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PREFACE

[To be inserted by CWIP]

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EXECUTIVE SUMMARY

The Major Country report provides a "snapshot" overview of the status of EMS implementation in each of the identified countries, but more importantly, it traces the key policy developments in each country relating to the use of EMS.

United Kingdom

With the appearance of the first national EMS standard in the early 1990s, the United Kingdom is the country in which the EMS journey began. The British Standards Institution (BSI) had developed British Standard 7750: Environmental Management Systems as a companion to its BS 5750 standard on quality management systems. BS 5750 was the forerunner and template for the ISO 9000 quality management system standards; BS 7750 was the national EMS standard for the United Kingdom, beginning in 1992. ISO's strategic advisory group on the environment (SAGE) spent nearly two years studying BS 7750 and other national EMS standards to determine the need for a standardized approach concerning environmental management. The United Kingdom, and more specifically BSI, became the secretariat organization within ISO Technical Committee 207-the international group of experts created to develop the ISO 14000 series-to lead the charge to develop ISO 14001.

A number of initiatives have emerged in the United Kingdom lately linking governmental policy to EMSs. These include the Department of Environment and Trade (DETR) and the Department of Trade and Industry (DTI) actively supporting ISO 14001/EMAS in all its policy. Both are actively referenced in 1999s Sustainable Development Strategy entitled "A Better Quality of Life."

A new partnership began in London to link industry, government and environmental groups completely through the use of EMSs, ISO 14000 and other sustainable business practices. The SIGMA Project (Sustainability Integrated Guidelines for Management), was created by the United Kingdom's DTI, BSI, the Forum for the Future and the Institute of Social and Ethical Accountability (ISEA). The SIGMA Project hopes to establish a strategic management framework for sustain ability within the next two years. Incorporating the concepts of environmental and social accountability reporting and other sustainable business practices,

United States

Historically, the United States has led the world in successfully defining contemporary environmental protection. These environmental gains have been achieved at great cost through heated legal and policy debates characteristic of the US environmental movement. A complex and imperfect assembly of command and control requirements has been effective over the past 20 years, but dramatic turns in the economy and unforeseen changes in manufacturing suggest that more adaptive, performance-based environmental management methods are needed.

Coupled with appropriate environmental standards, verifiable audits and public reporting of results, EMSs offer an adaptive supplement to compliance-based regulatory efforts in the US and can facilitate the achievement of common sustainable environmental protection goals. The policy dialogue in the United States views EMSs as an important emerging tool that hold potential for linking business logic with environmental goals and responsible stewardship for actual environmental improvements beyond what the present configuration now offers. As the President's Council on Sustainable Development (PCSD) said, "[a]lone, environmental management systems (including properly certified ISO 14001 systems) do not necessarily ensure improved environmental protection and performance. Rather, effective EMSs can provide significant structural support for

improving performance if coupled with qualitative and quantitative performance commitments and goals."

In the United States, ISO 14001 implementation and certification was slow to take off as companies took a "wait and see" approach to the standard. This was due to a number of reasons, which included mixed regulatory signals from the EPA and state enforcement bodies, as well as limited outreach efforts by the American bodies responsible for the development of the ISO 14000 series-the American National Standards Institute and the US Technical Advisory Group to Technical Committee 207 But by 1998, ISO 14001 certification numbers in the United States began to increase significantly, with larger companies such as the IBM Corp., Ford Motor Co. and Lockheed Martin certifying to the standard.

By the end of 1999 there were more EMS initiatives from the public sector, and EMS continued to gain ground as a policy tool. The use of certifiable EMSs has become a key element in most voluntary programs and initiatives developed by governments. New Jersey, Oregon and Massachusetts, and US EPA:s Star Track program all utilize EMSs as the basis for participation in their advanced compliance programs. The Clinton Administration issued an executive order in late 1999 that requiring all federal agencies to begin environmental management system pilot projects by March 31, 2002, and to establish an effective EMS at all federal facilities by 2005.

Other significant policy initiatives embracing the EMS framework include "reinvention" activities at EPA, and the final report of the US President's Council on Sustainable Development in May 1999. EPA has also issued two reports concerning EMSs including a strong commitment to utilizing environmental management systems approaches, the first such clearly proactive statement on EMS from EPA, and a further agency commitment to develop a performance track or alternate regulatory pathway. EPA also released the agency's Action Plan for EMSs. This new plan is the most comprehensive policy approach concerning ISO 14001 to date in the United States, and will likely garner significant discussion and debate in the early months of 2000.

Japan

Japan leads the world by a wide margin in terms of the number of companies certified to the ISO 14001 international environmental management systems standard, nearing the 3,000 mark as of January 2000. Japan's major corporations are on board, setting good examples with EMS implementation and encouraging other firms to become registered with guidance and a lessons-learned approach. The electric appliance/consumer electronics industry is responsible for the majority of certifications in Japan, with 40 percent of the market, followed by the chemical and transportation sectors. Japan is also an early leader in getting beyond its own borders, with its major companies even seeking ISO 14001 certification in overseas facilities, in places like the United States, Asia and Europe.

Because of this tremendous uptake of the ISO 14001 standard, Japan is a fundamental case study to understand the various parameters driving the process of ISO 14001 implementation and policy making. Japanese industry and the Ministry of International Trade and Industry (MITI) learned from the costly lesson of delayed conformity with ISO 9000. Thus, when ISO 14000 development began, the Japanese government and the industries with technology and manpower, took the initiative in shaping Japan's response. Japanese industries took part in the process through special task forces set up in the Japan Federation of Economic Organizations (the "Keidanren") and other industrial bodies. Japan was one of the first countries to fully embrace the EMS standards, and MITI's support and push was one of the crucial elements.

Japan's geography and demography may also be playing a role in adoption of ISO 14001. As a small island nation with limited natural resources, Japan imports most of the raw materials and

energy it uses. Japan's land area is almost equal to that of California but because of the mountainous terrain, only 14% of the land is habitable. Moreover Japan's population is about half of the United States, whereas the US has 30 times more land area than Japan, thus, making Japan a densely populated nation much like the Netherlands. The result is that Japan is realizing the importance of environmental preservation for the current and future generations. The Keidanren (Federation of Industrial Association of Japan) published the Global Environment Charter in 1991, which called for voluntary action toward good environmental management. In addition to voluntary action the Charter stresses the need to reconfirm environmental ethics and eco-efficiency through innovative technology and economic efficiency. Since its announcement, the Keidanren Charter has been the guiding principle in Japanese industry.

European Union

Currently, the full members of the European Union (EU) are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and United Kingdom. Other countries are vying for "accession" to EU membership, including former Soviet-bloc countries. EU membership is an attractive economic option for these countries, making environmental performance -- and hence EMS implementation -- an EU accession issue.

The EU has adopted as its management system EMAS (The Eco-Audit and Management Scheme). The aim of EMAS, the EUs Eco-Audit and Management Scheme, is to promote on-going improvements in the environmental performance of companies and the provision of environmental information to the public. It is a sector-specific standard, open only to manufacturing sites. To certify to EMAS, a company must adopt an environmental policy, review environmental performance at the site in question, develop an environmental management system based on ISO 14001, develop a plan of action in light of the findings of the environmental review, audit the system and publish a statement of performance of the site. A qualified third party checks the system and the statement to see if they meet stated EMAS requirements in the standard. If so, they are validated and the site can be registered. When it has been registered, the site gets a statement of participation, which it can use to promote its participation in the scheme.

Like ISO 14001, EMAS requires the company to specify environmental objectives at all relevant levels within the company that are consistent with its policies. The objectives must be set "at the highest appropriate management level, aimed at the continuous improvement of environmental performance." Based on findings from the audit, EMAS requires management to set higher objectives and to revise the environmental program to be able to achieve those objectives. This step is analogous to the management review of ISO 14001. But a ma or difference between ISO 14001 and EMAS is that EMAS requires the company to examine and assess the environmental effects of the its activities at the site and compile a register of significant effects. This register is not required in ISO 14001.

In its first version, published in 1993, EMAS consisted of 21 Articles and 5 Annexes. The new, revised version, called EMAS-2, will likely be published in a streamlined format. The EMAS revision, now called EMAS-2, is expected to be published in 2000. The main elements of the revised EMAS-2 are:

▪ The extension of the scope of EMAS to all sectors of economic activity including local authorities;

▪ The integration of ISO 14001 as the environmental management system required by EMAS;

- The adoption of a visible and recognizable EMAS logo to allow registered organizations to publicize their participation in EMAS more effectively; the involvement of employees in the implementation of EMAS; and

- The strengthening of the role of the environmental statement to improve the transparency of communication of environmental performance between registered organizations and their stakeholders and the public.

The goal of sustainable development, which is now integrated into the European Union objectives, calls for the use of a wider range of tools for environmental policy, such as EMAS. The 5th Community Environmental Action Plan recognizes this and clearly indicates that environmental responsibility should be shared between authorities, industry, consumers and the general public.

Netherlands and Germany

The Netherlands and Germany are both leaders in the use of EMS-based approaches for policy, regulatory and management purposes. Since they are both members of the European Union, both nations are subject to the "voluntary regulation" of EMAS. In terms of EMS policy approaches and regulatory instruments, however, these countries present quite different and equally interesting programs, each tailored to build upon their respective existing legal frameworks and economic conditions

The Dutch Green Plan is formally known as the National Environmental Policy Plan. The current version of the plan is generally referred to as "NEPP 3." The plan is comprehensive, long-term and interdisciplinary. Especially significant is the NEPPs reliance on a management framework to ensure practicality and functionality. The emphasis on "good management" in the NEPP has paved the way for the rapid uptake of EMS in the Netherlands. The so-called "covenant" approach is the Dutch model of sector-specific and facility-specific regulation, organized through the heavily negotiated, finely tailored contractual agreements known as "covenants." While the covenant approach does not automatically implicate the use of EMS, most of the participating sectors and facilities have recognized the value of the EMS in the covenant model and have incorporated the EMS concepts into their initiatives.

In contrast to the Netherlands, which has a high level of EMS implementation, but with a relatively low level of participation in EMAS, Germany has used EMAS as its primary vehicle for EMS implementation. German industry wants that flexibility; the German regulators want to find mechanisms to provide that flexibility while preserving accountability. Both sides view the EMS-based EMAS program as providing a mutually acceptable vehicle. This joint posture of government and industry has resulted in an enormous level of acceptance of EMAS in Germany. Participation in EMAS is seen as demonstrating a superior level of environmental performance through a voluntary mechanism. In Bavaria, for example, this has led to the "substitution" or simplification approach through eco-management. Administrative mechanisms are being used to define the range of permissible substitution or simplification through EMS.

Canada

Canada has been very active in the ISO 14000 process, chairing TC 207. The national standards body, the Canadian Standards Association has a very proactive outreach program and has developed excellent supplementary materials. The National Roundtable on the Environment and the Economy (NRTEE) is responsible for Canada's accreditation and capacity-building efforts related to EMS. But the US is Canada's predominant trading partner, and since US companies have not considered EMS as much of a requirement as from Japan, UK or Germany, so Canada has been

relatively slow to embrace EMS. The implementation picture appears to be poised for a dramatic change.

Looking beyond the raw certification numbers, the true impact of EMS standards in Canada is much greater since many companies use ISO 14001 as a benchmark to review their existing systems or to provide uniformity across several facilities within a company.' Many of these same organizations have decided to wait to move to the certification stage until additional incentives, whether regulatory or customer-driven, appear. Just recently, therefore the Ford and GIVI actions are sending interest and demand up and down the supplier chain. Ontario in particular is the center of auto parts and auto manufacturing in Canada and is feeling big impact in 2000.

In Canada, ISO 14001 is proving invaluable as a measure of appropriate due diligence for corporate environmental programs. Canadian judges have welcomed the advent of an international, third-party certifiable standard for environmental management systems. Canadian courts have used ISO 14001 in several cases to date. The Prospec Chemical case, decided in Alberta, drew widespread attention, not only in Canada but also in the US for its innovative settlement approach utilizing EMS requirements. Canadian corporate environmental programs have looked at this case as signaling the acceptability of ISO 14001 to courts and to the regulators. Later this year, the new Canadian Environmental Protection Act will come into force. That statute has an interesting provision, basically adopting as law the notion that court sentences may include the requirement of implementing an EMS along the lines of a "recognized international standard."

EMS is becoming recognized as a tool for moving towards sustainability. Canada has been much more receptive to building upon a sustainability-oriented framework than their US neighbors. The sustainability concept is explicitly built into a number of government and private sector initiatives. In turn these provide vehicles for EMS implementation. One of the most significant sustainability developments in Canada is the requirement that each Federal Ministry prepare a Sustainability Plan. The public sector is making the commitment to show the way forward on sustainability in Canada.

ENVIRONMENTAL MANAGEMENT SYSTEMS IN THE UNITED KINGDOM

BS 7750 The British Underpinnings of *Environmental Management*

Before beginning down the long trek of understanding the development and implementation of EMS and its potential effects on public policy, it is imperative to know and understand the history of the ISO 14001 standard and environmental management systems (EMSs) in general. The United Kingdom is a critical element to the EMS puzzle, because it is in this country that the EMS journey began with the appearance of the first national EMS standard in the early 1990s. Additionally, the UK's overall history is important because all of the ongoing initiatives discussed in this section have a direct link to the future environmental policy of the United Kingdom and many other countries around the world. The United Kingdom continues to be the world's leader with EMS initiatives.

Some observers trace the genesis of environmental management systems and the ISO 14000 series to the 1972 United Nations Conference on Human Environment held in Stockholm, Sweden, which ultimately spawned a 1987 report titled *Our Common Future*. This report contained the first reference to "sustainable development." Calling for industry to develop effective EMS to help manage their impact on the environment. By the end of 1988, more than 50 world leaders had publicity supported the report. The United Nations then convened the U.N. Conference on Environment and Development - the Earth Summit - in Rio do Janeiro in June 1992.

To prepare for that summit, the International Organization for Standardization (ISO) in Geneva, Switzerland, established the Strategic Advisory Group on the Environment (SAGE) in 1991, to make recommendations regarding international standards for the environment. After much discussion and debate, the Rio Summit and the SAGE meetings eventually began to solidify the concept of an EMS standard that could be utilized across all industry sectors on a global scale. At that time, efforts to create a single, generic, internationally recognized EMS standard were (and still are) driven by the desire among companies to avoid duplicative-and sometimes competitive-corporate and governmental programs, and by the need for objective validation of their commitment to the environment.

Such efforts began on several fronts globally, but one clearly led the way to ISO 14001, the world's most visible and recognizable standard for environmental management. In the early 1990s in England, the British Standards Institution (BSI) developed *British Standard 7750: Environmental Management Systems,* as a companion to its BS 5750 standard on quality management systems. BS 5750 was the forerunner and template for the ISO 9000 quality management system standards, which gained huge popularity for organizations of all types and sizes to establish quality management at all levels of production.

BS 7750 was the national EMS standard for the United Kingdom, beginning in 1992. Along with other national standards, including those developed by Japan, Canada, Ireland, Spain and France, BS 7750 eventually formed the basis of ISO *14001 devel*opment. In fact, the United Kingdom, and more specifically, BSI, became the secretariat organization within ISO Technical Committee 207-the international group of experts created from the SAGE meetings to develop the ISO *14000* series-to lead the charge to develop ISO *14001*.

Countries participating in SAGE, which included most of the industrialized and developing world economies, spent nearly two years studying BS 7750 and other national EMS standards to determine the need for a standardized approach concerning environmental management.

The reason to develop BS 7750 (first published in 1992), and ultimately, ISO *14001* (published in 1996), was threefold for UK industry and government:

1. The passage of the UK Environmental Protection Act in 1990;

2. The early draft of the European Union's (EU's) Eco-Management and Audit Scheme (EMAS) program in December 1990 (published in 1993 and up for revision again in 2000); and

3. Pressure from the public and politicians concerning the environment.

The basic goals of BS 7750 were to validate a company's compliance with its stated environmental policy and to require that the company demonstrate that compliance to others. It was also written specifically to be compatible with the ISO 9000 series on quality management and with the requirements of the EU's EMAS, which will be discussed later in this presentation.

BS 7750's first draft was developed quickly in the United Kingdom to address the needs of the market, and was involved in a pilot program with over 300 companies within 12 months of the conception stage. (Conversely, ISO *14001* took four years to develop and publish its first draft.)

Defining Environmental Management

Eventually, experts in the United Kingdom and around the world took the concept of BS 7750 and developed the scheme of a standardized EMS called ISO *14001*. Those experts defined the EMS concept as the aspect of an organization's overall management structure that addresses the immediate and long-term impact of its products, services and processes on the environment. Additionally, that concept hoped to provide order and consistency in organizational methodologies through the allocation of resources, assignment of responsibilities, and ongoing evaluation of practices, procedures and processes.

The idea worked, and quickly caught on in Great Britain and in other parts of Europe, as public concern over industry's impact on the world's environment increased. Indeed, public opinion on the environment continues to be a major driver for EIVISs. Then and today, politically oriented bodies, such as environmental advocacy organizations, watchdog groups and the "green" party that established a foothold in the British Parliament, urged businesses to take responsibility for their environmental effects. This pressure from the public sector led to a rise in proposed and enacted environmental legislation worldwide.

But there was great concern over the adoption and certification of too many different standards in the European and global markets, which many feared would lead to trade barriers between nations and costly and often duplicative systems to address envi ronmental concerns. This eventually led to the adoption of ISO 14001 not only in the United Kingdom in 1996, but also throughout Europe and North America soon after.

It was not an easy transition, however, to make the switch from BS 7750 to the international ISO 14001. In the early 1990s, many viewed BS 7750 as being more prescriptive than ISO 14001. ISO 14001 incorporated many of the requirements of BS 7750 as an appendix, which makes them guides only, not requirements.

For example, BS 7750 did not specifically require that companies publicly disclose environmental performance information-but the language strongly leaned in that direction. As it is currently written, ISO 14001 requires organizations to communicate their environmental policies to interested stakeholders, but does not require public disclosure of environmental effects. However, a list of environmental effects is included in an annex to ISO 14001 as suggested items to consider during implementation.

Indeed, economic indicators are increasingly becoming a major factor for implementation and certification of ISO 14001 for industry. In fact, in November 1999, the 2,900 members of the London Stock Exchange announced that they would require annual reports from its firms in 2000 to detail how they identify and cope with financial, environmental and other risks in order to be listed on the exchange.

The Current ISO 14001 Scenario and the Economy

Fast-forwarding to the current environmental situation and ISO 14001's role in the United Kingdom, the effect has been substantial to businesses of all types, government agencies and to the environment itself.

Globally, environmental awareness, especially in the European Union, experienced a dramatic surge in the 1990s, as technology allowed more information to be distributed at a much faster rate to consumers and investors.

Similarly, organizations that affected the environment embraced ISO 14001 and environmental management as a potential response to that awareness, in terms of communication (as a registered company to an internationally recognized standard) and as a new, innovative avenue to address legal concerns.

Since September 1996, when ISO 14001 was published, an estimated 13,000 organizations around the world have implemented and received an independent, third party certification of that system by an accredited registrar. The United Kingdom accounts for an estimated 1,000 certifications, currently ranked third behind Japan and Germany with the highest number of certifications.

But these figures, some experts say, are only a quick glimpse at ISO 14001 trends. While these figures do represent a measurement of actual certifications, some experts believe a more sophisticated measure can be obtained by taking into account a country's level of economic development, as measured by gross domestic product (GDP), population statistics, as well as the number of certifications.

Simple certification counts acknowledge some trend information; (for example, the electrical/electronics, chemicals, steel and car manufacturing industries represent the largest number of certifications from that data, (most likely because those industries often have the greatest impact on the environment and to the world's natural resources). But that information does not account for the practice of environmental management itself, or the many factors that may account for the certification number differences between countries, such as supply-chain pressure, regulatory concerns and other factors that weigh heavily on industry in different sectors.

Additionally, applying economic indicators to those figures gives the number of certifications for top countries a different look: Japan is 1st by number of certifications, 13th by population, and 18th by GDP The United Kingdom, on the other hand, is 3rd, 14th and 17th respectively, and the United States, 7th, 8th and 37th, according to information provided by the Hungarian Association for Environmentally Aware Management.

Indeed, economic indicators are increasingly become a major factor for implementation and certification of ISO 14001 for industry. In fact, in November 1999, the 2,900 members of the London Stock Exchange announced that they would require annual reports from its firms in 2000 to detail how they identify and cope with financial, environmental and other risks in order to be listed on the exchange.

This move by the Institute of Chartered Accountants (ICA) in England and Wales is a consequential step toward holding directors and managers accountable for significant environmental, ethical and social risks as well as financial threats. It also is an important move toward making a firm's environmental infrastructure more transparent in ways that better inform investors, lenders and insurers.

At least 500 firms with headquarters outside the United Kingdom are listed, including many from the United States. U.S. sectors represented include automotive, pharmaceuticals, finance, energy, electronics and communications. The London Stock Exchange is the fourth largest in the world as measured by market value, following New York, NASDAQ and Tokyo. The Dow Jones in the United States also created a similar index of environmental information for the same reasons in October 1999. (See United States summary for more information.)

The power of the London Stock Exchange rule is in the information it requires as much as in actual company performance on environmental factors. For example, the stock exchange will allow companies to say why they are out of line with the risk management requirement, but it is expected that such admissions risk the financial bottom line or consumer confidence.

Experts say the requirement will force this type of risk visibility onto the board room agenda, ultimately changing attitudes with corporations and investors. Additionally, they say more public information regarding the environment will add credibility to the organization's reputation for success.

In the United Kingdom, a good example of that reputational risk was that of Shell Oil, which received harsh criticism in the 1990s for its dealing with labor and human rights issues in the country of Nigeria and the decommissioning of an oil platform in the North Sea. The company's stock price plummeted following the news when shareholders assaulted Shell's Board of Directors for immediate action in London in May 1997. That confrontation produced Shell policies that included greater shareholder and stakeholder access to information regarding the environment.

The Shell Board's commitment to accept ultimate responsibility for environmental and ethical conduct received excellent review in the following months. Since 1997, systems, including environmental management systems, can fit into the plans of those professions.

Similar to ISO 14001, the ICA code of the London Stock Exchange requires clear, measurable objectives, just as many legislative policies do globally. Special attention is paid to significant risks, but care is advised to avoid creating new business bureaucracies and excessive paperwork.

Similar to EMAS, Europe's environmental management system, the ICA code carves out a strong role for employees in the managing of environmental risk and achievement of environmental performance. It asks the company to "communicate to its employees what is expected of them and the cope of their freedom to act."

Environmental protection is especially mentioned as an area where employees have the knowledge, skills and tools to support the achievement of the companies' objectives, including the legal arena.

This is a key area of development for all involved in ISO 14000 and EMSs in general. With ICA, employees must have "established channels to report suspected breaches of laws or regulations:' and strong attention is paid to the need for employees and management to comply with the code, enabling them to produce an honest and complete report to the Stock Exchange. Noncompliance with the reporting code will result in an "embarrassing disclosure, which could attract the attention of the press, shareholder activities and institutional investors:' according to ICA.

Environmental Reporting and the EMS Link

The recent developments at the London Stock Exchange, the ICA Code and the Dow Jones are the direct result of the world's need to obtain more and more credible data regarding the environment, environmental management and other risk-based assessments.* Investors, consumers and the general public now have increased access to relevant data to make more informed decisions with financial investments as well as the products for purchase. These stakeholders are just beginning to become aware of the potential linkage between EMS and environmental reporting.

The concept known as "environmental reporting" is, in itself, a growing trend in the United Kingdom and throughout the world, especially with large, multinational organizations. In fact, according to a recent report issued by Pensions and Investment Research Consultants in the United Kingdom, 65 percent of companies report in some form on environmental issues, but not in ways that are comparable σ consistent. The report also states that environmental reporting is more developed among FTSE 100 firms (89 percent) than FTSE 250 firms (55 percent). There are wide sectoral differences: mineral extraction-100 percent of firms; oil exploration and production-86 percent; 57 percent of the electrical and electronic equipment sector; 33 percent of financials; and 6 percent of investment trusts. Another report from KPMG shows that a third of the world's 250 largest companies, mainly multinationals, now publish a standalone environmental report. There is a wide variation between sectors, with higher reporting levels in those areas perceived to have a greater potential environmental impact (pharmaceuticals, chemicals, transport, etc.). Additionally, more recent environment reports place greater emphasis on employee involvement, supplier requirements and sustainable development than in the past.

But again, there is no standardized approach to environmental reporting, and this issue has caused significant debate within the ISO 14000 community as to how, and indeed if, environmental reporting should be linked to standardized EMSs. The argument is that the beauty of ISO 14001, a voluntary standard, is its flexibility to be adopted by any type of organization to reduce environmental impact and instill the concept of continual improvement throughout all levels of the organization concerning waste reduction, legal compliance and myriad other environmental issues. Industry experts believe that this flexibility is one of the most important values of ISO 14001 and EMS implementation, and if ISO 14001 begins to prescribe mandatory reporting of environmental issues, then the flexibility will be lost and the majority of small- and medium-sized enterprises will not be able to implement the standard because of increased costs and augmented liability issues.

However, other experts believe the concept of environmental reporting is inevitable in the long-term, as the hunger for information continues to grow in this area. ISO 14001 experts plan to examine the issue during the revision process, already underway, with hopes of a revised version of ISO 14001 by 2003.

But many organizations in the United Kingdom already have initiated plans to report environmental information, or have established partnerships with relevant organizations to provide the environmental data needed to make sound decisions. In fact, an a*6reement was reached in late 1999 between the Organization for Economic Cooperation and Development (OECD) nations to exchange environmental information before investing in large overseas projects. The intention is that by exchanging such information, investment in environmentally damaging projects can be avoided. The agreement is also a first step toward international rules on export credits and the environment-something that could have profound effects concerning the continuing debate on the 1997 Kyoto Protocol on Climate Change issue for all nations, including Jamaica.

Many experts, including those within the United Nations Framework Convention on Climate Change (the group that devised the Kyoto pact), believe ISO 14001 and others in the ISO 14000 series could

play a significant role in reporting relevant environmental information and reducing greenhouse gas (GHG) emissions to the Protocol's stated objectives.

ISO 14001 and Policy Implications in the United Kingdom

A. **Infusing EMS into Public Policy**. A number of initiatives have emerged in the United Kingdom lately linking governmental policy to EMSs. They include:

1. The Department of Environment and Trade (DETR) and the Department of Trade and Industry (DTI) actively support ISO 14001/EMAS in all policy and both are actively referenced in 1999's Sustainable Development Strategy titled "A Better Quality of Life" (published May 1999.)

2. The DETR's advice to those sites affected by the new EU Directive on Integrated Pollution Prevention and Control (IPPC) is to implement the UK Regulations via an EMS (this will affect over 7,000 "installations" under UK Regulations, including the food and drink industry for the first time).

3. The Health and Safety Executive (HSE), the UK Health and Safety regulatory body, is also emphasizing the use of a corporate EMS to implement the Control of Major Accidents and Hazards (COMAH) Directive, which came into force in April 1999.

4. Following a report by the Environmental Audit (Select) Committee into the Greening Government Inquiry, the UK Government has responded with a policy commitment that all UK government departments and next step agencies should adopt EMSs with at least one major site per department covered by certification by 2001. The committee also recommended that all government departments should "take a stronger management systems approach.." to their procurement activities. This, in effect, places the onus on the UK government to green its E40 billion a year of procurement activity-a major market driver to EMS implementation.

5. The UK government is nearly ready to re-launch its "Making a Corporate Commitment (MACC) Campaign" (originally focused on energy efficiency alone) with a wider focus aimed at getting UK businesses down the EMS route.

6. The DTI, working with BSI, just developed a new EMS Small Business Scheme (EMS2SME) with a pilot due to start in February 2000 with 250 companies and 400 individual training delegates. DTI grant-in-aid support has been provided for the project.

B. **EMS and Sustainability Policy.** A new partnership began an early development phase late last year in London to link industry, government and environmental groups completely through the use of EMSs, ISO 14000 and other sustainable business practices.

Preparing proactively for the years ahead, a federation of organizations is now gearing up to launch the second phase of a project that could someday be the replacement standard for ISO 14000, Social Accountability 8000 and the myriad other guidance documents now appearing in the marketplace to achieve some level of sustainability.

Its name is the SIGMA Project (Sustainability integrated Guidelines for Management), and its potential to do for sustainability what ISO 14000 is doing for environmental management in the United Kingdom and other parts of the world is quite real.

Created by the United Kingdom's DTI, BSI, the Forum for the Future and the Institute of Social and Ethical Accountability (ISEA), the SIGMA Project hopes to establish a strategic management framework for sustainability within the next two years. According to project officials, progressive companies in the United Kingdom and others worldwide already have a great deal of experience in tackling sustainability issues, but the lessons learned need to be drawn out and translated into a generic framework that can be applied across industry as a whole. It is the same scenario discussed earlier concerning BS 7750 and ISO 14001, only incorporating the concepts of environmental and social accountability reporting and other sustainable business practices.

DTI officials say that there's a growing recognition in the marketplace concerning the environmental management systems the world now has, including EMAS and ISO 14001. But the new project hopes to tackle not only the environmental problems of today and yesterday, but also the aspects of technology and the economy, as well as the social and the ethical spheres of the future.

According to newly released literature on the project, successful companies can no longer afford to ignore sustainability. The pressures are coming from all directions government, consumers, communities and organized groups-for businesses to be more environmentally and socially responsible and have higher ethical standards.

At the same time, the drive to boost competitiveness and shareholder value for business in the United Kingdom is stronger than ever.

"Sustainability is all about striking a balance between these different priorities:' the project's description states.

The UK's Sustainable Development Strategy, published in May 1999, defines sustainability with four objectives:

- Social progress that recognizes the needs of everyone;
- Effective protection of the environment;
- Prudent use of natural resources; and
- Maintenance of high and stable levels of economic growth and employment.

Scheduled to complete the scope development phase in February 2000, which includes a comprehensive survey of existing tools and standards in the environmental, social and economic fields, followed by a gap analysis to identify where new work is required, the SIGMA Project plans to head into the new millennium by recruiting 25 organizations to experiment with new tools and standards as they are developed.

ENVIRONMENTAL MANAGEMENT SYSTEMS: REPORT ON U.S. IMPLEMENTATION AND POLICY DEVELOPMENTS

Introduction

This section of the report discusses current implementation trends and anticipated policy directions in the evolving development and use of Environmental Management Systems (EMSs) in the United States. The implementation examples and technical aspects of EMSs in use in the U.S. are diverse, widespread and referred to here only generally for the purposes of discussing their increasing adoption. The thrust of this report is to shed light on policy developments at the state and federal level regarding the promotion of EMSs as a matter of promoting environmental improvement and further aligning it with economic efficiency.

Historically, the United States has led the world in successfully defining contemporary environmental protection. These environmental gains have been achieved at great cost through heated legal and policy debates characteristic of the U.S. environmental movement. So far, this complex and imperfect assembly of command-and-control requirements has contended well with numerous diverse forms of pollution inherent to a dilating economy. Dramatic turns in the economy, however, and unforeseen changes in manufacturing suggest that more adaptive, performance-based environmental management methods are needed.

In the United States, as elsewhere, environmental protection must increasingly rely on innovations in environmental management if a more advanced environmental management framework is to emerge early in the 21st century. The policy dialogue in the United States views EMSs as an important emerging tool that hold potential for linking business logic with environmental goals and responsible stewardship for actual environmental improvements beyond what the present configuration now offers. As the President's Council on Sustainable Development (PCSD) said, "Jallone, environmental management systems (including 'properly certified ISO 14001 systems) do not necessarily ensure improved environmental protection and performance. Rather, effective EMSs can provide significant structural support for improving performance if coupled with qualitative and quantitative performance commitments and goals" (PCSD 1999, p. 48)

Environmental Management Systems in the United States

A diverse group of organizations, associations, private corporations and governments have been developing and implementing various EMS frameworks in the United States and other parts of the world for the past 20-30 years. For example, the Chemical Manufacturers Association created its own framework called

Responsible Care in *1988.* In addition, the French, Irish, Dutch and Spanish governments developed their own voluntary EMS standards in the *1980s* and *1990s,* and perhaps more important was the development of BS 7750 in the United Kingdom, the founding document of ISO 14001. (See discussion in UK section above.)

Probably the most telling development surrounding the use of EMSs is the adoption and proliferation of the International Organization for Standardization (ISO) Environmental Management Standard, the ISO 14001 EMS standard, finalized in September 1996. Revisions have now been proposed, but the intent of this standard is to produce a single framework for EMSs, which can accommodate varied applications all over the world.

In the United States, ISO 14001 implementation and certification was slow to take off during the first two years, as a number companies took a "wait and see" approach to the standard. This was due

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to a number of reasons, which included mixed regulatory signals from the EPA and state enforcement bodies, as well as limited outreach efforts by the American bodies responsible for the development of the ISO 14000 series-the American National Standards Institute and the U.S. Technical Advisory Group to Technical Committee 207. In September 1997, one year after the final publication of ISO 14001, only 34 companies had received third-party certification to the standard. Those companies were mostly from the chemical and electronics sectors. (those sectors continue to lead in certification numbers today.)

But by February 1998, ISO 14001 certification numbers in the United States began to increase significantly, with larger companies such as the IBM Corp., Ford Motor Co. and Lockheed Martin certifying to the standard with great vigor, and total certification numbers nearing 100. That year also experienced increased activity within the U.S. Envir*8nmental Protection Agency, which launched several EMS initiatives and released a position statement on the public policy implications of ISO 14001 and EMS implementation in the United States.

The private sector began to react positively as well to EMS benefits following the EPA position statement. Soon after, IBM announced that it would strongly encourage its hundreds of suppliers worldwide to implement an ISO 14001 system, just short of a requirement of doing business. Just a few months later, the Xerox Corp. issued a similar request to it 30,000 suppliers around the world.

The stage was then set for arguably the biggest development to date in the United States concerning ISO 14001. In September 1999, The Ford Motor Co., after certifying more than 140 of its own manufacturing sites globally and proclaiming the millions of dollars it saved in waste minimization and other environmental initiatives, announced that it would require ISO 14001 certification of its suppliers by 2003. The General Motors Corp., quickly reacted in the days following the Ford announcement with its own ISO 14001 requirement of its thousands of suppliers. This single event will likely shape the EMS market for the next decade, as thousands of companies will be affected by the automotive mandate. At the end of 1999, certification totals to ISO 14001 in the United States reached a remarkable 600, and are ranked 7th highest heading into 2000.

Moreover, the end of 1999 saw more EMS initiatives from the public sector, and continued to gain ground as a policy tool. The Clinton administration issued an executive order in late 1999 that requiring all federal agencies to begin environmental management system pilot projects by March 31, 2002, and to establish an effective EMS at all federal facilities by 2005. The federal mandate will directly affect all 16 departments in the Executive branch-which includes more than 15,000 federal facilities, plus other agencies as well, such as the Tennessee Valley Authority, the Government Printing Office and the U.S. Postal Service. The draft order, tentatively titled "Greening the Government Through Leadership in Environmental Management:' will require a system based on the U.S. Environmental Protection Agency's Code of Environmental Management Principles (CEMP) or other appropriate existing EMS standards, such as ISO 14001.

Other significant policy initiatives embracing the EMS framework include reinvention activities at EPA, and the final report of the US President's Council on Sustainable Development in May 1999. EPA also issued two reports concerning EMSs: The first was in August 1999 and titled, "Aiming for Excellence: Actions to Encourage Stewardship and Accelerate Environmental Progress" The report included a strong commitment to utilizing environmental management systems approaches, the first such clearly proactive statement on EMS from EPA, and a further agency commitment to develop a performance track or alternate regulatory pathway. Such an initiative will likely rely heavily on EMS implementation and third party certification.

The second EPA report came in December 1999 in a draft form, which will be the agency's Action Plan for EIVISs. This new plan is the most comprehensive policy approach concerning ISO 14001 to

date in the United States, and will likely garner significant discussion and debate in the early months of 2000. (See attachment.)

Testing the EMS Ground

Testing the environmental management performance of EIVISs is now a central feature of most reform initiatives in the U.S. regulatory scheme. For instance, the Multi-State Working Group (MSWG), now representing nearly all of the states, has entered a pilot research program with U.S. EPA and University of North Carolina specifically to test and measure how EMSs may achieve better environmental performance.

The U.S. Environmental Protection Agency's Project XL, the Environmental Leadership Program, and the Star Track program all recognize and rely on the voluntary use of effective EMSs in one way or another as part of a overall program of compliance assurance. Similarly, several states including Connecticut, Florida, Massachusetts, New Jersey, Oregon and Wisconsin have created alternative or supplementary regulatory programs (See Appendix A) that offer various administrative incentives for participating companies. Most state and federal incentive-based or voluntary programs require a participating company to have an EMS in place in addition to other features, such as a good compliance record, a robust environmental policy, some form of auditing either internally or by a third party and a commitment to continuous improvement and better environmental results.

In exchange, the government programs usually offer incentives such as "one-stop shopping" (consolidating permit and regulatory activities for greater convenience and efficiency); some form of audit policy to allow a company time enough to identify and correct problems detected by the EMS or audit (not to be confused with state audit policies that "shield" companies from liability or offer them "immunity:' which is a questionable policy issue); and expedited processing or more flexibility for permits. Most voluntary or incentive programs are focused on compliance with existing laws, however, and use regulations as the measure of environmental performance.

Third-Party Certification and Auditing Schemes

The evolution of EMSs directly parallels the emergence of more accurate auditing methods and registered certification practices. Looking forward to more performance-focused systems of environmental management and compliance, the goal for public oversight is to model new environmental programs to encourage higher levels of performance. To do this, modern environmental regulatory programs will want to enlist only companies with comprehensive EMSs, whose performance is audited and whose EMSs are certified by accredited third parties. The current scheme in the United States was established by a joint agreement between the American National Standards Institute (ANSI) and the Registrar Accreditation Board in 1997, formally called the National Accreditation Program, which accredits all aspects of the third-party process-EMS training courses, EMS auditors and EMS registrars.

The incentive for a company, for example, is the opportunity to concentrate all of its annual regulatory and reporting burden into a single event-an annual third-party certification of the company's conformance with a comprehensive EMS that measures and reports compliance and performance results. This strategy, which many reform programs in the United States are considering, entails the use of EMSs, consolidated or unified reporting and the growing field of registered third-party auditing and certifying services to verify ongoing or continual conformity with the specified EMS in place and operating.

Because of much confusion and concern among businesses, environmentalists and some government officials over the use of EMSs, it is very important to distinguish between the private sector use of EMSs, which only measure a company's performance against what it says it wants to

measure (which is all that ISO 14001 is supposed to do, although standardized), and the use of EMSs in a alternative regulatory strategies that set-up criteria for demonstrating, auditing and certifying compliance and other critical information on actual environmental performance (sometimes referred to as an EMS-plus system).

One important attribute for environmental protection and oversight agencies to consider is the development of an effective and adaptive environmental audit policy. Audit policies must specify, regardless of the type or scope of any particular EMS, under what conditions a company will be eligible to participate in voluntary programs or initiatives, and under what conditions the agency will reduce, toll or modify penalties in exchange for an eligible company having a demonstrable system in place for meeting, verifying and reporting environmental performance outcomes.

Larger facilities and firms are especially likely to want benefits from a regulatory relationship with an oversight agency capitalizing on the environmental performance and management information being generated from the company's use of EMSs. But for this to occur, most experts believe that accredited third-party firms should verify the regulatory aspects of environmental management, compliance and performance. Other non-regulatory aspects of a company's environmental management that are not required by law could be self-certified. However third party verification and attestation would increase the public reporting value. In either case, third party certification to verify critical public information and results will build greater public confidence than self-auditing and certification. Together, these tools provide a management technique for demonstrating improved performance, which is something most current regulatory systems do not do.

Information Management

In any system for managing and protecting human health and the environment, whether it is a performance-focused system utilizing EMSs or the traditional regulatory system, performance baselines (i.e., benchmarks) need to be established for facilities, firms and sectors. Regardless of the difference between firms and sectors, the information collection or retrieval system should be set up in a cross-sectional way so that each piece of information performs multiple jobs:

- Provides environmental performance baseline or benchmarks reporting information (e.g., energy efficiency, water usage, discharge, releases, toxins usage, resource productivity, etc. on 3-4 levels (facility, firm, sector);

- Collects information that satisfies regulatory requirements but also shows compliance assurance and environmental performance results;

- Monitors, calculates or tracks ambient environmental conditions; Right-To-Know information for communities (i.e., accountability); and

- Improvement or progress (this information is useful to the government, financial community, and the public).

This kind of information base is already being constructed by EPA in cooperation with the MSWG in an EMS reporting process that feeds into EPA's Center Environmental Information and Statistics.

A set of common environmental performance, management and compliance metrics also need to be advanced in order to implement performance-focused use of EMSs. Several multi-stakeholder groups have recommended what these set of reporting indicators ought to include (e.g., Environmental Defense Fund's scorecard, Global Reporting Initiative (GRI), Common Sense Initiative/Electronics' "CURE", Environmental Leadership Program, Star Track, Responsible Care, and the Multi-State Working Group (MSWG). There is agreement enough on these core information

elements to get started (most are known and can be gleaned from a half dozen initiatives that have already begun to answer this question).

The co-genesis of information management technology, as well as consolidated, electronic and "one-stop" reporting, are all necessary to fully understanding and utilizing EMS methodology. One of the challenges to moving operating companies and the regulatory agencies into performance-focused management programs is to develop information management and administrative mechanisms that complement the use of EMSs.

In the United States, various efforts are underway to consolidate reporting requirements, offer one-stop reporting or permitting registration, and to convert to electronic reporting. Each of these cost-effective activities is currently being pursued by EPA and some states. The resource savings to both the regulated community and government suggest that this form of information reporting (e.g., consolidated and electronic) will shortly become the norm.

But consolidated and "one-stop" type reporting (i.e., permitting, registration, renewals, etc.) are not yet fully applicable on a wide scale. Key facility identifiers begin to tie the various statutory and regulatory requirements of a facility into a single point of reference, but the United States has not as yet offered the ability to consolidate all regulatory and administrative requirements into a single reporting and registration event for any of the major operating sectors. The further development of this capacity does not cause a performance-based system to fully materialize, but it is a critical efficiency step and could be part of how to organize under a sector approach supported by certified EMSs.

Financial Industry Analysis

Most financial analysts from insurance, equity or lending institutions will tell investors that it is not the kind of environmental management system that matters. It is what the company has said it was going to do in the EMS, and whether or not the company proved to do what it said it was going to do. If a company didn't say that it was going to do much, and it shows that it didn't do much, then that is the story, regardless of the needs of the environment. For example, a company without an EMS could potentially score much higher in the overall financial analysis depending on how well the company is performing against what it said it would do. The company has to set to some goals and objectives and it has either met them or not.

The financial analyst may not agree with those objectives or goals, but they see that the policy and a process are in place. What the analyst wants is to go to the company or another information source to determine what the company views as its environmental management responsibilities, and then determine how well the company manages itself accordingly or not. Depending on the industry, lending for instance, the analyst may try and guide a company into an area where, in his viewpoint, will reduce risk.

In another example, an insurance company will go into a company and see that it has had some historical losses. That doesn't mean because a company may have had loses that the company cannot be insured. What most analysts are looking for is that a company will likely detect and correct problems as they arise, and that the organization has a framework in place, such as an EMS, to do this effectively and consistently.

According to what the analyst identifies and calculates, the price of stock or credit may vary. If an analyst assumes, based on the environmental performance information he or she receives, that there was a third-party verification, and that analyst is comfortable with that information and what it shows, so too will other buyers and sellers or lenders. Aside from the information that an environmental management system would collect, and regardless of all the particularized

environmental attributes and specific aspects that are stipulated by the company, the use and complexity of the EMS reveal company behavior. The fact a company may or may not have an EMS is showing some type of behavior and commitment, whether or not this information is verifiable or certified. Potentially, a third-party audit or certification of the EMS and the information it produces will add another level of certainty to this analysis.

Much of the analyst's or lender's job is to determine whether or not to assume that the company's management is committed and should be extend credit resources. If a lender sees, in fact, a company is dedicated and it has built in and integrated into the process means for reducing risk and lessening impacts, it will be much more comfortable that that this level of behavior will continue, because there is money being set aside for it.

Until recently, much of this section on the linkage between EMS and Financial Analysis may have been somewhat speculative. However, with the advent of such initiatives as the Dow Jones Sustainability Index and a similar rating program from Inovest, it is likely that this methodology will see rapid acceptance within the Wall Street community.

Alternative Regulatory Programs: Generic Framework

This outline of a generic alternative regulatory program is synthesized from proposed and existing programs developed over the past 5 or more years. Examples include the Aspen Institute, Enterprise for Environment, US EPA Common Senses Initiative, Environmental Leadership Program, Star Track and Project XL recommendations.

The concept of an alternative regulatory program (e.g., alternative or innovative regulatory strategies, pathways, etc.) is increasingly recognized as a potential regulatory transition tool by various interests from business, government and the environmental community. Nearly all such programs rely on the implementation or existence of varying forms of Environmental Management Systems (EMSs). Reasons cited for implementing or authorizing such a program include the following:

▪ Resources are increasingly constrained, making it imperative to identify ways of achieving environmental goals more effectively and more efficiently.

▪ Environmental managers at companies in partnership with an active group of community or environmental stakeholders are sometimes well positioned to experiment and decide what approaches will yield better environmental results than can be achieved under existing or foreseeable regulations.

▪ With proper safeguards, allowing flexibility can substantially reduce compliance costs and make industries more competitive, provide for much greater community involvement in the decisions of their neighboring industrial plants, foster cooperative partnerships and encourage greater innovation and better results in meeting environmental goals.

▪ Cooperative compliance strategies utilizing EMSs and that bundle small- or medium-sized enterprises together as units under an alternative compliance proposal, or agencies acting in public/private partnerships as applicants with multiple entities, can achieve outcomes with significantly greater environmental compliance rates for entire industry sectors or regions.

There are two basic models of an alternative regulatory programs for Environmental Management Systems:

a. Pilot programs to test out new ideas/approaches with EMSs for broader reform of generic environmental management programs/processes (i.e., general system lessons; better facility based management).

b. A variance or alternative regulatory program that promotes environmental performance and improvements by offering participating entities flexibility for meeting environmental performance goals through contractual commitments based on EMS and performance criteria rather than under the command-and-control requirements alone.

These concepts are not mutually exclusive. In both cases, however, an array of minimal requirements, safeguards and authority are necessary for providing a foundation that allows participating companies to transition from a compliance-based management approach to a performance-based approach that utilizes EMSs, auditing, public reporting and certification.

The general purposes for an alternative regulatory program are based on the need to anticipate the future of our environmental management framework. To do this, programs designed to authorize trial adjustments to existing environmental regulatory requirements calculated to measurably improve environmental results are emerging at both the state and federal level of government. These programs supplement an agency's current capacity to oversee environmental protection but allow greater variance with existing legal requirements under certain conditions. Such programs also provide regulatory lessons and information about the transition to a future environmental management. Alternative regulatory programs combine examples of economic efficiency, environmental management systems and pollution prevention that emphasize better environmental results under systematic controls designed to inform changes to the existing management framework.

Most state and federal alternative regulatory programs require some form of EMS, but also go on to require performance-oriented commitments. For instance, programs tend to feature:

a. That the applicant's project in total must provide documented anticipation of "superior environmental performance" (SEP) or better environmental results; and

   i. The "proportionality" of the better environmental result to the degree of flexibility sought should be considered or weighed by implementing agency. A proportional balance should also be sought between the level accountability and the modifications sought;

   ii. Some "nexus" should exist between the environmental result/benefit and the regulatory modifications sought although a balance of environmental improvements (e.g., pollution prevention) could be identified through the stakeholder process;

   iii. Projects that seek overall reductions in releases should not result in any significant increase in existing releases that adversely affect individuals, any population or natural resource. Projects cannot shift or transport pollutants that pose significant risks of adverse effects from one population to another; subject any person or population to unjust-or disproportionate environmental impacts; and cannot result in any significant increase in the risks of adverse effects to the health of individuals, any population or natural resources.

b. Ambient health and environmental quality standards would be maintained. Exigent circumstances such as non-attainment status will be assessed accordingly to preserve expected regional or media-specific goals.

c. Projects that achieve only administrative relief and/or cost savings are approvable if some of the savings are applied toward environmental benefit. No specific definition or threshold of environmental benefit would be defined but would be left to the stakeholder process subject to

approval authority. Discernible performance baselines, proportionality and nexus should be demonstrated, however (see (a) above).

d. STAKEHOLDER PROCESS: A stakeholder process meeting the following minimum criteria are usually created for individual projects:

- Full public disclosure of information and open access to stakeholder proceedings or processes (transparency).

- Provides for the development and dissemination of information adequate to enable verification of environmental performance by any interested persons. Consensus-based decision making (normally advisory although projects could include other decisional rules, but no individual vetoes), specific rules and codes of conduct to be decided by the stakeholder team (a self-policing system in most processes).

- Balanced stakeholder groups representative of all interests.

- Ensures that adequate technical support or resources exist for an effective process.

- Stakeholder process could be amended or waived under certain circumstances contingent on approval authority if there is insufficient interest in convening stakeholder participants. And

- The stakeholder process would not be useful in view of the routine or non-controversial nature of the proposal.

The recommendation of a broad consensus of the stakeholder group is weighed heavily in the approval decision.

f. Approval would be based on BOTH the substance of the project agreement as well as the implementation of the stakeholder process (the process would have to be documented prior to approval).

g. Criteria for determining SEP or a better environmental result should include benchmarks for new and existing facilities.

h. The approval authority should seek a diverse array of applications based on such factors as facility size, project scope, public/private partnership and pollution prevention opportunities, etc.

Approved projects must record and report information sufficient for the agency to measure and evaluate the merits and benefits expected to be achieved.

i. Each approved project would be evaluated in the context of the overall alternative regulatory program in order to assess generic changes to the management system, recommend changes in requirements and ultimately report to Congress.
j. Methodology: A public process representative of all stakeholder interests should be employed by the agency to aid in its overall evaluation of the program.

ISO 14001:   A VIABLE PUBLIC POLICY TOOL TO ACHIEVE SUSTAINABILITY IN JAPAN

Japan leads the world by a wide margin in terms of the number of companies certified to the ISO 14001 international environmental management systems standard, nearing the 3,000 mark as of January 2000. Because of this tremendous uptake of the standard, Japan was chosen as a fundamental case study to understand the various parameters driving the process of ISO 14001 implementation and policy making.

Since the beginning, Japan has taken a integral role with ISO 14001's development to provide a flexible framework for incorporating and integrating environmental management into the core business decision-making process of Japanese industry. It is widely believed in Japan (and elsewhere) that the proper implementation of an EMS will improve internal organizational efficiency, provide competitive advantage and enhance public image, which may open the door for regulatory flexibility from governmental bodies as well as preferential financial treatment by insurance and lending institutions.

Additionally, many experts are convinced that the ISO EMS standard will also facilitate international trade, something vital to Japanese industry, which imports more than 80 percent of its natural resources to produce one of the world's strongest economies. This review of the Japanese experience is to understand the nature of forces pushing the implementation of ISO 14001 in Japan, the economic and environmental benefits of its implementation and the feasibility of transferability of this process to other countries to develop a working public policy model for encouraging ISO 14001 implementation for sustainability in other countries.

ISO 14001 Impf6mentation in Japan As mentioned before, Japan is the world leader in adopting ISO 14001. The country boasts nearly 3,000 registered companies, according to recent figures from the Japan Accreditation Board for Conformity Assessment (JAB). That figure represents nearly a quarter of the worldwide total, followed by Germany with an estimated 1,500 certifications and the United Kingdom with 1,000. Earlier surveys have consistently identified Japan as the world leader, followed by Germany, and the United Kingdom, Sweden and Taiwan. The trend is likely to continue and according to some forecasts, the number of registered organizations will double in the next three years.

The myriad organizations that have achieved ISO 14001 registration in Japan are also worth noting. The remarkable variety of Japanese organizations, from both the private and public sectors, ranges from factories to government offices to supermarkets and also varies in sizes. As in most other countries, the manufacturing industry such as electrical machinery and equipment, chemical, transportation equipment, organic producers, farmers, and wholesalers, paint and coating indus-tries, accounts for the significant proportion of ISO 14001 registration. The list of registered non-manufacturing organizations includes schools, universities, banks, trading houses and even supermarkets. Government agencies are also establishing and registering for EMSs. The Japanese Environment Agency, for example, is seeking registration, as are an estimated 80 local governments. More than a dozen local government entities are already registered to the standard.

Despite the high number of certifications in Japan, the reasons for implementing ISO 14001 are much the same in this country as they are in the rest of the world. Companies see an EMS as a means of improving their environmental performance and public image, reducing costs by conserving energy and resources, motivating employees, distinguishing themselves from the competition and expanding their pool of potential clients.

The ISO 9000 Reaction

One of the major factors for such elevated certification efforts in Japan is perhaps the consequence Japanese industry experienced when the ISO 9000 series was launched internationally for quality assurance in the late 1980s, according to CONSENSUS magazine. Although those quality standards are not binding in terms of legal implications, they quickly became the international norm in the early 1990s, and European and North American clients insisted that their imports fulfill ISO 9000 requirements, particularly in the automotive sector. Japanese companies were slow to adopt ISO 9000 because of their confidence in their own quality control systems, thus, putting them behind many of their competitors in the global marketplace.

But Japanese industry and the Ministry of International Trade and Industry (MITI) learned quickly from the costly lesson, and when ISO 14000 development began, Japanese firms did not want to experience a similar fate. Hence, the Japanese industry responded to the environmental management standards (ISO 14001) right from the beginning. During the international EMS ISO 14000 standards development, the government and the industries with technology and manpower, took the initiative in shaping Japan's response. Japanese industries took part in the process through special task forces set up in the Japan Federation of Economic Organizations (Keidanren) and other industrial bodies. This is true of both the establishment of procedural and organizational systems (establishment of the accreditation and registration/certification bodies, auditors training bodies) and preparations by companies.

Indeed, because of this proactive effort, Japan was one of the first countries to fully embrace the EMS standards, and MITI's support and push was one of the crucial elements. According to Mr. Yano, deputy director of the Standards Planning Office within MITI, the country adopted ISO 14001 specification, ISO 14004 guidance and ISO auditing standards in 1996 to coincide with the ISO timeline, which also provided the infrastructure to establish the certification and accreditation scheme within the same time frame through the Japanese Accreditation Board. An exponential growth in the registration was observed since the adoption of ISO as JIS. According to Japanese experts, many Japanese companies were already implementing environmental programs that conformed to ISO 14001. Thus, companies such as Sony, Honda, Ashai Chemical, Itoh Yohkado Supermarket, Ebera Corporation and many utility companies got a head start for implementation and the standard's many benefits to the bottom line.

People with extensive work experience in Asia as well as with familiarity with Japan believe a number of factors that are uniquely Japanese may also have played a role in the ISO implementation. Kinsella (VP of SCS Engineers, an international environmental consulting firm based in Bellevue, Wash.) believes that larger industries in Japan are "moving ahead under voluntary suggestion" with the Japanese Ministry of International Trade and Industry. A growing percentage of Japanese companies indicate that they will be ISO 14001 compliant, if not certified in the coming months. Additionally, Japan is an early leader in getting beyond its own borders, with its major companies even seeking ISO 14001 certification in overseas facilities, in places like the United States, Asia and Europe.

Japan's major corporations are also on board, setting good examples with EMS implementation and encouraging other firms to become registered with guidance and a lessons-learned approach. A list of registered companies provided by International Environmental Systems Update includes well-known names such as Sony (all manufacturing bases are certified to ISO 14001. all non-manufacturing bases must obtain certification by March 2001), Hitachi, Toshiba, Sanyo (All the manufacturing sites worldwide, including 14 sites in China, Taiwan, Korea, and five sites in Southeast Asia have obtained certification. Sanyo aims to have all non-manufacturing facilities certified by April 2000. Corporate Environmental Management in Asia Electronic Sector Feb 99), Fujitsu, Sharp, Canon and NEC (All overseas manufacturing subsidiaries must obtain certifications

by October 2000. NEC Components Philippines and Tianjiin NEC Electronics and Communications Industry Co. Ltd. have obtained certification.). Matsushita Electrical Industrial has announced that it is giving priority to suppliers who have an EMS, and is even considering offering financial assistance to suppliers who want to improve their environmental performance.

Most of Toyota's manufacturing facilities around the world are registered, including plants in North America. Toyota was the first automaker to secure ISO 14001 registration to the full standard in the United Kingdom and in Japan. Toyota also has issued a guideline for tier 1 suppliers in Japan recommending that they become registered to ISO 14001 by the end of 2000. However no decisions have been made regarding the North American suppliers. Honda's automotive plants in Ohio are all registered to ISO 14001 and the company also requires its main suppliers to register by the end of 2000. Honda believes that it must balance its customers' desire for fun and performance with society's need for less pollution and lower energy consumption.

Governmental Initiatives and Market Drivers

According to Tamami Tagakuchi, a spokeswoman for the Japan Quality Assurance Organization, government policy on environmental matters is also driving registration in that country. However, there is no clear evidence on its cause and effects, Tagakuchi adds.

The Japanese government is relatively aggressive toward environmental matters. Japanese officials predict the ISO 14001 certification growth will remain steady in Japan as firms follow the lead of big name companies like Honda, Toyota and Canon. Other experts believe Asian countries are looking at ISO 14001 as a way to maintain access to international markets and gain competitive advantage.

According to Dr. Mohammed Matouq (UNCRD, personal communication) another major driver behind implementation of large companies is the global trade requirements and the enhanced public image. Pressure from the Japanese Environmental Agency or the Japanese Standard Institute did not play any role in certification, Matouq said. He also stressed that small- medium-sized enterprises (SMEs) are not likely to get certified to ISO 14001 in the immediate future due to cost barriers, but many of them do practice environmental management of some kind.

Other officials at the Japanese Environmental Agency saw ISO 14001 implementation as a totally voluntary initiative on the part of private sector, with some promotion of the standards from the Ministry of International Trade and Industry (MITI) and officials from the ISO 14000 committee. This outreach effort, however, proved to be significant to help disseminate the information about the standards, to improve environmental performance, to move toward sustainability and to enhance public image by providing improved environmental performance reports.

Japanese officials say that the electric appliance/consumer electronics industry is responsible for the majority of certifications in Japan, with 40 percent of the market, followed by the chemical and transportation sectors, adding up to a cumulative sum of nearly 20 percent. This data is parallel to other ISO 14001 certification markets in the United States and the United Kingdom. (See sections above.)

Other Market Drivers

Because the Japanese economy is an export oriented country and so reliant on trade with other nations to take part in the global economy, the new EMS standards were quickly accepted as business requirements. According to one estimate, by the time the final version of ISO 14001 was published in September 1996, about two-thirds of the country's electrical equipment industry had already registered to the new standard.

But Japan's demography may also be playing a role in adoption of ISO 14001. As a small island nation with limited natural resources, Japan imports most of the raw materials and energy it uses. Japan's land area is almost equal to that of California but because of the mountainous terrain, only 14% of the land is habitable. Moreover Japan's population is about half of the United States, whereas the U.S. has 30 times more land area than Japan, thus, making Japan a densely populated nation much like the Netherlands. One sees parallels in the way the two countries are pursuing global as well as local environmental issues. Japan is realizing the importance of environmental preservation for the current and future generations.

In fact, Japanese interest in environmental issues is on the rise. Global warming, climate change, resource conservation, land use issues and pollution are of serious concerns. During the country's rapid growth in the 1950s and 1960s, several high-profile incidents, including over 80 deaths due to mercury poisoning, led to widespread concern about pollution. The emerging global environmental problems, around the end of the 1980s, made Japan recognize the needs for voluntary action toward good environmental management beyond regulatory compliance. In this context, KEIDANREN (Federation of Industrial Associations of Japan) published the Global Environment Charter in 1991, which called for voluntary action toward good environmental management under the principles of "Cooperation with the Society" and "Contribution to the World" by both manufacturing as well as non-manufacturing industries. Keidanren participated in the formulation of the ISO environmental management and auditing standards to utilize the standards to effectively improve the environment. In addition to voluntary action the need to reconfirm environmental ethics and eco-efficiency through innovative technology and economic efficiency were stressed. Since its announcement, the Keidanren Charter has been the guiding principle in Japanese industry. Now, more than 60 percent of large and medium-sized manufacturing companies in Japan have their own environmental management program, with the majority conforming to the ISO 14001 standard.

To that end, the Japanese government established the Basic Environmental Law in 1993 to address environmental issues and to stipulate the principle of Environmental Policies to industry. To build a sustainable society, it urges every state and local governments, corporations and citizens to integrate environmental concerns in their daily activities with special emphasis on voluntary measures. These measures developed under the law promoted voluntary actions by industries to address environmental issues in the 1990s.

The government's campaigns to enhance public awareness, establish eco-labeling programs, encourage inter-industrial collaboration as a way to reduce environmental burdens at every phase of life cycle, and to push for environmentally friendly business activities, technologies and a sound social system have been instrumental in contributing to ISO 14001's success in Japan. The national government, for example, has supported the implementation of EMSs since 1993, when its Basic Environmental Plan recommended them as an effective tool for dealing with environmental issues.

More recently, events such as the United Nations' 1997 Kyoto Conference on global warming and new environmental legislation have prompted Japanese Government and private organizations to review their environmental policies and practices. Some local governments are now studying how to introduce the certification of ISO 14001 into their own regulations in place of the command and control structure that is currently used. This is the "green track" or dual track system, which is also being discussed in the United States. Besides pursuing their own registrations, governments at the national, prefecture and local levels offer information, grants and loans to organizations establishing or registering an EMS. Tokyo's metropolitan government, for example, will cover half the cost of registration for firms, to a maximum of 1.3 million yen (about $12,000).

Conclusions

Japan's experience shows the growth potential for ISO 14001 and environmental management in other parts of the world, and the benefits to be realized on economical as well as environmental front. It is feasible to decouple economic growth from environmental pressure with sustainable use of resources as implementations of NPP1, NPP2 plans over the years and that of the current NPP3 plan in the Netherlands. Similar voluntary measures in Canada known as ARET (Accelerated Reduction and elimination of Toxics) have been very successful. Other government plans have fostered environmental benefits. Governments can foster the growth of standards by endorsing and applying them. Major companies can help by implementing the standards and also by encouraging their suppliers to adopt EMS as well as by selecting only those with effective environmental management system. Most importantly, however, an EMS needs to be widely used as an effective tool for managing an organization's impact on the environment by integrating it in core business practices.

EMAS, ISO 14001 AND POLICY IMPLICATIONS IN EUROPE

Background

The Eco-Audit and Management Scheme (EMAS) is a voluntary scheme for industry introduced by the European Commission (EC) in 1993. Its aim, then and now, is to promote on-going improvements in the environmental performance of companies and the provision of environmental information to the public. It is a sector specific standard, open only to manufacturing sites.

To certify to EMAS, a company must adopt an environmental policy, review environmental performance at the site in question, develop an environmental management system based on ISO 14001, develop a plan of action in light of the findings of the environmental review, audit the system and publish a statement of performance of the site, a key difference between ISO 14001 requirements and EMAS criteria. A qualified third party checks the system and the statement to see if they meet stated EMAS requirements in the standard. If so, they are validated and the site can be registered. When it has been registered, the site gets a statement of participation, which it can use to promote its participation in the scheme.

An important part of the EMAS regulation requires that companies compile a register of their significant environmental effects. These include such effects as controlled and uncontrolled emissions to the atmosphere, controlled and uncontrolled discharges to water, solid and other wastes, use of land, water, fuels and energy and other natural resources and other types of environmental effects.

Regarding ISO 14001 development, it is important to remember that EMAS came first. During ISO's development, most delegates to TC 207 did not favor such a prescriptive approach to recording and communicating environmental effects. That is why the ISO 14001 standard only requires organizations to consider external communication of such environmental information but does not require it and why the Annex to ISO 14001 notes that companies "may include" information about environmental impacts.

EMAS Development in the European Union

Currently, the full members of the European Union (EU) are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and United Kingdom. Other countries are vying for "accession" to EU membership, including former Soviet-bloc countries. EU membership is an attractive economic option for these countries, making environmental performance -- and hence EMS implementation -- an EU accession issue.

The European Union originated with the 1957 Treaty of Rome, which was established to abolish tariffs and quotas among its six member states and to stimulate economic growth in Europe. Differing national product certification requirements, however, made selling products in multiple national markets in the European Community a costly and complex process. In addition, Europe feared that competition from the United States and the Pacific Rim would slow European economic growth.

In response, the EU called for a greater push toward a Single Internal Market and for the removal of physical, technical and fiscal barriers to trade. In 1985, the EC Commission presented a program for establishing a single internal market and this goal was further expedited by the Single European Act, adopted in February 1986. The goal of this legislation was to abolish barriers to trade among the 12 member states (at the time) and to complete an internal European market by the end of 1992.

Although the key goal of EMAS was to deter trade barriers, the EU faced (and still faces) environmental challenges. However, environmental protection and enforcement in the European Union varies by member state. In response to environmental concerns, the EU has been looking for community-wide solutions to complement national legislation. (The enforcement of environmental legislation, whether it is developed at the EU level or at the national level, is enforced at the national level.)

The original goal of EMAS was to develop EU-wide environmental policies that protect the environment, but allow for free trade and regional differences. Additionally, the ultimate aim is to work toward sustainable development. To achieve this goal, the EU is looking beyond the traditional "command-and-control" approach to environmental regulation. Alternatives include various market-based programs that reward environmentally responsible behavior by industry and bring public attention and pressure to bear on environmental problems. Such approaches can also improve the enforcement of environmental laws and reduce the high cost of environmental regulation and enforcement.

The main obstacle to EU-wide approaches is that the EU legislative system is weak and can't do much to enforce environmental protection at the member-state level, although the new EU Environment Minister is doing an overhaul of the regulatory system to overcome this issue. But it is still difficult for the EU to pass detailed legislation; and once adopted, such legislation is difficult to enforce. Thus, the EU is looking for other ways to achieve its environmental goals. The voluntary EMAS scheme is one such method.

Participation in the scheme is site-based and open to companies operating industrial activities as defined in the EU's NACE classification of industries. (This is similar to the Standard Industrial Classification Code.) In addition to manufacturing industries, the scheme also applies to the electrical, gas, steam and waste disposal sectors. Retail industries could also get involved in EMAS on a voluntary basis. In addition, the member states can extend the scheme's provisions on an experimental basis to other sectors, such as government agencies.

Much like ISO 14001, a major reason for EMAS implementation, particularly in Germany, is market pressure. Organizations with European sites may be encouraged to participate for competitive reasons and to achieve recognition in the EU marketplace. Organizations that choose not to seek ISO 14001 registration for non-European sites may nevertheless register their EU sites to ISO 14001 as part of EMAS participation.

Although ISO 14001 did become the official EMS standard within EMAS in 1998, it was designed as a stand-alone scheme. That is, companies can meet the requirements of EMAS and seek verification of compliance with EMAS without implementing other EMS standards and achieving registration.

General Requirements of EMAS

This section is a brief synopsis of EMAS requirements. Where appropriate, it points out differences between ISO 14001 and EMAS requirements. Indeed, EMAS calls for firms to establish management systems and programs to periodically and systematically audit their environmental performance, to strive for continuous improvement and to inform the public of their results.

In its first version, published in 1993, EMAS consisted of 21 Articles and 5 Annexes. The detailed requirements start with Article 3. The new, revised version, called EMAS-2, will likely be published in a streamlined format. (See EMAS Draft Text below.)

Like ISO 14001 and most EMSs, a company must adopt an environmental policy that provides for compliance with all regulatory requirements regarding the environment, and must include a commitment to achieve "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."

EMAS also prescribes several principles on which the environmental policy must be based, including among others, assessing the environmental impact of all current activities on the environment, implementing pollution prevention, providing information to the public about the environmental impact of the company's activities and providing advice to customers about the environmental aspects of the handling, use and disposal of its products.

Additionally, EMAS prescribes a list of issues that the policy, EMS program and audits must address, including energy management, environmental impact reduction, raw materials management, waste avoidance, product planning, etc.

Like ISO 14001, EMAS requires the company to specify environmental objectives at all relevant levels within the company that are consistent with its policies. The objectives must be set "at the highest appropriate management level, aimed at the continuous improvement of environmental performance." Based on findings from the audit, EMAS requires management to set higher objectives and to revise the environmental program to be able to achieve those objectives. This step is analogous to the management review of ISO 14001.

EMAS also calls for an initial environmental review that focuses on the issues addressed by the environmental policy. This sets the stage for the EMS system. Of course, if the organization already has an EMS in place, its environmental review would not be initial but would likely check to make sure it addresses the issues described in EMAS.

In light of the results of the environmental review, the company sets up an environmental program applicable to all activities at the site and aimed at achieving the commitments in the environmental policy. In general, these requirements are similar to those in ISO 14001.

But a major difference between ISO 14001 and EMAS is that EMAS requires the company to examine and assess the environmental effects of the its activities at the site and compile a register of significant effects. This register is not required in ISO 14001. The company must also establish and maintain procedures to record all legislative, regulatory and other policy requirements pertaining to the environmental aspects of its activities, products and services.

EMAS also requires relatively detailed auditing requirements. It calls for the organization to set up, implement and revise a systematic and periodic program of environmental audits concerning:

a. Whether or not the environmental management activities conform to the environmental program and are implemented effectively; and

b. How effective the EMS is in fulfilling the company's environmental policy.

It must then carry out or cause to be carried out environmental audits at the site. Either company auditors or external auditors acting on the company's behalf may conduct the audits. The criteria for the auditing are the same twelve issues mentioned above.

EMAS requires that the audit frequency or the audit cycle is completed at intervals of no longer than 3 years.

Along with audits, the company must prepare an environmental statement "specific to each site audited." This is done when the initial environmental review and subsequent audits or audit cycles are completed. This public environmental statement and its validation are key goals of the entire EMAS effort.

The Differences of EMAS and ISO 14001

It's useful to point out the basic differences between ISO 14001 and EMAS requirements, including the environmental statement requirement. The most obvious differences are that EMAS is a voluntary regulation while ISO 14001 is an international standard. Thus, where EMAS applies only to sites within the EU, ISO 14001 is applicable worldwide. Other key differences include the following:

- EMAS is site-specific and relates to industrial activities whereas ISO 14001 applies to activities, products and services across all sectors, including non-industrial activities such as government. Note, however, that under EMAS, non-industrial activities are being included on an experimental basis.

- EMAS requires an extensive initial environmental review as part of the EMS. This is not specifically required in ISO 14001 although it is suggest in Annex 4.2.1 of ISO 14001.

- As mentioned above, EMAS focuses more directly on the improvement of environmental performance than does ISO 14001, which places more emphasis on establishing and improving the EMS, with environmental performance improvement as an implied but not prescribed result.

- EMAS requires the publication of a validated public environmental statement and an annual simplified statement. ISO 14001 does not require a public statement. In clause 4.3.3, it simply calls on companies to consider external communication. It is up to the company to decide what information and how much to communicate. In addition, while EMAS requires the company to make publicly available its policies, programs and EMS system, ISO 14001 only requires that the environmental policy be available to the public.

- EMAS calls for more extensive auditing than does ISO 14001, which only requires EMS auditing. (Although the organization under ISO 14001 must evaluate compliance with its requirements). EMAS, unlike ISO 14001, also specifies a maximum audit frequency of three years.

- The EMS requirements in EMAS require the preparation of an environmental effects register, which is not required in ISO 14001.

The Registration/Verification Scheme

In 1993, each member state of the EU was responsible for designating an independent and neutral competent body within 12 months of the EMAS regulation entering into force. A competent authority or competent body is the national authority in each member country that has overall responsibility for the safety of products. A competent body can be either a government agency or independent

The Revision of EMAS

The EMAS regulation, now called EMAS-2, has been revised and a new version is expected to be published in 2000. The main elements of the revised EMAS-2 are:
- The extension of the scope of EMAS to all sectors of economic activity including local authorities;

- The integration of ISO 14001 as the environmental management system required by EMAS;

- The adoption of a visible and recognizable EMAS logo to allow registered organizations to publicize their participation in EMAS more effectively;

- The involvement of employees in the implementation of EMAS; and

- The strengthening of the role of the environmental statement to improve the transparency of communication of environmental performance between registered organizations and their stakeholders and the public.

The European Parliament adopted the 2nd reading during the autumn of 1999. This should allow the new EMAS regulation to enter into force in 2000.

THE NETHERLANDS AND GERMANY: TWO EUROPEAN APPROACHES TO EMS POLICY

The Netherlands and Germany are both leaders in the use of EMS-based approaches for policy, regulatory and management purposes. Since they are both members of the European Union, both nations are subject to the "voluntary regulation" of EMAS. One would think, therefore, that great similarities would exist. At the facility EMS implementation level, this is certainly true. In terms of EMS policy approaches and regulatory instruments, however, these countries present quite different and equally interesting programs, each tailored to build upon their respective existing legal frameworks and economic conditions.

A.   Netherlands and the Covenant Approach

The most noteworthy characteristic of the Netherlands is its small land area, much of it reclaimed from the sea. Everything in the Netherlands is located in extremely close proximity, in terms of industrial, agricultural, residential and other land uses. There is simply no room to spread out or to "hide" environmental problems. This has led to the development of a strong environmental ethic in the Netherlands, both among industry leaders and the general public. The Dutch have pioneered many "green" ideas at the day to day micro-level, such as car sharing, and at the strategic macro-level with the notion of the national Green Plan.

The Dutch Green Plan is formally known as the National Environmental Policy Plan. The current version of the plan is generally referred to as "NEPP 3." The plan is comprehensive, long-term and interdisciplinary. The NEPP weaves together complex systems of air, water, waste and energy with the human factors of economics, health and carrying capacity. Especially significant is the NEPP's reliance on a management framework to ensure practicality and functionality. The emphasis on "good management" in the NEPP has paved the way for the rapid uptake of EMS in the Netherlands.

Implementation of the Dutch national goals are being achieved through a variety of mechanisms, but the device that has captured the imagination of the international policy community is the so-called "covenant" approach. Countless international delegations, especially from US state regulatory agencies, have swept through the Netherlands for a first hand look at the Dutch model of sector-specific and facility-specific regulation, organized through the heavily negotiated, finely tailored contractual agreements known as "covenants."

The covenant approach does not automatically implicate the use of EMS. But most of the participating sectors and facilities have recognized the value of the EMS in the covenant model and have incorporated the EMS concepts into their initiatives. Because the NEPP calls for setting sector-specific goals, and these goals are formalized in the covenants, the aspects and impacts methodology of the EMS model for setting organizational goals are particularly apt.

The strong participation of the Netherlands (through its national standards body Netherlands Normalisatie-institution) in the ISO 14000 process has helped signal this new relationship between government and industry on voluntary EMS. Most leading Dutch companies, such as AKZO Nobel, Royal Dutch Shell, and Phillips Electronics, have voluntarily moved towards ISO 14001 certification. At this time, the Netherlands total number of ISO certifications issued -- approximately 500 -- is quite remarkable for a country of its size.

The outreach to the general public on EMS, at least as a tool for implementing the National Environmental Policy Plan, has apparently been extremely effective. Visitors from the US have

reported that, even in local pubs, one can strike up a knowledgeable conversation with the locals about the Dutch "Green Plan" and the ways to achieve its goals.

The Dutch use of the EMS tool is but one prong in a more comprehensive national strategy to move towards sustainability. Any discussion about EMS in the Netherlands leads directly to a discussion about environmental reporting. While EMS and environmental reporting are seen in many countries as two separate initiatives or two separate mechanisms, in the Netherlands they are viewed as "hand in glove." In June 1998, a governmental decree was issued with further detailed requirements on the proposed contents of mandatory corporate environmental reports. Subsequently, in 1999, the Dutch Federation of Employers and the E-NGO Foundation for Nature and Environment jointly issued voluntary guidelines for environmental reporting.

The relevance of reporting to EMS implementation in the Netherlands is significant. Thus, while EMAS registrations continue to lag in the Netherlands as compared to ISO 14001, the strong push fore environmental reporting may ultimately tilt the balance in favor of EMAS. In order to encourage that direction, the Dutch Government recently established a National EMAS Board.

Dr. Cees Moons, Director General of the Directorate for Industry and Consumer Policy in the Dutch Ministry of Housing, Planning and the Environment, was scheduled to address the Jamaican Working Group on EMS Policy and Strategy during the "Major Country" conference call in December 1999. Dr. Moons was unexpectedly detained, but he has since forwarded a copy of his standard public presentation on this topic. This text has been distributed as background to the Working Group members and is appended hereto.

Dr. Moons states quite clearly that, "within government policy, ISO 14001 and its implementation takes a dominant place." Dr. Moons emphasizes that a system based on EMS must be quality-oriented, in two related respects: the first is the quality of the EMS itself; the second is the quality of the certification procedures. According to Dr. Moons, government and industry saw the value of EMS as an alternate model, but both understood the "vulnerabilities" of the ISO 140001 standard. Thus, he explained, "consensus could easily be reached on the importance of certification."

For further information on the Dutch experience in utilizing ISO 14001 in government policy, and in particular details of the certification program in the Netherlands, please see the appended text of the speech delivered by Dr. Moons in Jakarta, Indonesia on 11 November 1997. Dr. Moons has expressed interest in rescheduling his dialogue with the Jamaican Working Group and wishes it success in its development of a national policy and strategy.

B.   Germany and the Regulatory Substitution Approach

In contrast to the Netherlands, which has a high level of EMS implementation, but with a relatively low level of participation in EMAS, Germany has used EMAS as its primary vehicle for EMS implementation. (See summary chart at p.iii of this "Major Country" report.)

While the reason for this disparity remains a mystery to many participants locked inside the ISO negotiating process, a simple answer is to be found outside of the ISO drafting circles. In discussions with German private sector leaders and their government regulator counterparts, it is quite clear that both agree on one fundamental point: that industry will only get regulatory flexibility if it can demonstrate superior environmental performance. Simply stated, German industry wants that flexibility; the German regulators want to find mechanisms to provide that flexibility while preserving accountability. Both sides view the EMS-based EMAS program as providing a mutually acceptable vehicle.

This joint posture of government and industry has resulted in an enormous level of acceptance of EMAS in Germany. Participation in EMAS is seen as demonstrating a superior level of environmental performance through a voluntary mechanism. The high EMAS numbers for Germany -- as compared to its "ISO 14001 only" certification numbers -- illustrates this eagerness by industry to manifest voluntary initiatives in a framework acceptable to the regulators.

In certain "lander" (or states) in Germany, this model has been taken to the next logical step. The regulators in Bavaria, for example, have sought to more clearly articulate the regulatory benefit of the EMS approach. They have introduced the notion of "regulatory substitution" or functional equivalence. Thus, in Bavaria, the implementation of an EMS can lead to well-defined regulatory relief.

Dr. Matthias Weigand, the head of the Legal Department in the Bavarian Environment Ministry, discussed this approach with the Jamaican EMS Policy and Strategy Working Group during the "Major Country" conference call. Dr. Weigand explained the rationale for the movement from the "command and control" or enforcement-oriented model to the 'joint responsibility" or "direct responsibility" model with an emphasis on compliance and enforcement. He indicated that where enforcement is deficient and resources are limited, voluntary EMS is seen as a solution.

Dr. Weigand strongly asserted that "government must point the way" and "establish the framework for providing regulatory relief." In Bavaria, this has led to the "substitution" or simplification approach through eco-management. Administrative mechanisms are being used to define the range of permissible substitution or simplification through EMS. The approach has been piloted with the chemical industry, and, according to Dr. Weigand, its success is attributed to the clearly defined administrative rules; external verification and registration; and the development of codes of best practices.

GLOSSARY OF TERMS

ANSI
American National Standards Institute

BS 7750
British Standard 7750 on Environmental Management Systems

BSI
British Standards Institution

CEMP
Code of Environmental Management Practices promulgated by US EPA for use by Federal Agencies

CSA
Canadian Standards Association

CSI
Common Sense Initiative, US EPA sector-based program

CURE
Comprehensive regulatory reporting program for the electronics industry in Texas

DETR
British Department of Environment and Trade

DG XI
Directorate within the EU responsible for EMAS program

DIN
German National Standards Institute

DTI
British Department of Trade and Industry

EMAS
The European Union's Eco-Audit and Management Scheme

EMAS-2
Pending Revision to the European Eco Audit and Management Scheme, also Referred to as "EMAS 2000"

EMSIP
Oregon state Voluntary Program, "Environmental Management Systems Incentive Project"

Environmental Aspect
Consideration of the potential interaction with the environment of an organization's activities, products and services

GRI
Global Reporting Initiative

Innovest
Wall Street environmental risk rating organization

IPPC
British system of integrated pollution control permitting

ISEA
Institute for Social and Ethical Accountability, a co-sponsor of British SIGMA initiative

ISO
International Organization for Standardization

JSA
Japanese Standards Association

Keidanren
Japanese Federation of Economic Organizations

Kyoto Protocol
International agreement regarding Climate Change

MITI
Japanese Ministry of International Trade and Industry

MSWG
Multi-State Working Group on EMS, a consortium of state regulators in the US

NACE
European equivalent to Standard Industrial
Classifications (SIC codes)

NEPP
The Dutch National Environmental Policy
Plan

NNI
Dutch National Standards Institute

PCSD
US President's Council on Sustainable
Development

Project XL
US EPA voluntary program for "excellence
and leadership"

Register of Significant Effects
EMS requirement for public disclosure of
information

Reinvention
Term used by Clinton Administration in US to
connote regulatory simplification and
improvement

Responsible Care
Chemical Manufacturers Association code of
conduct

Rio Earth Summit
UN Conference on Environment and
Development held in June 1992

SAGE
The Strategic Advisory Group on the
Environment

SIGMA
Sustainability Integrated Guidelines for
Management

Star Track
US EPA voluntary program developed in New
England region

SUSCOF
Sustainable Coffee program of BS1

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APPENDIX 1 - NETHERLANDS AND GERMANY

EMS and 'Regulatory Substitution' In Bavaria

New Approach Streamlines Alternate Regulatory System By Ira Feldman and Michelle Wyman

New environmental approaches are on the horizon. In July, the Bavarian Environmental Ministry published its mid-term assessment of the "Environmental Pact of Bavaria" The ministry stated that environmental management systems are being put in place in companies throughout Bavaria and that dozens of industrial sites have submitted to successful environmental audits. Nearly 2,000 small- and medium-sized companies have completed environmental assessments since the implementation of the Pact.

According to Environmental Minister Thomas Goppel, the voluntary agreement has been a "great success" Goppel said the agreement has had a positive effect on employment within Bavaria - and with an approximate one million environmental jobs in Germany, 100,000 are based in Bavaria.

In an effort to streamline the regulatory process and to promote cooperative enforcement, the Bavarian government developed and implemented resolutions to meet these objectives. Detailed in the following text, the history to the shift in Bavaria from "deregulation" to "substitution" has been complicated, yet the results continue to prove its effectiveness.

Cutting Through the Red Tape

The coalition, government of the Federal Republic of Germany has agreed that a principal contribution of contemporary politics is to make government "leaner" and to prune the bureaucracy. As a result, government activity is to be pared to the bare essentials. Toward this aim, the Federal German Cabinet established a "non-administrative, independent 'Lean State' committee of experts" in 1995.

Named the Lean State Advisory Council, the group adopted a resolution in 1996 on "Reinforcing private initiative: eco-audits and the means of transferring them to areas other than that of the environment" Two sections articulate the approach supporting voluntary initiative toward compliance.

The resolution stated that by complying with the law of the environment through the methodical approach of "functional equivalency:' a voluntary effort on the part of the companies and authorities. They both enjoy greater. latitude in the areas of supervision, information and reporting duties in a less complicated and streamlined way.

If a company demonstrates through the implementation and regular practice of initiatives that qualify under law, or through implementation of more general preventive measures, certain ecological standards are expected to be attained and exercised.

To subject such companies to additional project controls when they have demonstrated their voluntary initiatives would be inconsistent with the aims of the "prohibition of excess" Prohibition of excess is contained in the rule of law, which relies on state competencies or instruments of intervention as necessary and proportionate measures.

The Bavarian Pact and Pilot Projects

The eco-audit introduces a new path for regulatory compliance controls through voluntary initiatives set outside of the area of the law of protection. It is a valuable tool in the practice of "prohibition of excess"

Edeltraud Boehm-Amtmann of the Bavarian Ministry for Development and Environmental Affairs said. "With regard to the fundamental differences between the draft ISO 14000 standards on the one hand, and the European Community's Eco-Audit Regulation on the other - and considering the international competitiveness of Germany - it is an innovative model designed to link the two systems."

In September 1997, the Bavarian State Ministry of State Development and Environmental Affairs initiated two pilot projects involving transnational corporations that are members of the Bavarian pact. One pilot project is with a plant of the BMW Corp. in Spartanburg, S.C., and the other with the Siemens Corp. in Bavaria. The objectives of the pilot projects are to combine validation and certification of participant industrial locations in accordance with the EMAS. ISO 14001 and ISO 9000 standards.

Industry has long acknowledged the existence of the synergetic effects resulting from the association between quality and environment management systems and the EMAS Regulation. These synergies are now to be combined on the government side as well as into a new, constitutionally correct concept that conforms with stipulated EC legislation, relieves industry and administration as a whole, and provides precise instructions for the enforcement agencies on how this to be carried out.

Privatizing the Law

Bavarian leaders believe the primary principle for "deregulating regulatory law" is the EMAS Regulation. But Bavaria has to seek a solution to being accountable to two conflicting legal stipulations. Under the EMAS Regulation, the administration was bound by German Basic Law on one hand, and the policy guidelines defined by Minister President Stoiber on the other.

So, the administration replaced the term "deregulation " of regulatory law with 11 substitution" The logic behind this was clearly stated in the "Environmental Pact of Bavaria" that the combined model is derived from the merger of the EMAS Regulation and regulatory law.

This compliance approach is the key to a "substitution" of regulatory law as such through the voluntary fulfillment of the regulations of environment law in accordance with this section of the article and the annexes to the Eco-Audit Regulation, To this extent, it is an act for which the legal entity in question is directly responsible (i.e., with a view of performance, instead of one that is subjected to nationally enforced environmental law). The only change, however, is in the definition of the fulfillment of the obligation, not the obligation itself.

This makes it clear that it is not the substantive "deregulation" of environmental law that is at issue here, but a partial privatization of the enforcement of environmental law. This procedure is therefore consistent with a further defined political guideline.

This formula can resolve the dichotomy involved in taking care of the industrial site and protecting the environment. Plus, this approach makes a contribution to reducing the deficit in the enforcement system, in the sphere of environmental law accompanied by the continued downsizing of human resources.

The Principal of Functional Equivalency

This actual compliance with the regulatory requirements is the performer's own responsibility; however, it does not lead automatically to a corresponding withdrawal and relinquishment on the part of the enforcement agencies.

According to the EMAS Regulation, state environmental control remains unaffected. Contrary to the certification of product safety, for example, the environmental assessment attested to by an independent environmental auditor does by virtue of the audit imply that the respective company will permanently comply with all relevant provisions.

In order to track the parallel controls arising from this, the Bavarian Environmental Ministry worked together with the Federal Ministry of the Environment to establish the principle of "functional equivalency"

The substitution of the tasks of the enforcement agencies through voluntary corporate controls is only possible if the respective instrument of the Eco-Audit Regulation and regulatory law is equivalent in its aims and effectiveness of controls if it is functionally and substantially equivalent. "Functional equivalency" works on the assumption to distinguish the identity of two systems.

It has been assumed that, for the entire monitoring sphere, there exists a reciprocal functional equivalency between regulatory law and the catalog of obligations of the EMAS Regulation, (i.e., for the subsequent official controls of the industrial plants at their respective locations and the companies' obligations to provide information [reporting and documentation] in support of these control mechanisms).

The key to "regulatory substitution" and success is a compliance approach with environmental audits, according to Weigand. The substitution doesn't lead to a withdrawal of enforcement agencies or a deregulation of environmental laws, rather a partial privatization of the enforcement of the law.

IMPLEMENTATION ISO-14001 IN THE NETHERLANDS

Mr. FIN Stuyt, Director Association for the Coordination of Certification of EMS (SCCM)

Delivered by Mr C.M. Moons, Ministry VROM, Netherlands, Jakarta, 11 November 1997

1.   Introduction

Within the Netherlands government policy, 150-14001 and its implementation takes a dominant place. Government and industry have realized the vulnerability of ISO-14001 as a basis for a different relationship between companies and authorities. Therefore, consensus could easily be found on the importance of certification, to ensure the needed quality with regard to the implementation of ISO-14001.

2.   Importance of minimum quality level

When we talk about quality then we refer to two points of view: the first is the quality of the environment management system and the second is the quality of the certification procedures.

We have learned from the quality management systems that too much emphasis was placed on the internal procedures of the system. An EMS must be operational and must be capable of realizing

the objectives set by the company. The principle of continuous improvement must work in practice. A company has to demonstrate that the cycle "plan-do-check-act" works. It is important that these principles are assessed in the certification procedures The quality of the certification procedures is important because:

the risks of ISO-14001 EMS certification than, for example, for quality certification because there are more public aspects. If an certified company has environmental problems, this will bring bad publicity and could have an effect on the system as a whole; without a minimum quality level, it is not possible to use an EMS certificate with regard to another relation with the authorities.

3.   *Certification bodies results must be comparable*

The value of an EMS certificate must be independent of the certification body. Differences can occur in the interpretation of the standard ISO 14001. There are many points whereby the certification body has to interpret the standard, for example the depth of the environmental effect evaluation, the commitment to continual improvement, compliance with regulations. The organization of the certification body. We think that the certification audits have to be carried out by a team. An organization is necessary to assure that these audits have a good quality level; the certification procedures and assessment criteria. For example how to handle with breaches of the license. Differences would mean that certification by a specific body has a different value to that by another body' An EMS certificate could in this case have no real value for the authorities and certainly would not be understood by the public. Our objective is to minimize the differences where possible and to guarantee a minimum quality level.

4.   *Implementation structure for EMS-certification*

The general principles for the implementation of certification in the Netherlands are as follows. In principle, certification should be done by third parties, whose independency and impartiality can be assured, and who should use appropriate certification procedures. For the accreditation of these certification bodies, existing structures in the Netherlands will be used. Accreditation of certification bodies is done by the Dutch Council for Accreditation (RvA). This Council also exercises supervision on the certification bodies. In addition, a special foundation has been set up to guarantee the quality of the certificate. This foundation, called Foundation for the Coordination of the Certification of Environmental Management Systems (SCCM) plays a crucial role within the structure for the implementation of ISO-14001.

I will now tell you a little more about SCCM. SCCM is a new organization SCCM is an initiative of government and industry. The committee of SCCM has four members. Two from industry and two from government authorities The aim of SCCM is broader than just being responsible for the quality of certification. The official aim of SCCM is to stimulate the implementation of environmental management systems and the use of EMS systems in the relation with the license. Besides the development* ~f a certification system, an important task of SCCM is to inform industry and authorities about the possibilities of EMS certification

5.   *Central Council of Experts*

Within the SCCM, a Central Council of Experts will operate, which is responsible for the following: establishment of accreditation criteria which are used by the Council for Accreditation in addition to more general requirements for accreditation; drawing up and managing a certification complies with ISO-14001: in this system mandatory interpretations of the ISO-standard are given, as well as working methods to be followed by the certification body; monitoring the operation of the accreditation and certification system in practice. All interested parties are members of the Central Council of Experts, including industry, licensing authorities, the environmental organization and trade unions.

I would like to tell you in more detail about the Central Committee of Experts and their responsibility for the certification system. The composition and procedures of the CCvE have to comply with the requirements of the Council for Accreditation. One of the requirements is that all parties concerned have representatives in the committee and that the composition is well balanced. Our CCvE has fifteen representatives. Five experts come from the various levels of authorities, the government level, regional authorities and local authorities. Five experts come from several sectors of industry. We have five places for representatives of third parties. These experts come from the environmental movement, one from the labor union and the bank and insurance companies.

The Central Committee of Experts was installed in 1995. The committee established a certification system for ISO-1400] in December 1996. This certification system has a dynamic character. The Committee of Experts is responsible for the content of the system and has to improve the system on the basis of new developments or the most recent experience.

SCCM organizes meetings with the certification bodies to discuss their experiences and interpretation several times a year. This information is input for the Central Committee of Experts and can lead to changes in the certification system. The result is that all certification bodies accredited in the Netherlands work with the same system and in this way a minimum quality level is guaranteed.

6.   Accreditation and EMS certification structure

The accreditation and certification structure, which is used in the Netherlands for the implementation of ISO-14001, can be summarized as follows.

Three parties are involved:

• The Dutch Council for Accreditation;
• SCCIVI and the Central Committee of Experts; the certification bodies.

SCCIVI and the Central Committee of Experts have a central function in the accreditation system. The committee of experts has developed a certification system. To be accredited as certification body in the Netherlands, the certification body is obliged to close an agreement with SCCM for the use of this certification system. SCCIVI has an agreement with each of the certification bodies. If the CCvE decides to change the certification system, then the certification bodies are obliged to work with the new requirements. Each certification body has to pay a yearly license fee.

The Dutch Council for Accreditation is an independent organization, which is responsible for the accreditation within the framework of many certification systems in the Netherlands, for example ISO 9000. The Council for Accreditation audits each certification body in actual practice before it can be accredited. The certification body has to show the correct use of the certification system in practice.

The responsibilities can be summarized as follows:

The Council of Accreditation is responsible for the accreditation and supervision of certification bodies and the individual certifiers working for these bodies. The Council for Accreditation supervises each certification body in actual practice. It could be summarized as me judiciary power. The CCvE is responsible for the content of the certification system an can summarized as the legislative power and the certification bodies as the executive power.

7.   Certification system EMS according to ISO-14001

The Central Committee of Experts established a certification system in December 1996.

The certification system consists of the following three elements:

- The interpretation of ISO 14001;
- The organization of the certification body;
- The procedures used by the certification body.

The CCvE of the SCCM wishes to streamline the interpretation of ISO 14001 by the individual certification bodies as much as possible. For this purpose there is periodic consultation with the certification bodies, to establish the need for further interpretations. Other parties can also alert the CCvE to ambiguities. By adding new interpretations to existing interpretations. The certification system is gradually optimized. The current interpretation is laid down in Chapter 2 of the certification system. Chapter 3 describes the requirements set by the CCvE for the organization of the certification body. These requirements are based on the EAC Guidelines. But again the CCVE has not hesitated to draw up further interpretation, if necessary.

Finally, Chapter 4 outlines further requirements and interpretations concerning the practice to be adopted by the certification bodies' also in accordance with the EAC Guidelines.

APPENDIX 2 - THE CANADIAN EXPERIENCE WITH EMS

Implementation and Capacity: Current Status

Canada has been very active in the ISO 14000 process, presently chairing Technical Committee 207 on Environmental Management. The national standards body, the Canadian Standards Association, maintains the TC 207 Secretariat for the international process. On the domestic Canadian front, CSA has a very proactive outreach program and has developed excellent supplementary materials. The National Roundtable on the Environment and the Economy (NRTEE) is responsible for Canada's accreditation and capacity-building efforts related to EMS. Numerous Canadian consulting firms are geared up no only for domestic activity, but have become quite visible on the international scene. And at least two Canadian firms have developed software that facilitate the implementation of EMS and performance metrics at the company level. Thus, it would appear threat Canada ought to be one of the flagship countries for EMS implementation.

To date, however, despite sufficient capacity, pioneering tools, and a strong envi ronmental ethic, EMS implementation has lagged, at least at the ISO certification level. There is one overriding significant reason for this limited uptake, and clearly it directly related to the economic giant just to the south of the Canadian border. The US is Canada's predominant trading partner, and US companies have required neither EMS demonstration nor EMS certification to the same degree as has other trading partners from Japan, UK or Germany. Thus, Canadian companies have not been pressed in any direct manner to certify and have been relatively slow to embrace EMS.

Now, however, especially with the emerging supplier chain driver discussed above in the US chapter, the implementation picture in Canada appears to be poised for a d1ramaiic change. In particular, Ontario is a center of the automotive and automotive parts industry. The recent supplier chain initiatives announced by GM and Ford have already impacted the EMS implementation among the diverse companies situated in the Toronto area.

EMS Policy Initiatives

While the voluntary market-driven uptake of EMS in Canada has been slow, it does not mean that EMS as policy tool has been ignored. Both the regulators and the judiciary in Canada have taken note of EMS in very positive terms.

EMS is becoming recognized as a public policy tool for moving towards sustainability. Canada has been much more receptive to building upon a sustainability-oriented framework than their US neighbors. The public sector is making the commitment to show the way forward on sustainability in Canada; the sustainability concept is explicitly built into a number of government initiatives. In turn, these programs provide excellent vehicles for EMS implementation.

One of the most significant sustainability developments in Canada is the requirement (through an amendment to the Auditor General Act) that each of the 28 Federal Ministries prepare a Sustainable Development Strategy. All of the Ministries have develop a plan, but many have faltered in the transition from planning to action.

Many Federal departments in Canada are working to improve their implementation of sustainable development. The Policy Research Initiative (PRI) is intended to improve the Federal government's capacity to address what is described as an "implementation gap" around sustainability. Through PRI, a web of interdepartmental cooperative initiatives is in place to assist in implementation activities. Among these are the Interdepartmental Network on Sustainable Development Strategies and the Federal Committee on Environmental Management Systems.

In the 1999 Report of the Commissioner of the Environment and Sustainable Development, it is clear that the Commissioner intends to use the EMS model to provide assurances that sustainability strategy will be implemented consistently and that adequate goals are established and results achieved. The Report found that such management practices were lacking in several of the pilot Ministries studied. The Commissioner stated that, "significant improvements can be made in protecting our environment and promoting sustainable development if sound management practices are applied to these issues. Use of the systematic approach to continuous improvement embodied in standards like ISO 14001 would strengthen management practices significantly."

The sustainability framework in Canada provides the vehicle not just for EMS implementation, but for the full range of other strategic environmental management tools. 134mvirohment Canada is actively promoting both "environmental accounting" and life cycle analysis (LCA). The NRTEE has made some significant contributions to the state of the art on environmental performance indicators in the context of "eco-efficiency.". And, as noted above, CSA, is providing outreach and generating training and guidance materials on all of these tools.

Finally, there has been attention paid to the needs of small and medium sized enterprises in Canada. One SME-oriented program is known as BEPO -- the Canadian Business Performance Office. BEPO describes itself as a "virtual office" for business and environmental performance. BEPO develops sector-specific and generic tools to assist EMS implementation. BEPO is run as a cooperative venture between industry, government and non-governmental partners.

EMS and Due Diligence in Environmental Law

One of the increasingly important uses of EMS in Canada involves the legal concept of "due diligence." If, for example, a company is found to be in violation of an environmental statutory or regulatory provision, it is a defense to the charge that the company had in fact taken all "reasonable care" to avoid the violation. Of course, this sort of defense cannot be used as a complete shield to environmental enforcement actions, but when the enforcement process reaches the judicial stage, such a due diligence defense can be critical in ascertaining the appropriate penalty or other measure of damages. The most difficult question related to due diligence is defining how much "diligence" is "due," or in other words, "how much care is enough?"

In Canada, ISO 14001 is proving invaluable as a measure of appropriate due diligence for corporate environmental programs. Judges have welcomed the advent of an international, third-party certifiable standard for environmental management systems, since it relieves them of the burden of defining due diligence in a "band aid" or piecemeal approach. One must also keep in mind that few judges have corporate managerial expertise; thus, the existence of an international standard developed by experts and validated worldwide provides a reasonable level of comfort to judges that they are "doing the right thing" in terms of specifying an appropriate template for an environmental management system in order to resolve a case brought for environmental violations.

Canadian courts have used ISO 14001 in several cases to date. The most noteworthy was the Prospec Chemical case decided in Alberta. This case drew widespread attention, not only in Canada but also in the US for its innovative settlement approach utilizing EMS requirements. The model has subsequently been followed in settling numerous US lawsuits. Prospec had violated several Canadian environmental regulations. The settlement included a penalty, but also incorporated a requirement to implement and certify to ISO 14001 within a specified time period. Prospec posted a bond to ensure compliance with the EMS requirement. Undoubtedly, the dollar penalty would have been far greater if the EMS component was not included in the settlement package.

Canadian corporate environmental programs have looked at this case as signaling the acceptability of ISO 14001 to courts and to the regulators. Thus, many are taking a proactive stance and, recognizing the need to prove due diligence, they are implementing ISO-compliant EMS programs. Similarly, the regulators and legislators in Canada are looking at this trend and responding. Later this year, the new Canadian Environmental Protection Act will come into force. That statute has an interesting provision, basically adopting as law the notion that court sentences may include the requirement of implementing an EMS along the lines of a "recognized international standard." According to Toronto lawyer Gray Taylor, while it does not specify ISO 14001, it is clearly what the legislators had in mind.

Gray Taylor sees the growing significance of EMS in Canada as a voluntary best practices tool. Therefore, he is the founding chair of the Canadian ISO 14000 Legal Issues Forum, a new entity open to lawyers and non-lawyers alike, and based upon the organization of the same name in the US which has facilitated the legal and policy dialogue on EMS for the past four years. Taylor believes that the whole beauty of ISO 14001 is that it is voluntary. He wants to see government incentivizing EMS, but not forcing it.

Taylor notes that there are other EMS-related developments finding their way into the Canadian legal system. He points to a new sewer by-law in Toronto which requires that companies which discharge certain substances into the system will need to develop a "pollution prevention plan." Toronto, reports Taylor, has made the link between this requirement and ISO 14001, advising companies that one way to implement the appropriate pollution prevention plan is to include it as part of an ISO-compliant EMS.

Others in Canada urge outside observers to look beyond the raw certification numbers. These corporate environmental leaders correctly note that registration figures or registrars' dollar revenue cannot capture management system adoption. The true impact of EMS standards in Canada is much greater, they suggest, since many companies use ISO 14001 as a benchmark to review their existing systems or to provide uniformity across several facilities within a company. Many of these same organizations have decided to wait to move to the certification stage until additional incentives, whether regulatory or customer-driven, appear.

APPENDIX 3 - UNITED STATES

Oregon Green Permits And Environmental Management Systems Incentives Project (EMSIP)

A.   Program Description

In 1997, the Oregon Legislature created "Green Permits" to encourage regulated facilities to achieve environmental results that are significantly better than otherwise provided by law. Under the Oregon Green Permits and Environmental Management Systems Incentives Project (EIVISIP), a permit providing administrative benefits or reduces regulatory requirements is given to facilities that meet criteria established by the Environmental Quality Commission (EQC).

Three corporate facilities signed-up for the initial pilot project which has now expanded.

Green Permits and EMSIP are regulatory reform efforts founded on four key principles: compliance with regulation is the baseline; significant and measurable performance goals will be established; meaningful stakeholder involvement is expected; and the system will balance simplicity and certainty with flexibility and innovation.

The Green Permits legislation authorized the EQC to create multiple classes of Green Permits and to establish specific criteria and procedures for application, review and public participation. EMSIP is the approach DEQ is exploring to achieve the results envisioned in the legislation. Once facilities meet criteria for participation, the project uses a tiered system in which greater environmental performance is rewarded with increasing regulatory benefits. The framework has six categories that are divided into three tiers. The categories are Environmental Management Systems (EMS), EMS verification, stakeholder involvement, measuring and reporting, performance standards, and regulatory incentives.

Green Permits and EMSIP are designed to achieve greater environmental results than what is possible under the current regulatory system. DEQ recognizes that the current system does not encourage or reward environmental stewardship and that many environmental issues cannot or will not be adequately addressed solely by regulatory means. Voluntary, market-driven, outcome-based approaches can be effective in accomplishing desired environmental results because many companies have the knowledge and resources to significantly reduce environmental impacts.

1. Program Attributes

    a. Integrating and Holistic Systems Approach: The EMSIP pilot project requires all partici-pants to have at least a "basic" EMS. ISO 14001 is not the only option, but the EMS must be "ISO 14001 comparable" for the highest two tiers. This requirement ensures that companies use an integrated and holistic systems approach to their environmental management.

    b. Performance Improving Goals: All participants must set goals for performance improvement. The three-tiered system is designed to provide strong incentives for per-formance beyond compliance. In order to qualify for incentives, participants must demonstrate reductions in targeted environmental impacts. Additionally, the highest and second-highest incentives tiers require the facility to be in the top 10% and 25%, respectively, of industry environmental performance.

c. Information Rich: The pilot framework contains "measures and reporting:' which requires measurements of targeted impacts and disclosure of an annual performance report. The report must include information on regulated impacts, measures of performance improvement and details of stakeholder input received. Additionally, the Environmental Management System (EMS) defined in the two highest tiers requires identification and documentation of all regulated and unregulated environmental aspects.

d. Community Involvement and Benefits: The project requires extensive reporting and stakeholder involvement. All tiers require annual performance reports, which include all input that was received from stakeholders over the course of the year. The highest two tiers also require two-way communication such as hotlines, web sites/e-mail and annual public meetings. The communication may cover environmental policy, analysis of environmental impacts, targets for improvement, performance measures and progress in reducing impacts.

e. Worker Engagement: An ISO 14001 EMS requires environmental training to increase environmental awareness of employees. An environmental policy statement must be written and then communicated to employees throughout the organization.

f. Market Rewards: Incentives include public recognition as an environmental leader. This is the only specifically market-based incentive; other incentives are regulatory flexibility, technical assistance and enforcement discretion.

g. Environmental Stewardship: Environmental stewardship comes through identification and reclucdo4n of the organization's impacts on the environment. The higher two tiers require the facility to consider regulated and unregulated impacts of the facility itself, along with major suppliers and use/disposal of products. The highest tier also requires a "robust" environmental impact assessment, which includes assessment of significant peripheral impacts ("suppliers, products, wetlands, etc").

2. Sustainable Development: EMSIP integrates the dimensions of sustainable development into one coherent framework that provides guidance for improvement and offers incentives for verified results. Resource productivity is a central component of the framework through the focus on pollution prevention and performance improvement. Economic benefits can be expected through pollution prevention, internal efficiency, and regulatory incentives. Social and community benefits will come through reporting and stakeholder involvement, as well as through economic and environmental improvements. The framework provides accountability and superior environmental protection while ensuring that participants work toward sustainable development instead of regulatory compliance.

3. Results: The program is new and there are no results at this time, as DEQ only announced the participants in July 1998. EMSIP offers a comprehensive alternative to command-and-control, but this alternative needs practical implementation before it can be fully evaluated.

4. Transforming Effect: This alternative regulatory system was created with the statutory driver of the Green Permits Legislation. The legislation can be considered a switch-point from the existing compliance-oriented system to a management-based and performance-driven system. The legislation enables DEQ to offer meaningful regulatory relief and may provide a practical example for creating an alternative system on a larger scale.

5. Replicability: Depending on pilot results, Green Permits and EMSIP might provide a model for similar programs on a regional or national level. Similar programs could be created through

legislative drivers at the state or national level. The project framework is consistent with PCSD recommendations.

6. Relationships: The project fosters more cooperative relationships between industry and regulators than would otherwise be achieved through traditional command-and-control. Accountability and enforcement are maintained, but facilities shift to more proactive and less compliance-driven mindsets. EMSIP is a partnership that enables regulators to assume less adversarial roles, such as program supervisors and technical assistance providers.

The Green Permits legislation was passed in 1997, but full implementation of Green Permits and EMSIP has yet to be achieved. Facilities were not chosen for participation until July 1998. Green Permits and EMSIP use a legislative driver for an alternative regulatory framework that offers incentives for demonstrated environmental performance while ensuring strong accountability. The system uses EMSs as one part of a broad framework that is designed to be flexible and performance oriented. Essentially, Oregon wrote practical details for a system that combines incentive tiers with an alternative pathway, consistent with recommendations from E4E, The Aspen Institute and PCSD.

It remains to be seen if the EMSIP framework can provide a model for an alternative regulatory system on a larger scale. In particular, it needs to be demonstrated that the facilities can meet the requirements for the various tiers and that the incentives can motivate significant performance improvement.

APPENDIX 4 - JAPAN

ISO 14001 Implementation in Japan
(Month by month)
Diagram

ISO 14001 Implementation in Japan
(Sector by sector)
Diagram

Industry Leaders with ISO 14001 Certification `ISO 14001` registrations of Japanese firms took off and increased exponentially. Here are the industry code breakdowns for certifications.

```
Electric machinery ..................................................................................... 40.3%
General machinery ..................................................................................... 9.3%
Chemical industry ...................................................................................... 9.1%
Precision tools .......................................................................................... 4.8%
Petrochemistry .......................................................................................... 3.4%
Metal products .................................................................... ................... 1.4%
Beverage manufacturing ................................................... ................... 1.2%
Rubber products ................................................................ ................... 1.2%
Sales ................................................................................... ................... 0.9%
Paper and pulp .................................................................. ................... 0.9%
Plastics .............................................................................. ................... 0.9%
Food processing ...................................................................................... 0.9%
Nonferrous metals .............................................................. ................... 0.9%
```

The different categories of industrial sectors registered in Japan are parallel to those observed for other parts of the world.

Tokyo Chamber of Commerce and Industry Survey4998

The reasons for obtaining ISO certification based on general survey results in `1998` can be grouped in two major categories. The major reason for certification in Japan includes the following three criteria:

```
Organization of the environmental protection activities .................................. .....................64%
Compliance with holding or parent company policy ...................................... .....................58%
Improving the company or organization's image ......................................... .....................48%
Observe international rules and regulation .................................................. .....................19%
Obtain an objective evaluation ................................................................. .....................18%
Improved business in general ................................................................... .....................12%
Cost reduction ....................................................................................... .....................12%
Request from overseas trade partners ...................................................... .....................10%
Minimize environmental risk ..................................................................... .....................9%
Competitive advantage ........................................................................... .....................9%
Request by domestic partners .................................................................. .....................7%
```

The reasons for obtaining ISO certification among the different industrial categories varied. The main reason amongst the major and early adopters of ISO 14001 sectors such as machine

manufacturers, transport, electrical or information machinery was to strengthen the management system and to increase the market share in the global economy, whereas for trading companies, reducing the environmental risks and changing the perception to environmentally friendly business practitioners were the main drivers. Competitive advantage and unique positioning due to ISO certification were the reason for its adoption by education institution. The government's reason for adopting the standards is its enhanced power to enforce environmental policy function as well as to encourage local governments and other private enterprises to seek certification.

The major benefits gained due to implementation were as follows (based on survey):

Promotion of environmental activities 55%
Improved public relations 44%
Minimize environmental risk 36%
Clearness of the responsibility and role 30%
Improved business management and revitalization of the organization 26%
Establishment of operating procedures 22%
Maintenance of documented records 15%
Reduced cost 9%

These numbers were somewhat dependent on the size of the workforce.

APPENDIX 5 - "MAJOR COUNTRY" SUMMARY MATRIX*

Standards Body BSI	ISO 14001 Certifications 1014	EMAS Certifications 73
ANSI	*463*	n/a
JSA	-3000	n/a
DGX1	n/a	3000
DkN	-1460	*-2290*
NNI	*-475*	*-230*
CSA		
-240	n/a	

All data accurate as of January 2000