs have demonstrated that voluntary efforts can lead to significant cost savings as well as environmental performance improvements.

The chart below shows, for example, that partnerships have effectively eliminated 5.2 million tons of solid waste from entering our landfills and reduced greenhouse gas emissions by preventing CO<sub>2</sub> emissions at nearly double the amount from 1995.

### EPA Partners for the Environment

1995 - 1997 Measure	1996	Projected 2000
Toxics reduced (pounds)	750 000 000	At Least 750 000 000
Waste reduced (tons)	5.2 mil.	8.3 mil.
CO <sub>2</sub> prevented (mill. metric tons)	24.7 mmt	210 mmt
Energy saved (trillion BTUs)	199	935
Water saved (1 mil. gallons)	1 280-2 375	7 190-10 475
Number of partners	6 882	13 055
\$\$ saved by partners (millions)	\$852 mil	\$4 640 mil.

These programs also save energy, and will continue to do so at an escalating rate. Partner programs are achieving measurable environmental results more quickly and at lower costs through voluntary efforts. Business and industry, particularly in some sectors such as printers and dry cleaners and printing board manufacturers, have realised cost and resource savings which add to their bottom line.

## Business and Industry

Partnership programs involve a relatively small number of organisations and facilities in the private sector or in government departments and agencies. Many companies have had active environmental programs for years. The past decade has also seen an increase in the number of industry sector environmental programs such as the Chemical Manufacturers Association's *Responsible Care* program, and similar programs in the paper industry and oil & gas industry.

In the private sector, environment has become a business issue on the same level as quality or sales. On the one hand, US business and industry is driven to environmental management by the growing consumer awareness of environmental issues and impacts, and the legitimate desire to achieve a socially conscious image, rewarded by customers and stockholders alike. On the other hand the tremendous costs associated with achieving and maintaining regulatory compliance (to say nothing of liability and litigation costs) also serve as powerful incentives to manage environmental obligations and impacts.

Multi-national organisations and their suppliers have had a quality system link for a number of years. With the Rio conference in 1992, many international companies found themselves ready and interested in the marketing advantage that 'clean and green' could bring. Adding environmental systems to quality systems seemed like a natural and fairly simple transition. The British even had a national environmental management standard, BS 7750. Similar standards were available in other countries as well.

### **Converging Interests and ISO 14001**

o, the stage is set for converging environmental interests. US Regulators are seeking ways to leverage their resources and achieve better environmental performance. US business and industry are putting systems in place which will help integrate environmental interests and costs with the other systems needed to maintain a competitive edge in today's global economic markets. The US public is becoming more aware of environmental issues and are demanding more and more information from both government and private sector enterprise.

One place where these interests may come together is in the implementation of the Environmental Management Standards developed through the International Organization for Standardization (ISO). The lynch pin standard of the series is numbered 14001 and is a specification for putting a management system in place -- specifically, an environmental management system. The ISO 14001 is written so that an internal or external auditor can verify, or certify, that a system which claims to meet all the requirements of the standard actually does.

ISO 14001 outlines steps designed to ensure that an organization systematically consider its significant environmental aspects and then set targeted goals to achieve measurable results. The management and the employees are 'in charge' of the system which is reviewed regularly. Each organization determines for itself which aspects are significant, but the standard requires commitment to all legal obligations and to prevention of pollution. It also requires continuous improvement of the system, although not of the entire system at any one time. It is possible to be in conformance with the requirements of the standard and still not be in 100% compliance with regulatory obligations. It is not acceptable, however, for 100% compliance to be outside the capability of the system.

How this environmental management system meshes with the prescriptive regulatory system is the subject of many pilot projects and much debate.

### **Evaluation activities**

There are a number of federal, state and local activities currently taking place. At the federal level, Departments and Agencies are exploring the implementation of ISO 14001 for internal use, and as a basis for outside relationships with other agencies, the public and government contractors. The Departments of Energy (DOE) and Defense (DoD), for example, are using the standard to configure the management of some of their own facilities world wide. DOE is also using the 14001 as a basis for streamlining the huge number of environmental directives that the Department places on its own contractors in charge of National Laboratories such as Lawrence Livermore and Oak Ridge.

There is a Federal Inter-Agency Working Group on ISO 14001, co-chaired by a representative of DOE and the author, under the larger Interagency Committee on Standards Policy. More than 25 federal agencies participate in the Working Group which is tasked with identifying opportunities and challenges in the implementation of ISO 14001 and its relationship to policy initiatives.

At the state level, where, arguably, the lion's share of regulatory enforcement is carried out, about a dozen states have voluntarily formed a Multi-State Work Group (MSWG) on ISO 14001. The MSWG is composed of state regulators plus representatives from industry, the federal government, environmental non-government organizations and academia. The individual states were already planning pilot projects in the areas of regulatory reinvention and flexibility, and many were using the ISO 14001 in at least some of the projects. Almost all of the voluntary projects involve private sector participants willing to step up to the plate to demonstrate systematic commitment to environmental responsibility. Community groups and other stakeholders are also involved in the projects.

MSWG members came together with the idea that data compiled from multiple sources would be more statistically significant than that which any one state by itself could generate. They have set about designing criteria and protocols for data collection in order to make pilot project data compatible, comparable from state to state. The MSWG is chaired by Dr. Robert Stephens of California (please refer to his paper in these OECD proceedings.)

The MSWG publication: "Environmental Management Systems Voluntary Project Evaluation Guidance" is available through the US Department of Commerce. (See references at the end.)

### **The US Environmental Protection Agency**

As stated earlier, EPA is engaged in a number of activities relating to the improvement of environmental performance through more effective enforcement, compliance, pollution prevention and technical assistance. The Agency views the ISO 14001 one possible tool in the tool box for 'cleaner, cheaper, smarter'. Implementation of the standard by anyone – whether government or private sector – is voluntary and does not necessarily have anything to do with obligations under state or federal regulations. The standard gives a framework for management and is not intended to be a cookbook for ensuring compliance. The standard does not set levels of environmental performance but does require that a system which purports to manage environmental aspects needs to account for legal obligations as well.

EPA is therefore evaluating the possible ways in which regulators might look for implementation of the standard as a means of identifying *probable* performance. It is the policy of the Agency that environmental management systems are good and can be helpful toward achievement of regulated and non-regulated environmental responsibilities. EPA does not require EMS use, and considers the use of the ISO 14001 or any standard on EMS to be a voluntary choice.

The Agency is interested in possible connections between the use of EMS and environmental performance outcomes. EPA particularly values an EMS which focuses on regulatory compliance and pollution prevention, involves all stakeholders, to the extent possible, and provides public access to information generated from the system. To that end, EPA is engaged in a number of pilot projects with the states and the private sector to generate and analyse data.

In short, the Agency is looking at what, if any, public policy mechanisms might be designed to take advantage of a voluntary implementation of ISO 14001. A great deal of publicly available information and statistically reliable data are needed in order to make that determination. Among other projects, the Agency is working with the MSWG in the development of a national data base of information, elements of which are drawn from a host of pilot projects. A partial list of projects and contacts as well as selected EPA publications is provided at the end of the paper.

## **Registration / Certification in the US**

The standard does not require third party certification, but users of the standard are free to choose whether or not they wish to have their system evaluated by an accredited body for the purposes of certification. Most, if not all, of the pilot projects being carried out at the federal and state levels in the US are devoid of any requirement for certification. Some governments around the world are already tying certain economic advantages to certification. However, there is no movement to do that in the US.

A number of US multi-national companies have facilities both in the US and in other countries already certified to the 14001 standard. The reasons vary from customer demand to implied trade advantage to economic efficiency. Compared to some other countries, such as Germany and Japan, the number of registered ISO 14001 systems in the US is very low –about 130 total to date. That does not mean that US firms are not using the standard. Anecdotal information and the continuous string of workshops and articles on the subject of ISO 14001, suggest that many US companies currently using the ISO 9000 quality standards are implementing ISO 14001 almost as a matter of course.

Surveys done in the last two years show that 80 - 90% of US organizations that are certified to ISO 9000 are implementing ISO 14001 even if they are not interested in the additional certification. Also, many organisations speculate that pilot projects evaluating EMS based on ISO 14001 and carried out by the US EPA and state agencies will result in compelling evidence to provide additional regulatory flexibility. Such organisations are positioning themselves to take advantage of that possibility.

## **Potential Public Policy Benefits**

The possible US public policy benefits associated with use of environmental management systems (EMS) based on ISO 14001 are largely a matter of speculation at this point. Several state governments and the US EPA have used EMS of various sorts in settlement decrees years. Chronic compliance problems in an organisation may indicate that better environmental management structure may be the best “end of pipe” control an organisation needs in reducing or eliminating some kinds of violations.

Until the ISO 14001 standard there has been no common framework for EMS that could be applied to virtually every size and type of organisation. A standard framework developed in an international voluntary setting has added advantages of wide-spread acceptance, availability, ease of implementation, maintenance and review.

Based on the data and other information from pilot projects now underway in the US, implementation of ISO 14001 frameworks for EMS may help increase the ability of the regulator, the public and industry in identifying organisations that manage their environmental aspects with consistency and predictability. This in turn may lead to more effective and efficient use of enforcement and compliance resources.

A standard framework also can help promote pollution prevention. Technology and policy tools for prevention that are developed at the federal or state level will have easier application across all levels. Similarly, where use of an EMS leads to improved environmental performance, it becomes easier to translate those improvements within and across sectors. Some of the larger industries now using ISO 14001 are promoting its use to their supply chain in much the same way that use of ISO 9000 has woven through the same chain. While this does not, in and of itself, mean better environmental results it is easier to imagine that influence on the system by environmentally conscious management at the top will facilitate performance through entire sectors.

It is yet to be seen how companies or other users of the standard will use ISO 14001 as an image enhancement tool. One of the chief concerns of public interests groups is that companies may market themselves as conforming to ISO 14001 precisely in order to give the impression of being “environmentally preferable” or “green” when, in fact, there may still be compliance and other problems that communities should be aware of. Public interest groups warn that decisions on how ISO 14001 is used in public policy applications need to take into consideration the full range of positive and negative potential for impact on transparency and public access to information.

However viewed, use of ISO 14001 is on the rise at a time when public and private sectors in the US are calling for more flexibility and better environmental results.

### **Possible Role of the OECD**

The experiences in the US are mirrored by many OECD members. The ISO 14001 standard is in use in each of the member countries, from very small private sector enterprises to large multi-national corporations to government. OECD is in a good position to draw out information and experiences from wide ranging issues associated with environmental management systems, and to provide a mechanism for evaluating such issues in public policy context.

The timing is right. The trend toward EMS needs regional and international perspective in order to steer toward optimum environmental and economic benefits. This is particularly true for small and medium sized enterprises, which make up the abundance of national growth potential around the world.

OECD has demonstrated expertise in environmental and analytical disciplines which lend themselves to the assessment of EMS as a public policy tool. Questions surrounding use of ISO 14001 are relevant to member bodies and are in line with issues already being undertaken in OECD’s work on life cycle assessment and green government procurement. Integration of EMS with product-related applications such as eco-labelling and life cycle considerations would be particularly useful, especially where measurable result and impact indicators are still to be developed and tested.

### **Future Activities**

The special ISO 14001 session of the Pollution Prevention Control Group of the OECD emphasises the need to educate public policy makers, industry, environmental groups and the public on EMS in order to evaluate the benefits and possible pitfalls of a systems-based approach to policy tools. OECD sponsorship of an international conference could facilitate more in-depth consideration of issues touched upon in the special session.

EMS may bridge commerce with common good by promoting responsible stewardship, clean technologies and manufacturing processes, and more meaningful information available to the public. The key is systematic integration of business goals with environmental performance goals. OECD might give consideration to the development of guides for incorporating prevention, life cycle assessment and principles of product stewardship into the implementation of EMS based on ISO 14001.

Many factors are involved in determining the utility of EMS to effectively manage environmental responsibilities. Not the least of these is the express intention of organisations in the choice of targets and objectives for their environmental management systems. Still to be analysed is the relationship between system performance and regulatory performance, how transparent these are to the public and the methods by which environmental and economic improvements are calculated. OECD members may welcome information that comes from case study development on the various impacts of public and private sector use of ISO 14001 based EMS.

## **Conclusion**

The US welcomes the opportunity to share with other OECD members this brief look at some activities, interests and concerns relative to the use of ISO 14001 as a public policy tool. It is likewise extremely useful to deliberations in the US to learn about what other countries are doing in this area: what actions have been taken, what reactions are occurring, the results, and how others go about the issue of incorporating EMS in policy development.

The US public sector is in an evaluative mode characterised by pilot projects and amassing of relevant data. The private sector use of ISO 14001 proceeds with primary focus on customer demand, trade and market advantages and operational efficiency. Regulatory incentives are not the major determining factor for most.

The public expects that whatever changes occur in policy or in corporate management, the environment should improve, not decline, in quality. They also expect that economics and environment should work together to achieve mutual gains. All sectors offer individuals, groups and organisations willing to work toward these expectations.



**ANNEX**

**I. Pilot Projects and Related Activities**

Office of Water pilot projects involving municipalities  
(Jim Horne 202-260-5802)

Project Evaluation Guide, developed by the Multi-State Working Group  
(Dr. Robert Stephens, CalEPA, 510-540-3003)

Joint EPA / Multi-State national database of EMS pilot project results

Region 3 Environmental Science Center ISO 14001 based Environmental Management System demonstration project

Project XL and the Environmental Leadership Program

**II. EPA Publications**

ISO 14000 Resource Directory -- Call 513-569-7562 and ask for document EPA/625/R-97/003.

ISO 14000 Fact Sheets

"Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations" [www.epa.gov/owmitnet/wm046200.htm](http://www.epa.gov/owmitnet/wm046200.htm)

"The Role of National Standards Bodies and Key Stakeholder Groups in the ISO TC 207 Environmental Management Systems Standards Development Activity" Call 202-260-1023.

"Federal Agencies Participation in the Development and Use of Voluntary Standards" Call 202-260-1023.

EPA Publications



## **ISO 14001 Implementation in Japan,**

*by Keikou Terui<sup>52</sup>*

### **ISO 14001 Registration**

As of the end of March, 861 entities were registered in Japan. Japanese companies first began obtaining registrations in February 1995, and these were based on BS 7750. After the FDIS and ISO 14001 itself were published, and then again after the Japanese standard was issued, the number increased by 30 to 40 companies per month. This increased to 60 to 70 businesses per month around the new year and the pace has accelerated to 120 just this last March. The fiscal year ending in March in Japan plays a major role in this rapid increase, but even so, the trend shows no sign of a downturn.

Nearly 65% of registrations were awarded to companies in the electrical machinery and general machinery sector. Many of the companies in this category have international ties.

It can be thought that these companies have imagined that taking up environmental problems on a company level will affect trade. The percentage of registrations in the chemical industry, thought to have a high awareness of environmental problems, may seem unexpectedly low. However, nearly one hundred firms whose share of sales amount to 75% of total sales in the chemical industry in Japan have taken up responsible care, the safety and environmental management system which was proposed in the 1980's. These firms are expected to steadily become registered to the ISO 14001 because responsible care serves as a base for ISO 14001 registration.

Another characteristic is that industries in all sectors are taking to ISO 14001. Retailers, distributors, trading companies and businesses in the service sector such as hospitals, insurance companies and waste treatment facilities have been registered. This contrasts with the ISO 9000s, which are similar management system standards, but which are embraced mainly by manufacturers in Japan.

Moreover, administrative organisations and local government bodies have also recently become registered. This is rather remarkable. Although only three are registered so far, more are expected.

### **Reasons for Taking Up the Standards**

So why is it that there is so much interest in ISO 14000 in Japan?

If we look at registrations throughout the world, Japan has a high number of registrations equal to Britain, Netherlands, and Germany in which there are many registrations to EMAS. There are four general reasons for why this is so.

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<sup>52</sup> Mr. Terui is the Director of the Management System Standards Division of the Agency of Industrial Science and Technology (Ministry of International Trade and Industry, Japan), which administers Japan's conformity assessment policy including laboratory accreditation, product certification and quality system and environmental management system standards.

The first is that, given our past experiences, there is a high level of interest in environmental problems in Japan. The high rate of economic growth that we enjoyed in the 1960s came with the cost of tragic levels of pollution. Japan introduced very strict legal regulations to deal with the problems and regulations for companies to reduce effluent of pollutants and on the release of chemicals. Pollution prevention technology, such as equipment to remove sulphur and nitrates from emissions, have been installed. We have, for example, been able to reduce SO<sub>x</sub> concentrations in the environment down to one-eighth.

Then there are two oil shocks which rocked Japan in the 1970s. Japan, being poor in natural resources, was hit hard. Grave changes in energy savings and substantive changes in the industrial and social structure were required in order to ride out these shocks. Energy intensity in the major industries has dropped substantially and energy consumption rate in electrical appliances has been greatly reduced. Among the developed countries, Japan now has the lowest primary energy consumption per GDP.

It is these experiences which have made the Japanese people particularly sensitive to energy and environmental issues.

The second reason is that Japanese interest in global environmental problems is high, although the ISO 14000 series first started to be deliberated on after the Earth Summit in 1992. The Japan Federation of Economic Organisations, for example, drafted its Keidanren Global Environment Charter in 1991 and actively participated in ISO discussions. In order to accelerate the industrial sector's response to the global environmental problems, MITI also requested 87 major industrial groups to establish a voluntary plan that gives consideration to the environment in their business activities.

In order to help solve global environmental problems, Japan enacted its Basic Environmental Law based on the gist of the Rio Declaration adopted at the Earth Summit in 1993. The Basic Environmental Plan established based on this law contains recommendations for companies to implement environmental management system. The national and local governments are also asked to support the taking up of environmental management system.

The third reason is that understanding of management systems overall has deepened due to the spread of the ISO 9000 series of quality standards. As of March 1998, more than 6 400 registration were awarded, and the rate of new registration is expected to exceed a thousand a year.

The fourth reason is that becoming registered meshes with a company's needs. In today's world, tackling environmental issues has become an important business management agenda. By truly taking up ISO 14001, and not simply complying with regulations, accompany can create a business structure for solving global environmental problems, for clarifying and streamlining the business management system, and for contributing to building confidence to stakeholders and interest parties by raising the companies image. In short, taking up ISO 14001 can provide a management tool for companies, allowing them to meet their own needs and social demands for corporate responsibility.

### **Specifics**

A survey was carried out on 323 companies in Japan which have been ISO 14001 registered. First, look at the survey results on reasons for seeking ISO 14001 registration.

- Improved company image (82.0%)
- Social responsibility (76.3%)
- Improved competitiveness (50.7%)

- Instructed to obtain registration by holding or parent company (32.7%)
- Reduced costs (14.4%)
- Improved market position/greater market share (13.3%)
- As link to Eco-business (9.4%)
- Urging of industrial association (6.8%)

It can be understood that acquiring registration to the standard is expected to be an effective means for showing that the company is giving consideration to the environment to interested parties such as business partners, the community, NGOs and to the government as well. It also shows that many companies believe that companies giving consideration to the environment will gain prominence in market competition as well.

What, then, are some advantages and disadvantages of registration.

- Improved motivation of employees (27.0%)
- Reduced costs through energy and resource conservation (20.3%)
- Improved image of the organisation and better relationship with local community (18.5%)
- Creation of opportunities to make effective and continual improvements (14.0%)
- Improved management (8.1%)
- Reduced risk through safe practices (6.3%)
- Expanded market share/competitive strength in the market (4.1%)
- Sharing of information and technology on the environment resulting in improved quality of communications (3.6%)

Improved motivation of employees to activate the company by introducing the management system was given as the top advantage perceived. This was followed by reducing costs, improved image and better community relations.

Concerning cutting costs, some examples are:

- Resources savings and energy conservation (reduced use of paper, water, reagents, electricity, fuels)
- Improved waste processing and recycling (lowered treatment costs because of reduced waste levels, lowered material costs through recycling, reduce packaging needs)
- Lowered costs stemming from reduced and prevented accidents
- Cost reduction adversely affected (6.3%)
- Adverse impact on continual improvement activities (1.8%)

Disadvantages which have been cited are increased costs and hindrance to continuous improvement through changing the existing management system when introducing EMS.

As you can see, there are big differences in percentage between the motivation for seeking registration and advantage perceived after registration. At this time, registration has not experienced effects to the level expected.

### **Ways of Encouraging the Introduction of an Environmental Management System**

The section describes some of the policies and programmes established to encourage organisations to seek ISO 14001 registration, and ways that these endeavours are supported.

### *National Programmes*

The Basic Environmental Plan contains recommendations that organisations implement an environmental management system and requests that the national and local governments support these organisations in their efforts.

For example, MITI has taken measures aimed at helping SMEs which include:

- Information provision
- Holding seminars
- Subsidising to SMEs for advisor's fee
- Publication of case studies for SMEs to implement ISO 14001
- Financing to enterprises for environmental facilities

### *Local Government Programs*

Some local governments have acquired registration themselves. Three have already been registered and 24 are currently in the process. The reasons why these local governmental bodies are introducing ISO 14001:

1. Raise awareness of businesses and the community to environmental problems

Because environmental problems have a tendency to be left to "the other guy," local governments, by actively addressing environmental problems, are able to serve as a model in order to raise awareness of problems in the community.

2. Influence procurement and public works projects that give consideration to the environment

Local governments are able to ask participants to give consideration to the environment when carrying out public works projects or when procuring goods

3. Support local organisations acquire certification

Becoming registered to the ISO 14001 standard allows local governments to provide know-how and advise based on real experience and not just financial aid to support and promote the introduction of the standard to business organisations.

4. Provide an effective and transparent administrative service

Confirming the administrative structure and system and clarifying the responsibility will make it possible to raise the efficiency and streamline administrative services in the governments and thus make more transparent the organisation and services that can be provided to the community.

5. Encourage timely assessment and revision of policies (links to administrative reform)

Periodic assessment of the system will make it possible for top officials to more easily grasp the current situation, encouraging timely assessment and revisions of policies and programs, and ultimately linking to more effective and efficiently provided government services.

Moreover, a new trend is emerging. One local government is easing requirements pertaining to certain environmental regulations for registered organisations. An example is Kanagawa prefecture, which exempts registered companies from application or reporting requirements for making changes to facilities, reduces the frequency of on-site inspections and gives exemptions from other reporting requirements. There are three reasons why Kanagawa has chosen to introduce this scheme;

1. to streamline and rationalise the administrative procedures for both governments and businesses
2. to encourage the voluntary efforts businesses take to contribute to solving global environmental problems
3. to enhance the transparency of business activities toward environmental conservation.

The Government of Japan hopes that more and more local governments will use ISO 14001, rather than regulation, or even replace regulation by ISO 14001 as a voluntary means by private business to solve environment problems.

### **The Significance of ISO 14001 for Japan**

Japan has experienced the tragedy brought about by industrial pollution. The oil shocks forced major economic and lifestyle changes in Japan. These experiences have deepened our recognition of the seriousness of the current global environmental problems and the limitations of this planet earth.

#### *The Significance of ISO 14001 is Plain to See*

ISO 14001 provides a practical and realistic means to solve global environmental problems. It provides systems for continuous improvement of environmental performance. It provides a new paradigm for environmental conservation measures that are taken voluntarily and proactively, not forced on organisations by regulation.

Furthermore, ISO 14001 is a unique internationally-agreed-upon environmental management system. It will reduce the potentiality of trade barriers in cases where more stringent laws and regulations are enacted by different countries.

## ECO MANAGEMENT AND AUDIT SCHEME (EMAS): OUTCOMES AND PERSPECTIVES

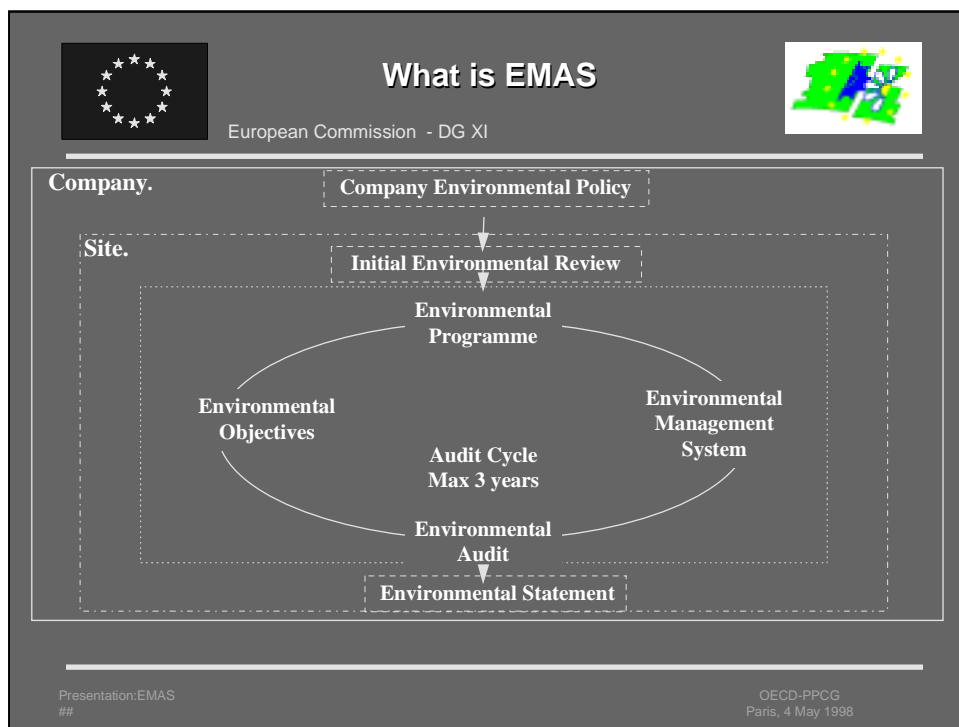
### EMAS

- Council Regulation (EEC) No 1836/93 of 29 June 1993 allowing voluntary participation by companies in the industrial sector in a Community eco-management and audit scheme
- Publication: OJ L 168 of 10 July 1993
- Entry into force: 13 July 1993
- Applicability: 10 April 1995

### OBJECTIVE AND METHODS

- Promote **continuous improvements** in the **environmental performance** of industrial activities

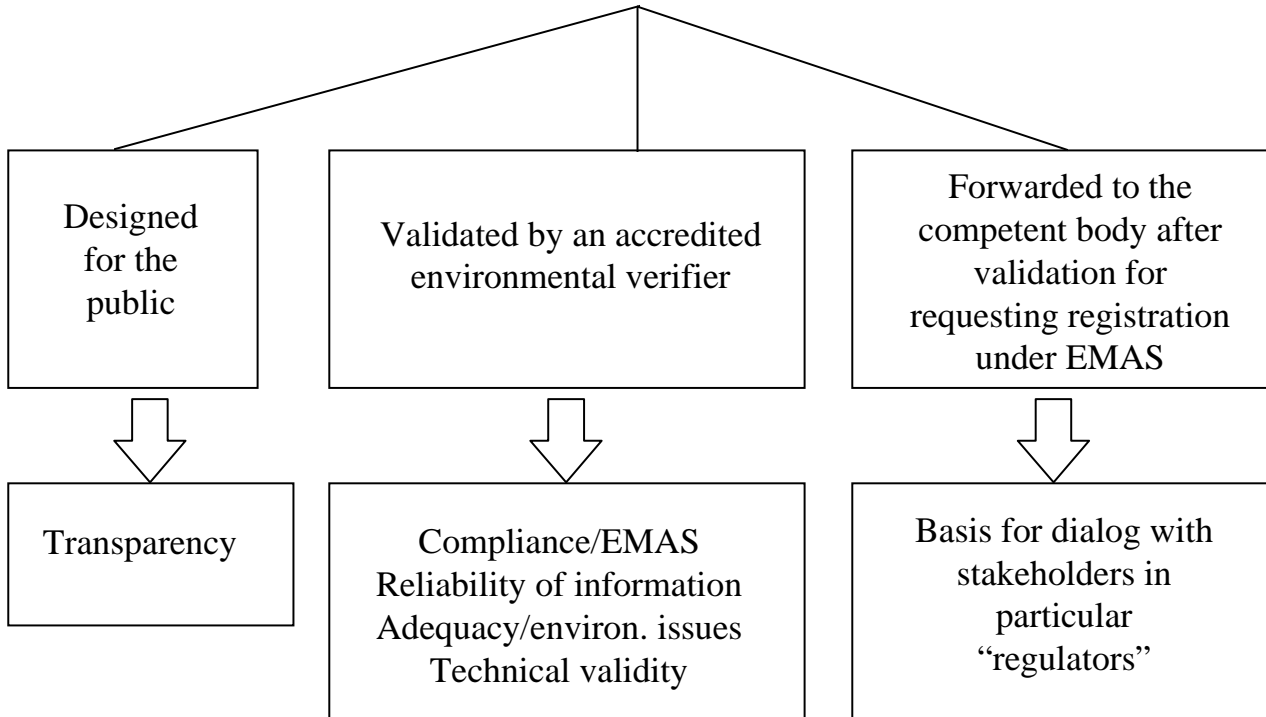
### What is EMAS





**PROVISION OF INFORMATION**

**Environmental statement**



**EMAS**

- ◆ **Shared-responsibility approach.**
- ◆ **Goal setting approach.**
- ◆ **Voluntary approach.**
- ◆ **Flexible and commensurate instrument.**

**BUT**

- ◆ **Rigorous and credible approach.**
- ◆ **Providing tangible benefits.**

### **BENEFITS GENERATED BY THE IMPLEMENTATION OF EMAS**

- improved environmental performance;
- rationalisation of operations (costs and risks mastered, better planning);
- improved monitoring of the production process;
- reduced costs (more efficient use of raw materials, decreased energy consumption, reduced production of waste etc.);
- an improved image with the public and with customers;
- enhanced employee morale;
- improved relations with environmental regulators.

### **EMAS-The way forward**

- increase the potential of EMAS to make a greater contribution to sustainable development by opening the scope of the Regulation to all organisations with significant environmental impacts
- rationalise the relationship between EMAS and ISO 14001 in order to allow organisations to use the different instruments together by including ISO 14001 as the EMS requirement of EMAS;
- enhance the added value of EMAS compared to other EMS;
- increase the participation of SMEs by developing a set of supporting tools for them.

### **EMAS-The way forward**

- increase the visibility of participation in EMAS for businesses as well as the promotion of the EMAS Regulation itself, through the introduction of a logo and a promotion strategy shared between Member States and the Commission
- increase the follow-up of the improvements of the environmental performance carried out by organisations through more regular verification and reporting;
- ensure the consistency of implementation of the Regulation across Member States

## **GROUPE DANONE'S STRATEGY ON THE ADOPTION OF ISO 14000 AND EMAS**

### **DANONE LEADS THE FIELD IN ITS MAJOR BUSINESSES**

#### **WORLDWIDE**

- ◇ # 1 Dairy products
- ◇ # 1 Biscuits
- ◇ # 2 Mineral water

### **A YOUNG CORPORATION WITH RAPID GROWTH**

#### **1966 creation**

##### **BSN**

- ◆ Sales ..... FF 1 bn (US\$ 190 million)

#### **1996 Danone Group**

##### **30th year in business**

- ◆ Consolidated sales .... FF 88.5 bn (US\$ 17 billion)
- ◆ Total workforce..... 81,600

### **ENVIRONMENTAL POLICY**

#### **The Environment, an essential part of DANONE's strategy and values**

- A natural component of Danone's products
  - ◇ DANNON
  - ◇ EVIAN
  - ◇ LU

## ENVIRONMENTAL POLICY

### The Environment, an essential part of DANONE's strategy and values

- A commitment to local programs
  - ◇ European Green Point System
  - ◇ Eco-Emballage (France)
  - ◇ Various European Public Awareness Programs

## ENVIRONMENTAL POLICY

- In accordance with the values of the Group, the mission of the Environment Policy is to federate the many actions already initiated, to support their promoters, to help them progress, and to ensure that other Companies of the Group benefit from their experience through enhanced communication.

## ENVIRONMENTAL POLICY: KEY POINTS

- **Global**
  - Overall universal guidelines
- **International**
  - Adapted to local conditions
- **Employee involvement**
  - Everyone's responsibility

**AN ENVIRONMENTAL FOCUS IS GOOD FOR BUSINESS!**

- **Subjects “in focus”:**
  - ◇ Frugal plants... Clean plants...
    - water: use, effluents, treatments.
    - energy: type, use, effluents, treatments.
  - ◇ Reduction of packaging weight
    - Plastic bottles, cups...
  - ◇ Integrated farming
    - appropriate farming practices

**THE ENVIRONMENTAL CHARTER**

*Published in 1996 in 11 languages*

(English, French, Spanish, Italian, German, Dutch, Polish, Czech, Russian, Chinese (Mandarin), Hungarian.)

- Global respect for the Environment
- Personnel involvement
- International scope
- Annual reviews
- Quantified goals
- External assessment

**DANONE ENVIRONMENTAL PROGRAM**

**Achievements to date / reference ISO 14001**

- Self-diagnosis of 197 sites worldwide (total 230)
- Quantified targets to limit emissions/effluents
- Audits + Action plan to reduce risk / liability
- Pilote sites : ISO 14001

### **SELF-DIAGNOSIS**

- **Use of the same easy-to-use audit software “Diagnostic Environment TM”**
  - easy to answer Y/N questions;
  - 200 questions (waste, effluents,...);
  - generation of quantified report cards;
  - exhaustive regulations & technical on-line help.
- **Consolidation at headquarters in order to generate benchmarks.**
- **Transition to MORE SPECIFIC software in 1998.**

### **AUDIT + ACTION PLAN**

- **SELF DIAGNOSIS DO NOT REPLACE:**

*to have an audit conducted with outside experts with a review of environment impact reflected in medium-term planning and budget*

### **AUDIT + ACTION PLAN**

- **RESULT**
  - ◇ Organisational measures (e.g. waste monitoring updating regulations file) = 50 %.
  - ◇ Investments (Generally identified) = 20 %.
  - ◇ Modifications (implementation at least cost subject to planning) = 30 %.

### **ENVIRONMENTAL MANAGEMENT SYSTEM**

#### **EMS system chosen along the lines of ISO 14001**

- ◇ 1996 Self-diagnostic of all sites
- ◇ 1997 2 pilot sites ISO 14001 / EMAS  
*Danone Spain (dairy) & Danone Germany (dairy)*
- ◇ 1998 4 pilot sites ISO 14001 certification  
*Danone France (dairy) & Kronenbourg (bier)*

**ISO 14001**



**ISO 14001**

**Objectives:**

- ◇ anticipation of the regulation;
- ◇ review and reduction of impacts;
- ◇ data control : key indicators with target definition;
- ◇ corrective measures insure damage control.

*Good environment practice is part of good industrial organisation and productivity*

**ISO 14001**

- **Industrial Environment network**

= 20 members all over the world meeting every two months

*in charge of:*

- ◇ coordinate and train
- ◇ provide tools
- ◇ collect data (technic and financial)

**SUMMARY: THE ENVIRONMENT**

- **Has always been and is today even more a strategic component of Danone's business.**
- **"Works well" with a "smart" productivity:**
  - ◇ allows to produce better
  - ◇ allows to save money  
*while reinforcing Danone's Corporate values*
- **Is a strong motivating factor for each employee.**

**CONCLUSION**

**The DANONE Corporate Logo:**

**"A child looking up to a star."**

**In all our actions we must continuously  
strive to ensure a bright future for  
generations to come.**



## **Multi-State Working Group on Environmental Management Systems,**

*by Dr. Robert D. Stephens<sup>53</sup>*

U.S. States, reflecting their diversity within the federal system, are approaching ISO 14000 in varied ways. This is in the tradition of the States as so-called "Laboratories of Democracy" where new ideas are tested. The most recent example of States as laboratories is on the topic of welfare reform. States like Wisconsin developed programs to help people move from the public dole to paying employment, an innovation that has spread to other states, the U.S. Federal Government and Europe.

With regard to ISO 14000, the degree to which states are experimenting, depends upon several factors:

- a) Political leadership by the Governor, Legislature and regulatory agencies;
- b) Exporting or economic strategy of businesses in the State;
- c) The strength of business sectors that have an interest in ISO 14000;
- d) Business interest in regulatory flexibility in return for ISO certification;
- e) Public interest group (NGO) attention to ISO 14000;
- f) Other (e.g. academic, professional or regulator's interests).

A number of States have joined to share ideas and experiences regarding environmental management systems in general and ISO 14000 in particular. The group is called the Multi-State Working Group on Environmental Management Systems (MSWG) and it has been meeting since September 1996.

### **The MSWG**

Twelve states, representatives of U.S. Environmental Protection Agency, the public interest community (NGOs), academics, business and National Institute of Standards and Technology have been meeting since September 1996 to discuss ISO 14000. The States are: Arizona, California, Illinois, Iowa, Massachusetts, Minnesota, Missouri, North Carolina, Oregon, Pennsylvania, Texas, Wisconsin.

The group will evaluate the relationship between the performance achieved through the ISO 14001 standard and public policies. Depending upon results, changes in policies then maybe considered. In its first phase of work, MSWG has produced the Environmental Management Systems Voluntary Project Evaluation Guidance as well as a data protocol that goes with the guidance. These documents will be used in connection with pilot projects. (To obtain a copy see below.)

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<sup>53</sup> Dr. Stephens is the Deputy Director for Science, Pollution Prevention and Technology programme in the Department of Toxic Substances Control, California State Environmental Protection Agency. He is a member of the U.S. Technical Advisory Group to ISO's Technical Committee for Environmental Management Standards, and is active in several of the US TAG sub-committees and working groups. He chairs the California EPA task force responsible for developing the policies and programmes on how the ISO 14000 standards relate to regulatory and other public policies. He has been active in the promotion of inter-state co-operation in the development of ISO 14000 based public policies.

### ***Public Policy Questions Are Asked***

The MSWG work is focused on gathering information that will be of value to regulatory agencies and others. For its own part, the MSWG is interested in a variety of questions relative to the regulatory framework. These are questions presented to the Environmental Council of States (ECOS) in fall, 1997:

1. Third party auditing: Can private auditors complement the government?
2. Audit immunity: Should an EMS organisation be considered differently than an organisation without an EMS?
3. Workload management: Can EMSs compensate for regulators' staffing shortages?
4. Trade-offs: Can EMSs lead to credible environmental priority setting?
5. Permit downsizing: Can EMSs lead to simpler, cheaper permits?
6. Regulatory ladder: Can EMSs produce "high performers" that merit less regulatory attention?
7. Performance barriers: Do existing rules and programs inhibit EMS performance?
8. Federal devolution of power of states: Can EMSs facilitate "accountable devolution" of authority to the states from the federal level?
9. Data interpretation: Can EMSs provide a better context for toxic release inventory (TRI) and other publicly required and released data?
10. Environmental indicators: Can EMS indicators focus attention on ecosystem priorities?
11. Public agency roles: How will regulators roles change vis-à-vis EMS organisations?
12. Small business: Do EMSs offer a less bothersome way to achieve compliance with laws?
13. Media integration: Will EMSs help regulatory agencies and permitting programs integrate their approach to controlling air, water and solid waste pollution?

### ***Voluntary Pilot Projects Are Planned***

The States want to find answers to the above questions and other questions relating to the effectiveness of environmental management systems (EMSs). Thus, they will sponsor voluntary pilot projects. At least 100 pilot projects are expected to begin before the end of 1999. It is anticipated that projects will be added to the list as States join MSWG or other projects come forward that meet protocols even though they may not be on the menu of state-sanctioned and supervised projects.

The projects will produce data in these categories: environmental performance, environmental indicators, environmental compliance, costs-benefits, pollution prevention and interested party involvement. Not all projects are expected to produce data in all of the categories. In their totality, the data will provide insight. Data from any one project may not provide great insight or statistical depth. If they meet protocols, other data from voluntary EMSs may be accepted into the federal-state data bank at the University of North Carolina - Chapel Hill.

### ***Pilot Project: Intentions with Contacts***

This is a list of MSWG states and pilot project status as of May, 1998:

1. **North Carolina:** Five pilots are underway and firms have been briefed, trained and formed into a mutually-supportive network. Some regulatory flexibility is possible but the issue has been postponed until later. The state provides technical assistance. The Legislature and state commerce agency are interested in ISO 14000 as a competitive tool. Contact: Ravila Gupta: 919.715.6507

2. **California:** Approximately 10 pilots are anticipated. A possible list: electronics, biotechnology, publicly owned wastewater treatment plant, municipal government, a national research laboratory, a military base, an agricultural producer and an industrial cluster of small and medium sized enterprises. Regulatory flexibility is possible. The Legislature has appropriated funding and staffing to ISO 14000 activities. Contact: Dr. Robert Stephens: 510.540.3003
3. **Oregon:** Eight companies have expressed an interest in pilot projects. Three pilots are expected. No limits planned on sectors but electronics and wood products appear are candidates. The pilots will be a part of the state's green permits program which involves regulatory flexibility and has the objective of setting up a three tiered regulatory system. Contact: Paul Burnet: 503.229.5776
4. **Illinois:** At least 15 firms will participate in pilots at three levels: a) Pilots that adopt use regulatory flexibility; b) Pilots that get state technical assistance on pollution prevention and stakeholder involvement without regulatory flexibility; c) Firms with existing EMSs that can generate data to meet MSWG data standards. Illinois has a regulatory innovation law that allows regulatory flexibility. Contact: Peter Wise: 217.785.8786
5. **Iowa:** Iowa is considering pilot projects with a focus on small and medium sized enterprises, possibly in the auto sector. Plans for pilot projects have not been finalised. Contact: Marci Carter: 319.273.8905
6. **Arizona:** Approximately six pilots will be selected from among 100 candidates. A possible list: electronics, utilities, a military base, and small and medium sized enterprises. Contact: Dave Ronald: 602.542.8505
7. **Wisconsin:** Up to 10 pilots will be selected under the new co-operative environmental agreement law. A possible list: utility, manufacturing, agriculture, wastewater treatment, and small and medium sized enterprises. Wisconsin has a regulatory innovation law that allows flexibility in pilot projects. Contact: Lynda Wiese: 608.267.3125
8. **Texas:** Texas plans five pilot projects with an emphasis on small companies in the chemical and electronic sectors. These firms will be going for ISO certification or have adopted EMSs. It is working with the University of Houston to evaluate EMS performance based on data collected by the University. It does not plan regulatory flexibility at this time. Firms will be used for comparative purposes. Contact: Andy Neblett: 512.239.3134
9. **Pennsylvania:** Pennsylvania will have two, highly visible pilot projects that will focus on using EMSs to achieve zero industrial pollution as a part of a strategic environmental initiative and Environmental Leadership Program. It is not emphasising ISO 14000 at this time. Contact: Stacy Richards: 717.783.0540
10. **Minnesota:** Minnesota is considering a number of pilot projects, possibly including an eco-industrial park. Minnesota has a regulatory innovation law. Contact: Randy Hukriede: 218.828.2492
11. **Missouri:** It is studying ISO 14000 in co-operation with the business community and holding discussions with larger industries. The Missouri Regulatory Forum and State Chamber of Commerce are interested in pilot projects. Contact: Todd Crawford: 573.751.2574

12. **Massachusetts:** Massachusetts is conducting pilots with state facilities (e.g. corrections and highway divisions). The City of Lowell and corrections agency are participants in the EPA Office of Water effort. The State has interest from nine companies in a pilot effort designed to correct existing problems. Co-operation exists with Tufts University. Contact: Robert Bois: 617.292.5833
13. **US Environmental Protection Agency:** The Office of Water is funding pilot projects in eight states and eight municipalities. States involved or states with communities: New Hampshire, Vermont, Indiana, North Carolina, Massachusetts, Connecticut, Maryland, Arizona, Michigan, Oregon, Texas, Wisconsin, California. Contact: Jim Horne, EPA Office of Water: 202.260.5802

The MSWG and EPA are co-hosting a pilot project workshop in North Carolina on May 14 and 15, 1998. About 125 government, business (pilot projects), academic and public interest parties will attend. For information: Beth Graves: 919.715.6506

#### ***MSWG and the Regulatory Framework***

Some MSWG states have need to address the regulatory framework as a part of their pilot projects and as such have presented the EPA with ideas regarding the regulatory framework. For example, they plan to test whether flexibility in regulations invites sub-standard performance. These ideas may be used only in pilot projects to learn about the use of the framework and/or recognise participation of the firms in the pilot projects and the considerable efforts the firms will expend in providing data from the pilots. The topical areas: enforcement discretion, inspections, permitting, reporting and monitoring. The EPA is considering a proposal, which is moving toward agreement.

#### ***MSWG and the US TAG***

In October, 1997, the MSWG explained to the US TAG in Washington its interest in pilot projects in the context of public policy issues. In the course of preparing for these tests, the MSWG found regulator, public interest group and, to a lesser extent, business concern as to the need for clarification in three areas of the ISO 14001 standard:

1. Public communication relating to setting goals and reporting performance;
2. The relationship of the EMS to regulatory compliance and performance regarding all significant environmental aspects;
3. The definition of pollution prevention and its role in all aspects of the system.

In March, 1998, MSWG stated to the US TAG in San Antonio that it does "not pre-judge" the content of the clarification in each category. But it did recommend that the US TAG begin a structure and process to prepare for discussions regarding the standard's revision.

#### **Phase Two: EPA and MSWG, 1998-99**

Because EPA and MSWG have signed a "common purpose" statement, much of the phase two MSWG work will heavily involve EPA. Work activities will be to: facilitate communications and networking among pilot project participants (governments, businesses and public interest groups); design and implement a training and awareness program for pilot participants and others.

Also, establish a relationship with the registrar community; direct collection and analysis of data; organise a national roundtable; recognise and applaud pilot participants; develop a long term research strategy; interact with Europe and elsewhere on EMS issues.

### *The Research Agenda*

The MSWG assumes that changes in public policies as well as changed practices in the private and public interest sectors will take place, at least in part, because there is solid research done by credible researchers, using valid data. That is the purpose of pilot projects. Recognising the magnitude and consequence of the potential changes, academic institutions have standing that is not readily available in the other sectors. Therefore, a partnership strategy is being developed with academic institutions in various parts of the U.S.

An academic roundtable was held in California; one is planned for North Carolina on May 13, 1998. Two others are anticipated -- one in New England; one in the Midwest. The regional roundtables are expected to:

- a) Frame the research issue areas that experts and interested parties believe exist in a larger sense and identify those focused areas of research that they believe they and their institutions can pursue in the context of the larger picture;
- b) Identify individuals, institutions and organisations interested in doing research, benefiting from research and funding research;
- c) Contribute ideas for the structuring of a national roundtable at Brookings Institution late in 1998 or early 1999 and develop a list of invitees based on the three categories in Item "B".

The national roundtable in Washington, will bring funders and researchers together. The objective is to meet the research needs of government (executive and legislative branches), business and public interest sectors so each of the sectors can understand the potential or environmental management systems such as ISO 14000 to meet its needs in a fashion that is supportive of the existing system.

MSWG is already commenting on research proposals that emerge from academic institutions and/or are before major funders, such as the World Bank. A number of research incitations and researchers in the U.S. and Canada have expressed an interest.

### **Behind the States' Interest in ISO 14000**

Unlike ISO 9000, the public and government have a greater interest in the effectiveness and efficacy of management systems that directly affect the environmental performance of an organisation, including compliance with the law. The fact that ISO 14000 relates to a topic traditionally assigned to government to address, a topic that falls under the purview of "the public trust", heightens interest of government and public interest parties. However, several factors reinforce the interest of regulators at this time:

- a) A business coalition has formed to affect public policy and ISO 14000;
- b) Regulators are under pressure to do more with less;
- c) Lawmakers are pressured to deregulate;
- d) Old regulatory approaches don't fit new realities;
- e) Other regulatory innovations have limits;
- f) States want to move faster than some parts of the federal government.

### ***How do State Regulators Interact with Others on ISO 14000?***

Public policy analysts criticise the cost of litigation and conflict between government and business and among government agencies. Environmental Management Systems (EMS) and ISO 14001 represent opportunities to develop less contentious policies and relationships. Regulators are thus seeking to work with others in government, business and the public interest community in a number of ways:

- a) By learning together and asking questions from different perspectives;
- b) By agreeing on regulatory flexibility as a component of some pilots;
- c) In court as a part of a legal settlement (Canada, New York and Illinois);
- d) By partnering for competitiveness or commercial promotion;
- e) By implementing National Governor's Association and Environmental Council of States policies.

### ***State Association and Organisation Policies***

Generally speaking, multi-state government associations are not able to be as forceful in their policy statements as individual states and their elected leaders. However, the tone set by the consensus policies often has considerable implications as to how the states and others approach issues. This is true with EMSs and ISO 14000. General statements regarding each are in National Governors' Association (NGA) and Environmental Council of States (ECOS) policies. Related organisations, such as those serving legislatures, professional organisations, regulators, etc. are now looking at EMS and ISO 14000 as things they need to learn about. Three examples of NGA and ECOS policies:

*NGA Policy NR6.1.1:* "Appropriate use of tools such as environmental management systems has the potential to provide better environmental protection, business efficiency and co-operation and opportunity for public-private partnerships to prevent pollution."

*ECOS Resolution 97-4:* "Environmental Management Systems, including ISO 14001, offer significant potential to improve environmental performance. Regulatory agencies (should be) developing an understanding of the standards, benefits and costs of ISO 14001 and other EMSs through the implementation of pilot programs (and should create) a national, independent data base of results from such pilot programs."

*ECOS Resolution 97-7:* "The Multi-State Working Group (MSWG)...is poised to launch pilot projects (and) the MSWG and EPA have agreed to jointly develop protocols for data collection, management and analysis (therefore), the Environmental Council of States supports...the work of involved states and the creation and implementation of the action plan."

### **EPA Policy**

Since fall, 1997, the US Environmental Protection Agency has focused on its approach to ISO 14000. Two official statements are indicators of the EPA focus on ISO:

#### ***Internal EPA Policy***

On December 16, 1997, EPA Deputy Administrator Fred Hansen signed a directive regarding the co-ordination of EPA programs involving environmental management systems, including ISO 14001. Hansen designated the Office of Reinvention as having responsibility for policy co-ordination.

Hansen asked for a status report on: a) Publication of the agency's pollution; b) A plan showing how EMSs are consistent with EPA policy and can be integrated to support EPA policy; c) Collecting, managing and analysing data from pilot projects.

He said: "EPA is evaluating the use of EMS in a variety of applications, including possible future use in environmental policy decisions. The emergence of the new international standard for EMS, ISO 14001, makes our work in this area all the more timely. Growing number of U.S. organizations are using EMS for economic, trade and other competitive benefits along with environmental improvements. Environmental management systems hold great promise for improving environmental conditions in the United States and internationally. I look forward to being involved in EPA's efforts to help realise the full potential of EMSs."

### ***Federal Register Notice***

On March 13, 1998, the EPA published, in the Federal Register, its draft Position Statement on Environmental Management Systems and ISO 14001. The statement pointed to EMSs in the private sector (Chemical Manufacturers) and other nations (France, Ireland, The Netherlands and Spain). An EMS "has the potential to improve an organization's environmental performance and compliance", it said.

Further, EPA said the National Technology Transfer and Advancement Act will often require federal agencies to use consensus standards where they exist and the Commission for Environmental Cooperation, by EPA Deputy Administrator Fred Hansen, referenced the potential of ISO 14001 but emphasised the standard was not a performance standard.

The notice said it is the EPA policy to work with states on ISO 14001 pilot projects as a means to achieve "public policy innovation". The Register referenced the data collection categories identified by the MSWG and committed the agency to the common data base (at the University of North Carolina - Chapel Hill).

### **Contacts**

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For information on EPA ISO 14000 policies published in the Federal Register, contact: Office of Reinvention -- EMS, Environmental Protection Agency, 401 M. Street, SW, mail code 1803, Washington DC 20460; phone: 202.260.4261; e-mail <reinvention@epamail.epa.gov>

To request the MSWG Voluntary Pilot Project Evaluation Guidance or to be placed on a MSWG e-mail distribution list, contact: Kirsten Oldenburg, P2cP Consulting, 423 12th Street, SE, Washington DC 20003; phone: 202.546.8542; fax: 202.546.8386; e-mail <p2cp@iname.com>

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## **The Trade Implications of EMS with Particular Reference to ISO 14001,**

*by Jean Chin*<sup>54</sup>

### **Introduction**

A large interest has emerged in many countries in the relationship between international environmental management standards, particularly the ISO 14000 standards, and international trade. Although these standards are wide ranging and include standards on eco-labelling and environmental management systems (EMS), recent work in UNCTAD has focused on ISO 14001. In my intervention, I will examine this issue, although it should be noted that the implementation of these standards is still relatively recent and that the full implications of international EMS standards, particularly for international trade, are not yet fully understood.

EMS are based on a set of voluntary rules that companies can adhere to in order to better control the environmental impact of their activities on the basis of self-determined environmental policies and objectives. An EMS is interpreted as the organisational structure, including practices, processes, resources and responsibilities, for implementing environmental management. These are familiar concepts for firms in developed countries while those in the developing world are either unaware or gaining only recent familiarity.

EMS standards can be beneficial for both firms and Governments. Commercially, ISO 14001 certification may enhance a firm's image and credibility, while the setting up of an EMS and the continual environmental improvements encouraged by ISO 14001 may also induce cost savings, particularly through a more efficient use of materials and energy. The emphasis on self-regulation by industry may also benefit the Government and allow the channelling of added resources to other priority areas. However, as yet, improvements in economic or environmental performance following the implementation of EMS, particularly in developing countries remain uncertain and will have to be determined on a case by case basis.

However, interest in ISO 14001 has not resulted only from these potential benefits. Despite its voluntary nature, there is also concern that ISO 14001 certification may become a *de facto* condition for doing business. Based on interviews with developing country officials, an UNCTAD study notes that much of the interest in ISO 14001 stems from a possible repeat of market forces that arose from the ISO 9000 quality standards, and not from a sense that ISO 14001 may bring about improved environmental performance. While compliance with the ISO 14001 standard may enable certain companies to strengthen market positions, the standard could act as a barrier to trade for companies that find it difficult or costly to comply with the standard. Although the trade effects remain uncertain, a combination of factors such as the novelty of EMS in many developing countries, insufficient infrastructure, reliance on foreign consultants and registrars can make the cost of compliance higher for companies in developing countries, in particular small and medium sized enterprises (SMEs)<sup>55</sup>, than for their competitors in developed countries.

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<sup>54</sup> Prepared by Jean Chin and René Vossenaar, UNCTAD. The views expressed are those of the authors and should not be attributed to UNCTAD or its member states.

<sup>55</sup> SMEs in developed countries may also face difficulties in setting up EMS.



UNCTAD member states recently convened an Expert Meeting “to examine the operation, and the possible trade and investment impacts of environmental management standards, particularly the ISO 14000 series, on developing countries, and the identification of possible opportunities and needs in this context”. Incidentally, this was the first inter-governmental meeting to be convened on this issue at the international level. Experts from both developed and developing countries, including key members from the ISO participated in this meeting, many of whom are also present in this room today. In my intervention I will draw considerably from the UNCTAD secretariat report which was prepared as a background document for the expert meeting and from the discussions in this meeting. The agreed conclusions of the experts are shown in the annex.

Whether and how international standards for EMS can influence trade depends on many factors. In addressing the implications of standards on international trade, several policy issues are relevant. In the area of international trade policy, the emphasis should be on reducing the likelihood that such standards will restrict trade. Such trade policy measures include the harmonisation of product standards whenever possible, the maximum possible recognition by importing countries of tests conducted by testing bodies in exporter countries, and the recognition that standards which may have significant effects on trade should be subject to trade rules and disciplines, including through provisions for consultations. Issues related to trade rules are being addressed in the WTO. The Agreements on Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary Measures (SPS) aim to ensure that standards and conformity assessment procedures do not create unnecessary restrictions to trade. International standardisation bodies, such as the International Organization for Standardization (ISO) play a key role in designing international standards.

In the area of trade promotion policies, governments and the business sector can adopt several policies and measures aimed at promoting standards and quality with a view to enhancing competitiveness. These include *inter alia* establishing and / or improving supporting infrastructure (e.g. appropriate testing, certification and accreditation facilities), dissemination of information, promoting co-operation between the Government and the business community, promoting co-operation between retailers / importers and producers / exporters, as well as special measures in favour of SMEs. International organisations as well as bilateral and multilateral aid agencies can play important roles in establishing and upgrading national capacities in promoting quality, testing and certification.

### **Costs and Benefits of EMS Standards**

For most companies, the decision whether or not to set up and maintain an EMS will be based on an evaluation of associated economic costs and benefits. In accordance with ISO 14001, for example, company-level environmental policies should aim *inter alia* at pollution prevention and continual improvement. Thus, an EMS can be a useful tool to increase efficiency and induce savings, e.g. through a more efficient use of materials and energy.

Apart from possible cost savings, there are other economic benefits. For example, Governments may make special provisions for companies that have an EMS in place, which may bring about significant cost savings to companies. Certification may also increase shareholder value, and this is, for example, one reason why companies in the process of privatisation are interested in EMS. Finally, banks and insurance companies may request EMS registration, and insurance premiums, credit conditions and treatment of liability may become differentiated between registered companies and others.

Currently, not much empirical evidence exists on the actual costs and benefits of EMS, particularly in developing countries. A recent survey conducted by UNIDO indicates a difference in the perception of different regions and different actors regarding the costs and benefits of ISO 14001. Two main elements determine the costs of participating in ISO 14001: (a) the incremental costs in meeting the

standard's EMS requirements (e.g. setting up and maintaining an EMS, hiring consultants, meeting company-determined performance goals); and (b) registration and certification costs. These costs can vary considerably, depending on the initial conditions within an organisation, as well as conditions external to the organisation, such as the availability of infrastructure. Unfavourable conditions can result in higher compliance costs for individual companies. These are more likely to prevail in developing countries, particularly in the absence of adequate infrastructure, formal management systems, lack of compliance with existing environmental regulations, and reliance on the services of expensive consultancy firms. In many developing countries, continued reliance on obsolete technologies, poor management skills, a lack of awareness and expertise on environmental management systems is characteristic of most organisations, and the need to upgrade and improve is acute.

### *Costs of Certification and Related Issues*

Certification issues have a considerable bearing on the ability of ISO 14001 to act as a barrier to trade. Certification can be expensive, particularly if national certification and accreditation bodies are non-existent, or if certification by national bodies is not accepted in overseas markets. Conformity assessment is an important issue, particularly from a trade perspective.

ISO 14001 provides for self-certification. However, for many organisations, particularly in developing countries, third-party certification is likely to be essential to gain marketplace credibility. This raises questions regarding the existing certification infrastructure in developing countries and the associated costs. According to some estimates, in the case of ISO 9000, certification audits alone may cost between US\$10 000 and US\$30 000 if European or US consultants are used. The costs of certification carried out by local ISO registrars in developing countries tend to be much lower. In Vietnam for example, local certification fees range between \$1 000 and \$5 000 in total.

Several developing countries have already established conformity assessment systems to enable certification by local bodies. Pilot projects have played a useful role in this regard. The international value of ISO 14001 certification, however, depends on the confidence that others have in the body that performs the certification, and in the process it uses. This may pose problems to exporters in all countries, in particular developing countries.<sup>56</sup> For widespread confidence in ISO 14001 certification, each country will need to have a rigorous and reliable mechanism to support the accreditation of certification bodies, and provide assurance that certification is done rigorously and fairly. Several developing countries have accredited certification bodies.

Mutual recognition of certification systems could be promoted at the bilateral and regional level as a means of avoiding barriers to trade. Some initiatives are being undertaken to develop an internationally recognised certification system. It is hoped that work on conformity assessment for EMS should result in internationally harmonised accreditation systems for EMS certification bodies, which will support universal recognition of ISO certifications. Once in place, such a system will diminish the need for bilateral or regional agreements on mutual recognition of conformity assessment.

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<sup>56</sup> Exporters from many countries complain of the frequent need for multiple certification. Canadian exporters, for example, have repeatedly stated that certification to an ISO standard carried out in Canada may not be acceptable in overseas markets requiring conformity to the same ISO standard in those markets. This has been the experience with ISO 9000 (and likely with ISO 14000) where although the standard is international, the certification requirement is local.

### *The Certification Industry*

ISO 14001 has contributed significantly to the development of an EMS certification industry. It has generated new and often lucrative business opportunities for certification bodies and consultants. This market has traditionally been dominated largely by European and US companies, such as SGS (Switzerland), Veritas (Norway) and Underwriters Laboratories. These companies have a significant presence in developing countries and dominate the markets in most.

Developing countries have not generally been able to take significant advantage of new opportunities presented by ISO 14001, due to the novelty of EMS in the developing world. Much needs to be done, particularly, in terms of capacity building in order for developing countries to capitalise on such opportunities.

### **Trade Implications**

The trade effects of ISO 14001 remain uncertain. Some firms may seek ISO 14001 certification as a means to increase export competitiveness and strengthen market positions, even in the absence of explicit pressure from overseas customers. ISO 14001 could potentially be used as a marketing tool both domestically and internationally.

In most other cases developing country companies may seek certification in response to requirements from overseas customers. ISO 14001 may act as a non-tariff barrier to trade if certification is costly or difficult to achieve. Should companies participating in an EMS scheme consider the environmental performance of suppliers and contractors; this may in some cases lead to "green procurement practices" through the introduction of environmental conditionalities, although these may not go as far as to require ISO 14001. A recent UNIDO survey shows that over 70% of companies in developing countries and countries with economies in transition perceive that compliance with ISO 14001 can open new trading opportunities and/or strengthen market positions. At the same time the survey shows that 60% of the companies believe that ISO 14001 may result in technical barriers to trade. These results show that ISO 14001 is perceived to have significant, positive or negative, trade effects. Indeed, trade consideration seem to play an important role in many developing countries which have taken a proactive approach, with pilot programmes already in place. Trade considerations may also play an important role in several developed countries.<sup>57</sup>

These are, however, only perceptions. ISO 14001 may be too recent to determine what its trade effects will be. Some experts feel it may take a decade or so to gauge from practical experience the significance of ISO 14001 as a factor in the market place.

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<sup>57</sup> A study on Japan shows that over 60 per cent of the more than 300 companies that had registered their EMS against ISO 14001 by July 1997 (this number is expected to double by the end of 1997) were in the electric and machinery sectors, and registration was growing fastest in those fields relating to international trade. Keiko Terui, "Environmental Management System in Japan", paper presented at the APEC Seminar, and "Japan Continues to Position Itself as Major Player in ISO 14000 Activities", July 1997, globeNet.

The closest analogue to environmental management systems can perhaps be found in the ISO 9000 series on quality control, and experience with ISO 9000 may shed some light on the possible impact of ISO 14001. While it is generally recognised that the ISO 9000 series has gained wide acceptance in the market place, it is difficult to gauge its overall importance. Most firms have not yet faced a degree of commercial pressure that would encourage them to seek certification. Furthermore, ISO 14001 may be of lesser relevance to customers than ISO 9000. Customers are not subject to the environmental effects of a company and in any event, as environmental performance often includes both objective and subjective measures, it is difficult to determine to what extent the customer's environmental needs have been satisfied. ISO 14001 may be mainly relevant for environmentally sensitive sectors with relatively little effect on other sectors.

In addition, although the trade impact of ISO 14001 remain uncertain, the inadequate participation of developing countries in the development of the ISO 14000 standards may have a direct link to certain adverse trade effects that may accompany the use of these standards.

### **Policies and Measures to Promote the Implementation of EMS Standards**

Governments can play an important role in providing an "enabling" environment for the implementation of ISO 14001. In addition, policies and measures at the bilateral and/or multilateral levels, including co-operation in the area of technical assistance and capacity-building, may assist developing country companies and their Governments in implementing EMS.

The recent UNCTAD Expert Meeting identified a number of needs of developing countries with regard to national implementation of the ISO 14001 standard. It was recommended that actions aimed at facilitating EMS implementation in developing countries should focus on: (a) awareness-building among the concerned stakeholders; (b) identification of sources and dissemination of information; (c) creation of infrastructure, training auditors and consultants; (d) access to and transfer of environmentally sound technology; (e) assistance in developing and implementing related legislation; (f) support for participation in relevant forums, in particular, the ISO standard setting process. Enhancing the effective participation of developing countries is a priority and is necessary for the development of standards that are truly international in nature.

Key questions to be examined include:

1. How could actions aimed at facilitating EMS implementation, such as those mentioned above, be implemented effectively?
2. What incentives could Governments provide to encourage the wider use of EMS?
3. How could bilateral co-operation between importing and exporting countries, at the level of Governments and / or enterprises, be promoted?

## Conclusion

The implementation of ISO 14001 is still relatively recent and its implications, including for international trade, are not yet fully understood. The recent UNCTAD Expert Meeting underlined the importance of ISO 14000 standards on EMS and their potential benefits for developing countries, but recognised that more analysis and experience was needed to fully understand their trade implications. Subsequently, participants in a range of national workshops<sup>58</sup> on Trade and Environment co-organised by UNCTAD, have also stressed the need for empirical research on the trade implications of ISO 14001 as well as for an examination of implementation issues at the national level.

As a follow-up to the Expert Meeting, UNCTAD hopes to launch several projects which are aimed at providing developing countries with objective information on the ISO 14001 standard; analysing the possible trade implications; and assisting interested developing countries in their consideration of policies and measures aimed at promoting the wider use of EMS at the national level. It is important to ensure that ISO 14001 standard does not result in an obstacle to trade, but rather promotes trade and improved environmental management. It is hoped that these activities will contribute towards the further integration of developing countries into the world economy by encouraging greater efficiency and improved environmental management at the enterprise level as well as the effective participation of developing countries in international deliberations, particularly in the review of ISO 14001, by promoting analysis and dialogue at the national level.

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<sup>58</sup> These include recent national workshops in India, Cuba, Vietnam and Tunisia.

## ANNEX

### **Recommendations Adopted by the Expert Meeting**

The Expert Meeting on "Possible trade and investment impacts of environmental management standards, particularly the ISO 14000 series, on developing countries and opportunities and need in this context", which met in Geneva from 29 to 31 October 1997, focused its work on an examination of international standards for environmental management systems (EMS), particularly the ISO 14001 standard and its trade and investment impacts on developing countries. At its closing meeting, on 31 October 1997, the Expert Meeting adopted the following recommendations on item 3 of its agenda:

1. Participants considered that EMS standards could be a useful tool to enhance the environmental performance of an organisation, as well as to reduce costs through a more efficient use of resources. The experts noted, however, that the ISO 14001 standard had been adopted only recently (September 1996) and that more analysis and experience was needed to understand its implications fully. There is also a need to share experiences with developing countries, particularly those where there is still a general lack of awareness and understanding of the ISO 14000 standards.
2. Experts recommended that there should be complementarity between voluntary standards on EMS and regulatory measures. There was a consensus that the ISO 14001 standard should not become mandatory.
3. The experts recognised the important contribution that international standards in general can make to facilitate international trade and the development process of developing countries. They also recognised the importance of enhancing the representation and effective participation of developing countries in ISO's work in general, including in the build-up to the revision of ISO's EMS standards in 1999. This required financial and technical assistance, as well as better co-ordination at the national level between standardisation bodies, the government and other stakeholders. It may also be appropriate for ISO to review its internal processes to facilitate a wider representation and the effective participation of developing countries.
4. Experts recognised that voluntary standards, including the ISO 14001 standard, can have implications for trade, particularly for developing country exports. While compliance with the ISO 14001 standard may enable certain companies to strengthen market positions, the standard could act as a barrier to trade for companies that find it difficult or costly to comply with the standard. In this regard, experts recommended that appropriate attention should be paid to national implementation issues as well as to international co-operation to facilitate EMS implementation in developing countries.
5. Pressures on developing country suppliers to demonstrate ISO 14001 certification could result in barriers to trade and/or detract from the environmental objectives of setting up an EMS. Companies in developed countries should establish a supportive co-operation with their suppliers in developing countries in the area of EMS implementation. Transnational corporations (TNCs) could play an important role in this regard.

6. Experts stressed that certification and accreditation should be fair and rigorous to safeguard the credibility of the ISO 14001 certificate. Developing countries should be assisted in developing the necessary infrastructure to allow conformity assessment, certification and accreditation. In doing so, they should follow the relevant international standards and guides. The Expert Meeting stressed the important role of international recognition. The need for internationally recognised certification and accreditation system was also stressed and the work of the Quality System Assessment and Recognition (QSAR) and the International Accreditation Forum (IAF) was highlighted in this respect. Developing countries should be assisted in identifying the possibilities of increasing their share in the domestic and external markets for certification bodies and consultants, including through South-South co-operation.

7. The Experts recognised that SMEs in both developed and developing countries may face significant constraints in setting up and maintaining an EMS. They stressed the need for positive incentives, including technical assistance. Experts also stressed the importance of co-operation between large firms and SMEs. Similarly, co-operation between SMEs, particularly those in the same sector and geographical area, could help to reduce the costs of EMS implementation.

8. Governments in developing countries face several policy choices in the context of EMS standards, such as whether to adopt a pilot project approach and whether to share part of the cost of EMS implementation with the private sector. Experts recognised that Governments could play an important role in providing an enabling environment for the implementation of EMS, particularly in developing countries, for example by promoting the creation of necessary infrastructure and legislation, as well as appropriate incentives.

9. Experts identified a number of needs of developing countries with regard to national implementation of the ISO 14001 standard. They recommended that actions aimed at facilitating EMS implementation in developing countries should focus on: (a) awareness-building among the concerned stakeholders; (b) identification of sources and dissemination of information; (c) creation of infrastructure, training auditors and consultants; (d) access to and transfer of environmentally sound technology; (e) assistance in developing and implementing related legislation; (f) support for participation in relevant forums and for sharing experiences with the implementation of EMS. The Experts also urged the need for special financial and technical assistance for LDCs in implementation of the ISO 14001 standard at their national levels.

10. Experts recommended that empirical analyses be carried out, including in UNCTAD, of the trade implications of ISO 14000 standards as well as on national implementation issues that may have a bearing on international trade.

## **Small and Medium-sized Enterprises and ISO 14001: What Are the Implications?**

*by Dr Ruth Hillary<sup>59</sup>*

### **Introduction**

Small and medium-sized enterprises (SMEs) are a vital and increasingly important part of the European and world economies. In Europe, they account for over 90% of all enterprises, in some countries the percentages are even higher; for example 99.8% of all UK businesses are SMEs. The sector contributes to innovation, is a source of competition, provides flexibility in the labour market, and crucially, is a source of job creation. In short, SMEs help to preserve a stable economic base in the Member State economies and the European Union as a whole.

The importance of strengthening and stimulating growth in the SME sector is essential for a successful economy. However, SMEs need help to facilitate their growth and survival because they face more financial problems such as gaining loan finance and late payment of bills, and because they lack human and financial resources to tackle new pressures such as environmental regulations and standards such as the international environmental management systems standard ISO 14001.

This paper will give a brief overview of the SME sector and its characteristics; the role of environmental management system standard ISO 14001 in the sector and the implications of the wide use of the standard for the sector.

### **Characteristics of Small and Medium-sized Enterprises**

Recognition of the importance of SMEs to economic development and the formulation of policies to assist smaller firms has stimulated the need to identify the characteristics of the sector. No absolute definition has been established for SMEs and there appears to be a lack of consensus about what constitutes 'small'. Smaller firms are variously defined but most frequently by using the following criteria:

- employee numbers,
- turnover or balance sheet total, and
- ownership.

In a European Commission Recommendation, SMEs are defined using the above criteria and groups enterprises into *micro* employing less than 10 people; *small* employing 10 to 49 people; and *medium* employing 50 to 249 people.

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The definition of SMEs helps in data comparisons and is necessary for the administration to financial aid and support but all definitions are blunt and insensitive instruments often unable to distinguish sectoral or geographical differences. Despite difficulties in defining SME, it is clear that the sector has numerous enterprises. It is also apparent that the sector is diverse. SMEs exist in both the service and industrial sectors. They have a diverse range of management structures including a single entrepreneur and family owned, management owned.

### **SME Role in the Economy**

SMEs have a significant and increasing important role to play in the economy. As larger businesses downsize and government structures change, smaller firms share of output and employment increases. In employment terms SMEs are thought to be more resilient than larger firms creating more jobs than larger firms in recession. However, small firms have a higher probability of ceasing trading than large firms. They generate significant wealth for a county's economy. Smaller businesses are effective at harnessing individual creative effort and need to flourish in sufficient numbers to be the seedbed for industry of the future.

### **The Environmental Impact of SMEs**

The identification of the SME sector's environmental impacts is difficult because at the European Union (EU) and many country levels economic statistics and environmental data are not collected in a form which allows these impacts to be assigned. In the USA, it would be possible to achieve some indication of the environmental impacts of SMEs utilising data from the Toxic Release Inventory (TRI).

A common myth circulating is that SMEs contribute around 70% of all industrial pollution, this is often attributed to the Organisation for Economic Co-operation and Development (OECD). Despite the lack of hard data on SMEs, the sector is widely considered as environmentally important for two factors.

1. SMEs are numerous and widely dispersed; and
2. SMEs' environmental impacts are controlled in a variety of ways.

### **ISO 14001**

In September 1996, the international standard for environmental management systems ISO 14001 was published. Prior to its appearance a number of national environmental management systems standards had been developed most notable the first in the UK BS 7750. The EU had also been active in the area developing and adopting, in 1993, a voluntary Regulation (No 1836/93): the Eco-management and audit scheme (EMAS).

These formalised and published initiatives grew in response to a growing use of environmental management tools in business. They embody management techniques which can be employed by businesses to better control and systematise the environmental performance of their activities.

On the 31 March 1998, there were 1 500 sites registered to EMAS across the EU. In comparison, at the end of 1997, 3 235 organisations had been certified to ISO 14001 world-wide with 525 located in the UK, 618 in Japan and 104 in the USA. In Europe, the apparent popularity of ISO 14001 may be attributed to its international status and its comparability with the quality standards in the ISO 9000 series.

### **Response of SMEs to ISO 14001**

According to the European Commission the smallest site registered to EMAS in employment terms has just three staff members however, little data on company size could be found for ISO 14001. It appears there has been a patchy response from SMEs to both ISO 14001 and EMAS. Three factors are cited for the lack of response of SMEs:

1. Inappropriateness of formalisation standards for SMEs;
2. Lack of general unawareness;
3. Fear of additional burdens.

These factors combine to make the uptake of ISO 14001 or EMAS amongst SMEs low.

### **Implications of ISO 14001 for SMEs**

The number of organisations becoming certified to ISO 14001 is set to increase. It is anticipated that much of the initial interest in ISO 14001 is coming from large enterprises operating internationally. However, the growing interest of these companies will inevitably lead to supply chain pressure and the slow trickle down of the ISO14001 to smaller enterprises. It is anticipated that this will occur in much the same way as happened with the standards in the international series of quality standards ISO 9000.

The greater use of ISO 14001 has implications for the SME sector. These include:

1. The added value of ISO 14001 for SMEs.
2. The appropriateness of ISO 14001 to demonstrate environmental improvements.
3. The time and cost of achieving and maintaining ISO 14001.
4. The potential of ISO 14001 to be used to exclude SMEs from markets

SMEs may question the added value of achieving ISO 14001 because they have had negative experiences with standards in the ISO 9000 series and they are still dealing with environmental compliance legislative compliance. Other reason may be that ISO 14001 is not viewed as seeking improved environmental performance rather that it seeks system improvements.

Whether or not ISO 14001 is appropriate to for SMEs needs to be addresses. The standard can be seen as too bureaucratic for the slim management structures of SMEs. Also certifiers may not find it easy to certify lightly documented ISO 14001 systems and push smaller firms to more documentation than they would wish to have in place. A staged approach to environmental management may be more appropriate for SMEs with the ultimate goal of ISO 14001 or EMAS being necessary for only a small proportion of the sector.

The time and cost of achieving and just as importantly maintaining ISO 14001 can be prohibitive for smaller firms which see money spent on systems implementation directed away from more tangible environmental improvements such as new emission abatement technology. Whilst savings can be generated by implementing ISO 14001, it is often the drain on human resources that is the real problem for SMEs which do not have the spare human capacity for ISO 14001 implementation. The costs of certification can be prohibitive. In the case of one medium-sized firm, the environmental manager estimated the cost of maintaining registration of its five small sites to EMAS would be £18 000 per year.

The dilemma for many owners of SMEs is that if they do not put in place ISO 14001 they could lose customers and be excluded from markets. There is a temptation for larger firms to simply state, to all of their suppliers, that adoption of either EMAS or ISO 14001 is a way of guaranteeing their continued business whilst at the same time satisfying the large company's environmental policy. This approach is not helpful because the smaller supplier is then driven to adopt a potential inappropriate and expensive system, in many cases using consultants to meet the large company's demands.

### **Conclusion**

The growth in usage of ISO 14001 will continue across the globe. In the first place, in large companies but gradually the standard will be implemented by SMEs. However, many SMEs will never use the standard and some will develop inappropriate systems as a result of pressures to adopt ISO 14001. The SME sector is very important to the global economy. To be equipped to operate in an increasingly competitive and international arena it needs to address its environmental performance. ISO 14001 is only one means to do this, other more appropriate methods may apply better to the sector. If smaller firms are to be encouraged to pursue ISO 14001 or EMAS they need assistance. However the very diversity of SMEs means that this assistance needs to be specifically tailored to the needs of the smaller firm in different sectors and geographical locations.

## **ANNEXES**

## ANNEX A.1

## ISO 14001:1996(E)

## Environmental management systems - Specification with guidance for use

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**ANNEX A.2**

**COUNCIL REGULATION (EEC) No 1836/93**

**of 29 June 1993**

**allowing voluntary participation in the industrial sector in a  
Community eco-management and audit scheme**

I

*(Acts whose publication is obligatory)*

**COUNCIL REGULATION (EEC) No 1836/93  
of 29 June 1993  
allowing voluntary participation by companies in the industrial sector in a  
Community eco-management and audit scheme**

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130s thereof,

Having regard to the proposal from the Commission<sup>1</sup>,

Having regard to the opinion of the European Parliament<sup>2</sup>,

Having regard to the opinion of the Economic and Social Committee<sup>3</sup>,

Whereas the objectives and principles of the Community's environment policy, as set out in the Treaty and detailed in the resolution of the Council of the European Communities and the representatives of the Governments of the Member States, meeting within the Council of 1 February 1993 on a Community programme of policy and action in relation to the environment and sustainable development<sup>4</sup>, as well as in the preceding resolutions of 1973<sup>5</sup>, 1977<sup>6</sup>, 1983<sup>7</sup> and 1987<sup>8</sup> on a policy and action programme of the Community regarding the protection of the environment are, in particular, to prevent, reduce and as far as possible eliminate pollution, particularly at source on the basis of the polluter pays principle, to ensure sound management of resources and to use clean or cleaner technology;

Whereas Article 2 of the Treaty, as it will read according to the Treaty on the European Union signed at Maastricht on 7 February 1992, stipulates that the Community shall have among its tasks to promote throughout the Community sustainable growth and the Council resolution of 1 February 1993 stresses the importance of such sustainable growth;

Whereas the programme "Towards Sustainability", presented by the Commission and approved as to its general approach by the Council resolution of 1 February 1993, underlines the role and responsibilities of com-

panies, both to reinforce the economy and to protect the environment throughout the Community;

Whereas industry has its own responsibility to manage the environmental impact of its activities and should therefore adopt a pro-active approach in this field;

Whereas this responsibility calls for companies to establish and implement environmental policies, objectives and programmes and effective environmental management systems ; whereas companies should adopt an environmental policy which, in addition to providing for compliance with all relevant regulatory requirements regarding the environment, must include commitments aimed at the reasonable continuous improvement of environmental performance;

Whereas the application of environmental management systems by companies shall take account of the need to ensure awareness and training of workers in the establishment and implementation of such systems;

Whereas environmental management systems should include environmental auditing procedures to help management assess compliance with the system and the effectiveness of the system in fulfilling the company's environmental policy;

Whereas the provision of information to the public, by companies, on the environmental aspects of their activities is an essential element of good environmental management and a response to the growing interest of the public in information on this subject;

Whereas companies should therefore be encouraged to produce and disseminate periodic environmental statements containing information for the public on the factual environmental situation in their industrial sites and on their environmental policies, programmes, objectives and management system;

Whereas the transparency and credibility of companies' activities in this field are enhanced when the companies' environmental policies, programmes, management

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<sup>1</sup> OJ No C 120, 30. 4. 1993, p. 3.

<sup>2</sup> OJ No C 42, 15. 2. 1993, p. 44.

<sup>3</sup> OJ No C 332, 16. 12. 1992, p. 44.

<sup>4</sup> Not yet published in the Official journal.

<sup>5</sup> OJ No C 112, 20. 12. 1973, p. 1.

<sup>6</sup> OJ No C 139, 13. 6. 1977, p. 1.

<sup>7</sup> OJ No C 46, 17. 2. 1983, p. 1.

<sup>8</sup> OJ No C 70, 18. 3. 1987, p. 1.



systems, audit procedures and environmental statements are examined to verify that they meet the relevant requirements of this Regulation and when the environmental statements are validated by accredited environmental verifiers;

Whereas it is necessary to provide for an independent and neutral accreditation and supervision of environmental verifiers in order to ensure the credibility of the scheme;

Whereas companies should be encouraged to participate in such a scheme on a voluntary basis; whereas, in order to ensure an equal implementation of the scheme throughout the Community, the rules, procedures and essential requirements have to be the same in each Member State;

Whereas a Community eco-management and audit scheme should at the first stage focus on the industrial sector where environmental management systems and environmental auditing are already practised; whereas it is desirable to apply on an experimental basis similar provisions to sectors outside industry such as the distributive trades and the public service;

Whereas, in order to avoid unjustified burdens on companies and to ensure consistency between the Community scheme and national, European and international standards for environmental management systems and audits, those standards recognized by the Commission according to an appropriate procedure shall be considered as meeting the corresponding requirements of this Regulation and companies should not be required to duplicate the relevant procedures;

Whereas it is important that small and medium-sized companies participate in the Community eco-management and audit scheme and that their participation should be promoted by establishing or promoting technical assistance measures and structures aimed at providing such firms with the expertise and support needed;

Whereas the Commission should, according to a Community procedure, adapt the Annexes to this Regulation, recognize national, European and international standards for environmental management systems, establish guidelines for setting the environmental audit frequency and promote collaboration between Member States regarding the accreditation and supervision of environmental verifier;

Whereas this Regulation should be revised in the light of experience gained after a certain period of operation,

HAS ADOPTED THIS REGULATION:

#### *Article 1*

##### **The eco-management and audit scheme and its objectives**

1. A Community scheme allowing voluntary participation by companies performing industrial activities, hereinafter referred to as the “Community eco-

management and audit scheme” or “the scheme”, is hereby established for the evaluation and improvement of the environmental performance of industrial activities and the provision of the relevant information to the public.

2. The objective of the scheme shall be to promote continuous improvements in the environmental performance of industrial activities by:

- (a) the establishment and implementation of environmental policies, programmes and management systems by companies, in relation to their sites;
- (b) the systematic, objective and periodic evaluation of the performance of such elements;
- (c) the provision of information of environmental performance to the public.

3. The scheme shall be without prejudice to existing Community or national laws or technical standards regarding environmental controls and without prejudice to the duties of companies under those laws and standards.

#### *Article 2*

##### **Definitions**

For the purposes of this Regulation:

- (a) *environmental policy* shall mean the company’s overall aims and principles of action with respect to the environment including compliance with all relevant regulatory requirements regarding the environment;
- (b) *environmental review* shall mean an initial comprehensive analysis of the environmental issues, impact and performance related to activities at a site;
- (c) *environmental programme* shall mean a description of the company's specific objectives and activities to ensure greater protection of the environment at a given site, including a description of the measures taken or envisaged to achieve such objectives and where appropriate the deadlines set for implementation of such measures;
- (d) *environmental objectives* shall mean the detailed goals, in terms of environmental performance, which a company sets itself;
- (e) *environmental management system* shall mean that part of the overall management system which includes the organizational structure, responsibilities practices, procedures, processes and resources for determining and implementing the environmental policy;
- (f) *environmental audit* shall mean a management tool comprising a systematic, documented, periodic and objective evaluation of the performance of the organization, management system and processes designed to protect the environment with the aim of:
  - (i) facilitating management control of practices which may have impact on the environment;

- (ii) assessing compliance with company environmental policies;
- (g) *audit cycle* shall mean the period of time in which all the activities in a given site are audited, according to the requirements of Article 4 and Annex II, on all the relevant environmental aspects mentioned in Annex I C;
- (h) *environmental statement* shall mean a statement prepared by the company in line with the requirements of this Regulation and, in particular, of Article 5;
- (i) *industrial activity* shall mean any activity listed under sections C and D of the classification of economic activities in the European Community (NACE rev. 1) as established by Council Regulation (EEC) No .3037/90<sup>1</sup>, with the addition of electricity, gas, steam, and hot water production and the recycling, treatment, destruction or disposal of solid or liquid waste;
- (j) *company* shall mean the organization which has overall management control over activities at a given site;
- (k) *site* shall mean all land on which the industrial activities under the control of a company at a given location are carried out, including any connected or associated storage of raw materials, by-products, intermediate products, end products and waste material, and any equipment and infrastructure involved in the activities, whether or not fixed;
- (l) *auditor* shall mean a individual or a team, belonging to company personnel or external to the company, acting on behalf of company top management, possessing, individually or collectively, the competencies referred to in Annex II paragraph C and being sufficiently independent of the activities they audit to make an objective judgement;
- (m) *accredited environmental verifier* shall mean any person or organization independent of the company being verified, who has obtained accreditation, in line with the conditions and procedures referred to in Article 6;
- (n) *accreditation system* shall mean a system for the accreditation and supervision of environmental verifiers operated by an impartial institution or organization designated or created by the Member State, with sufficient resources and competency and having appropriate procedures for performing the functions defined by this Regulation for such a system;

- (o) *competent bodies* shall mean the bodies designated by Member States, in line with Article 18, to perform the tasks mentioned in this Regulation.

### Article 3

#### Participation in the scheme

The scheme is open to companies operating a site or sites where an industrial activity is performed. In order for a site to be registered in the scheme the company must:

- (a) adopt a company environmental policy, in accordance with the relevant requirements in Annex I, which, in addition to providing for compliance with all relevant regulatory requirements regarding the environment, must include commitments aimed at the reasonable continuous improvement of environmental performance, with a view to reducing environmental impacts to levels not exceeding those corresponding to economically viable application of best available technology;
- (b) conduct an environmental review of the site on the aspects referred to in Annex 1, part C;
- (c) introduce, in the light of the results of that review, an environmental programme for the site and an environmental management system applicable to all activities at the site. The environmental programme will be aimed at achieving the commitments contained in the company environmental policy towards continuous improvement of environmental performance. The environmental management system must comply with the requirements of Annex I;
- (d) carry out, or cause to be carried out, in accordance with Article 4, environmental audits at the sites concerned;
- (e) set objectives at the highest appropriate management level, aimed at the continuous improvement of environmental performance in the light of the findings of the audit, and appropriately revise the environmental programme to enable the set objectives to be achieved at the site;
- (f) prepare, in accordance with Article 5, an environmental statement specific to each site audited. The first statement must also include the information referred to in Annex V;
- (g) have the environmental policy, programme, management system, review or audit procedure and environmental statement or statements examined to verify that they meet the relevant requirements of this Regulation and the environmental statements validated in accordance with Article 4 and Annex III;
- (h) forward the validated environmental statement to the competent body of the Member State where the site is located and disseminate it as appropriate to the public in that State after registration of the site in question in accordance with Article 8.

<sup>1</sup> OJ No L 293, 24. 10. 1990, p. 1.

*Article 4***Auditing and validation**

1. The internal environmental audit of a site may be conducted by either auditors belonging to the company or external persons or organizations acting on its behalf. In both cases the audit shall be performed in line with the criteria set out in part C of Annex I and in Annex II.

2. The audit frequency shall be determined in accordance with the criteria set out in Annex II H on the basis of guidelines established by the Commission in accordance with the procedure laid down in Article 19.

3. The environmental policies, programmes, management systems, reviews or audit procedures and the environmental statements shall be examined to verify that they meet the requirements of this Regulation, and the environmental statements shall be validated, by the independent accredited environmental verifier, on the basis of Annex III.

4. The accredited environmental verifier must be independent of the site's auditor.

5. For the purposes of paragraph 3 and without prejudice to the competence of the enforcement authorities in the Member States with regard to regulatory requirements, the accredited environmental verifier shall check:

- (a) whether the environmental policy has been established and if it meets the requirements of Article 3 and the relevant requirements in Annex I;
- (b) whether an environmental management system and programme are in place and operational at the site and whether they comply with the relevant requirements in Annex I;
- (c) whether the environmental review and audit are carried out in accordance with the relevant requirements in Annex I and II;
- (d) whether the data and information in the environmental statement are reliable and whether the statement adequately covers all the significant environmental issues of relevance to the site.

6. The environmental statement shall be validated by the accredited environmental verifier only if the conditions referred to in paragraphs 3 to 5 are met.

7. External auditors and accredited environmental verifiers shall not divulge, without authorization from the company management, any information or data obtained in the course of their auditing or verification activities.

*Article 5***Environmental statement**

1. An environmental statement shall be prepared following in initial environmental review and the comple-

tion of each subsequent audit or audit cycle for every site participating in the scheme.

2. The environmental statement shall be designed for the public and written in a concise, comprehensible form. Technical material may be appended.

3. The environmental statement shall include, in particular, the following :

- (a) a description of the company's activities at the site considered;
- (b) an assessment of all the significant environmental issues of relevance to the activities concerned;
- (c) a summary of the figures on pollutant emissions, waste generation, consumption of raw material, energy and water, noise and other significant environmental aspects, as appropriate;
- (d) other factors regarding environmental performance;
- (e) a presentation of the company's environmental policy, programme and management system implemented at the site considered;
- (f) the deadline set for submission of the next statement;
- (g) the name of the accredited environmental verifier.

4. The environmental statement shall draw attention to significant changes since the previous statement.

5. A simplified environmental statement shall be prepared annually in intervening years, based as a minimum on the requirements set out in paragraph 3 (c) and drawing attention where appropriate to significant changes since the previous statement. Such simplified statements will require validation only at the end of the audit or audit cycle.

6. The annual preparation of environmental statements will, however, not be required for sites :

- where the accredited environmental verifier considers, in particular in the case of small and medium-sized enterprises, that the nature and scale of the operations at the site are such that no further environmental statement is required until completion of the next audit, and
- where there have been few significant changes since the last environmental statement.

*Article 6***Accreditation and supervision of environmental verifiers**

1. Member States shall each establish a system for the accreditation of independent environmental verifiers and for the supervision of their activities. To this end, Member States may either use existing accreditation institutions or the competent bodies referred to in Article 18, or designate or set up any other body with an appropriate status.

Member States shall ensure that the composition of these systems is such as to guarantee their independence and neutrality in the execution of their tasks.

2. Member States shall ensure that these systems are fully operational within 21 months following the date of entry into force of this Regulation.

3. Member States shall ensure appropriate consultation of parties involved, in setting up and directing the accreditation systems.

4. The accreditation of environmental verifiers and supervision of their activities shall be in accordance with the requirements of Annex III.

5. Member States shall inform the Commission of the measures taken pursuant to this Article.

6. The Commission shall, in accordance with the procedure laid down in Article 19, promote collaboration between Member States in order in particular to:

- avoid inconsistency between the criteria, conditions and procedures they apply for the accreditation of environmental verifiers,
- facilitate the supervision of the activities of environmental verifiers in Member States other than those where they have obtained their accreditation.

7. Environmental verifiers accredited in one Member State may perform verification activities in any other Member State, subject to prior notification to, and subject to supervision of, the accreditation system of the Member State where the verification takes place.

#### *Article 7*

##### **List of accredited environmental verifiers**

The accreditation systems shall establish, revise and update a list of accredited environmental verifiers in each Member State and shall communicate this list every six months to the Commission.

The Commission shall publish an overall Community list in the *Official Journal of the European Communities*.

#### *Article 8*

##### **Registration of sites**

The competent body shall register a site and give it a registration number once it has received a validated environmental statement and any registration fee that may be payable under Article 11 and it is satisfied that the site

meets all the conditions of this Regulation. It shall inform the site management that the site appears on the register.

2. The competent body shall update the list of sites referred to in paragraph 1 annually.

3. If a company fails to submit a validated environmental statement and registration fee to the competent body within three months of being required to do so or if at any time the competent body concludes that the site is no longer complying with all the conditions of this Regulation, the site shall be deleted from the register and the site management shall be so informed.

4. If a competent body is informed by the competent enforcement authority of a breach at the site of relevant regulatory requirements regarding the environment, it shall refuse registration of that site or suspend it from the register as the case may be and inform the site management thereof.

Refusal or suspension shall be lifted if the competent body has received satisfactory assurances from the competent enforcement authority that the breach has been rectified and that satisfactory arrangements are in place to ensure that it does not recur.

#### *Article 9*

##### **Publication of the list of registered sites**

The competent bodies directly, or via the national authorities as decided by the Member State concerned, shall communicate to the Commission before the end of each year the lists referred to in Article 8 and updates thereof.

Each year the Commission shall publish in the *Official Journal of the European Communities* a list of all the registered sites in the Community.

#### *Article 10*

##### **Statement of participation**

1. Companies may use for their registered site(s), one of the statements of participation listed in Annex IV, which are designed to bring out clearly the nature of the scheme.

The graphic may not be used without one of the accompanying statements of participation.

2. The names of the site(s) must be given where appropriate with the statement of participation.

3. The statement of participation may not be used to advertise products, or on the products themselves or on their packaging.

*Article 11***Costs and fees**

A system of fees in accordance with modalities established by Member States may be set up for the administrative costs incurred in connection with the registration procedures for sites and the accreditation of environmental verifiers and the promotional costs of the scheme.

*Article 12***Relationship with national, European and international standards**

1. Companies implementing national, European or international standards for environmental management systems and audits and certified, according to appropriate certification procedures, as complying with those standards shall be considered as meeting the corresponding requirements of this Regulation, provided that:

- (a) the standards and procedures are recognized by the Commission acting in accordance with the procedure laid down in Article 19;
- (b) the certification is undertaken by a body whose accreditation is recognized in the Member State where the site is located.

The references of the recognized standards and criteria shall be published in the *Official Journal of the European Communities*.

2. To enable such sites to be registered under the scheme, the companies concerned must in all cases meet the requirements regarding the environmental statement in Articles 3 and 5 including validation and the requirements in Article 8.

*Article 13***Promotion of companies' participation, in particular of small and medium-sized enterprises**

1. Member States may promote companies' participation in the eco-management and audit scheme, in particular the participation of small and medium-sized enterprises, by establishing or promoting technical assistance measures and structures, aimed at providing such firms with the expertise and support needed in order to comply with the rules, conditions and procedures defined by this Regulation and, in particular, to set up environmental policies, programmes and management systems conduct audits and prepare and validate statements.

2. The Commission shall present appropriate proposal to the Council aiming at greater participation in the scheme by small and medium-sized enterprises, in

particular by providing information, training and structural and technical support, and concerning auditing and verification procedures.

*Article 14***Inclusion of other sectors**

The Member States may, on an experimental basis, apply provisions analogous to the eco-management and audit scheme to sectors outside industry, e.g. the distributive trades and public service.

*Article 15***Information**

Each Member State shall ensure by appropriate means that:

- companies are informed of the content of this Regulation,
- the public is informed of the objectives and principal arrangements of the system.

*Article 16***Infringements**

Member States shall take appropriate legal or administrative measures in case of non-compliance with the provisions of this Regulation.

*Article 17***Annexes**

The Annexes to this Regulation shall be adapted by the Commission, acting in accordance with the procedure of Article 19 in the light of experience gained in the operation of the scheme.

*Article 18***Competent bodies**

1. Within 12 months of the entry into force of this Regulation, each Member State shall designate the competent body responsible for carrying out the tasks provided for in this Regulation, particularly in Articles 8 and 9, and shall inform the Commission thereof.

2. Member States shall ensure that the composition of the competent bodies is such as to guarantee their independence and neutrality, and that the competent bodies apply the provisions of this Regulation in a consistent manner. The competent bodies shall, in particular, have procedures for considering observations from interested parties concerning registered sites, or deletion or suspension of sites from registration.

*Article 19*

**Committee**

1. The Commission shall be assisted by a committee composed of the representatives of the Member States and chaired by the representative of the Commission.
2. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148 (2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the committee shall be weighted in the manner set out in that Article. The chairman shall not vote.
3. (a) The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the committee.  
(b) If the measures envisaged are not in accordance with the opinion of the committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

If the Council has not acted within three months of the date of referral to it, the proposed measures shall be adopted by the Commission.

*Article 20*

**Revision**

Not more than five years after the entry into force of this Regulation, the Commission shall review the scheme in the light of the experience gained during its operation and shall, if necessary, propose to the Council the appropriate amendments, particularly concerning the scope of the scheme and the possible introduction of a logo.

*Article 21*

**Entry into force**

This Regulation shall enter into force on the third day following its publication in the *Official Journal of the European Communities*.

It shall apply 21 months after publication.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Luxembourg, 29 June 1993.

*For the Council*  
*The President*  
S. AUKEN

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## ANNEX I

**REQUIREMENTS CONCERNING ENVIRONMENTAL POLICIES, PROGRAMMES AND MANAGEMENT SYSTEMS****A. Environmental policies, objectives and programmes**

1. The company environmental policy, and the programme for the site, shall be established in writing. Associated documents will explain how the environmental programme and the management system at the site relate to the policy and systems of the company as a whole.
2. The company environmental policy shall be adopted and periodically reviewed, in particular in the light of environmental audits, and revised as appropriate, at the highest management level. It shall be communicated to the company's personnel and be publicly available.
3. The company's environmental policy shall be based on the principles of action in section D.

The policy will aim, in addition to providing for compliance with all relevant regulatory requirements regarding the environment, at the continual improvement of environmental performance. The environmental policy and the programme for the site shall address, in particular, the issues in section C.

*4. Environmental objectives*

The company shall specify its environmental objectives at all relevant levels within the company.

The objectives shall be consistent with the environmental policy and shall quantify wherever practicable the commitment to continual improvement in environmental performance over defined timescales.

*5. Environmental programme for the site*

The company shall establish and maintain a programme for achieving the objectives at the site. It shall include:

- (a) designation of responsibility for objectives at each function and level of the company;
- (b) the means by which they are to be achieved.

Separate programmes shall be established in respect of the environmental management of projects relating to new developments, or to new or modified products, services or processes, to define:

1. the environmental objectives to be attained;
2. the mechanisms for their achievement ;
3. the procedures for dealing with changes and modifications as projects proceed;
4. the corrective mechanisms which shall be employed should the need arise, how they shall be activated and how their adequacy shall be measured in any particular situation in which they are applied.

**B. Environmental management systems**

The environmental management system shall be designed, implemented and maintained in such a way as to ensure the fulfilment of the requirements defined below.

*1. Environmental policy, objectives and programmes*

The establishment and periodical review, and revision as appropriate, of the company's environmental policy, objectives and programmes for the site, at the highest appropriate management level.

*2. Organization and personnel***Responsibility and authority**

Definition and documentation of responsibility, authority and interrelations of key personnel who manage, perform and monitor work affecting the environment.

**Management representative**

Appointment of a management representative having authority and responsibility for ensuring that the management system is implemented and maintained.

#### Personnel, communication and training

Ensuring among personnel, at all levels, awareness of:

- (a) the importance of compliance with the environmental policy and objectives, and with the requirements applicable under the management system established;
- (b) the potential environmental effects of their work activities and the environmental benefits of improved performance;
- (c) their roles and responsibilities in achieving compliance with the environmental policy and objectives, and with the requirements of the management system;
- (d) the potential consequences of departure from the agreed operating procedures.

Identifying training needs, and providing appropriate training for all personnel whose work may have a significant effect upon the environment.

The company shall establish and maintain procedures for receiving, documenting and responding to communications (internal and external) from relevant interested parties concerning its environmental effects and management.

### 3. *Environmental effects*

#### Environmental effects evaluation and registration

Examining and assessing the environmental effects of company's activities at the site, and compiling a register of those identified as significant. This shall include, where appropriate, consideration of:

- (a) controlled and uncontrolled emissions to atmosphere;
- (b) controlled and uncontrolled discharges to water or sewers;
- (c) solid and other wastes, particularly hazardous wastes;
- (d) contamination of land;
- (e) use of land, water, fuels and energy, and other natural resources;
- (f) discharge of thermal energy, noise, odour, dust, vibration and visual impact;
- (g) effects on specific parts of the environment and ecosystems.

This shall include effects arising, or likely to arise, as consequences of:

1. normal operating conditions;
2. abnormal operating conditions;
3. incidents, accidents and potential emergency situations;
4. past activities, current activities and planned activities.

#### Register of legislative, regulatory and other policy requirements

The company shall establish and maintain procedures to record all legislative, regulatory and other policy requirements pertaining to the environmental aspects of its activities, products and services.

### 4. *Operational control*

#### Establishment of operating procedures

Identification of functions, activities and processes which affect, or have the potential to affect, the environment, and are relevant to the company's policy and objectives.

Planning and control of such functions, activities and processes, and with particular attention to

- (a) documented work instructions defining the manner of conducting the activity, whether by the company's own employees or by others acting on its behalf. Such instructions shall be prepared for situations in which the absence of such instructions could result in infringement of the environmental policy;
- (b) procedures dealing with procurement and contracted activities, to ensure that suppliers and those acting on the company's behalf comply with the company's environmental policy as it relates to them;
- (c) monitoring and control of relevant process characteristics (e.g. effluent streams and waste disposal)
- (d) approval of planned processes and equipment;
- (e) criteria for performance, which shall be stipulated in written standards.



### Monitoring

Monitoring by the company of meeting the requirements established by the company's environmental policy, programme and management system for the site; and for establishing and maintaining records of the results.

For each relevant activity or area, this implies:

- (a) identifying and documenting the monitoring information to be obtained;
- (b) specifying and documenting the monitoring procedures to be used ;
- (c) establishing and documenting acceptance criteria and the action to be taken when results are unsatisfactory ;
- (d) assessing and documenting the validity of previous monitoring information when monitoring systems are found to be malfunctioning.

### Non-compliance and corrective action

Investigation and corrective action, in case of non-compliance with company's environmental policy, objectives or standards, in order to:

- (a) determine the cause;
- (b) draw up a plan of action;
- (c) initiate preventive actions, to a level corresponding to the risks encountered;
- (d) apply controls to ensure that any preventive actions taken are effective;
- (e) record any changes in procedures resulting from corrective action.

### 5. Environmental management documentation records

Establishing documentation with a view to:

- (a) present in a comprehensive way the environmental policy, objectives, and programme;
- (b) document the key roles and responsibilities;
- (c) describe the interactions of system elements.

Establishing records in order to demonstrate compliance with the requirements of the environmental management system, and to record the extent to which planned environmental objectives have been met.

### 6. Environmental audits

Management, implementation and review of a systematic and periodical programme concerning:

- (a) whether or not environmental management activities conform to the environmental programme, and are implemented effectively;
- (b) the effectiveness of the environmental management system in fulfilling the company's environmental policy.

## C. Issues to be covered

The following issues shall be addressed, within the framework of the environmental policy and programmes and of environmental audits.

1. Assessment, control, and reduction of the impact of the activity concerned on the various sectors of the environment.
2. Energy management, savings and choice.
3. Raw materials management, savings, choice and transportation ; water management and savings.
4. Waste avoidance, recycling, reuse, transportation and disposal.
5. Evaluation, control and reduction of noise within and outside the site.
6. Selection of new production processes and changes to production processes.
7. Product planning (design, packaging, transportation, use and disposal).
8. Environmental performance and practices of contractors, subcontractors and suppliers.
9. Prevention and limitation of environmental accidents.
10. Contingency procedures in cases of environmental accidents.
11. Staff information and training on environmental issues.
12. External information on environmental issues.

**D. Good management practices**

The company's environmental policy shall be based on the principles of action set out below; the activities of the company shall be checked regularly to see if they are consistent with these principles and that of continual improvement in environmental performance.

1. A sense of responsibility for the environment amongst employees at all levels, shall be fostered.
2. The environmental impact of all new activities, products and processes shall be assessed in advance.
3. The impact of current activities on the local environment shall be assessed and monitored, and any significant impact of these activities on the environment in general, shall be examined.
4. Measures necessary to prevent or eliminate pollution, and where this is not feasible, to reduce pollutant emissions and waste generation to the minimum and to conserve resources shall be taken, taking account of possible clean technologies.
5. Measures necessary to prevent accidental emissions of materials or energy shall be taken.
6. Monitoring procedures shall be established and applied, to check compliance with the environmental policy and, where these procedures require measurement and testing, to establish and update records of the results.
7. Procedures and action to be pursued in the event of detection of non-compliance with its environmental policy, objectives or targets, shall be established and updated.
8. Cooperation with the public authorities shall be ensured to establish and update contingency procedures to minimize the impact of any accidental discharges to the environment that nevertheless occur.
9. Information necessary to understand the environmental impact of the company's activities shall be provided to the public, and an open dialogue with the public should be pursued.
10. Appropriate advice shall be provided to customers on the relevant environmental aspects of the handling, use and disposal of the products made by the company.
11. Provisions shall be taken to ensure that contractors working at the site on the company's behalf apply environmental standards equivalent to the company's own.

## ANNEX II

**REQUIREMENTS CONCERNING ENVIRONMENTAL AUDITING**

The audit will be planned and executed in the light of the relevant guidelines in the ISO 10011 international standard (1990, Part 1, in particular paragraphs 4.2, 5.1, 5.2, 5.3, 5.4.1, 5.4.2) and other relevant international standards, and within the framework of the specific principles and requirements of this Regulation<sup>1</sup>.

In particular :

**A. Objectives**

The site's environmental auditing programmes will define in writing the objectives of each audit or audit cycle including the audit frequency for each activity.

The objectives must include, in particular, assessing the management systems in place, and determining conformity with company policies and the site programme, which must include compliance with relevant environmental regulatory requirements.

**B. Scope**

The overall scope of the individual audits, or of each stage of an audit cycle where appropriate, must be clearly defined and must explicitly specify the:

1. subject areas covered ;
2. activities to be audited;
3. environmental standards to be considered;
4. period covered by the audit.

Environmental audit includes assessment of the factual data necessary to evaluate performance.

**C. Organization and resources**

Environmental audits must be performed by persons or groups of persons with appropriate knowledge of the sectors and fields audited, including knowledge and experience on the relevant environmental management, technical, environmental and regulatory issues, and sufficient training and proficiency in the specific skills of auditing to achieve the stated objectives. The resources and time allocated to the audit must be commensurate with the scope and objectives of the audit.

The top company management shall support the auditing.

The auditors shall be sufficiently independent of the activities they audit to make an objective and impartial judgement.

**D. Planning and preparation for a site audit**

Each audit will be planned and prepared with the objectives, in particular, of:

- ensuring the appropriate resources are allocated,
- ensuring that each individual involved in the audit process (including auditors, site management, and staff) understands his or her role and responsibilities.

Preparation will include familiarization with activities on the site and with the environmental management system established there and review of the findings and conclusions of previous audits.

**E. Audit activities**

1. On-site audit activities will include discussions with site personnel, inspection of operating conditions and equipment and reviewing of records, written procedures and other relevant documentation, with the objective of evaluating environmental performance at the site by determining whether the site meets the applicable standards and whether the system in place to manage environmental responsibilities is effective and appropriate.

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<sup>1</sup>For the specific purpose of this Regulation, the terms of the above mentioned standard will be interpreted as follows

- "quality system" shall read "environmental management system",
- "quality standard" shall read "environmental standard",
- "quality manual" shall read "environmental management manual",
- "quality audit" shall read "environmental audit",
- "client" shall read "the company's top management",
- "auditee" shall read "the site" .

2. The following steps, in particular, will be included in the audit process:
  - (a) understanding of the management systems;
  - (b) assessing strengths and weaknesses of the management systems;
  - (c) gathering relevant evidence;
  - (d) evaluating audit findings;
  - (e) preparing audit conclusions;
  - (f) reporting audit findings and conclusions.

**F. Reporting audit findings and conclusions**

1. A written audit report of the appropriate form and content will be prepared by the auditors to ensure full, formal submission of the findings and conclusions of the audit, at the end of each audit and audit cycle. The findings and conclusions of the audit must be formally communicated to the top company management.
2. The fundamental objectives of a written audit report are:
  - (a) to document the scope of the audit;
  - (b) to provide management with information on the state of compliance with the company's environmental policy and the environmental progress at the site;
  - (c) to provide management with information on the effectiveness and reliability of the arrangements for monitoring environmental impacts at the site;
  - (d) to demonstrate the need for corrective action, where appropriate.

**G. Audit follow-up**

The audit process will culminate in the preparation and implementation of a plan of appropriate corrective action.

Appropriate mechanisms must be in place and in operation to ensure that the audit results are followed up.

**H. Audit frequency**

The audit will be executed, or the audit cycle will be completed, as appropriate, at intervals no longer than three years. The frequency for each activity at a site will be established by the top company management, taking account of the potential overall environmental impact of the activities at the site, and of the site's environmental programme depending, in particular, on the following elements:

- (a) nature, scale and complexity of the activities;
- (b) nature and scale of emissions, waste, raw material and energy consumption and, in general, of interaction with the environment;
- (c) importance and urgency of the problems detected, following the initial environmental review or the previous audit;
- (d) history of environmental problems.

## ANNEX III

**REQUIREMENTS CONCERNING THE ACCREDITATION OF ENVIRONMENTAL VERIFIERS AND THE FUNCTION OF THE VERIFIER****A. Requirements for the accreditation of environmental verifiers**

1. Accreditation criteria for environmental verifiers shall include the following:

**Personnel**

The environmental verifier shall be competent in relation to the functions within the accredited scope and must demonstrate and maintain records on the qualifications, training and experience of its personnel with respect to, at least, the following:

- environmental auditing methodologies,
- management information and process,
- environmental issues,
- relevant legislation and standards including specific guidances developed for the purposes of this Regulation, and
- relevant technical knowledge of the activity subject to verification.

**Independence and objectivity**

A verifier shall be independent and impartial.

The environmental verifier must demonstrate that its organization and its staff are free of any commercial, financial or other pressures which might influence their judgement or endanger trust in their independence of judgement and integrity in relation to their activities, and that they comply with any rules applicable in this respect.

Verifiers complying with EN 45012, Articles 4 and 5, comply with these requirements.

**Procedures**

The environmental verifier shall have documented methodologies and procedures, including quality control mechanisms and confidentiality provisions, for the verification requirements of this Regulation.

**Organization**

In the case of organizations, the environmental verifier shall have and make available on request an organization chart detailing structures and responsibilities within the organization and a statement of legal status, ownership and funding sources.

2. *Accreditation of individuals*

Accreditation may be granted to individuals, limited in scope to those activities of a nature and scale for which the individual concerned possesses all the competencies and experience necessary for fulfilling the task referred to in section B.

In relation to sites where such activities are performed the applicant shall demonstrate, in particular, sufficient competence and expertise on technical, and environmental and regulatory issues relevant to the scope of the accreditation, and on the verification methods and procedures. The applicant shall meet the criteria given in paragraph 1, concerning independence, objectivity and procedures.

3. *Applications for accreditation*

The applicant environmental verifier shall complete and sign an official application form in which the applicant declares knowledge of functioning of the accreditation system; agrees to fulfil the accreditation procedure and pay the necessary fees; agrees to comply with the accreditation criteria; and, divulges previous applications or accreditations.

Applicant environmental verifiers shall receive documented descriptions of accreditation procedures and the rights and duties, including fees, of accredited environmental verifiers. Additional relevant information shall be provided to the applicant on request.

#### 4. *The accreditation process*

The accreditation process shall include:

- (a) gathering relevant information needed for the evaluation of the applicant environmental verifier, which shall include general information such as name, address, legal status, human resources, relationship in a larger corporate entity etc., information to assess compliance with criteria specified under section 1 and to establish any limitation to the scope of the accreditation;
- (b) assessment of the applicant by either the accreditation body staff or their appointed representatives forming a view on whether the applicant meets the accreditation criteria by reviewing submitted information and relevant work, and making additional enquiries, if necessary, which may include interviewing personnel. The applicant shall be informed of the review and be able to comment on its contents;
- (c) a review by the accreditation body of all the evaluation material necessary to determine an accreditation;
- (d) the decision to grant or withhold accreditation with terms and conditions or any limitations in the scope of accreditation shall be taken on the basis of the review in section (b) by the accreditation body and documented. Accreditation bodies shall have written procedures for assessing the extension of accreditation scope of accredited environmental verifiers.

#### 5. *Supervision of accredited environmental verifiers*

Provision shall be made, at regular intervals not exceeding 36 months, to ensure that the accredited environmental verifier continues to comply with the accreditation requirements and to monitor the quality of the verifications undertaken.

The accredited environmental verifier must immediately inform the accreditation body of any changes which have bearing on the accreditation or its scope.

Any decision taken by the accreditation body to terminate or suspend accreditation or curtail the scope of accreditation shall be taken only after the accredited environmental verifier has had the possibility of a hearing.

When performing verification activities in a Member State, a verifier accredited in another Member State shall notify its activities to the accreditation organization of the Member State where the verification takes place.

#### 6. *Extension of accredited scope*

The accreditation body shall have written procedures for assessing accredited environmental verifiers applying for an extension of accredited scope.

### **B. The function of verifiers**

1. Examination of environmental policies, programmes, management systems, review and audit procedures and environmental statements, and the validation of the last, will be carried out by accredited environmental verifiers.

The function of the verifier is to check, without prejudice to the powers of Member States in respect of supervision of regulatory requirements :

- compliance with all the requirements of this Regulation, particularly concerning the environmental policy, and programme, the environmental review, the functioning of the environmental management system, the environmental audit process and the environmental statements,
- the reliability of the data and information in the environmental statement and whether the statement adequately covers all the significant environmental issues of relevance to the site.

The verifier will, in particular, investigate in a sound professional manner, the technical validity of the environmental review or audit or other procedures carried out by the company, without unnecessarily duplicating those procedures.

2. The verifier will operate on the basis of a written agreement with the company which defines the scope of the work, enables the verifier to operate in an independent professional manner and commits the company to providing the necessary cooperation.

The verification will involve examination of documentation, a visit to the site including, in particular, interviews with personnel, preparation of a report to the company management and solution of the issues raised by the report.

The documentation to be examined in advance of the site visit will include basis information about the site and activities there, the environmental policy and programme, the description of the environmental management system in operation at the site, details of the previous environmental review or audit carried out, the report on that review or audit and on any corrective action taken afterwards, and the draft environmental statement.

3. The verifier's report to the company management will specify:
- (a) in general, cases of non-compliance with the provisions of this Regulation, and in particular;
  - (b) technical defects in the environmental review, or audit method, or environmental management system, or any other relevant process;
  - (c) points of disagreement with the draft environmental statement, together with details of the amendments or additions that should be made to the environmental statement.





4. The following cases can arise

- (a) If
- the environmental policy is established in conformity with the relevant requirements of this Regulation,
  - the environmental review or audit appears to have been technically satisfactory,
  - the environmental programme addresses all the significant issues raised,
  - the environmental management system meets the requirements of Annex I and,
  - the statement proves accurate, sufficiently detailed and in compliance with the requirements of the scheme,
- the verifier will validate the statement.

- (b) If
- the environmental policy is established in conformity with relevant requirements of this Regulation,
  - the environmental review or audit appears to have been technically satisfactory,
  - the environmental programme addresses all the significant issues raised,
  - the environmental management system meets the requirements of Annex I, but
  - the statement needs to be revised and/or completed, or the statement for an intervening year in which there has been no validation has been found to be incorrect or misleading, or there has been no statement for an intervening year in which there should have been one,
- the verifier will discuss the changes needed with the company management and will not validate the statement until the company has made the appropriate additions and/or amendments to the statement, including reference if necessary to amendments required to earlier unvalidated statements, or to additional information which should have been published in intermediate years.

- (c) If
- the environmental policy had not been established in conformity with the relevant requirements of this Regulation, or
  - the environmental review or audit is not technically satisfactory, or,
  - the environmental programme does not address all the significant issues raised, or,
  - the environmental management system does not meet the requirements of Annex 1,
- the verifier will make the appropriate recommendations to the company's management on the improvements needed and will not validate the statement until the shortcomings in the policy and/or programmes and/or processes have been corrected, the processes repeated as far as is necessary, and the statement revised accordingly.

STATEMENTS OF PARTICIPATION

	<p>This site has an environmental management system and its environmental performance is reported on to the public in accordance with the Community eco-management and audit scheme. (Registration No ...)</p>
	<p>All the sites in the Community where we carry out our industrial activities have an environmental management system and their environmental performance is reported on to the public in accordance with the Community eco-management and audit scheme. (Plus optional statement regarding practices in third countries)</p>
	<p>All the sites in [name(s) of the Community Member States(s)] where we carry out our industrial activities have an environmental management system and their environmental performance is reported on to the public in accordance with the Community eco-management and audit scheme.</p>
	<p>The following sites where we carry out our industrial activities have an environmental performance is reported on to the public in accordance with Community eco-management and audit scheme:</p> <ul style="list-style-type: none"> <li>- site number, registration number</li> <li>-</li> <li>- ...</li> </ul>



*ANNEX V*

**INFORMATION TO BE PROVIDED TO THE COMPETENT BODIES AT THE TIME OF  
APPLICATION FOR REGISTRATION OR SUBMISSION OF A SUBSEQUENT VALIDATED  
ENVIRONMENTAL STATEMENT**

1. Name of company.
2. Name and location of the site.
3. Brief description of the activities at the site (refer to annexed documents if necessary).
4. Name and address of the accredited environmental verifier who validated the statement annexed.
5. Deadline for submission of the next validated environmental statement.

The following details must be included in the application.

- (a) A brief description of the environmental management system.
- (b) A description of the auditing programme established for the site.
- (c) The validated environmental statement.

### ANNEX A.3: ISO/TC 207 Members

#### **P-Members**

Algeria  
 Argentina  
 Australia  
 Austria  
 Belgium  
 Brazil  
 Canada  
 Chile  
 China  
 Colombia  
 Costa Rica  
 Cuba  
 Czech Republic  
 Denmark  
 Ecuador  
 Egypt  
 Finland  
 France  
 Germany  
 India  
 Indonesia  
 Ireland  
 Israel  
 Italy  
 Jamaica  
 Japan  
 Korea  
 Malaysia  
 Mauritius  
 Mexico  
 Mongolia  
 Netherlands  
 New Zealand  
 Norway  
 Philippines  
 Poland  
 Romania  
 Russian Federation  
 Singapore  
 South Africa  
 Spain  
 Sri Lanka  
 Sweden  
 Switzerland  
 Tanzania  
 Thailand  
 Trinidad and Tobago  
 Turkey  
 Ukraine  
 UK  
 Uruguay  
 USA

Venezuela  
 Zimbabwe

#### **O-Members**

Barbados  
 Botswana  
 Croatia  
 Estonia  
 Ethiopia  
 Greece  
 Hong Kong  
 Iceland  
 Libyan Arab Jamahiriva  
 Lithuania  
 Moldova  
 Portugal  
 Slovakia  
 Slovenia  
 Viet Nam  
 Yugoslavia

#### **Internal Liaison Organisations**

ISO/TC 45: Rubber & Rubber Products  
 ISO/TC 61: Plastics  
 ISO/TC 91: Surface active agents  
 ISO/TC 176: Quality Management  
 ISO/TC 190/SC 7: Soil Quality  
 ISO/TC 197: Hydrogen Technologies  
 ISO/TC 203: Technical Energy Systems  
 IEC/TC 75: Classification of Environmental Conditions

#### **External Liaison Organisations A**

CEFIC (European Chemical Industry Council)  
 CEPI (Confederation of European Paper Industries)  
 CI (Consumer International)  
 EC (European Commission)  
 EEB (European Environmental Bureau)  
 FoEI (Friends of the Earth)  
 FIDIC (International Federation of Consulting Engineers)  
 FSC (Forest Stewardship Council)  
 GEN (Global Ecolabelling Network)  
 IAQ (International Academy for Quality)  
 ICC (International Chamber of Commerce)  
 IFOAM (IFOAM Accreditation Programme)  
 IISD (International Institute for Sustainable Development)  
 IISI (International Iron and Steel Institute)  
 IMA (Industrial Minerals Association - Europe)  
 INEM (International Network for Environmental Management)

IPAI (International Primary Aluminium Institute)  
NWF (National Wildlife Federation)  
OECD  
Sierra Club  
UNCTAD  
UNDP  
UNEP  
WFSGI (World Federation of the Sporting Goods Industry)  
World Stewardship Institute  
WWF (World Wide Fund for Nature)

**Liaison B**

APO (Asian Productivity Organisation)  
EUMEPS (European Manufacturers of Expanded Polystyrene)  
EURATEX (European Apparel and Textile Association)  
ICME (International Council on Metals and the Environment)  
ITC (International Trade Centre)  
WTO-OMC (World Trade Organisation)

**ANNEX A.4: ISO 14001/EMAS registered organisations in the world (as of April 1998)**

<b>EU Country</b>	<b>EMAS- registration</b>	<b>ISO 14001- certification</b>
Germany	1178	500
Austria	114	80
Sweden	95	191
UK	48	650
Denmark	45	42
Norway	35	20
Netherlands	20	230
France	16	75
Spain	12	61
Finland	9	90
Belgium	7	10
Ireland	4	35
Italy	3	51
Luxembourg	1	1
Portugal		2
Greece		1

Source: Federal Environmental Agency, Germany

ISO 14001      Total: 4029  
EMAS            Total: 1587

<b>Country</b>	<b>ISO 14001- certification</b>
Japan	861
Korea	200
Taiwan	195
Switzerland	194
USA	121
Australia	80
Thailand	46
Canada	45
Singapore	28
Brazil	27
Indonesia	26
China/Hong Kong	25/16
Malaysia	15
Hungary	14
India	11
Turkey	11
Argentina	10
Mexico	9
Czech Republic	8
Poland	8
New Zealand	6
South Africa	5
Egypt	4
Philippines	4
Slovakia	4
Israel	3
Chile	2
Pakistan	2
Slovenia	2
U.A.E.	2
Columbia	1
Costa Rica	1
Croatia	1
Iran	1
Morocco	1
Peru	1

### ANNEX A.5: Useful definitions

- **Auditor** (environmental): Person qualified to perform environmental audits (ISO 14012, 3.1).
- **Certification** (third-party certification): Procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements (ISO/IEC Guide 2:1996, 13.5.2).
- **Certification system**: System that has its own rules of procedure and management for carrying out certification of conformity (ISO/IEC Guide 2:1996, 14.1).
- **Certificate of conformity**: Document issued under the rules of a certification system, indicating that adequate confidence is provided that a duly identified product, process or service is in conformity with a specific standard or other normative document (ISO/IEC Guide 2:1996,14.8).
- **Conformity**: Fulfilment by a product, process or service of specified requirements (ISO/IEC Guide 2:1996, 13.1).
- **Conformity assessment**: The determination of whether a product, process or service conforms to particular standards or specifications. (ISO/IEC Guide 2)
- **Conformity audit**: Any activity concerned with determining directly or indirectly that relevant requirements are fulfilled (ISO/IEC Guide 2:1996, 13.3).
- **Environmental management system**: That part of the overall management system which includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy (ISO 14001, 3.5). *Note: “EMS” is defined in the EMAS Regulation as part of the overall management system which includes the organisational structure, responsibilities practices, procedures, processes and resources for determining and implementing the environmental policy (EMAS Regulation Article 2(e)).*
- **Environmental management system audit**: Systematic and documented verification process to objectively obtain and evaluate evidence to determine whether an organisation’s environmental management system conforms to the environmental management system audit criteria set by the organisation, and communication of the results of this process to management (ISO 14001, 3.6).
- **Mark of conformity**: Protected mark, applied or issued under the rules of a certification system, indicating that confidence is provided that the relevant product, process or service is in conformity with a specific standard or other normative document (ISO/IEC Guide 2: 1996, 14.9).
- **Registration**: Procedure by which a body indicates relevant characteristics of a product, process, or service, or particulars of a body or person, in an appropriate, publicly available list (ISO/IEC Guide 2: 1996, 13.6). *Note: “Registration” is generally used in the United States for the procedure defined as “certification” above, while “certification” is the preferred term in Europe and other parts of the World.*
- **Registration body**: Third party, which assesses and registers the environmental management system of an organisation with respect to the ISO 14001 environmental system specification standard (ISO/IEC Guide 2: 1996, 14.3).
- **Registration system**: System having its own rules of procedure and management for carrying out the audit leading to the issuance of a registration document and its subsequent maintenance (ISO/IEC Guide 2: 1996, 14.1).