WORKSHOP PROCEEDINGS

FORGING ALLIANCES TO PREVENT INDUSTRIAL POLLUTION: NEW APPROACHES AND TOOLS FOR ENVIRONMENTAL MANAGEMENT

6–7 November 2000
Camino Real Hotel
Tijuana, Baja California

A report prepared for the North American Commission for Environmental Cooperation

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BACKGROUND

The coming into force of the North American Free Trade Agreement (NAFTA), in 1994, created the world's largest trading block. At the same time, the NAFTA partners sought to build environmental safeguards into the trade liberalization pact and agreed to sign an accord, the North American Agreement on Environmental Cooperation (NAAEC) to do so. The organization created by the Agreement to carry out its provisions is the North American Commission for Environmental Cooperation (NACEC), an international organization composed of the Council—cabinet-level environment officials from the three countries, the Joint Public Advisory Committee, a group of five citizens from each country and a Secretariat staffed with environmental experts.

The role of NACEC is to foster cooperation among the three NAFTA partners—Canada, Mexico and the United States—in responding to the challenges and seizing the opportunities that the continent-wide open market presents to the job of protecting the North American environment. In fulfilling this role, NACEC is at work on a variety of fronts developing tools that are up to that task.

NACEC's North American Pollutant Release and Transfer Register (PRTR) project seeks to increase public access to and understanding of information on the sources and handling of toxic chemicals from industrial activities in North America. Each year NACEC issues the *Taking Stock* report, which provides a North American profile of pollutant releases and transfers based on data reported by facilities to the national PRTRs. Other main objectives of the project are to promote enhanced comparability among the national PRTR systems, support the further development of the Mexican PRTR, and explore ways to improve access to and use of PRTR data.

The Law and Policy program has been exploring the use of alternative approaches to promote compliance. In particular, program work has investigated environmental management systems as a tool to promote not only regulatory compliance but also environmental performance in both regulated and non-regulated areas. In 2000, the Council endorsed by resolution a guidance document for the public and private sectors on how to use these systems to improve compliance and environmental performance.

The North American Fund for Environmental Cooperation (NAFEC) funds community-based projects in Canada, Mexico and the United States that promote the goals and objectives of NACEC. Since 1996, NAFEC has made 142 grants totaling US$5.4 million (see http://www.cec.org for a list of grants). In addition to receiving funding for their community-based projects, grantees are invited to participate in collective efforts to identify common problems and solutions, best practices, and supportive policies; they are also encouraged to link their work to other NACEC initiatives.

The workshop on "Forging Alliances to Prevent Industrial Pollution: New Approaches and Tools for Environmental Management" was organized jointly by the Law and Policy program, the PRTR project and NAFEC, in collaboration with the Dirección General de Ecología of the State of Baja California, México, and the federal Instituto Nacional de Ecología (INE). The event was convened as an opportunity for representatives of government, industry, public interest groups, academia and others from the border region and throughout North America to discuss the complementary roles of PRTRs, EMSs and public access to information as tools for sound environmental management and effective industry-community dialogue.

This report is a summary of the workshop proceedings and is not intended to be a reflection of the views or positions of any particular government agency or of NACEC. Comments from participants have been synthesized and grouped according to theme or topic.

Acknowledgements

On behalf of NACEC, we wish to acknowledge the contribution of M.C. Adolfo González Calvillo, Saul Martín del Campo and Lourdes Ortega of the Dirección General de Ecología of the State of Baja California, and Ing. Luis Sánchez Cataño and Hilda Martínez Salgado of the Instituto Nacional de Ecología, for their collaboration in bringing this event to fruition. We would also like to thank Laura Durazo and Enrique Medina for their advice and assistance in organizing the event. We are also grateful for the work that Jason Morrison and Michael Cohen of the Pacific Institute have put into producing and reviewing these proceedings.

Finally, thank you to the participants who shared their knowledge and expertise and to all the persons whose efforts ensured the delivery of a successful workshop.

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Please consult its website for the full proceedings in both English and Spanish, as well as the text of some of the presentations.

EXECUTIVE OVERVIEW

Introduction

The "Forging Alliances" workshop focused on the role of Pollutant Release and Transfer Registers (PRTRs), public access to information, and Environmental Management Systems (EMS) as tools for sound environmental management and effective industry-community dialogue. The roughly 100 participants included industry representatives, public interest groups, government officials and other interested parties from the border region and throughout Mexico, as well as from the United States and Canada. The workshop was organized through collaboration among the Dirección General de Ecología of the State of Baja California, the North American Commission for Environmental Cooperation (NACEC), and the federal Instituto Nacional de Ecología (INE).

The following highlights the main themes of the panel presentations, discussion, and comments from the audience over the two-day workshop. Please refer to the proceedings themselves for more detailed descriptions of individual presentations. The full text of most presentations, as well as the full text of this document in English and in Spanish, is available at <http://www.pacinst.org>.

Main Themes

PRTR information is important for promoting environmental improvements and ensuring the public's right-to-know

PRTR has taken hold internationally and there is a growing emphasis on getting environmental information to the public. However, such information is not yet sufficiently accessible. Most people remain unaware of pollutant release and transfer registries and this needs to be addressed, perhaps through peer-to-peer teaching. While "right-to-know" is a basic principle, support is also needed to ensure that the public and communities are able to understand and make use of this information. Better and more training and environmental education programs for both industry and communities are necessary.

Community involvement in identifying and addressing environmental concerns is important

Mechanisms need to be implemented to make public participation in environmental decision-making feasible. PRTRs can serve as catalysts in this regard. Community-based organizations can help detect environmental problems, report them, and bring forward community concerns regarding environmental health. Such organizations can also serve as promoters of regulatory initiatives, and can work with industry at a consultative level. For example, in recognition of this beneficial synergy, EMS programs in Arizona and California require public participation.

Building trust among all sectors is important

A lack of mechanisms that make public participation feasible has led to distrust among sectors. Certain myths have been perpetuated, such as that industry is not interested in the environment. Industry is generally uncomfortable with allowing access to information that it fears could at some point be used against it. Industry in Mexico is also concerned that PRTR and public access to information could compromise competitiveness and affect trade, although there is evidence

that the Toxics Release Inventory has not affected trade in the US. There are very few confidentiality claims made by US facilities with respect to PRTR data.

Better tools and mechanisms are needed to improve the communication and trust between industry, government, NGOs, and the community. In a number of countries, publicly accessible PRTRs have a proven history of reducing distrust and empowering the community. An important step in building trust is to define mutual goals. From an NGO/public perspective, verification and validation of information are key elements for building trust not only for PRTRs but also for EMSs. For this reason cooperation between industry and the community should be promoted, to increase the number of partners and diversify the dialogue. Arizona, for example, requires a contractual undertaking by EMS users to ensure accountability.

Voluntary versus mandatory PRTRs
A number of participants expressed the view that PRTR reporting needs to be mandatory, because voluntary programs do not *guarantee* public participation or third party verification of environmental results. They felt that a stronger regulatory framework is needed, and expressed concern about voluntary commitments, which have not proven to be very successful. Mandatory reporting also ensures a "level playing field" by making available information on pollutant releases and transfers from all facilities subject to reporting, and not just those who voluntarily provide this information. Other workshop participants believed the creation of mandatory programs in Mexico is not feasible under the current regulatory or political climate. There are millions of pages of mandatory regulation, they suggested, which do not guarantee results, either.

In the Mexican context, participants suggested that since the number of industries voluntarily providing information is small, there need to be other incentives, such as tax incentives, to encourage participation initially. This approach would not negate the principle that those who pollute should pay for it. Other factors point to the need to build an adequate and consistent legal framework for the implementation and enforcement of PRTR. There exists a (partial) legal framework at the national level in Mexico and the federal government is providing support for the development of state level PRTRs. Participants stressed the need to ensure coordination and comparability between the federal and state-level registries in Mexico, and to have only one PRTR. The purposes of a more cohesive legal framework would be to create clear and consistent rules on information disclosure, and to improve transparency and consistency in enforcement of the law.

PRTRs are not sufficiently used, comprehensive enough, or harmonized
Participants noted some limitations of PRTRs, in that they are limited in scope and are often not integrated with similar reporting mechanisms. Relatively few compounds are monitored; many companies emit other compounds that are not disclosed. Nor does PRTR address cumulative impacts for a municipality or region. A further problem is that various models of PRTR are not consistent internationally.

Environmental Management Systems can further principles of sustainable development by reconciling economic with environmental and social goals
EMSs do this by incorporating environmental considerations into day-to-day business decisions. At an operational level, EMSs are a tool to aid an organization in: identifying and stating its environmental values; identifying all its environmental risks and impacts; and systematically

exerting better control over those risks and impacts by changing management responses and related activities. The overarching goals of an EMS are to improve environmental performance and thereby improve environmental protection and quality. An EMS that can be shown to do so will increase the trust and confidence of stakeholders. When companies implement an EMS, they are promoting environmental training of employees to a greater degree, and are typically focusing efforts toward cleaner production and pollution prevention. The ISO 14001 standard is the one of the most basic and widely used EMS frameworks internationally, although there have been reservations expressed about its scope. The design of an EMS will affect what it can deliver: the more comprehensive the design, the greater the possibility for delivering better environmental performance.

An EMS can be designed to support a PRTR

A PRTR is a subset of the environmental performance information that can be collected and used in an EMS. For example, most EMSs also address inputs, such as energy and raw materials usage. At its most basic level, an EMS can track regulated and unregulated toxics use, highlighting substances of particular concern for management priority within the EMS. For a performance-based EMS approach, the organization can track toxics and then relate their use to production efficiency, units of production, monetary units of value, etc. Both PRTRs and EMSs can lead to competitive advantages through efficiency gains and generate added value for businesses that provide environmental information publicly.

EMS can be used by companies to improve the environmental performance of their suppliers

Supply chain EMSs are based on market-driven improvements in product and service quality. The concept is to use an EMS to improve performance throughout the supply chain: they are designed around commercial relationships between large company customers and their small and medium-size suppliers which then work collectively to implement EMS. An example in Mexico is the Guadalajara Pilot Project, sponsored in part by the World Bank. The project brought in key stakeholders from the outset, including Semarnap, representatives from the State of Jalisco and several municipalities, two local universities, and several interested local NGOs. The project illustrated that it is possible to change the culture of suppliers by incorporating them into a larger, host company EMS program.

Need for support for small and medium-size enterprises (SMEs)

SMEs make up some 90 to 95 percent of all businesses and employ 80 percent of workers in Mexico. As a class, SMEs contribute a substantial amount to the country's total pollution load. However, there is a general lack of knowledge and resources, particularly in SMEs, to implement a PRTR and EMSs. Certification to Profepa's *Industria Limpia* (Clean Industry) and ISO 14001 can also be cost prohibitive for SMEs. However, the Guadalajara Pilot Project demonstrates that SMEs can effectively implement an EMS modeled on the ISO 14001 standard with some financial and technical assistance. Other approaches, such as company mentoring programs within and among industry sectors, can promote low-cost pollution prevention or cleaner production processes.

Interest by governments in using EMSs as a policy tool has grown in recent years

State and federal governments in the US and Mexico are using EMS to promote improved environmental performance by companies. Examples in the United States include the US EPA's

National Performance Track program, Arizona's Voluntary Environmental Performance program, and California's EMS Innovations Initiative. *Industria Limpia* is a national program in Mexico that began in 1992 with two related components: voluntary industry participation and environmental auditing. There are no sanctions in the program; instead, it focuses on incentives and recognition. Since its inception, the environmental audit protocols of the program have emphasized pollution prevention, and the EMS framework has been incorporated into the program in recent years. NACEC's guidance document on EMS, "Improving Environmental Performance and Compliance: 10 Elements of Effective Environmental Management Systems," grew out of a project that examined the link between voluntary initiatives (such as EMSs) and government programs to enforce, verify, and promote compliance.

In general, both EMSs and PRTRs strengthen government agencies' abilities to make policy decisions. EMS can enhance regulators' ability to determine whether organizations are meeting or exceeding legal requirements and provide better information to the public on the nature and extent of the public health and environmental effects of an organization's activities, as well as how organizations are managing for the environment. When governments create a recognition program that involves an EMS, a PRTR should be one of the sets of information reported. Governments should not promote EMSs without there being some degree of private sector accountability—such programs also need a component of public oversight.

EMS are emerging as the basis for government-industry collaborative partnerships
Participation in Profepa's *Industria Limpia* program has helped to break down barriers between business and government. In such emerging partnerships, it is important to allocate responsibility and promote incentives among the different stakeholders. The primary purpose of EMS-based voluntary programs is to minimize risk to the environment. Reporting on businesses' success in these efforts will enhance the company's reputation. In addition to improved public perception, an EMS and its related environmental performance improvements can also lead to direct economic benefits, such as decreased insurance premiums and access to preferential low-interest credit rates.

Other collaboration tools.
The "Seven Principles for Environmental Stewardship" (signed by the US/Mexican Chamber of Commerce, EPA and Profepa in 1999) was developed through the Border XXI program, and included industry participation in their development. The goals were to promote corporate responsibility and to be strategic by addressing complex challenges through the engagement of the private sector. A number of the principles are directly relevant to the workshop discussions: Principles One through Four promote development of a sound, performance-oriented EMS, supplemented with a full range of tools such as auditing, pollution prevention evaluation, employee training, and performance measurement, to ensure that core performance goals, such as compliance, pollution prevention, energy efficiency, and improved overall performance, are actually implemented. Principle Five addresses public accountability, including reporting on releases and overall environmental performance, and having a two-way dialogue with external stakeholders. In addition to EMS-based voluntary programs, other government-industry partnerships include the pollution prevention round tables in Mexico and pollution prevention pilot projects funded by NACEC.

Recommendations

On the second day of the workshop, participants formed working groups to discuss specific topics, such as strategies for building trust between industry and communities, and opportunities for integrating the use of PRTRs and EMS. Following are the main recommendations that emerged from these group discussions:

- Provide better access to and improve the quality of existing information.
- Build an adequate legal framework for the implementation and enforcement of a PRTR.
- Create clear and consistent rules of information disclosure.
- Strengthen community outreach and include NGOs at the outset.
- Provide training and environmental education programs for both industry and communities.
- Allocate responsibility and promote incentives among the different stakeholders.
- Find creative and proactive ways to disclose the information and build trust.

A more detailed summary of the working group outcomes is provided under Session 6 of the proceedings.

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FINAL AGENDA

Forging Alliances to Prevent Industrial Pollution:
New Approaches and Tools for Environmental Management

6-7 November 2000
Camino Real Hotel
Tijuana, Baja California

Monday, 6 November

8:30 ***Opening***

Mtro. Adolfo Gonzáles Calvillo, Dirección General de Ecología del Estado de Baja California
Ing. Luis Sánchez Cataño, Instituto Nacional de Ecologia (INE), Mexico
Darlene Pearson, North American Commission for Environmental Cooperation (NACEC)

9:15 **Session 1: Access to information and industry-community partnerships for sound environmental management**

Moderator: Ing. Luis Sánchez Cataño

- **PRTR as a tool for public participation and transparency**; *Laura Durazo, PFEA*
- **Information needs for addressing occupational health and safety issues in maquiladoras;** *Humberto Garcia, COLEF.*
- **Transboundary Industrial Recognition Program;** *Stephen Niemeyer, Texas Natural Resources Conservation Commission.*
- **Community-Industry Partnerships to Identify Pollution Prevention Strategies;** *Cesar Luna, Environmental Health Coalition.*
- **Usable Management Tools for a More Sustainable Industry**; *Beth Belhoff & Earl Beaver, Bridges to Sustainability.*

11:15 ***Coffee break***

11:30 **Session 2: Pollutant Release and Transfer Registers (PRTRs) and Public Right-to-Know**

Moderator: Enrique Medina

- **Introduction to Pollutant Release and Transfer Registers (PRTRs)**; *Erica Phipps, NACEC.*
- **Update on the RETC program in Mexico;** *Hilda Martinez Salgado, INE.*
- **PRTR Pilot Case Study and Future Developments in the State of Queretaro**; *José Ramón Pérez Contreras, Secretaría de Desarrollo Sustentable, Goverment of Queretaro.*
- **Moving Beyond Right -to Know Data, to Useful Community Information - an NGO Perspective;** *Rick Findlay,Pollution Probe, Canada.*
- **PRTR: An exercise in community use;** *Gildardo Acosta, Enlace Ecológico, A.C.*

13:30 ***Lunch***

15:00 **Session 3: Preventing Pollution and Improving the Bottom Line**

Moderator: Saúl Martín del Campo

- Support mechanisms to develop centers of pollution prevention for maquiladora companies and their providers; *Dr. Jorge Aguírre, Mexico-United States Fund for Science.*
- Fund to support pollution prevention projects, examples of successful funding cases to small and medium companies; *Arturo Rodríguez, NACEC.*
- Round table to prevent pollution in Mexico: Cooperation opportunities to prevent pollution; *Laura Beltrán, Mexican Center for a Cleaner Production.*

16:15 ***Coffee break***

16:30 **Session 4: Environmental Management Systems (EMS)**

- **Overview of EMS;** *Ed Quevedo, Pillsbury, Madison &Sutro LLP*

EMS in Mexico Moderator: Ed Quevedo

- **World Bank EMS project in Mexico;** *Foster Knight, World Bank.*
- **Industria Limpia program in Mexico;** *Eduardo Jiménez López, Profepa.*
- **Local Industry Experience with EMS;** *Jesús Pérez Bañuelos, Packard Hughes Interconnect México.*

18:00 ***Closing of Day 1***

19:00 **Reception sponsored by NACEC**

Tuesday, 7 November

8:30 **Session 4, continued: Environmental Management Systems and their Public Policy Uses**
Moderator: Darlene Pearson

- EPA's Environmental Performance Track Program; *David Guest, EPA, Washington.*
- Arizona's Voluntary Environmental Performance Program; *Dave Ronald, Arizona Office of the Attorney General.*
- **EMS related activities in California;** *Keith Smith, California Integrated Waste Management Board.*
- **NGO perspective on EMS and public policy;** *Jason Morrison, Pacific Institute.*

10:00 ***Coffee break***

10:30 **Session 5: Industry Initiatives to Promote Corporate Environmental Responsibility**
Moderator: Lawrence Sperling

- Seven Principles of Environmental Stewardship; *Charles Cervantes, US-Mexico Chamber of Commerce.*
- The Chemical Industry's Responsible Care Program*; Alejandro Lorea, ANIQ.*

- Tearing Down The Walls: Industrial and Community Environmental Indicators; *Walt Platkus, Square D.*

12:00 **Session 5: Working Groups: Building trust and establishing effective communication between facilities and local communities**

Working Group Facilitators:
Gildardo Acosta, Janice Astbury, Maite Cortés, Ignacio González,
Enrique Medina, Lourdes Ortega.

13:30 ***Lunch***

15:00 **Reports from Working Groups and discussion**

16:00 **Open discussion: Opportunities for follow-up, workshop recommendations**

Moderator: Mtro. Adolfo Gonzáles Calvillo

17:30 ***Closing***

Monday 6 November

Brief introductory remarks were made by M. C. Adolfo Gonzáles Calvillo, of the Dirección General de Ecología del Estado de Baja California, Ing. Luis Sánchez Cataño, of the Instituto Nacional de Ecología, and Darlene Pearson of the North American Commission for Environmental Cooperation. They welcomed all participants to a forum designed to promote dialogue on new tools and strategies for reducing pollution. Increased trade among the three NAFTA countries has created the need for greater cooperation, increased transparency, and proactive engagement of stakeholders: government, industry and civil society.

They noted that the workshop theme of forging alliances is meant to provoke discussion on how to work together to protect the environment, and to identify what tools can be used to promote these alliances. The workshop is organized to examine the role of new tools such as environmental management systems (EMS) and pollutant release and transfer registers (PRTR), to provide information about their scope and potential benefits and to share experiences about their use in practice. One of the goals of the workshop is to illustrate the benefits and usefulness of a collaborative approach.

SESSION 1: ACCESS TO INFORMATION AND INDUSTRY-COMMUNITY PARTNERSHIPS FOR SOUND ENVIRONMENTAL MANAGEMENT

PRTR AS A TOOL FOR PUBLIC PARTICIPATION AND TRANSPARENCY, LAURA DURAZO

Since 1984, Proyecto Fronterizo de Educación Ambiental (PFEA) has participated within the national coordinating group from which Mexico's registry program emerged. For some years there have been distinct differences across the border in the tools available to communities to know about conditions and pollution discharge and their ability to effect change. In Mexico, they are still struggling towards transparency. The PRTR can serve as a tool to address societal problems, such as human health and environmental degradation. It does so by responding to the public's need to participate in environmental decision-making in a co-responsible way. PRTR is not just one more inventory exercise – its intention is transparency and public access to this information, which in turn can lead to changes in behavior.

The idea of registers is that they provide sufficient information so that communities can learn and act upon specific problems. Specificity is necessary to act. Information can become the precursor of change and improvements, enriching the discussion with facts, trends, and patterns. More efficient policies and programs are needed in Mexico. In the U.S. and Canada, there are a few excellent examples that can be referenced. The design process of PRTR must include participation of all community organizations from the beginning, promoting the principle of public right-to-know as an objective in itself. It is also important to design the register to reflect those pollutants that are a problem in the area, providing local specificity.

INFORMATION NEEDS FOR ADDRESSING OCCUPATIONAL HEALTH AND SAFETY ISSUES IN MAQUILADORAS, HUMBERTO GARCÍA

It is important to promote environmental management tools as an opportunity, rather than as an imposition. Health and safety management tools are already being used in the context of ISO, for things such as quality management and service inspections. There are four main factors at play: the technological paradigm, the type of groups in Tijuana, changes over the past 30 years, and lastly the participation of NGOs and industrial trade associations.

Many difficulties have been encountered. Information has not been accessible, and more information is needed on work-related hazards and accidents. One of greatest difficulties is that data is not disaggregated between maquilas and other industries - they just have general information. There is still a serious problem of under-reporting. There is a continuing need for better statistics; the quantity of non-specified information is far too large. We need more specific data, by economic activity, cause of accident, type of illness, type of accident, etc. These data are lacking.

Still, some information is available, showing that the greatest number of accidents is in the electronics industry, but this not surprising because it is the greatest proportion of industry in Tijuana. Even so, the number of accidents has gone down. These statistics do exist within the Social Security agency and the Department of Labor, yet there is difficulty in obtaining this information. All this information would help describe the types of problems in the industry, which would enable them to assess risk probability, trends, etc. The hypothesis is that those complying with ISO have fewer accidents. Has the evolution of maquilas tended to favor health or is it tending to make the problem more acute? COLEF has an interesting challenge to explore these trends and to cooperate with industry.

TAMAULIPAS-TEXAS TRANSBOUNDARY INDUSTRIAL RECOGNITION PROGRAM, STEPHEN NIEMEYER

Historically, annual meetings of U.S and Mexican border states ("Ten States") have provided a forum for the development of ideas. Commissioner Ralph Marquez of the Texas Natural Resource Conservation Commission (TNRCC) has promoted the idea of voluntary recognition programs, building on the efforts of Arizona, which was the first state to develop such a program – the AMIGO Program. EPA has provided funding to TNRCC to develop cross-border programs. The Ten-State process has also encouraged Cross-Border Strategic Environmental Plans. Texas has signed such plans with Chihuahua (together with New Mexico), Coahuila, Nuevo Leon, and Tamaulipas. One commitment in the Tamaulipas Plan was to establish a recognition program for the private sector, the Four Pillars of which are:

1. Program sponsorship must be cross-border at the state level
2. The focus is on private industry
3. Industry must participate in designing program
4. A company must commit to two programs: one within its operations and one in the community

Working in collaboration with government authorities in Tamaulipas, TNRCC launched the Partners for Development of a Clean Environment. Criteria for participation in TNRCC's voluntary program are:

- Company must operate in Tamaulipas or Texas
- Operations must have some binational environmental impact
- Company must have all required environmental permits
- Company must commit to at least a 30 % reduction in a resource use or in the generation of a waste (use of water, generation of an air pollutant, etc.)
- Company must commit to a collaborative community program (environmental education, recycling, etc)

Letters to new members are provided from the Secretaría de Desarrollo Urbano y Ecología (SEDUE) in Tamaulipas and from a Commissioner of the TNRCC in Texas. Upon fulfilling their commitments, Members are recognized with a certificate of congratulations co-signed by the Secretary of SEDUE and a Commissioner of the TNRCC. Notices are sent to the print and broadcast media, and an announcement of achievement is made during the annual awards event. On an annual basis, top state and local government officials grant the Tamaulipas-Texas Environmental Excellence Awards, one in each of two categories: "Environmental Award for Continuous Industrial Improvement" and "Environmental Award for Community Involvement." The criteria by which Award Winners are determined include: 1) Importance of the project with respect to environmental and social benefits; 2) Innovation and creativity; 3) Ease of quantification; 4) Applicability to other companies or communities; 5) Completion of objectives. Winners also receive letters of congratulations from the Governors of Tamaulipas and Texas.

COMMUNITY-INDUSTRY PARTNERSHIPS TO IDENTIFY POLLUTION PREVENTION STRATEGIES, CÉSAR LUNA

The Environmental Health Coalition (EHC) is working to explore ways to address industrial toxic pollution. Right-to-know and access to information are essential to their efforts. EHC historically has focused on right-to-know, and has been an early advocate for access to information in the border region. Their interest began after the Union Carbide disaster in Bhopal, India, which serves as an example of the dangers of hidden information and the importance of information availability. There are presently several legislative amendments calling for right-to-know in Mexico. They are moving forward in Mexico, but they're not finalized yet, and there is uncertainty as to how the laws will be applied, if and when they are passed.

EHC conducted a comparable analysis with 20 maquilas in Otay Mesa, to obtain information about their chemical use. Due to difficulties in obtaining data, the final number of companies participating in the survey dropped to eight. There were several failures associated with the analysis, including an inability to communicate their objective, and consequently, secure environmental performance data. Because they did not understand their benefit from the analysis, many companies refused to cooperate, so the report is flawed. The second phase of study is selecting three or four companies, using the Institute for Technical Assistance as a consultant. The goal is a more open dialogue and richer partnership with companies. In the second phase, EHC and ITA will do a free assessment of the companies' operations to identify

opportunities for pollution prevention, and to propose avenues for conservation. This should lead to cost savings for the companies, given that it is relatively cheaper to prevent pollution than control it. Yet because there is still a lot of mistrust, EHC needs to show that this is mutually beneficial, and identify industry leaders need to take charge and show others. They also need to be more sensitive about companies' concerns, such as proprietary information and anonymity.

Access to information may be the cheapest form of enforcement. It may be the most effective tool for voluntary compliance, and the most importance tool to protect health and the environment. The Toxics Release Inventory (TRI) in the U.S. is closely linked to pollution reduction. Voluntary programs could put good companies at a disadvantage. They should not substitute voluntary programs for regulation; they are complementary. Real pollution reduction did not start to occur until compulsory regulations were in place. Therefore, we should not rely solely on voluntary programs.

USABLE MANAGEMENT TOOLS FOR MORE SUSTAINABLE INDUSTRY, BETH BELHOFF & EARL BEAVER

The industrial economy has a development cycle. The question is whether it is moving toward or away from sustainability. In either case, there is a need for indicators every step along the way. Sustainability is pushing out from pollution prevention, through eco-efficiency and environmental effectiveness, to social and cultural factors. Bridges to Sustainability focuses on practical sustainability tools. It works with government agencies and private firms, including the U.S. Department of Energy, Environmental Protection Agency, Dupont, and Owens-Corning. Their goal is to provide useful management tools, and real-world simulations for their clients. Bridges offers an integrated toolbox that includes sources of data, from "what if" scenarios to total cost assessments and future societal metrics. Uses of tools are to:

- Facilitate sustainable business practices
- Increase performance in all three aspects: environmental, financial, social
- Increase competitiveness and profitability
- Evaluate a slate of products
- Provide benchmarks for business units, companies, industries
- Meet stakeholder demands for more information
- Provide a mechanism for promoting sustainable development internationally

Basic metrics may include environmental impact over output, for materials, water consumption, energy, pollutant dispersion, and toxics dispersions. Complementary metrics include acidification, eutrophication, greenhouse gases, and ozone depletion. Bridges is also moving into societal metrics, examples of which include: employee turnover; cost of benefits to employees/profits; age at death of employees and retirees; ratio of highest/lowest salary; and, ratio of total female compensation to total male compensation. Through sound performance metrics, externalized environmental costs can eventually be internalized. See www.bridgestos.org for more information.

SESSION 2: POLLUTANT RELEASE AND TRANSFER REGISTERS (PRTRS) AND PUBLIC RIGHT-TO-KNOW

INTRODUCTION TO POLLUTANT RELEASE AND TRANSFER REGISTERS, ERICA PHIPPS

"What gets measured, gets managed." A Pollutant Release and Transfer Register (PRTR) is an inventory of the amounts of specific chemical substances released to air, water and land and transferred off-site from industrial facilities. The basic elements that are considered central to the effectiveness of PRTRs, as identified in a recent CEC Council Resolution (00-07), include:

- Reporting on individual substances,
- Facility-specific reporting,
- Multi-media (releases to air, water, land, underground injection; transfers for further management),
- Mandatory reporting,
- Periodic reporting (e.g. annual),
- Public disclosure of reported data on facility- and chemical-specific basis,
- Standardized database structure,
- Limiting data confidentiality,
- Comprehensive scope, and
- Mechanism for public feedback for continual improvement.

PRTRs are receiving increasing attention globally. Agenda 21, adopted at the 1992 "Earth Summit" called for the establishment of emissions inventories, now generally referred to as PRTRs, and set forth the principle of worker and community right-to-know. In 1996 the OECD Council issued a recommendation calling upon its member countries to consider establishing national PRTR programs. The recent meeting of the Intergovernmental Forum on Chemical Safety, in which countries around the world participate, featured a special session on PRTRs. There are a growing number of countries worldwide that have or are developing PRTR systems, indicating an increasing focus on public reporting and accountability.

Within this global context, North America is playing a leading role. All three North American countries have established national PRTR programs, namely the U.S. Toxics Release Inventory (TRI), the Canadian National Pollutant Release Inventory (NPRI), and the Mexican Registro de Emisiones y Transferencia de Contaminantes (RETC). North America is taking the lead in establishing a regional perspective on sources and management of industrial pollutants by compiling PRTR data on a continent-wide scale through NACEC's annual *Taking Stock* reports.

From the perspective of industry, PRTRs are a tool for environmental management, where they may be used for tracking the use and fate of toxic chemicals, identifying opportunities for pollution prevention/cost savings, and measuring progress over time. For industry-community relations, PRTRs provide an information basis for dialogue between communities and facilities, improve transparency, help build trust, and provide a means of tracking progress.

MEXICO'S REGISTRO DE EMISIONES Y TRANSFERENCIA DE CONTAMINANTES (RETC), HILDA MARTINEZ

The RETC is Mexico's federal voluntary PRTR program. Mexico was chosen to develop a PRTR in 1992 in the context of a UNITAR pilot program, and in 1994 the Coordinating National Group, which brought together academics, NGOs, and the industrial sector, began the technical, administrative and legal design of the RETC. The National Executive proposal of the RETC was released in early 1997. In 1997, SEMARNAP signed an agreement with industry to create the database for the registry. The first reporting cycle began in September of that year. Data management and integration occurred in the following two years. The second reporting cycle began in early 1999. The publication of the first National RETC Report was in December 1999. The RETC webpage is at http://www.ine.gob.mx/retc/index.html

The objectives of the RETC are:

- To provide a reliable, multi-media, updated database
- To simplify reporting requirements for industry
- To create a tool for environmental management
- To control and prevent contamination
- To provide information on substances that represent a risk to health and the environment
- To make this information available to the public
- To fulfill international commitments

The RETC is designed to provide information at a variety of levels, broken down by source, geographic level (regional, national, etc), and type of contaminant. The RETC, which provides for reporting on the release and transfer of pollutants, is part of the Certificate of Annual Operation. Through the COA, approximately 2500 industries at the national level provide environmental information on releases to the air, residual water discharge, and handling of dangerous materials.

The process of developing the RETC also involves modifying legal provisions, such as the classification of substances and reporting thresholds. As part of the effort to make information more accessible and pertinent, INE is using software that will enable the user to highlight sources of pollution geographically, at a range of scales. The RETC program uses a GIS, and also collects information on non-point sources.

PRTR PILOT CASE STUDY AND FUTURE DEVELOPMENTS IN THE STATE OF QUERÉTARO, JOSÉ RAMÓN PÉREZ CONTRERAS

SEMARNAP and the state of Querétaro initiated and completed a case study in 1996, with the assistance of INE, UNITAR, the CEC, local industrial groups and NGOs. The objectives of the project were:

- to create a state emissions registry with the cooperation of industry,
- to gain experience in the development and implementation of a PRTR at a manageable level,
- to project the development of PRTRs on a national level, and
- refine reporting mechanisms and develop the necessary human capital.

Participating companies were selected by sector, with the goal of including a representative cross-section. They selected 80 of the 1,227 industries in Querétaro. However, not all 80 participated completely due to internal difficulties. Of the 45 fully participating industries, six were micro, seven small, 17 medium, and 15 large. In total, they used 70 registered substances from 17 categories. The planning and preparatory phases began in September 1995, the implementing phase began in January 1996, and the analysis and evaluation were performed from April through June 1996. Industries were selected to participate based on four criteria:

1. work with one or more regulated substances,
2. representative in terms of size and industry sector,
3. have a positive attitude toward participation, and
4. total number of participants of manageable size.

The case study revealed many positive environmental results and also strengthened collaboration between industry and government, and within industry sectors. The exercise created added value, given that industry has a more open attitude toward authority and toward initiatives that will allow them to have better performance. The project also enabled companies to identify their own inefficient processes and practices. CO_2 emissions were the largest reported, followed by sulfur dioxide. All reported emissions were entered into a GIS, to satisfy all three conditions for a PRTR. The results could establish action priorities and help develop a national proposal and a pollutant inventory.

Currently, air and noise emissions, non-hazardous waste, and wastewater discharge to sewers are reported separately; the goal is to combine them with PRTR information into one report, for an annual operation license. The challenge now is to define a legal framework.

The state is also participating in an environmental institutional development program, to strengthen the PRTR federally. In several areas, state requirements are more stringent than federal requirements. Industry's ability to access each step of the state initiative has helped companies pursue ISO 14000 certification more efficiently and has led to better overall environmental performance. There has also been an important benefit for government administration, such as providing valuable information from government to society. The project provides a means of generating environmental statistics, and it also allows for specific measurements that create a reference system for follow-up. These are the main benefits that we need to detect. Future goals and commitments by project participants include:

- develop a supportive legal framework,
- publish the procedures and formats of the report,
- adapt the federal RETC to the state level,
- improve industrial sector competitiveness,
- generate the state inventory of air emissions, discharge to water, and waste,
- promote a culture of pollution prevention, and
- perform outreach regarding the inventories.

RIGHT TO KNOW IN THE U.S., PAUL ORUM

What is community right-to-know? It is the organized, enforceable disclosure of information on toxics use, storage, transfer, and release. Community right-to-know laws in the U.S. have helped people to:

- Profile pollution problems,
- Improve public participation and right-to-know,
- Assess pollution prevention options,
- Measure success by tracking pollution, and
- Change behavior through intentional oversight.

Community right-to-know *always* operates in conjunction with other aspects of a complete environmental protection system, such as regulations, inspections, audits, and legal liability. Provided a legal structure to ensure reporting, the most important aspects for pollution prevention may be effective technical assistance and systematic prevention planning.

In terms of history, many states and cities in the U.S. passed right-to-know laws before the federal law passed in 1986. Philadelphia, Pennsylvania passed the first local toxics right-to-know law in 1981. By 1984, some 14 states had a worker or community right-to-know law. By 1986, half of the states had such a law. Only then did Congress pass the federal law (after the tragic gas leak at Bhopal, India). The U.S. has continued to broaden community right-to-know. For example:

- The Safe Drinking Water Act of 1986 requires water utilities to provide consumers with an annual notice of contaminants in drinking water. The U.S. Environmental Protection Agency (EPA) is required to compile the information on contaminants into a national database so that people can also learn about the quality of their drinking water through a home computer.
- The Pollution Prevention Act of 1990 broadened the Toxics Release Inventory, and made it U.S. national policy to prevent toxic waste at the source whenever feasible.
- The Clean Air Act of 1990 established a Chemical Safety Board to investigate major chemical accidents, report the root causes to the public, and make safety recommendations to government and industry.
- The Beaches Environmental Assessment and Coastal Health Act of 2000 (the "BEACH" bill) requires states to post warning signs at polluted coastal waters that are used for swimming and recreation, and requires the EPA to establish a national database of these polluted coastal recreation waters.

The Toxics Release Inventory (TRI) is arguably the best known and most successful toxics right-to-know law in the U.S. Some essential aspects of the TRI include that it is:

- *Facility specific* – People can get toxics information on specific facilities.
- *Chemical specific* – People can learn about releases of specific chemicals.
- *Multimedia* – People can learn about releases and transfers to air, land, and water from a unified source.
- *Designed for data management* – People obtain the information from EPA in a unified electronic format (as well as non-electronic means).

- *Publicly accessible* – The law carefully limits trade secret claims; less than one percent of companies keep information confidential under TRI, and about two percent claim trade secrets in Massachusetts and New Jersey, where companies also report chemical throughput.
- *Unified* – EPA maintains a single, national data system with uniform reporting formats, reporting periods, units of measure, etc.
- *Enforceable* – Reporting is required. Without exception, voluntary right-to-know efforts fail to provide uniform information across an entire industry or area. For example, after a voluntary request failed, the EPA had to subpoena information from U.S. companies operating maquiladora facilities in Mexico.

MOVING BEYOND RIGHT TO KNOW DATA, TO USEFUL COMMUNITY INFORMATION – AN NGO PERSPECTIVE, RICK FINDLAY

The primary goal is to move beyond "right-to-know" to a "right to understand". The Canadian experience has been shaped by the Canadian collaborative, consensus-based way of doing business, such as the national roundtable model. With Canada's PRTR, the Canadian National Pollution Release Inventory (NPRI) for example, governments, industry and NGOs make collective decisions as to performance thresholds, and what substances should be on the reporting list. This results in a cost-effective approach to emissions reductions and pollution prevention, creating a good tool for achieving sustainable development.

PRTRs are part of the foundation for building a sound system for managing the environment – part of an "infrastructure for sustainability." Sound overall environmental management relies on:

- emissions data - and, ideally, a comprehensive, integrated, multi-media, multi-purpose inventory system,
- reporting and tracking system - to monitor progress in reducing emissions and provide information as required under international agreements, and
- involvement and support of all users (i.e., government, industry, NGO).

PRTRs provide benefits to governments, the private sector, NGOs and the general public and are best developed through a national partnership. PRTRs help governments track progress on emissions, identify environmental issues/priorities for action, meet international reporting requirements, and encourage cost-effective approaches to emission reductions and pollution prevention. PRTRs help industry achieve sound environmental and business management, engage communities, and build trust with the public. They help the general public and NGOs understand facility-specific emissions and make informed decisions on environmental issues and priorities, build capacity for engaging communities, and provide tools for dialogue with communities and stakeholders.

Moving from data to information to understanding is a two-step process. Step 1 requires moving from data to usable information - 90% of the data you need is not available and 90% of the data that is available is not usable. Data must be provided in a form that enables interpretation in a context that is relevant to individuals, for example, where they live. The trend is to move away from "reporting to", to "having a dialogue with" a community. Data availability to the public is essential; there is a growing need to provide the public with data on:

- pollutant releases (PRTRs)

- persistent organic pollutants (POPs Protocol)
- greenhouse gases (Kyoto Protocol)
- ozone depleting substances (Montreal Protocol)

Data on drinking water quality, ambient air quality, and weather are also needed at the regional and local levels. There are lots of data inventories but they need to be provided on-line in "relational form" in order for them to be linked and integrated, presented and explained, understood and accepted. It is important that appropriate socio-economic information is included – this is the contextual information that people want to have. There is a need to build the capacity of communities to better achieve environmental and health protection goals, and provide information to enable people to make informed decisions in their community.

Step 2 is moving from information to understanding. The public "right to understand" is arguably just as important as the "right to know." A picture is worth a thousand words - GIS mapping can organize, visualize, rationalize and energize the relational databases developed in step 1. Links and automatic updates are important. A query-based approach would allow people to get the information they want, interpret it, and act on it. The goals are to: i) maximize the usefulness of lots of undervalued data, ii) build on and apply the work of others (SOE, indicators of sustainability, etc), iii) integrate information so it becomes more contextual, and iv) use the latest technology to help us do all this (software, internet).

NGOs can take a leadership role in developing effective national partnerships. NGOs can work closely with industry to make sure important information (not just release data) is made publicly available. NGOs can work with industry and government to make sure that communities understand this information.

PRTR: AN EXERCISE IN COMMUNITY USE, GILDARDO ACOSTA

The RETC (Mexico's PRTR) is a relatively recent creation, with a background in a 1987 survey and a 1993 inventory. The RETC is able to take advantage of existing alliances from these previous studies. The previous survey and inventory were hampered by limited participation and unreliable data. However, these initiatives did serve to highlight that right-to-know is a common demand from communities. The Mexican government decided to create a program to establish a register, and to develop and evaluate a process to obtain and distribute this type of information. A community that is informed has a higher capacity to confront and prevent risks, and participate in decision-making processes. Communities must have access to the information collected through the register.

The RETC offers the following benefits:

- identify point sources of emission
- generate useful information for civil protection
- identify high-risk facilities
- identify use of hazardous materials
- pollution prevention

The results and conclusions from the 1993 inventory included:

- Response from 26 out of 34 plants (76%)
- No high-risk facilities
- Inventories based on real data
- Emissions based on estimates
- Incomplete information and questionable quality
- Poor quality to carry out a qualitative analysis
- No impact on companies
- Degree of interest in the community was not evaluated

The 1993 inventory raised the following questions:

- What are individuals' sensitivities for each type of hazard?
- How does the exposure interact with exposure to other hazards?
- What are the characteristics of exposure?

The former study could be improved by improving the format, discussing the results with the community, and including pollution prevention measures. The present study is in Agua Prieta, Sonora, encompassing 34 plants with 8,000 employees, in a city of 70,000 inhabitants, and in Nogales, Sonora, including 67 plants with 27,000 employees, in a city of more than 250,000 inhabitants. It uses a multi-stakeholder process. They are trying to evaluate the community's response, but there is not a clear method for this.

The underlying premise is that the complexity of environmental and public health problems and their vulnerability to the impacts of growth put them beyond the capacity of the governments, by themselves, to confront and initiate effective actions to solve and prevent those problems. Under such conditions, it is crucial to offset these official limitations through the active participation of the citizens, that support, complement, and enrich the institutional efforts necessary in the search for and implementation of solutions to these problems.

SESSION 3: PREVENTING POLLUTION AND IMPROVING THE BOTTOM LINE

SUPPORT MECHANISMS TO DEVELOP CENTERS OF POLLUTION PREVENTION FOR MAQUILADORAS, JORGE AGUIRRE

The Mexico-U.S. Fund for Science began pollution prevention efforts in 1998 in Monterrey, starting with the identification of basic needs and the creation of technical service centers for industry. The emphasis is on medium and small businesses – this is the sector that most needs support. An important need is for basic and specialized training. Industrial needs include the training of technical staff, monitoring of waste, technical assistance, research and development, and technology transfer. The strategy has four main elements:

- the creation and development of regional technical development service sectors;
- strengthening training capacity;
- development of regional pollution prevention roundtables – 2 or 3 in the border area;
- development of virtual centers and listserves linked to pollution prevention, to support local industry and help them to comply with legal responsibilities, not just in pollution prevention.

The fund is working on creating technical centers, such as an environment improvement center in Tamaulipas and a technical service center in Tijuana. These centers can benefit from the experience of similar centers in the U.S. Important centers also already exist in Monterrey. These are very important supports for pollution prevention efforts. It is important that manufacturing centers be involved. The training programs at the centers are available at several levels, and continuing education is also offered. They also provide remote/distance education, from the University of the Andes and the Swedish University of Lund. From a technical point of view, virtual centers can accomplish everything that needs to be done. Regional roundtables are a very important aspect of the strategy. There is enough interest along the border to begin to have this type of activity. Linkage of these activities could generate important progress.

FUND TO SUPPORT POLLUTION PREVENTION PROJECTS, ARTURO RODRIGUEZ

The North American Commission on Environmental Cooperation has been working since 1995 on a program to develop capacities to prevent contamination in small and medium size businesses. A study carried out by the CEC found that pollution prevention initiatives were reasonably developed in Canada and the United States, but required more promotion and development in Mexico. Several of the study's recommendations addressed the need to develop capacities in Mexico, such as demonstrating the advantages of preventing pollution in various industrial processes in small and medium-size businesses, facilitating access to information on pollution prevention, and promoting financial mechanisms to fund implementation.

The pollution prevention projects fund is a pilot project that the CEC shares with the Federation of Industrial Chambers of Mexico. The U.S. Council for International Business and the Canada Council for International Business participate on the Technical Committee. The Fund has been conceived to be self-supporting through a revolving, non-profit mechanism. It is financed through contributions from the CEC and industry, and is managed jointly through an Executive Commission and a Technical Committee, under guidelines that have been legally formalized through regulations and a manual for awarding credit

Banking institutions help to assess the financial aspects of the program, which sensitizes banks to these environmental issues, and increases access to these banks for small and medium industries. The Fund has been successful because of the low interest rates, about 6 points below commercial rates in Mexico. Although modest, the Fund has demonstrated success in financing pollution prevention projects in small and medium-size businesses, even in countries such as Mexico, that still lack a sufficiently strong economy to offer interest rates with a degree of certainty in the medium and long ranges. This is one of the main drawbacks for the awarding of soft credits to small and medium-size businesses. The secret seems to be in the fact that the Fund does not seek a profit, and therefore is capable of offering lower interest rates than commercial banks. On the other hand, the Fund offers an additional product that commercial banks normally do not have, which is the technical assistance offered to small businessmen to submit their applications and organize their accounting.

The majority of the credits awarded to date have been directed towards the improvement of efficiency in tannery processes with chrome salts in Leon, Guanajuato. The projects are subject to follow-up by the Fund, including the verification of financing, as well as measurement of the

economic and environmental performance once the measures are implemented. This is made through visits and obligatory reports. The financial follow-up is made through payment schedules specified in the relevant loan contracts.

Eighteen credits have been awarded to date while 10 more have been approved and are in process. The total sum involved amounts to approximately US$675,000. Through the first twelve financed projects, water savings of nearly 39,000 cubic meters each year are being generated, as well as a reducing 730 tons of chemical products utilized in the tanning process. The economic benefits obtained by the businesses have permitted them to cover, in both time and money, 100% of the payments.

Even though the Fund has not been openly promoted, it has reached a point where the demand is larger than the capacity to grant credit to those small and medium-size firms wishing to apply. Two important issues have arisen. On one hand the Fund has not been promoted for fear that there might not be enough capacity to meet the demand and thus lose credibility. On the other hand the challenge is to make it grow to meet such demand and to shift from the pilot project phase to a fully implemented project that would allow it to produce a major impact within the Mexican industrial sector or at least in one geographical zone or specific industrial sector, considering the 350,000 small and medium-size firms operating in Mexico.

For that reason, CEC has approached major financial institutions such as the North American Development Bank and some other development banks in Mexico. The largest obstacle to overcome is the cost to the banks. However, the CEC is confident that it will find the way to work jointly with these large banks and make the pollution prevention program Fund grow, thus reaching a position where it can induce a real and meaningful change for the improvement of the competitiveness and environmental performance in the small and medium-sized Mexican firms.

ROUND TABLE TO PREVENT POLLUTION IN MEXICO, LAURA BELTRÁN

The objective of the Roundtable is to provide a forum for communication and the exchange of knowledge and experience, and to create alliances and viable strategies. There are successful examples of such roundtables around the world. In Mexico, the CEC and the Centro Mexicano de Producción Más Limpia have taken on a leadership role in the process. The Cleaner Production Forum, in December 1999, was the first such forum in Mexico. The round table included a Steering Committee composed of representatives from various sectors, such as industry, academia, federal and state government, the financial sector, and supporting organizations, that have knowledge and experiences on pollution prevention, as well as the spirit of participation and cooperation to advance the development of a culture of pollution prevention in Mexico.

A meeting was held in February 2000, generating a work outline and an agreement to carry out a meeting to discuss the concept of pollution prevention. The meeting, attended by 100 people, featured 30 presenters. Participants formed workgroups on the following topics: Group 1 – existing actions in the industrial and service sector. Group 2 – pertinent policies, education and training. Group 3 – the education and training group for pollution prevention – was coordinated by the CEC. Coordinated by the Mexican Center for a Cleaner Production, Group 4's objective

is to develop joint tools and identify expert consultants. Group 5 was coordinated by Financera, and was the most contentious groups (also with the fewest participants). The objective of Group 5 is to create credit formulas from the current supply of financial instruments, identify existing material, and examine similarities and differences with other countries' programs. Group 6 is concerned with the promotion and application of innovative environmental management tools. All these groups are just starting, and are meeting again in late November, 2000. Contact people are listed at www.cpml.mesa_redonda.htm.

SESSION 4: ENVIRONMENTAL MANAGEMENT SYSTEMS

OVERVIEW OF EMS, ED QUEVEDO

Environmental Management Systems (EMS) are an overall tool to aid an organization in:

- identifying and stating its environmental values;
- identifying all its environmental risks and impacts;
- systematically exerting better control over those risks and impacts by changing management responses and related activities; and
- improving environmental protection and quality, increasing the trust and confidence of stakeholders.

EMS is a change tool to improve the business. It is best used to fundamentally change the organization's approach to environmental risk. To do so it must be more than just a process. It must meet expectations of clients, of employees, community residents, regulators, etc. The EMS must be explained and marketed to these people so that its value and use are understood.

The ISO 14001 standard is the one of the most basic and widely used EMS frameworks internationally. ISO 14001 certification does not necessarily mean legal compliance, as the standard mandates only a "commitment" to compliance. According to ISO 14001, organizations must identify and track applicable legal and regulatory requirements and must have a documented procedure for periodically evaluating compliance (4.5.1). A company can be certified and yet still be harming the environment (just reporting on ways that they are doing it). However, compliance management can be built-in as a component of the overall EMS, and EMS creates opportunity to go further. This is why design of an EMS is so important.

The following are possible EMS Design Alternatives:

- Model 1: ISO 14001 Conformity
- Model 2: ISO 14001 Conformity and Compliance Assurance
- Model 3: ISO 14001 Conformity, Compliance Assurance, and Environmental Performance
- Model 4: ISO 14001 Conformity, Compliance Assurance, Environmental Performance, and pursuit of Sustainability

The design will affect what an EMS can deliver. The more comprehensive the design, the greater the possibility for delivering better environmental performance. An EMS can be designed to support PRTR. At its most basic level, an EMS can track regulated and unregulated toxics use, highlighting substances of particular concern for management priority within the EMS. For a performance-based EMS approach, the organization can track toxics and then relate toxics use to production efficiency, units of production, monetary units of value, etc. A product-design approach would track design changes to eliminate or better control toxics use. Under the fourth model, the Sustainable Production approach, the organization would set goals for elimination of use of regulated and unregulated toxics, collaborating with industry partners and regulators.

Industrial/regulatory partnerships can be based on EMS, and can include incorporating key elements of PRTR. However, since EMSs have the potential to manage both regulated and unregulated environmental aspects, forging an industrial regulatory alliance for complete environmental management can contribute to making both the environment and business better.

THE ROLE OF EMS FOR SMALL AND MEDIUM BUSINESSES, FOSTER KNIGHT

Small (micro) and Medium enterprises[1] (SMEs) make up some 90 to 95 percent of all businesses, and employ 80 percent of workers in Mexico. As a whole, SMEs contribute a substantial amount to the country's total environmental pollution load. While total industrial production in Mexico is heavily weighted towards large enterprises (Pemex, ICE and large private companies), total environmental releases are spread out among SMEs as well as large enterprises, especially in terms of pollution per employee. A recent World Bank study looking at pollution loads per employee found considerable variability but concluded that pollution per employee is often higher among SMEs than among large companies. Moreover, SMEs tend to be located in population centers, so the urban environment is impacted relatively harder by SMEs.

There are daunting challenges facing governments and other organizations attempting to deal with SME environmental performance. The greatest challenge is perhaps the lack of awareness among SME owners and their employees of the actual risks to the environment and employee health and safety of their operations and practices. Most SME owners and their employees are quite willing to reduce these risks once they become aware of them and understand how risk reduction has economic benefits.

The enforcement focus is on the larger, more visible enterprises. This is also true with respect to enforcement against SMEs in the U.S., Canada and elsewhere in Latin America simply because it is politically more difficult to enforce EHS requirements against small businesses, many of which have only a few employees. It is also unrealistic in terms of the enforcement resources required to crack down systematically on the vast number of SMEs.

Another important challenge is that SMEs lack resources and access to credit to make pollution prevention and resource productivity investments that will achieve economically justifiable EHS performance improvements. Governments have addressed some of these challenges by establishing lower cost financing and technical assistance centers. In the U.S., many states have set up pollution prevention centers that provide free or nominal cost technical assistance to SMEs on how to reduce their environmental releases and achieve compliance with EHS requirements. The Mexican government has established regional and special technical assistance centers with similar objectives. Nevertheless, most SMEs are still not participating. The issue is, why not?

There is a need to look to new approaches and tools, such as supply chain EMS that focus on SMEs' needs. The key concept underlying supply chain EMS is the commercial relationship between SME suppliers and their larger enterprise customers. When the larger enterprise customer begins to require environmental performance improvements in the supply chain, suppliers either respond affirmatively or lose out to more willing competitors. Supply chain EMS are based on market-driven improvements in product and service quality. In the U.S., beginning in the 1980s big companies began to understand that the quality of their products and services was often substantially determined by the quality and service of their suppliers.

The concept is to use EMS to improve performance. An example in Mexico is the Guadalajara project – designed around commercial relationships between large company customers and their small and medium suppliers that then work collectively to implement EMS. To test whether

[1] Defined as industrial and commercial service businesses with 200 or fewer full-time employees.

investment and mentoring by larger companies can lead to a change in attitude and EHS performance by their SME suppliers, the World Bank and 11 large companies in Guadalajara organized a two-year pilot project to train and help implement EMS within a group of 22 SME suppliers. The Lexington Group provided project design and training support. The Project brought in key stakeholders from the outset, including SEMARNAP, representatives from the State of Jalisco and several municipalities, leaders of two local universities (U. de Guadalajara and ITESM's Guadalajara campus), and several interested local NGOs.

The 11 large companies (most of which are Mexican national companies) recruited the suppliers, provided important resources including environmental staff, mentoring support, and project leadership as well as 50% of project financing. The World Bank financed the SME training and follow-up evaluations. The Lexington Group provided EMS training starting in 1997 and project reviews. Graduate students from the local universities participated in the EMS training sessions and provided implementation support to the SMEs (along with environmental staff from larger companies). The World Bank financed a separate but complementary study of how SME attitudes changed during the process.

Initially, the SMEs were reluctant participants. A special training session was conducted for the SME owners/directors to focus on the economic, compliance and environmental improvement benefits of EMS implementation. At the outset of EMS implementation, baselines were measured in key areas, including compliance with applicable EHS requirements. Most of the SMEs had essentially no compliance programs in place and were daunted by the prospect of investing considerable time in finding out how and whether some of the broadly-worded EHS requirements applied to their operations. To overcome this barrier, environmental managers in the large companies pooled their experience and provided the SMEs with a master list of federal, state and municipal EHS regulatory requirements, presented in practical terms. The local consultants from the universities and large company environmental staff then helped determine applicability of these requirements specifically to each SME.

By the end of the first year, most of the SMEs were showing considerable progress. Most had established an environmental planning process including identification of applicable legal requirements and had substantially improved their EHS compliance. Almost all had reduced hazardous waste generation. Other results include improved workplace safety conditions, hazardous materials and waste handling, materials and energy efficiency improvements. In many cases, these improvements have led to productivity gains. As economic savings materialized from waste reduction achieved through EMS implementation, many of the owners/directors, as well as key employees, have become internal champions.

It is important to note that these EMS improvements were achieved through basic application of known, low cost "pollution prevention" and "cleaner production" processes. The value of the EMS is simply to institutionalize these techniques and apply them more broadly throughout the SME by ensuring that many more employees get involved, are trained, and do the work. In follow-up surveys, SMEs voiced strong support for the Guadalajara initiative. They underscored the importance of involving large companies. About half said they joined the project only because one of their large customers "invited" them.

The difficulty with evaluating the effectiveness of projects like the one in Guadalajara is that participating SMEs have experienced enormous change since their initiation into the project. Many of the original SME representatives are no longer working for their SME companies. Nevertheless, there are a core group of remaining SMEs that reflect "lessons learned" from the Guadalajara Pilot Project. These include:

- The role of larger company customers in providing critical incentives for inducing SMEs to join in the effort;
- SME commitment (owners/directors);
- The importance of having a cohesive group of local consultants trained to implement EMS using a consistent methodology;
- Improved criteria for measuring performance and periodic, scheduled progress reviews;
- The importance of sequential EMS training so that SMEs can learn and implement parts of the EMS before proceeding to other parts;
- Expertise in pollution prevention and cleaner production techniques that can be effectively woven into the EMS training;
- Practical expertise that can be shared with SMEs in identifying applicable EHS legal requirements.

The Guadalajara Pilot Project demonstrates that SMEs can effectively implement an EMS modeled on the ISO 14001 standard. Once implemented, these EMS are sustainable. The Project also demonstrates that the commercial relationship between customer and supplier can operate as a strong incentive inducing otherwise reluctant SMEs to improve their environmental performance through a systematic process. The Guadalajara Pilot demonstrates that participating SMEs can achieve important economic, environmental and compliance benefits, that will help sustain the systematic processes in the EMS as it pushes toward continual improvement. Based on the Guadalajara experience, at least two new supply chain EMS projects will begin in early 2001. Both are designed to build in earlier "lessons learned" and are substantially funded by the Multilateral Investment Fund (MIF) of the Inter-American Development Bank and by a group of sponsoring large companies.

INDUSTRIA LIMPIA PROGRAM IN MEXICO, JAIME GARCIA

"Industria Limpia" (Clean Industry) is a national program, which began in 1992 with two related components: voluntary industry participation and environmental auditing. There are no sanctions in the program; instead it focuses on incentives and recognition. Certification under the program is granted only once the company is in compliance. The environmental audit protocols of the program emphasize pollution prevention. Mexico has done this in a very specific fashion. The program includes an initial audit, corrective actions and follow-up reports, and subsequent supervision. Sixty percent of industrial production in Mexico is participating in the program. There are currently 1,703 facilities in the program: 866 in the follow-up stage, 207 in process, and 630 that have been certified, of which 137 have renewed their certification. After two years, companies may renew their certification if they are at least in the same shape as when they were first certified. Sixty-eight percent of the companies are in the private sector, with the remainder from the government sector. Fifty-seven percent are large companies, with the remainder being medium, small, and micro.

An estimated 15 billion pesos have been invested through the program. Since it began in 1992, there have been no fatal worker accidents in any participating companies. There has also been a clear trend toward an increase in pollution prevention programs. A recent survey of 166 businesses revealed that: 135 have been certified, and 31 are preparing their plan of action as a step toward certification; 88% report direct environmental and economic benefits as a result of the program; 13.4% had increased production since 1995-96 (though those were times of economic difficulty). There were 107 respondents to the survey on air emissions, reporting a 10.5% reduction, amounting to 850 million tons/year. Significant water savings were reported by 145 companies, totaling 11.2 million cubic meters (MCM) per year, a reduction of six percent, with a reduction of wastewater reported at 34.75 MCM/year, amounting to 18.6%. Total savings were estimated at 282 million pesos, primarily in insurance premiums, as well as savings in energy and water costs. The initial investment is recovered in about six years. It is important to promote this as an investment, rather than simply as an expense. There are a variety of social benefits associated with program implementation, including lower pollution levels, water conservation, and the reduction of risks in transportation and handling to hazardous materials. Participating companies have the right to use the "Industria Limpia" logo on their products, as a green marketing tool for public and consumers. An increasing number of companies are participating in the program every year.

LOCAL INDUSTRY EXPERIENCE WITH EMS, JESÚS PÉREZ BAÑUELOS

Packard-Hughes (P-H), a company with more than 400 employees, began the Industria Limpia program in 1995, and received a "clean industry" certificate in 1998. After the initial audit, Packard-Hughes created a follow-up plan with a timeframe to work on its non-compliance aspects. More than 30 corrective actions were undertaken, especially in the area of industrial safety. Participation in the program helped to break down barriers between business and government.

P-H interacts with other plants, as a group, creating an industrial auditing team, which allows for an exchange of information on mechanisms and improvement alternatives. This has led to benefits – some quantifiable, some not – such as a better image with clients and the community. It has provided the means to penetrate international markets, and made possible certain investments in preventing pollution. P-H now has a budget for pollution prevention, not just for correcting irregularities. EMS has created a basis for striving for true compliance with current requirements. The company has also obtained benefits: a 14% general energy savings over three years, as well as a reduction in work-related risk, from 16 accidents per year to one. P-H has eliminated chlorine entirely from its processes by using an alternative process.

The EMS and its related environmental performance improvements have led to a decrease in P-H insurance premiums, and access to preferential low-interest credit rates. P-H has streamlined its operation methods, is able to identify issue areas and prioritize actions. P-H has established internal lines of communication, promoted environmental awareness among employees, and established a dynamic process. The correction of problems is very important from the operational level through to the management level. Society has also received benefits, such as reductions in noise, fugitive emissions, and water consumption. P-H has increased its recycling rate up to 73%, and has greatly decreased the quantity of hazardous materials sent to landfills.

Some of the limitations are that the Clean Industry environmental auditing program is not recognized internationally or by federal health and safety agencies. As a result, there is an unnecessary duplication of efforts for the company. Some of these limitations are critical. It also takes them 3-6 months to achieve recertification, and auditing costs are high. Consequently, it is not a simple thing to implement the recertification plan.

EPA'S ENVIRONMENTAL PERFORMANCE TRACK PROGRAM, DAVID GUEST

Launched in June 2000, the U.S. EPA's Performance Track program was established to promote better environmental performance rather than focus merely on compliance. Facilities must have good compliance records to get into the program. Environmental performance of the regulated community can be seen as a bell curve distribution. The program is meant to reward the really good performers, those at the edge of the curve. An important program goal is to keep transaction costs down, and to provide incentives only in proportion to achievement. The program has achievement and stewardship levels; the latter will be launched in June 2001.

The Achievement Track part of the program began earlier this year and focuses at the facility level. EPA has received 244 applications for Achievement Track, including 17 from public facilities. The program relies largely on self-certification, as a measure of trust, although there is some spot-checking. Public outreach and reporting are required elements of the program. The benefits to program participants include use of the logo, streamlined monitoring and reporting, and low inspection priority. However, the program does not offer any substantive relaxation of regulatory standards. The program also encourages small business participation. In April 2000, President Clinton signed an Executive Order requiring all federal agencies to adopt EMS by 2005. As a result, more federal facilities will likely be participants in coming years.

SESSION 4: (CONT'D) EMS AND THEIR PUBLIC POLICY USES

MODERATOR, DARLENE PEARSON

The interest in using EMS as a policy tool has grown in recent years. The CEC's guidance document on EMS ("Improving Environmental Performance and Compliance: 10 Elements of Effective Environmental Management Systems") grew out of a project that examined the link between voluntary initiatives (such as EMS) and government programs to enforce, verify and promote compliance. There was not enough data initially to see if EMS – an industry-developed tool – would be able to realize public policy benefits although several research projects are underway in various research institutes. The question of what to do to make EMS a credible tool within the context of public policy led to the CEC guidance document.

This document represents the first time the three North American governments have jointly expressed their views on how voluntary EMS designed for internal management purposes can also serve the broader public policy goals of compliance assurance and improved environmental performance in regulated and non-regulated areas. It was produced by a trilateral group working on enforcement and compliance cooperation issues (the Enforcement Working Group) under the auspices of the North American Commission for Environmental Cooperation (CEC), with input through a targeted public consultation process.

This document sets out what the three North American governments have agreed is important to address in implementing EMS. It is intended to assist EMS users make responsible decisions and take actions to achieve better environmental performance through maintaining compliance with environmental laws and moving beyond compliance. Although no system can provide a guarantee of success, this document provides a list of 10 elements to help ensure that what needs to be done is being done to meet these goals. It is intended as a guidance for those organizations in the public and private sectors that seek an EMS applied in a way that will work effectively and build better relationships with customers, suppliers, lenders, investors or the local community as well as with government.

ARIZONA'S VOLUNTARY ENVIRONMENTAL PERFORMANCE PROGRAM, DAVE RONALD

Last year, Arizona passed legislation designed to encourage companies and municipalities to adopt EMS. Ten years ago, legislation was introduced to make environmental audit information secret. Since that time, audit privilege legislation has been vigorously opposed by the attorney general's office, which believed that information should be more, rather than less, accessible. The ten-year debate over the legislation encouraged the development of ideas beyond the "snapshot" approach of an environmental audit, to the ongoing, reiterative process promoted by an EMS. The EMS approach creates an ongoing responsibility. Transparency, reporting, and accountability are fundamental to the program that was developed last year.

Two issues that business is concerned about are "risk" and "reputation". The disclosure of information can affect both. PRTR-type disclosure requirements (and transparency in general) may have done more to transform business than all the enforcement actions together. Business in the U.S. objects to the very narrow approach taken by the Toxics Release Inventory (TRI) – they believe that it is not indicative of environmental performance as a whole. The list of reported substances is self-limiting, as would hold true for any discrete list of substances: the lists don't account for sustainability and don't provide the whole picture.

Ed Quevedo's four models of EMS design are a very constructive way to discuss the Arizona law, as well as how the CEC guidance document can fit into that. The four tiers in EMS design have a lot to do with the degree of government participation, be it encouragement or neglect. If an EMS will pay for itself within three years, then government would have to do very little to encourage industry to adopt an EMS. Tier 1 (conformity) has no value in Arizona, which offers no recognition for companies performing at this level. Tier 2 (compliance) – a due diligence standard – is designed into an EMS and is recognized by Arizona, which offers some incentives. With Tier 3 (environmental performance tier) – compliance + performance, the company may be entitled to more incentives. Tier 4 – (sustainability) would be recognized by Arizona with the maximum amount of incentives.

Arizona's Voluntary Environmental Performance Program is implemented by a binding contract between the industry and the government, with participation from the public, guaranteeing incentives in return for an industry's commitment to performance. Contracts are used to ensure that they are legally binding and able to transcend political changes. Public participation is required in the design of EMS, and in contract negotiation as well. The idea was that policies and

programs alone were not sufficiently secure. Participation in the program itself is voluntary, but once a company agrees to participate, its behavior is then legally bound. When companies report a non-compliance there may be penalty mitigation, though the company is still required to pay for cleanup costs. They still must report, but if the infraction is minor, they might not face public disclosure. An upcoming seminar on the use of technology and information management, at the NYU School of Law, focuses on new ways of monitoring, such as remote sensing. These new monitoring technologies will fundamentally alter our ways of thinking about reporting and compliance.

EMS RELATED ACTIVITIES IN CALIFORNIA, KEITH SMITH

California EPA is testing the thesis that EMS can be used by government to move toward sustainability. The Agency decided that its existing way of doing business is not generating sufficiently rapid environmental improvement to achieve a sustainable environment, and has developed a new vision of sustainability and comprehensive resource management. Their intent is to test the feasibility of an integrated approach to the identification, prioritization, and management of risk at the state level, using a variety of regulatory and non-regulatory tools. Cal/EPA is using a simple framework: pressure, state, and response. They are looking at a wider range of pressures than the current "command and control" system addresses, and will seek to design, for each of those pressures, a response that integrates activities in all media using a wide variety of improvement approaches. The Agency believes there is no single best way to achieve environmental protection and that the intelligent combination and timing of tools (i.e., enforcement, technical assistance, incentives, collaborative partnerships, etc.) will produce better environmental results.

Cal/EPA will focus first on identification of the environmental and resource pressures, such as water, air, waste and hazardous materials. For each pressure area they will compile a comprehensive data set looking at trends and projections as well as the state of the systems in place to manage each pressure. The Agency will further analyze pressures to determine the sectors most responsible and seek out examples of best practices. This will lead to a set of priority areas for action with long-term goals, targets and timetables. Cal/EPA is seeking to enhance public understanding about each of these environmental areas and track progress through the development of a set of environmental indicators. Environmental performance in each area will then be addressed through a linked set of regional, business sector and facility-based strategies.

Cal/EPA's California Sustainability Plan will outline long-term goals for improvement in each selected area and will specify numerical targets and identify appropriate strategies. This approach will be replicated at the regional level through development of a regional EMS. In essence, each regional EMS (and its concomitant policy) would seek alignment with the overarching state goals and targets as well as address issues of regional importance. At the business sector and facility level, companies would be encouraged to align with state and regional targets. "Sustainable Silicon Valley" is an example of a regional plan, whose goal is a fully documented regional EMS, with action, in partnership with local business sectors, to achieve significant and measurable improvement in one or more environmental areas. Facility-based Environmental Performance Excellence establishes partnerships to achieve beyond-

compliance performance in specific environmental or resource areas at a single facility. It is a very inclusive and public process in California. Every pilot EMS in the program has public and NGO participation.

Cal/EPA's EMS-based and voluntary programs will always start from the floor of compliance with current laws and regulations. EMS and voluntary programs should emphasize compliance but should also encourage performance far beyond compliance.

Finally, the Agency is seeking to become an example of Green Government through the development of an Agency-wide EMS. The Agency has a wide variety of environmental and resource impacts and is therefore is committed to practice what it preaches.

EMS AND PUBLIC POLICY: AN NGO PERSPECTIVE, JASON MORRISON

The Pacific Institute's research to date has focused on private sector EMS and regulatory innovation in the U.S. The Institute is a proponent of the use of EMS in voluntary regulatory programs, but has some concerns about their misuse. In Spring 2000, the Institute published "Managing a Better Environment: Opportunities and Obstacles for ISO 14001 in Public Policy and Commerce." Major research findings of the study are the topic of this discussion.

EMS can further principles of sustainable development by reconciling economic with environmental and social goals. They do so by incorporating environmental considerations into day-to-day business decisions. EMS in general can help regulatory agencies achieve policy objectives. EMS can also facilitate new partnerships and improved relationships among stakeholders. Other potential benefits of an EMS include the notion that they are comprehensive, systematic, and documented, and therefore can withstand changes in personnel at a company. EMS allows for continual improvement in environmental performance (e.g., beyond compliance) and can address the entire product system (e.g., supply chain management). They are also typically multi-media in scope, including non-regulated environmental impacts.

ISO 14001 can serve as a valuable internal management tool, but its external uses are limited. Given that it was not written as a policy instrument, ISO 14001 alone cannot satisfy a number of public policy objectives. The credibility and value of ISO 14001 is undermined by the absence of a meaningful public reporting requirement. Certification will have limited meaning to external audiences until it is sufficiently linked with environmental performance through reporting. ISO 14001 does not address societal expectations for corporate accountability and it fails to keep pace with the international trend toward increased transparency. ISO 14001 certification does not denote environmental excellence, as there are no performance requirements in the standard.

Examples of EMS-based Policy Innovation in North America include:

- Multi-State Working Group on EMS
- Arizona – Voluntary Environmental Performance Program
- California – EMS Innovations Initiative
- Oregon – Green Permits Program
- Wisconsin – Green Tier
- U.S. EPA's National Environmental Performance Track

- Mexico PROFEPA's "Clean Industries" Program
- CEC 10 Elements of Effective EMS Guidance Document
- "Seven Principles of Environmental Stewardship for the 21st Century" (signed by the U.S. EPA, SEMARNAP, Border Environment Cooperation Commission, US-Mexico Chamber of Commerce)

A policy statement released by the MSWG in January 2000 describes the relation between EMS and information on the environmental performance of organizations. Principle 4 of the statement notes, "EMS performance metrics can document improved environmental performance, which may enable regulatory agencies to achieve policy objectives more efficiently and improve communications with the public." It further explains the EMS can enhance regulators' ability to determine whether organizations are meeting or exceeding legal requirements, provide better information to the public on the nature and extent of the public health and environmental effects of an organization's activities, as well as how organizations are managing for the environment. Transparency can build public confidence and facilitates regulators' ability to work with regulated entities on EMS-based regulatory initiatives

There are a number of key elements that are similar across many of the EMS-based environmental regulatory programs. They are multi-media and facility-wide, and usually involve the company achieving "superior environmental performance" in return for regulatory incentives and/or positive recognition. ISO 14001 is used with additional components built around it. For example, many of the programs include environmental performance reporting and requirements for stakeholder participation. From an NGO perspective, the benefits of such EMS-based programs include better environmental performance and data for the public, the potential for companies to move beyond compliance, and improved relationships among companies, regulators, and NGOs. The drawbacks include the potential for regulatory "rollback," the concern that voluntary self-enforcement may be ineffective, and that there is a lack of transparency in some emerging programs.

SESSION 5: INDUSTRY INITIATIVES TO PROMOTE CORPORATE ENVIRONMENTAL RESPONSIBILITY

LAWRENCE SPERLING, MODERATOR

The "Seven Principles for Environmental Stewardship" were developed through the Border 21 program. This program included industry participation as a goal and had several working groups interacting with industry, but needed a coordinated strategy for engaging industry on improved performance and accountability. The goal was to be strategic by addressing complex challenges through the engagement of the private sector. It is hoped that the new administrations in Mexico and the U.S. will develop a new and even more effective border program.

Some of the principles are very relevant to the discussion of this meeting. Principles One through Four promote development of a sound, performance-oriented EMS, supplemented with a full range of tools such auditing, pollution prevention evaluation, employee training, and performance measurement, to ensure that core performance goals, such as compliance, pollution prevention, energy efficiency, and improved overall performance, are actually

implemented. Principle Five talks about public accountability, including reporting on releases and overall environmental performance, and having a two-way dialogue. Principle Six encourages working together within and among industries. Principle Seven talks about investing in sustainable development in the local community, for example, in the areas of health, infrastructure, and education.

The Seven Principles provide a template for improved accountability and performance in the private sector. The Principles and the CEC's Ten Elements of an EMS guidance document come from the same cloth. The CEC Guidance document is a more detailed expression of the Seven Principles' concept of a well-designed performance-oriented EMS, which is effective to achieve public policy objectives, whereas the Seven Principles add to this notion of performance beyond the facility's door. The two documents are consistent and compatible.

SEVEN PRINCIPLES OF ENVIRONMENTAL STEWARDSHIP, CHARLES CERVANTES

The US-Mexico Chamber of Commerce has made a point of encouraging NGO participation in environmental management in the border region. It believes that the greater the participation, the better the product. Among the Chamber's efforts have been outreach workshops to bring in service providers to talk with industry, an agreement with major financing to stop pollution from tanneries in the Rio Turbio watershed, and an ISO 14000 workshop in Mexico City partnering large companies with smaller companies.

The Seven Principles of Environmental Stewardship implementation plan features a strategy of inclusiveness as the best way to implement the program, to institutionalize the process and reduce redundancy. The Chamber of Commerce has identified experts and performed stakeholder outreach for environmental management in the border region, though to date, two groups have been left out of the process – native groups and colonias. The plan is to better connect those interests in the future. It is important to point out that the Seven Principles assume compliance with legal requirements, and in fact the Principles encourage companies to go beyond compliance. The Chamber believes that positive achievement should be rewarded. See www.usmcoc.org for further information.

THE CHEMICAL INDUSTRY'S RESPONSIBLE CARE PROGRAM, ALEJANDRO LOREA

The Responsible Care Program is geared to incorporate environmental considerations within industrial operations. The Responsible Care Program began in Canada in 1984 in response to local concerns and the industrial accident in Bhopal, India. Since then 45 countries worldwide have adopted it; Mexico adopted it in 1991.

Mexico modified the program slightly, to require that all Asociación Nacional de la Industria Química (ANIQ) companies become members of Responsible Care. The program has developed two tools to measure progress in achieving environment protection goals: self-assessment by each member, and an external verification process, which ultimately leads to third party verification. There are currently more than 220 members in ANIQ. They are in the process of their fifth self-assessment period, with 106 member companies participating at that stage. The program formally began in 1995 with six regulations, addressing issues such as safety and

pollution prevention, transportation and distribution, and product safety. The objective is to finish implementation by 2002.

The program benefits from external verification and a related training program for people at the plants (as well as independent advisors) to provide the skills for performing environmental audits. Over time, third parties will conduct all verification audits. They presently have five companies that have entered into the phase of third party verification. The companies that are not presently reporting are primarily medium and small businesses. To address their needs, ANIQ has established a free diagnostic program, to assess compliance and educate about regulatory requirements. The program emphasizes continuous improvement, with the goal of not allowing companies to fall behind.

Implementation of Responsible Care in Mexico has been difficult in some cases, due to regional, cultural and financial differences. The program, therefore, needs to adapt to local conditions. It is also important to realize that relationships with the community are different than in other countries. The ultimate goal of the company is to add value. If the programs do not add value in terms of quality of life or general environmental improvement, then the company is not attaining the goal of the general community. Communication is a critical factor that must be included.

There are demands on the part of government and competitors to address environmental impacts, but not as much from the community at large. However, this does not mean that ANIQ does not take the community into consideration. This is an area where they need more progress in establishing a communication process for all parties. The importance of community involvement has increased dramatically in Mexico over the past ten years. Some of the demands are financial because of the inconvenience the company causes the community. All the Seven Principles speak directly or indirectly of the relationship to the community. Industry needs to respond to community concerns in a timely manner. They need to have a more effective and proactive discourse. They also need to place this in the context of Mexico's national experiences and cultural norms, to see whether it works here. ANIQ does not want to have to wait until forced to act – it wants to collaborate now.

PRTRs are not going to be established in Mexico immediately. They are still in the construction phase, finding solutions that will allow them to operate in the future. With the situation differing from state to state, solutions need to be tailored to local situations. PRTR proponents need to take a long term view and to work towards strengthening the values that will build a change process.

ENVIRONMENTAL JUSTICE AND PUBLIC INVOLVEMENT IN INDUSTRY TOOLS FOR ENVIRONMENTAL MANAGEMENT, LUIS VERA MORALES

Environmental management is the integrated management of protection, preservation, rational use and restoration (PPARR) of the environment, and of all natural resources in their different relations: man to nature, and environment to development. The components of Environmental Management (EM) are:

- **Politics**, as an instrument to obtain the "Common Good"

- **Law,** which collects and catalogs EM into norms and insures the access to mechanisms that guarantee its correct application.
- **Government,** which implements and executes the environmental policy as established by the legal body.
- **Population**, which is the beneficiary of the "Common Good."
- **Territory,** which is the physical space for the natural resources required to satisfy human needs, a requisite for obtaining the "Common Good", and the essential milieu for all the activities of the population and the government.

When viewed as comprising these five components, Environmental Management is integral and integrative. It requires a certain amount of centralized planning to set priorities and establish environmental policy and instruments to implement such policies. The complexity of the system requires that it be applied in an interdisciplinary and synergetic way.

The Common Good means different things to different societies. Its components change in accordance with the composition of society, its level of development, its immediate and mid-term needs, and on the human and material resources available in a given moment in time. Therefore, an EM promotes the Common Good is constantly working, building, and adapting. The notion of integrality requires that EM be intra- and inter-governmental. It requires a certain degree of central planning, yet a decentralized implementation that addresses local interests. However, there are problems with decentralization, such as a fragmented public administration that gives a lower priority to environmental issues when facing immediate interests (production, employment, etc.), a lack of real political will to support decentralization, limited local financial, technical and human capacity, a deficient judicial – administrative structure, and a poorly understood scope of EM.

The 10th Principle of the Rio Declaration on Environment and Development (Earth Summit, Rio de Janeiro, 1992) states:

> Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

EM is essentially participative. It involves civil society in the decision-making processes that affect it, and in its enforcement. Thus, effective community participation informs the decision-maker and legitimates the decision. It requires an advanced democratic system with institutionalized access to justice. To be effective, community participation has to be informed. The information has to be accurate, relevant and available. Article 6 of the Mexican Political Constitution guarantees the Right to Know.

In principle, all types of information should be available, including primary data and geographical information on the environmental and physical conditions of the territory. Article 8 of the Constitution guarantees the right to petition for information, and provides for a review process. This can be done through an application for Environmental Information. There are some pending problems regarding the specificity of information and a definition of responsibilities.

Social participation is not insured solely through the recognition of the fundamental right to an adequate environment, nor are mechanisms to participate, as contemplated in the environmental legislation, sufficient. The exercise of judicial action should be possible to private individuals in order to ensure all rights are respected Constitutional and ordinary courts should be provided with procedure tools to procure environmental justice.

Proposed changes include:

- Constitutional Environmental Justice: *Modify the principles of the Protection Law*:
  - Violation of individual guarantees by law or through acts of authority. *Protection should be granted against particular violating acts of the guarantee for a clean environment.*
  - Legal Standing. *In regard to environmental matters, individual and collective rights should be recognized.*
  - Definitiveness of claimed act. *Ignores the precautionary principle that rules the environmental law and which is a principle of environmental policy adopted by Mexico.*
  - Relativity of sentences. *The sentence should benefit all the offended parties*
- Civil Justice
  - Re-formulate the concept of damage (damage suffered versus damage caused)
  - Balance of technical resources regarding probation matters
  - Re-definition of responsibility limitation theories
  - Creation of ad-hoc defense agencies
- Reviewing the design / engineering of civil participation (efficiency) and the real impact on decision-making.
- Improvement of instruments to obtain, capture, classify and distribute the information (RETC, SIRG, LAU, COA).

These changes would make citizen participation a reality by allowing access to environmental justice (Constitutional, civil, administrative), and by providing procedural actions at a Constitutional and ordinary level, to permit the defense of the right to a healthy environment

TEARING DOWN THE WALLS, WALT PLATKUS

Platkus' firm - Square D - has two pilot projects: "Tearing Down The Walls," a process of measuring environmental performance; and "Sustainability Through Environmental Partnerships," to fold suppliers into a larger company's EMS. Both of these show a lot of potential. The idea of the first project is to work locally, from the bottom up, with industry, government, and community sectors, tearing down the walls between them to work cooperatively. This project uses the elements of Industria Limpia, ISO 14001, and the Toyota Production System (building on small incremental change). The second project involves changing the culture of suppliers by rolling them into a larger, host company EMS program.

Why is there a need for change?

- Public dissatisfaction with the current situation
- Government dissatisfaction with the results
- Industrial dissatisfaction with the results
- Regulatory goals are not tangible, are disconnected from the community

- There is a disconnect between perceived improvement and measurement systems for the state of the environment

It is important that there be consistency in measurement, in order to create a baseline for evaluating trends and making comparisons across different types of operations and sectors. This process consists of:

- A set of internal measures for industry - based on continuous improvement
- A set of internal measures for the community - based on needs and continuous improvement
- A structure to measure this performance
- Public disclosure of results

The project represents a system where the people in the community, the environment, and industry all win.

SESSION 6: REPORTS FROM WORKING GROUPS

Workshop participants divided themselves into five working groups, to develop recommendations that could be reported back to the group as a whole. To facilitate communication, two of the groups were further divided into English and Spanish-speaking sub-groups. Following are the challenges – identified over the course of the workshop – the working groups were asked to address, and the recommendations offered by each.

WORKING GROUP 1 – ESTABLISHING TRUST AND FORGING ALLIANCES

Recommendations:

1. Identify interests and common needs of all stakeholders.
2. Facilitate the flow of objective, quality information among stakeholders.
3. Create permanent mechanisms for interaction among stakeholders, including mechanisms for communities to participate in environmental decision-making.
4. Promote transparency among all stakeholders.
5. Identify and take advantage of stakeholders that are interested in a dialogue, to strengthen communication.
6. Include stakeholders that are often overlooked or excluded, such as unions and boards of representatives.
7. Establish formal commitments between stakeholders, with follow up and progress reports.

WORKING GROUP 2 – ESTABLISHING TRUST AND FORGING ALLIANCES (ENGLISH SUBGROUP)

What builds trust is a credible and robust information infrastructure that can be understood, shared, and analyzed by all parties, including the public.

Recommendations:

1. NACEC should lead the development of case studies of mechanisms for community-industry-government partnerships.

2. Establish the essential legal foundation for PRTR – a framework that articulates the minimum legal components, as well as the information and performance components that need to be in place in order for trust to be built and maintained among stakeholders.

Strategies:

1. Establish multi-stakeholder advisory committees, build on existing committees and processes. Have clear terms of reference for such committees/mechanisms
2. Foster means through which all stakeholders can learn about each other's concerns and needs
3. Build the legal or policy framework needed for a sound information infrastructure, transparency and trust
4. Ensure government involvement
5. Level the playing field of what is disclosed
6. The framework should have a regulatory foundation as well as incentives for improved performance
7. Pollution prevention should be the underlying principle for industry and government
8. Identify the goals and measures of performance
9. Build into the framework corporate ownership and tracking of environmental performance of specific facilities
10. Look for win/win solutions for all sectors (employer-assisted housing, savings programs, low interest loans, public service infrastructure)
11. Start with leader companies to model enhanced performance
12. Promote collaboration among all stakeholders to help raise the hierarchy of environmental issues on the political agenda
13. Work locally, nationally and regionally
14. Identify interdependencies and focus on opportunities for mutual benefit

WORKING GROUP 2 - ESTABLISHING TRUST AND FORGING ALLIANCES (SPANISH SUBGROUP)

What drives industry to prevent pollution and improve the environment?

1. financial and economic incentives.
2. market pressures to comply and exceed standards.
3. international certification as a condition to sell.

Standards, norms, and certificates cannot guarantee that there will be no contamination.

Recommendations:

1. Identify and harmonize benefits for industry with benefits for the environment.
2. Multi-sectoral, multi-disciplinary environmental education for industry and community groups.
3. Improve communication among sectors.
4. Increase funding for human resources at INE and SEMARNAP.
5. Employees are the best representatives of industry – hold "open houses" to inform the community.
6. Must go beyond competition, to sharing experiences and successes with processes and actions.
7. Promote continuous improvement and the correction of errors.

8. Should not only be critical – important to be positive as well.
9. Authorities should give a greater weight to public rather than private interests.
10. Expenditures on pollution prevention should be viewed as an investment, generating savings such as less generation of waste, more efficient use of water, energy, and labor, and avoiding fines. Optimizing processes results in reduced production of waste and greater efficiencies.
11. Need to internalize the environmental and social costs of pollution. This will reduce the risk that clean companies will suffer a competitive disadvantage.
12. Inform small businesses of existing programs.

WORKING GROUP 3 – USE AND INTEGRATION OF PRTR AND EMS – (ENGLISH AND SPANISH SUBGROUPS)

EMS can assist in collecting, handling and reporting PRTR data.

Conclusions:

- EMS is a tool to collect and monitor PRTR information.
- PRTR is a subset of the environmental performance information that is collected and used in an EMS. For example, most EMS also address inputs, such a energy and raw materials usage.

Recommendations:

- Promote the use of EMS as a PRTR information management tool.
- When governments create a recognition program that involves EMS, PRTR should be one of the sets of information reported.
- Design an EMS to avoid duplication in PRTR reporting.
- All government agencies should use EMS.
- Provide training about PRTR and EMS implementation. There is also a need for all stakeholders, including the public, to better understand and utilize PRTR information.
- Reactivate the "Grupo Nacional Coordinador" and invite participation from interested sectors.

PRTR AND EMS: MAJOR DISCUSSION THEMES AND RECOMMENDATIONS

Each of the panels included question and answer periods and general discussion. The major themes of these discussion sessions, as well as recommendations made by participants, are summarized below.

STRENGTHS OF EMS AND PRTR; OPPORTUNITIES FOR LINKAGES

- PRTR has taken hold internationally and there is a growing emphasis on getting information to the public in accordance with the principle of public right-to-know.
- North America is a global leader with respect to PRTRs. Canada and the United States have well-established mandatory PRTR systems that support the public's right-to-know. PRTR reporting is at a first phase in Mexico under the currently voluntary federal system, and various Mexican states have expressed an interest in establishing PRTRs.
- EMS can be a useful environmental management tool to help generate information pertaining to environmental health and performance. An EMS can also help reduce worker illness and accidents.
- PRTR has a proven history of reducing distrust among sectors and empowering the community.
- PRTR and EMS can lead to competitive advantages and generate added value for businesses that provide environmental information publicly.
- When companies implement an EMS, they are promoting environmental training to a greater degree, focusing toward cleaner production and pollution prevention. Educating people to act in favor of the environment is a positive step. SMEs can take advantage of the expertise from larger companies.
- PRTR strengthens government agencies' ability to make policy decisions. There is also an opportunity for government to use EMS for promoting better environmental performance.

LACK OF CONFIDENCE/TRUST AND COMMUNICATION BETWEEN SECTORS

- A lack of mechanisms that make public participation feasible has led to distrust among sectors. Communication mechanisms are needed for improving confidence among various stakeholder groups.
- An important obstacle to PRTR is industry's resistance to being observed. This stems from a lack of trust. Industry is uncomfortable with allowing access to information that they fear could at some point be used against them. Industry in Mexico is concerned that PRTR may affect trade matters, although there is evidence that TRI has not affected trade in US.
- Certain myths have been perpetuated, such as that industry not interested in the environment. Defining mutual goals can help build trust.
- From an NGO/public perspective, verification and validation are key. In some cases, there is no ability for the public to get the data that is used in these EMS systems to verify that these findings are true.
- NGOs in general are not satisfied with the voluntary approach and are concerned the programs continue despite an unproven track record. Government should not be providing incentives and rewards to industry for doing what it is supposed to do. ISO 14001 is treated with skepticism– people don't know what ISO means.

- There is a need to strengthen government agencies in charge of environmental regulation; it is inspections and reviews that will affect the behaviour of companies –more than tax incentives and such.
- There are numerous serious air and water problems in Mexico and lack of information causes some of them to persist.
- Value of EMS-based programs is that they allow NGOs and government to focus on the laggards rather than the achievers. EMS is not an end in itself, but rather a means to achieve greater environmental goals. All bets are off if there is no guarantee that the information is accurate.

Opportunities for meaningful NGO/public participation and strengthening of industry-community interactions

- NGOs can serve as promoters of regulatory schemes, they can work with industry at a consultative level, and have an important role to play in educating the community.
- Community-based organizations can help detect environmental problems, report them, and bring forward community concerns regarding environmental health.
- Community outreach and mechanism to include NGOs should be addressed at the outset.
- Provide training and environmental education programs for both industry and communities
- Use environmental coordinators from leading industry to initiate outreach.

LIMITATIONS OF VOLUNTARY PROGRAMS

- A number of participants expressed the view that PRTR needs to be mandatory in Mexico.
- Some participants felt that a regulatory framework is needed, and expressed concern about voluntary commitments, which have not proved to be very successful.
- The NGO role is to push the government to ensure environmental protection and right-to-know. PRTRs can serve as catalysts in this regard.
- According to INE, close to 2,500 industries reported, but not all sections are mandatory, and only 1,500 reported the full registry. For many companies, the quality of data was not usable.
- Well-designed voluntary programs call for a certain level of mandatory commitment once companies enter. The Arizona program, for example, is not a voluntary program once you opt in –it is contractual.
- While some were concerned that voluntary programs cannot *guarantee* public participation or third party verification of environmental results, others believed that voluntary programs were preferable to mandatory ones. Some felt that the creation of equivalent mandatory programs is not feasible under the current regulatory or political climate – voluntary programs are the only political reality.
- The millions of pages of mandatory regulation don't guarantee results either. Voluntary actions can be effective in the right conditions.
- Profepa is asking companies to go *beyond* compliance in its Industria Limpia program. Its voluntary nature is one of its positive aspects.

Finding creative and proactive ways to disclose information, create incentives and build trust

- Promote cooperation between industry and the community – increase the number of partners and diversify the dialogue to include community representatives.

- Voluntary programs such as EMS can provide advantages for the companies that provide information. Other countries have examples of voluntary reporting that have been successful.
- Since the number of industries that voluntarily provide information is small, there need to be other incentives to encourage participation.
- Organize standing working groups and continue to work on this issue.
- No basis for trust without effective verification. There should be no incentives without accountability. Governments shouldn't promote EMS without accountability. Such programs need a public oversight component.
- Use existing sources of financing, such as funds for pollution prevention projects directed at small and medium-sized industries.
- There is a need for policy mechanisms that will internalize social and environmental costs in the costs of doing business.

USE AND UNDERSTANDING OF PRTR DATA NEEDS TO BE EXPANDED AND FACILITATED

- Right-to-know is basic principle, and PRTR data should be publicly accessible as reported. However, there is also an obligation of authorities to keep the community informed with meaningful information.
- Communities need to be able to access, utilize and understand PRTR information, which may require training and capacity building. The principle of right-to-know has been in Mexico's constitution since 1917, however, if citizens don't have tools, this right can't be exercised.

Limitations of PRTRs

- One limitation of PRTR is that is limited in scope. Not all compounds and sources are covered. Often PRTRs are not integrated with other similar reporting mechanisms
- Taken alone, PRTR data do not address cumulative impacts for a municipality or region.
- A PRTR number by itself is not necessary indicative of company performance, as various things can change, such as production levels.
- Various models of PRTR are not consistent internationally.

Action needed to promote awareness and use of PRTRs, EMS and other environmental management tools

- Hold workshops that disseminate information to different social groups.
- Hold an Internet conference on the subject of PRTR.
- Develop and disseminate case studies of best practices
- Actively include the workers of a company, so that they are part of the program.
- Use the experiences in the U.S. and Canada to promote pollution prevention activities. The recent creation of technical centers in Mexico proves that it is not starting from zero, however, challenges are to provide greater credits and have increased training.
- Develop a policy framework for sustainability that incorporates PRTR as a mechanism to inform about regional environmental impacts.

LACK OF KNOWLEDGE AND RESOURCES TO IMPLEMENT PRTR AND EMS, PARTICULARLY IN SMALL AND MEDIUM BUSINESSES

- Limited financing and support.
- Lack of trained personnel.
- Certification to Industria Limpia and ISO 14001 can be cost prohibitive for SMEs.

- Cost and time of EMS implementation and recovery of investment.
- PRTR requirements could be adjusted according to the size and complexity of the industry.

LACK OF SCIENTIFIC INFORMATION AND OTHER DATA UPON WHICH TO BASE SOUND POLICY DECISIONS

- It is very difficult to assess impacts on a community in general.
- There is often a lack of epidemiological studies, health and environmental statistics, toxicological knowledge and other types of information
- Difficulty in measuring and determining costs to public health, impacts on reproductive and child health, etc.
- Lack of medical record keeping on industrial accidents and occupational illness.
- Inadequate methodology to evaluate social costs

CONCLUDING REMARKS, ADOLFO GONZÁLES CALVILLO

M.C. Adolfo Gonzáles Calvillo commended the presenters on the information shared during the workshop. He stressed not only the fundamental importance of the quality of the information for the tools discussed but also the need for building the bridges of trust to share and use the information for better environmental quality. These bridges or alliances enable all concerned to learn from experiences both successful and unsuccessful. He noted the many comments on creating better mechanisms for public participation and promoting greater use of tools such as EMS and PRTR and hoped that the current efforts in reforming state law in Baja California would follow the trends outlined in the conference.

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APPENDIX B: GUIDE TO INFORMATION ON ENVIRONMENTAL MANAGEMENT SYSTEMS, PUBLIC POLICY, AND CORPORATE ENVIRONMENTAL MANAGEMENT

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1. AGENCIES AND ORGANIZATIONS ASSESSING THE USE OF ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS) IN PUBLIC POLICY

PROFEPA's Clean Industries Program

The Federal Attorney for Environmental Protection (PROFEPA) inspects and monitors the fulfillment of environmental and natural resource laws, rules and regulations as they apply to fishing and marine resources, forest resources, flora and wild fauna, and protected natural areas. In 1992, PROFEPA launched its National Environmental Audit Program, which was formally established by legislation in 1996. The voluntary program takes an integrated approach to evaluating firms' environmental performance, including pollution control and prevention, risk management, and health and industrial safety. Firms that pass the requirements of the government audit program are awarded a "Clean Industry Certificate," which is valid for two years. More information on PROFEPA and its Clean Industries Program can be found at:

http://www.profepa.gob.mx/

Multi-State Working Group (MSWG)

The MSWG represents a broad coalition of stakeholders interested in EMS and regulatory programs. State and federal environmental regulatory agencies, non-governmental organizations (NGO), industry representatives and professionals from academia comprise its membership. It is a leading voice in discussions surrounding issues such as EMS effectiveness, the applicability of EMS in environmental regulation, and the involvement of NGOs in international EMS standards development. The purpose of the organization is:

"To conduct research on the ability of environmental management systems to improve the state of the environment and the economy and to evaluate their utility in public and private policy innovation. The MSWG should accomplish this through efforts that:

1. *Collect evaluate, and disseminate credible data from pilot projects;*
2. *Consider new models of managing environmental risk, measuring environmental performance, and reporting environmental data;*
3. *Facilitate communication and networking;*
4. *Encourage partnerships; for the mutual benefit of the environment, the economy, and the community."*

MSWG members meet quarterly to discuss issues related to environmental management systems and ISO 14001 as well as the use of EMS in innovative regulatory programs. The MSWG website provides information on the group's research projects, vision and operating principles, meeting minutes, and events.

http://www.dep.state.pa.us/dep/deputate/pollprev/mswg/mswg.htm

Examples of U.S. State and Federal EMS-based Voluntary Programs

Since the mid-1990s, several states in the US, as well as the U.S. federal government, have launched pilot programs involving Environmental Management Systems. The following websites provide information about various aspects of select state and federal U.S. programs. These aspects include:

- Program conception and history;
- Program Design (i.e., requirements and benefits);
- Status to date (e.g., facility participants, facility environmental reports); and
- Program application materials

Wisconsin's Environmental Cooperation Pilot Program

http://www.dnr.state.wi.us/org/caer/cea/ecpp/

Oregon's Green Permits Program

http://www.deq.state.or.us/programs/greenpermits/greenpermits.htm

California's EMS Innovations Initiative

http://www.calepa.ca.gov/ems/publications/1st_qrt.htm

Illinois' Regulatory Innovation Pilot Program

http://www.epa.state.il.us/regulatory-innovation/overview.html

Connecticut's Exemplary Environmental Management Systems Act

http://www.cga.state.ct.us/ps99/act/pa/1999pa-00226-r00hb-06830-pa.htm

North Carolina's EMS Pilot Program

http://www.p2pays.org/iso/mswg/index.htm

U.S. EPA Region 1's StarTrack Program

http://www.epa.gov/region01/steward/strack

U.S. EPA's National Environmental Performance Track

http://www.epa.gov/performancetrack/

2. EXAMPLES OF CORPORATE ENVIRONMENTAL MANAGEMENT

For general information about sustainable environmental business practices, you can visit websites such as *Sustainable Business*.

http://www.sustainablebusiness.com

Additionally, in the US, many large corporations have made addressing environmental issues a major initiative. The websites below provide examples of information on topics such as corporate environmental policy, specific environmental programs, and environmental reporting.

3M
This site contains corporate environmental health and safety facts, environmental newsletter and information about 3M's corporate pollution prevention program.

http://www.MMM.com/profile/envt

Ford Motor Company
This site provides users with information on subjects including "cleaner" manufacturing, "cleaner" vehicles, the company's global environmental management initiatives, a corporate citizenship report, and the company's environmental policies.

http://www.ford.com/
search site using key word: ENVIRONMENT

Home Depot
This site has links to web pages that outline the company's environmental milestones, recycling initiatives and its efforts to educate consumers about "green" products. It also explains the company's participation in the Forest Stewardship Council's certified lumber program.

http://www.homedepot.com
search site using key word: ENVIRONMENT

3. ENVIRONMENTAL STANDARDS AND PRINCIPLES

International Organization for Standardization (ISO)
ISO is a well-established, non-governmental body representing the national standards setting organizations of 112 countries. Its Technical Committee 207 (TC 207) is responsible for developing the ISO 14000 series of environmental management standards.

http://www.iso.ch/

American National Standards Institute (ANSI)
ANSI is responsible for organizing and coordinating the United States private sector voluntary standardization system. Its site presents information on frequently asked questions concerning ISO 14000 and through it, users can order official ISO 14000 standards and related documents.

http://web.ansi.org/public/iso14000/default.htm

Standards Information Service of Canada (SCC CA)
This site provides links to information on Canadian standards as well as regulations relating to the North American Free Trade Agreement (NAFTA) and the World Trade Organization (WTO).

http://www.scc.ca/

American Chemistry Council (ACC), formerly the Chemical Manufacturers Association (CMA)

The ACC is the industry group representing the majority of the nation's chemical companies. It represents the chemical industry on "public policy issues, coordinates the industry's research and testing programs, and administers the industry's environmental, health, and safety performance improvement initiative, known as Responsible Care."

The Responsible Care program began in 1988, as part of the industry's response to public concerns about the manufacture and use of chemicals after a major industrial accident at a Union Carbide facility in Bhopal, India. Participants in the program commit to support a continuing effort to improve the industry's responsible management of chemicals. Responsible Care is an obligation of membership in the American Chemistry Council, and requires member companies to:

- Continually improve their health, safety and environmental performance;
- Listen and respond to public concerns;
- Assist each other to achieve optimum performance; and
- Report their goals and progress to the public.

http://www.cmahq.com

Click on Responsible Care icon

Coalition for Environmentally Responsible Economies (CERES)

CERES is a "non-profit coalition of investors, public pension funds, foundations, labor unions, and environmental, religious, and public interest groups working in partnership toward the common goal of corporate environmental responsibility worldwide." The organization has developed a wide-ranging set of environmental principles that define "an environmental ethic with criteria by which investors and others can assess the environmental performance of companies." Organizations subscribing to these principles pledge to go voluntarily beyond the requirements of the law. Information on the CERES principles, as well as participating organizations, events, publications, and environmental reporting, can be found on its website.

http://www.ceres.org

Global Reporting Initiative (GRI)

The Global Reporting Initiative (GRI) is an international, multi-stakeholder effort to create a common framework for voluntary reporting of the economic, environmental, and social impact of organization-level activity. The GRI mission is to elevate the comparability and credibility of sustainability reporting practices worldwide. The GRI incorporates the active participation of businesses, accountancy, human rights, environmental, labor, and governmental organizations.

http://www.globalreporting.org/index.htm

4. INFORMATION CLEARINGHOUSES

There are also many sites that house general information on pollution prevention, cleaner production, environmental management systems, and general environmental management. The ones below are just examples of what's out there.

ISO 14000 Infocenter
This commercially sponsored site offers users information on topics including companies registered or certified to ISO 14001, a discussion list, a list of companies encouraging vendors to certify to the 14001 standard, names of 14001 registrars, and other links to ISO 14000-related sites.

http://www.iso14000.com

Canadian Pollution Prevention Information Clearinghouse
This site provides information on general pollution prevention concepts, common problems and solutions, reports and updates, success stories, and awards.

http://www3.ec.gc.ca/cppic/index_e.htm

U.S. Department of Energy's Pollution Prevention Clearinghouse
This site contains links to information on P2 conferences and workshops, energy efficiency, sustainable design, training, recycling, and much more. It also houses links to international P2 sites, such as the United Nations Environment Programme.

http://epic.er.doe.gov/epic

Environmental Defense's Scorecard
The Scorecard is an information service provided by Environmental Defense (formerly EDF). Visit the site and enter your zip code to find out the some of the major measurements of ecological health in your community. You will be shown some key measurements of watershed health, pollution sources, chemical releases, etc. – and they name names!

http://www.scorecard.org/

5. EMS-RELATED RESEARCH

National Database on Environmental Management Systems (NDEMS)
With support from the U.S. Environmental Protection Agency, the Environmental Law Institute (ELI), in conjunction with the University of North Carolina, Chapel Hill, ten

state environmental regulatory agencies, and more than 100 public and private regulated entities is conducting one of the nation's largest studies on the influence of EMS on economic and environmental performance. The research goals of the project include addressing issues such as:

- How does the adoption of an EMS (ISO 14001 or otherwise) affect organizational performance?
- How are indicators of local, regional, and global environmental conditions incorporated into the development of an EMS?
- What is the relationship between regulatory compliance and EMS adoption?
- What economic costs and benefits do facilities accrue as a result of EMS adoption?
- And how do facilities involve interested outside parties, for example non-governmental organizations (NGOs) and the general public, in their EMS?

The project website has information on project background, baseline information for participating facilities, and several research articles on EMS and the National Database project. Currently, the project is in the process of collecting a set of baseline environmental data from participating organizations.

http://www.eli.org/isopilots.htm

Center for Advanced Purchasing Studies (CAPS)

CAPS recently completed a study of over 1,500 U.S. manufacturers on their attitudes toward ISO 14000 and environmental management systems. To date, this is likely the most comprehensive examination of the impact of EMS like ISO 14001 on American firm performance yet conducted. The study addressed research questions, including:

- What is the status of EMS in most American plants?
- To what extent is ISO 14001 registration related to improved environmental performance?
- To what extent is ISO 14001 registration related to improved market or corporate performance?
- What options are available to firms interested in improving environmental performance?
- And what are the major sources of uncertainty facing the manager interested in attaining ISO 14001 certification?

The report can be ordered via their website for $25.

http://www.capsresearch.org/completed.htm

6. DOWNLOADABLE DOCUMENTS OFF THE INTERNET

Guidance document: Improving Environmental Performance and Compliance 10 Elements of Effective Environmental Management Systems by the Commission for Environmental Cooperation

http://www.cec.org/pubs_info_resources/publications/enforce_coop_law/ems.cfm?varlan=english

Executive Summary of the Pacific Institute's *Managing a Better Environment: Opportunities and Obstacles for ISO 14001 in Public Policy and Commerce* by Jason Morrison, Katherine Kao Cushing, Zöe Day, and Jerry Speir

http://www.pacinst.org/environ.html

"*Environmental Management Systems, Regulatory Innovation and Sustainability*," speech by Carlos Gonzalez Guzman, PROFEPA, at the MSWG Learning Together 2000 Conference, June 5-6, 2000 Bahia Resort Hotel, San Diego, CA

http://www.dep.state.pa.us/dep/deputate/pollprev/mswg/2000/guzman/index.htm