



# **Standardizing Excellence: Working with Smaller Businesses to Implement Environmental Management Systems**



**October 2001**



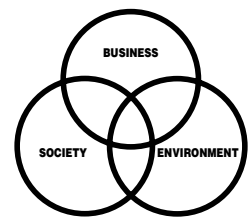
**Green Business Network  
The National Environmental Education  
& Training Foundation**



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# About the National Environmental Education & Training Foundation

**T**he National Environmental Education & Training Foundation (NEETF) is a private non-profit organization authorized by Congress in 1990. NEETF strives to help America meet critical national challenges by connecting environmental learning to issues of national concern such as health care, educational excellence, business profitability, and effective community participation. As a private organization, we take advantage of our position to build partnerships between government and the private sector and non-governmental organizations. Our six major initiatives include:

- **The Green Business Network:** An innovative new information and training program that helps businesses of all sizes align environmental performance with business success. The Green Business Network is also the host of GreenBiz.com, a nationally recognized leader in online business environmental information.
- **The “ECO-Essentials” Program:** A new initiative to more effectively educate the adult populations on environmental issues through the thoughtful use of television, radio, print media, and the Internet.
- **The National Education and Environment Partnership:** A Program that takes environmental learning into the mainstream of the K-12 education system, demonstrating how it produces high performance students and schools.
- **The EnvironMentors Project:** A project that matches adult mentors with students at under-resourced urban high schools.
- **The Health and Environment Partnership:** A program that aims to dramatically improve health care by better educating doctors and nurses on environmental risk factors.
- **The Environments for Learning Program:** A program that works to improve school environments, and to make America’s public lands and nature centers more accessible to schools and teachers as tools of environmental education.

NEETF also makes challenge grants to innovative programs recognizing outstanding achievement in the field.

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# Table of Contents

<b>Acknowledgements</b> .....	6
<b>Background</b> .....	8
Introduction .....	8
About This Report .....	8
<b>Part I</b>	
<b>The Need for EMS Technical Assistance Programs</b> .....	10
1. Need for EMS Assistance .....	10
2. EMS Barriers and Drivers .....	10
3. Key Sectors for EMS Assistance .....	11
4. Need for a Common Approach to EMS .....	11
5. Better Clarification of What Constitutes an EMS .....	12
<b>Part II</b>	
<b>Recommendations for Future Actions</b> .....	13
1. Support Sector-Specific EMS Implementation Tools .....	13
2. Build the Business Case for EMSs .....	14
3. Work with Trade Associations and Other Industry Groups to Promote EMSs .....	14
4. Integrate EMS Into Other Government Programs .....	14
5. Develop a Web-based EMS Technical Assistance Providers Resource Center .....	15
6. Create a Standard “EMS 101” Training Program for Small and Medium-Sized Organizations .....	15
7. Develop Tools to Assist with Aspect Analysis and Target Setting for EMSs .....	12
8. Inventory EMS Assistance Programs and Providers .....	16
<b>Part III</b>	
<b>Summary—Washington DC EMS Assistance Strategy Workshop</b> .....	17
1. EPA Outreach To Associations On EMSs	
Karen Chu, <i>Design for the Environment, U.S. EPA</i> .....	17
A. Discussion .....	18
2. Drivers Panel Session .....	18
A. Government Incentives .....	18
Marianne Fitzgerald, <i>Oregon’s Green Permit Program</i>	
B. Small Business Perspective on EMS .....	20
Mike Bartlett, <i>Bear Metallurgical</i>	

C. Market Forces and Supply Chain Requirements—	20
<b>Will Gibson, Tetra Tech EMI</b>	
D. Discussion	20
<b>3. Tools and Techniques</b>	<b>21</b>
A. Kentucky ISO 14001/EMS Program	21
<b>Cam Metcalf, Kentucky Pollution Prevention Center</b>	
B. The EMS Municipalities Project	21
<b>Faith Leavitt, Global Environment &amp; Technology Foundation</b>	
C. Trade Association EMS Programs	24
<b>Marci Kinter, Screenprinting &amp; Graphic Imaging Association International</b>	
D. The European EMS Experience & Project Acorn	24
<b>Mark Barthel, BSI, Ltd.</b>	
<b>4. Providers Session</b>	<b>25</b>
A. P2 Programs	25
<b>Sharon Johnson, North Carolina Department of Environmental and Natural Resources</b>	
B. Manufacturing Extension Partnership Programs—	25
<b>Vivian Harper, South Carolina Manufacturing Extension Partnership Program</b>	
C. State Assistance Programs	25
<b>Robert Minicucci, New Hampshire Department of Environmental Services</b>	
D. EPA's Assistance Centers	26
<b>Sherman Titens, Coordinating Committee for Automotive Repair (CCAR) Greenlink</b>	
E. Small Business Development Centers	27
<b>Chris Lynch, University of Pennsylvania</b>	
<b>5. Working Group Sessions</b>	<b>27</b>
A. What Are the Significant Drivers That Will Create Demand for EMSs?	27
<b>i. Barriers to EMS Adoption</b>	27
<b>ii. Building the Business Case for EMSs—Actions for the Next 12 Months</b>	28
<b>iii. Driver-Sector Matrix Survey Findings</b>	28
B. Tools and Techniques Session	30
<b>i. Existing Tools</b>	30
<b>ii. Effective Approaches</b>	30
<b>iii. Diffusion Techniques</b>	31
<b>iv. Effective Recruitment Tools &amp; Techniques</b>	31
<b>v. Wish List Tools</b>	32

C. Providers Session .....	33
i. General Impressions Regarding EMSs and EMS Assistance .....	33
ii. What Role Do Providers Actually Play? .....	33
iii. What are the Tangible Products of the Providers? .....	33
iv. Who are Providers? .....	33
v. Steps to Build the Market for EMS .....	33
vi. Steps to Maximize Service Delivery .....	33
vii. Summary and Recommendations .....	34
D. Summary of Recommendations and Actions from Working Group Sessions. ....	34

## **Part IV**

<b>San Francisco EMS Assistance Strategy Workshop</b> .....	36
1. Morning Session—Perspectives on EMS Assistance .....	36
Kathleen Thurmond, <i>Best Washington Uniform and Linen Supply, Inc.</i> .....	36
Matt Atkinson, <i>Benzinger Family Wineries</i> .....	36
Geoff Blake, <i>All Metals Processing</i> .....	37
Leah Seki, <i>City of San Diego Environmental Services Department</i> .....	37
Ruben Angel, <i>Artistic Plating</i> .....	38
2. Assistance Providers Perspectives on EMS Initiatives .....	40
Lessons Learned .....	40

## **PART V**

<b>EMS Assistance Survey</b> .....	41
------------------------------------	----

## **Part VI**


<b>Appendices</b> .....	43
1. Highlights from Increasing Small Business Competitiveness through EMSs .....	43
2. Oregon’s Green Permit Program .....	44
3. Driver-Sector Matrix .....	45
4. Washington EMS Assistance Strategy Workshop Agenda .....	46
5. San Francisco EMS Assistance Strategy Workshop Agenda .....	47
6. Washington DC Workshop Participants .....	48
7. San Francisco Workshop Participants .....	51

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# Background

## Introduction

An EMS, as defined by the International Organization of Standardization, is part of the overall management system which includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining, the environmental policy within companies, organizations and government. EMSs provide a framework for managing environmental responsibilities, including regulatory compliance. By improving overall environmental performance and placing more emphasis on pollution prevention, they can also help organizations move beyond compliance and improve their competitiveness. Many large businesses, government, and non-profit organizations have developed or are currently developing EMSs as they become increasingly convinced of their efficacy. For small and medium-sized businesses and organizations, however, implementing an EMS can represent a major challenge.

While smaller businesses can achieve similar benefits as larger entities from implementing EMSs, they often lack the necessary resources to do so, whether it be time, expertise or simply knowledge of where to turn for technical assistance. At the same time, the greatest need for environmental improvement in American business is most likely in our 5 million small businesses that comprise half the economy and more than 60% of the jobs. One way to increase the efficiency and innovativeness of small businesses is to encourage the adoption of EMSs by providing effective technical assistance and information sharing.

The goal of the EMS Assistance Strategy Initiative is to do just that. The EMS Assistance Strategy Initiative identified practical and effective ways to promote, design, and assist small and medium-sized businesses and organizations with implementing an EMS. To effectively gather all of the necessary information, a series of workshops of technical assistance providers, (*summarized below*) was held to examine current experiences and to develop a set of recommendations to help guide future work in promoting the use of EMSs to smaller entities.

These technical assistance providers come from regulatory agencies, associations, university-based assistance programs, manufacturing extension partnership programs, pollution prevention programs, and business networks. They provide assistance in training, information, procedure writing, gap analyses, auditing, etc. by, among other things, motivating and convincing companies to implement an EMS, helping to create the EMS by setting goals and objectives, and providing resources to small and medium-sized businesses.

## Benefits From Effective EMS Programs

- Improved environmental performance (e.g., reduced emissions and natural resource use).
- Cost savings through reduced chemical, raw material, and utility use; lower emission and disposal fees; reduced medical and biological monitoring; and lower administrative costs.
- Increased knowledge and control of environmental, health, and safety issues by everyone in the facility.
- Encouraged holistic, multi-media approach to environmental management.
- Increased awareness and better management.
- Better ability to prioritize environmental issues (i.e., what the company should focus on).
- Improved ability to provide project justification based on costs and benefits.
- Increased employee awareness and pride.
- Reduced liability.
- Improved customer relations.
- Increased green and niche marketing opportunities.
- Increased innovation.
- Increased profitability.

To build a market for EMSs effectively, participants offered ideas on how to increase outreach efforts, to collaborate with each other, to tap into existing networks, to identify EMS champions, and to create an association of providers to standardize practices and institutionalize the network. They also discussed ways to reach the widest audience possible. We anticipate that this Initiative, by examining current experiences and developing a set of recommendations, will help guide future work in promoting the use of EMSs to smaller entities.

## About This Report

This report provides ideas and recommendations to help inform and guide organizations and individuals involved or interested in providing EMS assistance. It is based on findings from two workshops in Washington, DC and San Francisco attended by experts in the field as well as the results of a survey carried out at the Washington, DC workshop. The workshops provided a venue for EMS assistance providers from around the country to discuss best EMS assistance practices and current needs and to identify next steps for

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encouraging greater adoption and implementation of EMS by small businesses and organizations. The following topics provided structure for conversation:

- Incentives and barriers to EMS implementation;
- Tools and techniques for EMS assistance, outreach, and training; and
- Provider networks, programs, and resources.

The findings of the survey along with themes arising from the Washington and San Francisco workshops were used to develop the recommendations outlined in Part II of this report. This report looked at the following challenges/issues facing the broad use of EMSs by businesses of all sizes.

- What are the significant drivers, economic, regulatory, or voluntary, that will create demand for EMS and how can assistance providers utilize these drivers;

- What are the most effective models for promoting and providing EMS assistance;
- What are the gaps in the current provider networks with regard to business sectors and geography;
- Can the existing network of assistance providers be expanded to provide the best service and most effective use of existing resources;
- What assistance methods are the most effective and,
- What participants would recommend for future initiatives.

Our intent is for this report to be useful for all technical assistance providers at the federal, state, and local levels as well as for those working to create a network to streamline information and resources on Environmental Management Systems.

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## Part I

# The Need for EMS Technical Assistance Programs

### 1. Need for EMS Assistance

Growing evidence from EMS private initiatives and government programs demonstrates the effectiveness of EMS for small businesses and organizations in improving overall environmental performance, as well as identifying opportunities for reducing operating costs. While the businesses involved can point to specific environmental and bottom-line benefits from their EMS, most also state that such improvements might not have been possible without the involvement and advice of their assistance provider.

Establishing an EMS helps organize the internal processes needed to better manage and address environmental issues. But because small organizations often lack environmental management personnel, they typically do not have the internal capacity, or resources to launch an EMS. EMS assistance providers help organizations overcome these capacity issues.

The emergence of the EMS reflects the hindsight and wisdom gained over the past 30 years of environmental management. During this period, there has been a growing recognition of the need to provide educational and technical assistance in addition to regulations in order to improve and protect envi-

ronmental quality. As greater environmental performance is demanded from smaller businesses and organizations, more educational and technical assistance initiatives will be necessary, given the managerial capacity issues that small entities face. Providing assistance on EMS presents an opportunity to help small businesses and organizations establish the foundation needed for continuous environmental improvement.

### 2. EMS Barriers and Drivers

Understanding the barriers and potential drivers for implementing an EMS is essential for successfully promoting EMS to smaller businesses and organizations. As noted above, capacity and financial resources available for establishing an EMS, along with lack of familiarity, are frequently the major barriers to EMS adoption by small businesses and organizations. As part of the EMS Assistance Initiative, participants began exploring some of the barriers and drivers for EMS implementation.

Identifying ways to address and overcome these barriers is important for engaging small businesses and organizations in EMS initiatives. Since assistance programs already have enlisted small businesses and organizations in EMS programs, it

#### **Barriers to EMS Adoption**

##### **Motivation**

- Lack of customer requirements or demand for having an EMS;
- Misconceptions that environmental issues are a low organizational priority or are believed to be under control;
- Beliefs that an EMS is not important or relevant to the businesses or capable of adding to the bottom line;
- Lack of public pressure or NGO pressure to implement an EMS;
- Beliefs that an EMS is the current management "flavor of the month"; and
- Beliefs that an EMS is not widely accepted or used in an industrial sector or geographical area.

##### **Resource Issues**

- Concern about the cost and time necessary for establishing an EMS;
- Concern about operational management costs following implementation; and
- Perceptions that an EMS is complicated and unattainable.

##### **Implementation Concerns**

- Fear of discovering non-compliance with regulations or permits; and
- Fear of discovering or uncovering internal problems within the organization (staff issues, process issues, company policies, etc.).

is clear that these obstacles are not insurmountable. Collecting information on how programs have addressed such barriers could help in developing more effective outreach and promotion strategies.

Equally important is developing an understanding about what motivates companies to implement an EMS. As part of the EMS Assistance Survey, participants were asked to rank which factors they believed would most likely drive EMS adoption by small businesses and organizations, beyond mandatory requirements. The following were identified as the main motivating factors:

### **EMS Incentives**

1. Demonstrated business benefits of having an EMS.
2. Tax breaks for EMS implementation.
3. Customer (OEM) EMS purchasing requirements for suppliers.
4. Insurance benefits for having an EMS.
5. Creation of a performance-based regulatory system.
6. Enforcement policy favorable to EMS.
7. EMS as a requirement for market access, such as ISO14001 certification.

### **3. Key Sectors For EMS Assistance**

Given the limited resources available for environmental assistance programs, identifying which business sectors to target for EMS assistance should be considered. As part of the EMS Assistance Strategy Initiative, participants were asked to rank which sectors they felt were the most important to target for EMS assistance. While these sector categories are broad, they provide some indication where future efforts might be focused.

1. Agriculture and Agro-Business
2. Educational Institutions
3. Federal Agencies
4. Health Care Providers
5. Local and State Government Agencies
6. Natural Resources (mining, forestry, etc.)
7. Small and Medium Enterprises
8. Small and Medium Manufacturing
9. Small and Medium Retail
10. Utilities

### **4. Need for a Common Approach to EMS**

An important aspect of the EMS Assistance Strategy Initiative was to bring together the different organizations, networks, agencies, and offices involved in promoting and providing EMS assistance to explore how these programs can work together

more efficiently and effectively. Across the country a variety of organizations and networks are involved in providing environmental technical assistance to small businesses and organizations. These organizations represent an infrastructure for promoting and providing EMS assistance. The following are among the organizations and networks involved in providing EMS assistance:

- Federal EPA Offices
- Regional EPA Offices
- Manufacturing Extension Partnership Programs
- State Pollution Prevention Programs
- Small Business Assistance Programs (507 Programs)
- State Compliance Assistance Centers
- Small Business Development Centers
- Trade Associations
- Universities
- Community Colleges
- Non-Profit Organizations
- Private Companies and Consultants

Despite the similar activities of many of these providers, there has been little coordination or examination of how these various parts of the assistance infrastructure can work more effectively together. Often there are historical differences between organizations because of focus or organizational affiliation. There may even be a sense of competitiveness between organizations involved in providing assistance because of limited funding for environmental assistance. In other cases, assistance providers are simply unaware of the activities of other programs and initiatives.

While there are a number of different organizations providing EMS information and assistance, frequently these programs have different objectives, such as facilitating compliance versus improving competitiveness or promoting pollution prevention. However, these differences in underlying mission need not conflict or compete in the process of promoting and providing EMS assistance. As one assistance provider from California remarked, EMS initiatives and assistance programs can effectively bring together different organizations for a “common cause” to *improve the environment by improving overall environmental and economic performance*.

The diverse representation of programs involved in this initiative indicates that there is interest in exploring ways to form partnerships and improve cooperation. Furthermore, because an EMS is an ongoing system, each organization can play a complementary role in the process. An important step toward furthering cooperation and partnerships is developing an understanding—a *conceptual model*—of the different roles the organizations involved in EMS assistance can play and their relationship to other programs.

EMS assistance involves a variety of steps, roles, information, and resources from promotion to implementation to opera-

## EMS Assistance “Life Cycle”

Phase	Provider Activities & Elements
Promotion	Building demand, selling EMS assistance, creating incentives, recruitment.
Preparation	Introductory classes, gap analyses, needs assessments, getting buy in.
Creation of Structures	Documentation, policies, procedure writing.
Assessment	Impact assessment, permit review, etc.
Implementation	Employee training & motivation; communicating responsibilities.
Operation	Monitoring, process improvements and review of changes, updating documentation, procedures, and plans.
Checking and Corrective Action	Auditing and correcting non-conformance.

tion. These steps essentially make up “life cycle” activities and points where assistance providers play different roles. Understanding this “life cycle” (see diagram above) may be an effective way to create a vision and a strategy for organizing activities and identifying resources among organizations involved in EMS assistance.

This conceptual model can stimulate dialogue and discussion of how different organizations involved in EMS promotion and assistance can work together and leverage each other’s strengths. However, continued dialogue and discussion on the subject is still necessary, as is leadership to ensure effective coordination in the future. Failure to develop a conceptual model for EMS assistance could result in poor communication among providers and duplication of resources and initiatives.

### 5. Better Clarification of What Constitutes an EMS

During the first workshop in Washington, there was some debate about whether different EMS implementation guides, tools, and initiatives are developing different EMS definitions. Participants discussed the emergence of “*ISO Lite*,” “*ISO Plus*,” and “*EMS With a Twist*”<sup>1</sup> as possible competing and conflicting models. Additionally, some participants expressed concern that sector-based EMS programs, templates, and guidance could lead to the development of new and separate EMS models.

However, the issue here may be less a matter of competing models or definitions than a failure to distinguish between the differences in the objectives or emphasis of an EMS program and its EMS model. Differences in EMS implementation guides and materials usually reflect the differences in the objectives of the organizations providing the assistance, but not neces-

sarily a competing or conflicting EMS model. The basic elements of an EMS that stresses pollution prevention versus an EMS focused primarily on compliance should be the same.

There also may be a tendency to view an EMS as something static, like a permit, versus a dynamic system that continues to evolve. As a result, there may be a desire to seek a prescriptive definition of both the elements and emphasis from the start. However, unlike a permit, which has an all-or-nothing aspect to it, an EMS can start small and grow in scope and scale. Consequently, an EMS may initially only focus on a few key aspects or compliance issues, but eventually become more proactive and strategic in operation.

The U.S. EPA has issued guidance on what it considers to be the necessary elements of an EMS. EPA’s March 12, 1998, Federal Register states the Agency’s position on what constitutes an EMS, a structure that mirrors the basic elements of ISO 14001.<sup>2</sup> This policy statement also was referenced in the Agency’s 1999 report *Aiming For Excellence*, which identifies specific steps for promoting EMSs.<sup>3</sup> The requirements for the Performance Track, which requires participants to have an EMS in place, provide further guidance on EPA’s expectations for the basic elements of an EMS.<sup>4</sup> However, it appears that this guidance has either not been widely reviewed or has not helped to resolve the current debate. Steps should be taken either to provide further clarification of existing guidance on what EPA recognizes as an EMS or better communicate existing guidance. While healthy debate over EMS best management practices should be encouraged, the failure to address concerns about the development of perceived competing EMS definitions could result in an erosion of cooperation among assistance providers, agencies, associations, businesses, and other organizations.

<sup>1</sup> See page 27 of this report for further discussion of these terms and issues.

<sup>2</sup> *Federal Register*: March 12, 1998 (Volume 63, Number 48) pages 12094-12097.

<sup>3</sup> *Aiming for Excellence*, EPA100-R-99-006, July 1999, pages 47-49.

<sup>4</sup> See the Performance Track Web page at <http://www.epa.gov/performance-track/program/ems.htm>.

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## Part II

# Recommendations for Future Action

The EMS Assistance Strategy Initiative offered an opportunity for assistance providers and businesses involved with assistance programs to identify current gaps, needs, and steps for future action to better promote and provide EMS assistance. Through the two workshops and the survey, the following actions and activities were identified as being the most important for steps for promoting EMS to small and medium-sized businesses and organizations.

### 1. Support Sector-Specific EMS Implementation Tools

One of the key themes emerging from the EMS Assistance Strategy workshops was the effectiveness of sector-specific tools and resources when working with small organizations. These include environmental aspects lists for industry sectors, model procedures, sample documentation, templates, regulatory requirement profiles, process improvement and material substitution information, performance benchmarking information, and industry-specific target and objectives information.

Both assistance providers and representatives from small organizations involved in EMS initiatives identified the utility and effectiveness of such resources. Information tailored for a particular sector helps to reduce implementation time and costs, which makes assistance more appealing to small organizations with limited resources. For individuals without technical backgrounds, such materials help to clarify steps and elements.

While ISO and other EMS models provide a general framework for small organizations, sector-specific information can help make the EMS implementation process seem more relevant to their business and more attainable. Because small organizations frequently lack professional environmental management staff and time, such resources can be critical. Additionally, sector-specific EMS resources can improve the effectiveness of the assistance provider who cannot be expected to be an expert in all industries.

Sector-specific EMS resources currently are being developed through a number of industry-focused EMS pilot projects. Such initiatives provide the opportunity to identify and develop key resources. Additionally, EPA, associations, and other organizations have developed a variety of other sector-

specific resources that are not necessarily associated with EMS.<sup>5</sup> Coordinating and identifying existing information for use in the EMS process would also assist with providing more sector-focused assistance.

While, overall, there appears to be strong support for sector approaches, some providers have expressed concern with using very specific sample templates, documents, and checklists. They believe that relying on such resources and not creating their own aspect lists and procedures may prevent organizations from developing a solid understanding of their own operations.

#### **Recommended sector-specific resources and tools**

- Tools to assist with aspect analysis for specific sectors.
- Environmental aspects lists for industry sectors.
- Environmental performance benchmark information by sector.
- Sector-based performance objectives and targets (e.g. EPA established sample targets for companies to use when defining objectives and targets, like 33/50, but by media and sector).
- Model procedures and other documentation templates.
- Sector-specific information resources on regulatory requirements.

#### **Steps identified to build the business case for EMS:**

1. Collect performance data—both environmental and operational performance from pilot projects, assistance programs, and other sources.
2. Organize the data and information by sector, size, and benefit type.
3. Make this information accessible to assistance providers and organizations through a central source, such as a Web site (*see below*).

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<sup>5</sup> For example, U.S. EPA Office of Compliance Industry Sector Notebooks and Office of Policies Sector Strategy Division currently have detailed sector information.

## 2. Build the Business Case for EMSs

Developing an EMS is both time consuming and resource intensive. It is an investment for any organization of any size. Since EMSs are not required by law, and in most cases are not necessary for market access, an EMS is a voluntary investment. As such, it will be evaluated by the benefits it yields for the organization that implements it. These benefits include both economic and environmental performance information.

Assistance providers believe that there is a lack of strong information and data to create the business case for an EMS. Yet, this information is critical for selling its value to companies. Indeed, a strong business case for implementing an EMS was viewed as the most influential driver among all sectors outside of making it a regulatory requirement.

Information on the business benefits of an EMS to small and medium-sized organizations is emerging. Through pilot project initiatives, such as the Merit Partnership Initiative for Metal Finishers and the Municipality EMS Project, quantitative and qualitative data on EMS benefits are being developed. The Multi-State Working Group's development of the National EMS Databases also will be an important resource for examining and understanding the scope of environmental and economic performance benefits that may arise from implementing an EMS. Additionally, various assistance programs and consultancies have or are developing case studies on EMS benefits.

## 3. Work with Trade Associations and Other Industry Groups to Promote EMSs

Reaching and engaging small businesses and organizations with environmental management information is one of the greatest challenges facing environmental assistance providers. Typically small businesses and organizations are leery of anything "environmental" and hesitant to work with assistance providers from agencies with regulatory authority. Consequently, assistance providers frequently face questions regarding their intent. However, working in partnership with associations can help assistance providers overcome these obstacles.

Associations can provide an effective vehicle for reaching and engaging small businesses and organizations with EMS information. Today, most small business sectors that face environmental regulations belong to one or more associations and most associations now provide some form of environmental assistance, either through regulatory updates or more sophisticated training programs and tools. While associations may have access to their industry sector, small business associations typically have limited staff and resources for voluntary regulatory initiatives. Additionally, association staff may not have technical or environmental management background.

Several agency-association EMS promotion and assistance models are beginning to emerge at both the national and local levels. For assistance providers, it is important to determine which level—local, state, or federal—will be the most

### Benefits of working with associations to promote EMSs

- Assistance providers can gain greater access to and acceptance by small business sectors while enabling the associations to expand their member services.
- Provides the opportunity to develop sector-specific tools and resources.

effective for reaching the desired sector. While many associations are national organizations with state and regional offices or chapters, others are more decentralized and local. Furthermore, while some associations may represent the majority of businesses in a sector, others may have only a small fraction. Assistance providers also should access the interest and capacity of the association to sustain EMS assistance services in the future.

## 4. Integrate EMS Into Other Government Programs

At both the federal and state levels, EMS initiatives and programs often begin as special projects and are not necessarily integrated into existing regulatory or other voluntary initiatives. As noted earlier, EMS assistance initiatives can provide a framework for different regulatory offices and agencies to examine how to integrate permitting and reporting requirements, as well as examine multi-media issues. For organizations implementing an EMS, the processes also provide an opportunity to address and understand the interaction and interplay between different environmental issues and develop a more holistic approach toward managing environmental aspects.

Among assistance providers, there is a general sense that the EMS framework should become more integrated into existing voluntary and regulatory programs. At the same time, steps should be taken to examine how existing programs and resources can be integrated into EMS Programs. The goal of

### Steps Towards EMS Integration into Government Programs

- Support internal training of government personnel to increase familiarity with EMS concepts and terminology.
- Assign EMS leads and contacts within different media, regional, and enforcement offices at the federal and state levels.
- Identify ways to connect existing resource, information, guidance, and offices to the EMS assistance life cycle.
- Involve different media and regulatory offices in EMS initiatives with sectors.
- Continue use of EMS plans in enforcement settlements.
- Link federal voluntary initiatives, such as Energy Star, WasteWise, and WAVE to EMS implementation phases.
- Examine ways to link EMS to new regulations or permit programs.

integrating EMS into other environmental programs raises many additional questions, which the EMS Assistance Strategy Initiative workshops were unable to explore in greater detail and depth. However, some general ideas for ways to promote integration that emerged from the workshops are outlined in the box on the previous page.

## **5. Develop a Web-based EMS Technical Assistance Providers Resource Center**

While there are various Web sites that offer information on EMS and ISO 14001, these sites are typically not geared toward the specific needs of technical assistance providers. Additionally, there is no comprehensive Web site on EMS assistance programs and initiatives for small and medium-sized businesses in the United States that is freely available to providers from different organizational affiliations. Furthermore, many existing Web sites do not contain information on programs or links to other resources that are not their own.

One of the greatest gaps identified by participants in the EMS Assistance Strategy Initiative was the lack of access to information and resources currently available for free or being developed by other programs. The Internet provides an easy and generally low cost way to provide a one-stop shop to support organizations involved in providing EMS assistance. The following are some of the desired features identified for an EMS Web site:

- Database of EMS assistance providers and programs.
- Business case information and case studies.
- Cost and benefit data of EMS implementation and operation.
- Sector-specific EMS templates, guidance, and tools.
- Information on EMS pilot projects and related initiatives.
- Federal and state EMS guidance documents.
- Information on resources and tools that are useful for EMS assistance.
- News on new tools and guidance, state contracts, supplier mandates, and use of EMS in enforcement actions.
- Contact list for EMS representatives in federal, state, and local agencies.
- Links to other EMS-related Web sites.
- Links to implementation guides.
- Electronic bulletin boards.

Steps should be taken either to expand the existing EPA EMS Web site ([www.epa.gov/ems](http://www.epa.gov/ems)), or to establish a separate site, similar to the Compliance Assistance Centers, that is available to the public.

## **6. Create a Standard “EMS 101” Training Program for Small and Medium-Sized Enterprises**

One way to reduce to the implementation costs for small organizations is to coordinate the creation of introductory training materials that can be widely distributed to environmental assistance providers who can offer the program for free or at a nominal cost. Such a program also can reduce costs for assistance providers and enable them to dedicate their resources toward more sophisticated EMS assistance. A standard program can provide a foundation that other programs can adopt or modify. Development of a basic EMS training program also might provide an opportunity to ensure the distribution of currently available information, resources, and tools in order to prevent duplication. Last, a standardized training program also could be used to train agency staff and other environmental assistance providers.

Development and distribution of a standardized training program also raises questions regarding the qualification of assistance providers who might provide the training. A desire to establish qualification requirements for assistance providers arose in a variety of contexts throughout the EMS Assistance Strategy Initiative. There are legitimate concerns regarding the experience level for an assistance provider to be effective. While individuals with greater experience in helping organizations implement an EMS are more likely to be more effective, all assistance providers, both public and private, must start somewhere. The question of qualification requirements was not resolved during the workshops and meetings, however, additional training and mentoring programs that help new assistance providers gain experience also might be necessary to bring assistance to a greater number of organizations throughout the country.

The information and resources needed to develop a standard “EMS 101” training program currently exist. Consequently, such a program could be created by identifying and consolidating the best aspects of existing programs.

## **7. Develop Tools to Assist With Aspect Analysis and Target Setting for EMSs**

Further development of resources to help small organizations in performing aspect analysis and setting objectives and targets was identified as important. For both small organizations and assistance providers, effective aspect analysis is often challenging and, of course, time consuming.

Some of these aspect analysis tools are already available. For example, EPA’s *EMS Implementation Guide for Small Business* contains information on aspect analysis, as does *The American Society for Quality’s Identifying Environmental Aspects and Impacts*.<sup>6</sup> Private-sector organizations also are

<sup>6</sup> *Identifying Environmental Aspects and Impacts*, Marilyn Block, (1999) Quality Press. 145 pages. ISBN 0-87389-446-4.

### **Aspect Analysis: Tools and Resources**

- Document with examples of different approaches to performing aspect and impact analysis.
- User-friendly chemical information database.
- On-line database of environmental laws with plain English explanations, searchable by sector, site location, process, chemical, and material to help SMEs ascertain applicable laws and compliance requirements.
- Preventive action models related to pollution prevention for “generic activities.”
- Sector-specific guidance, tools, and benchmarks.

developing specific proprietary aspect analysis tools. In addition, tools and resources developed by public-sector organizations can be used for aspect analysis, but are not necessarily associated with EMS implementation.<sup>7</sup> Consequently, further investigation regarding what kinds of aspect analysis tools and resources are needed. Moreover, it may be important to distinguish between resources that assist with identifying, understanding, and measuring environmental aspects and regulatory requirements versus those resources that help to prioritize and establish parameters.

## **8. Inventory EMS Assistance Programs and Providers**

EMS initiatives and assistance programs are beginning to proliferate around the country. Unfortunately, these programs often develop independently or in isolation of each other. As noted earlier, there are numerous effective resources available

### **EMS Assistance Programs and Providers Inventory Activities**

- Identify all existing and potential technical assistance providers.
- Identify all existing providers and networks specifically involved in EMS work.
- Survey of the scope of EMS services currently beginning offered.
- Categorize the nature of these services.
- Establish a forum or regular meetings to maintain a dialogue on EMS assistance.
- Identify potential mentors and peer groups.

to providers. However, many providers are unaware of or do not know how to access such information. Conversely, developers of EMS-related information or organizations looking to collaborate have a difficult time identifying partners.

Developing an effective infrastructure for promoting and providing EMS assistance requires creating a network and understanding its capacity. To achieve this, there needs to be better cataloging, access, and awareness of existing programs and resources for EMS implementation.

Results of the EMS assistance program inventory should be integrated into either the current EPA EMS Web site or a separate Technical Assistance Provider's EMS Web site, as discussed earlier.

<sup>7</sup> For example, the Energy Star building energy audit software or the U.S. EPA's Office of Compliance Industry Sector Notebooks.

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## Part III

# Washington DC EMS Assistance Strategy Workshop, Summary Report

The following sections provide a summary of the key points of the presentations and related discussion from the first EMS Assistance Strategy Initiative workshop held in Washington, DC on January 11-12, 2001.

### 1. EPA Outreach to Associations on EMSs

**Karen Chu**, *Project Manager*,  
*Design for the Environment, U.S. EPA*

Prior to the Washington EMS Assistance Strategy Initiative, the U.S. EPA hosted a workshop on November 8, 2000 to explore how EPA can encourage trade associations to promote EMS as a means for enhancing the environmental stewardship and competitiveness of small businesses. Karen Chu, from the Design for the Environment (DfE) program at EPA, began the day with a brief update on results of that workshop.

#### **EPA - Industry EMS Partnerships**

- Egg Producers – Water Office
- Foundries – Sector Strategies Division
- Local Governments – Water Office
- Meat Processing – Sector Strategies Division
- Metal Casting – Sector Strategies Division
- Metal Finishers – Region 9
- Pork Producers – Water Office
- Screenprinters – Design for the Environment
- Ship Builders – Sector Strategies Division
- Wastewater Treatment – Water Office

Chu stated that the EPA sees EMS as both a beneficial and essential component for the future environmental regulatory system and for sustaining environmental improvement. The involvement of different Agency offices and programs such as Design for the Environment, Office of Enforcement & Compliance Assistance, Performance Track, Sector Strategies, Office of Water, and Small Business Office in developing resources, guidance, and other materials reflects EPA's growing involvement in promoting EMS.

The agency believes that associations can play an important role toward promoting and helping small companies implement EMSs.

#### **Association Roles In Promoting EMSs**

- Tailor EMS guidance to a specific sector;
- Offer technical assistance to members, including hands-on, one-on-one assistance;
- Facilitate or encourage mentoring among member companies;
- Form partnerships with state DEPs and environmental programs;
- Develop and conduct EMS training;
- Develop sector-specific pollution prevention and regulatory information; and
- Help establish environmental improvement targets and evaluate results.

Chu explained that the Agency recognizes that associations are member-driven organizations and understands that the association leadership must move an EMS program forward. The association must see a clear benefit to its members in order to promote and support assistance on EMSs. Therefore, the Agency is interested in identifying ways that it can provide incentives for associations to develop EMS programs. Some of the recent feedback the Agency has received about roles and steps it can take to help encourage the formation of association EMS programs include the following:

#### **Refine Agency policy**

- Clarify Agency objectives for EMSs (e.g., compliance, pollution prevention/risk reduction, and stakeholder communications);
- Convene a steering committee to guide small business EMS policy and activities; and
- Conduct an assessment of EMS needs and demand by sector.

#### **Develop materials and information**

- Develop EMS marketing materials that associations can use with their members;
- Develop EMS tools and materials useful to companies and associations;

- Help “lead organizations” (e.g., associations, TAPs) develop sector-specific EMS guidance;
- Help evaluate environmental improvements due to EMS; and
- Provide information on the benefits and costs of EMS implementation.

#### Foster communication

- Facilitate interaction among assistance providers;
- Serve as a conveyor and broker of technical assistance;
- Set up an e-mail group to facilitate EMS dialogue; and
- Communicate more about EMS with states and regions.

## A. Discussion

Questions, comments, and issues raised following the presentation:

- Clarification of EPA’s definition of an EMS:** Several participants suggested that there should be greater clarification regarding what constitutes an EMS. Many people believe that there is some degree of uncertainty regarding EPA’s definition of an EMS. Additionally, there appears to be some concern regarding whether different Agency guidance is referencing different systems. For associations and other organizations, this perceived uncertainty presents a hurdle to developing EMS initiatives.
- Sector verses Generic EMSs for Small Business:** Participants discussed whether EPA should focus on providing assistance and guidance to support sector-based approaches for small business and organizations. It was suggested that sector-based approaches provide tailored information and tools that address specific industry issues and may be more efficient in promoting implementation and the effectiveness of the EMS to smaller businesses. It was also argued that the ISO 14001 model is sufficient to cover all types of situations.
- Need to Quantify EMS Benefits:** The bottom-line and performance benefits of implementing an EMS still are neither widely documented nor uniform. For small businesses to embrace EMSs there must be better documentation on the benefits, both economically and with regard to environmental performance as well as better ways to measure cost savings and environmental performance.

## 2. Drivers: What steps can government agencies take to create demand for EMS?

### A. Government Incentives

**Marianne Fitzgerald**, *Green Permits Coordinator, Oregon’s Green Permit Program*

What steps can government agencies take to create demand for EMS? To help examine this question, Marianne Fitzgerald, Green Permits Coordinator at the Oregon Department of Environmental Quality, provided an overview and insights into her state’s regulatory flexibility program.

Growing out of industry-sponsored “Environmental Excellence” legislation in 1997, the Oregon State Legislature directed the Department of Environmental Quality (DEQ) to develop a “performance track” program. The program’s purpose was to reward companies whose performance is significantly better than what is required by the law with the opportunity to gain waivers for specific regulatory requirements.<sup>8</sup>

From past experience with other initiatives and pollution prevention programs, the DEQ felt that it was important that the program:

- Promote multi-media management approaches;
- Not reward laggards by avoiding focusing primarily on pollution reduction targets that do not necessary institute better management practices; and
- Ensure sustainability, efficiency, and effectiveness of the commitment to environmental excellence.

These basic objectives lead the DEQ to focus on EMSs as a central part of a “green permit program.” In 1999, the DEQ adopted rules that established the current Green Permit Program. The program involves two primary types of legally binding permits: Green Environmental Management Systems (GEMS) Permits and Custom Waiver Permits.

The GEMS permits require facilities to adopt a comprehensive EMS, such as ISO 14001; report environmental performance; and discuss impacts, priorities, and programs with interested parties in return for regulatory waivers. There are three categories of GEMS permits, with corresponding requirements and rewards (*see box*).

#### Green Environmental Management Systems Permits

**GEMS Participant Permit**– For facilities implementing an EMS to meet and exceed regulatory requirements.

**GEMS Achiever Permit**– For facilities with a more comprehensive EMS that addresses a wide range of issues, including non-regulated environmental impacts.

**GEMS Leader Permit**– For facilities with a formal EMS that addresses issues beyond the facility, demonstrates industry leadership, and considers the life cycle of its products and services.

Custom Waiver Permits allow limited modification of certain regulatory requirements, if needed, to help a facility perform significantly better than required by law. An EMS is not required for a Custom Waiver Permit, however, there are

<sup>8</sup> Oregon State Statute ORS 468.501 et seq.

specific reporting and public involvement requirements. In addition to the waivers, the DEQ also provides recognition.

To test the Green Permit Program System, DEQ ran a pilot test involving four facilities. During this period, DEQ found the following main incentives that companies identified:

### Company Incentives

- Consolidated and electronic reporting;
- Simpler reporting;
- Agency recognition;
- 10-year permits;
- Bubble and cap-type air permits;
- Expedited permit review and processing;
- Personalized training and assistance; and
- Waiver of a technology standard issued in RCRA (in one case)

DEQ also found that companies did not seek less monitoring or a roll back of specific regulatory standards as an incentive for participation.

Based upon the results of the pilot project, DEQ decided to launch the official program. Currently, DEQ has issued two GEMS Achiever Permits, and four additional applications are now under review.

### Lessons Learned

- i. Small Business Participation:** The companies participating in the Green Permit Program are larger businesses. No small companies have been drawn to the program to date. Because many small businesses are either lightly regulated or not regulated at all, regulatory flexibility rewards do not provide much of an incentive to participate in GEMS. Additionally, the Green Permit Program involves a \$5,000 processing fee, which may be too costly to small business.
- ii. Cost & Benefits:** Costs for participating in the program need to be as low as possible for all parties. Currently, the agency charges \$5,000 to process a permit. This amount is based on DEQ's cost estimate of \$4,000 to \$5,000 (80-85 staff hours) to issue a Green Permit. The cost of developing the program, which also required significant staff time and resources, is not incorporated into this fee. By not requiring GEMS applicants to be ISO 14001 certified, DEQ also has tried to control some of the transaction costs associated with the permit. Benefits of participation must be clear and real for the companies participating.
- iii. Public Participation And Acceptance:** Enlisting NGO involvement has been difficult. Most NGOs do not have

the financial resources to participate in the public involvement aspects of the Green Permit Program. However, NGOs and other stakeholders were enlisted in the development and review of the program.

### B. Small Business Perspective on EMS

**Mike Bartlett**, *Environmental Manager,*  
*Bear Metallurgical*

Why would a small business voluntarily implement an EMS? This was the question posed to Mike Bartlett, the Environmental Manager of Bear Metallurgical in Butler, Pennsylvania. Bear Metallurgical is a 43-person operation that produces high-purity ferro-alloy products for the specialty steel, automotive, and foundry industries. Bear has established an EMS within the company, but has not yet received ISO 14001 Certification.

Bear was introduced to EMS and the ISO 14001 framework in 1998 by their quality consultant. The company had established a Quality Management System and achieved ISO 9000 certification in 1992. Therefore, the management systems approach was not foreign to the company. Additionally, Bear had just earned the Pennsylvania's Governor's Award for Environmental Excellence for their waste-minimization and recycling efforts.<sup>9</sup> These efforts also had produced significant cost savings for the company, so Bear's president was open-minded about implementing an EMS.

In 1998, Bear began developing an EMS, which is now up and running. The company launched the initiative because it believed establishing an EMS would accomplish the following:

### Benefits of an EMS

- Generate good public relations;
- Benefit customer relations;
- Have an overall value-added effect on the company;
- Help if the company was ever sold or merged;
- Improve relationships with regulators;
- Improve relationships with the community;
- Prove useful for relationships with the local emergency response committee; and
- Demonstrate commitment to employee safety and health.

### Lessons Learned

- i. Time and Money:** Bartlett estimates that it has taken approximately 1,000 staff and consulting hours and about \$80,000 to establish an EMS at Bear. Of this, the most time-consuming aspect has been procedure writing. Bartlett currently estimates that maintaining the EMS requires about 400 hours per year.

<sup>9</sup> For more information on Bear's waste-minimization program, visit the Pennsylvania DEP's Web site <http://www.dep.state.pa.us/gov-awards/winners/02.htm>.

ii. **Benefits:** Since implementing the EMS, Bartlett commented that his job has become much easier. This is because the EMS has helped to accomplish the following:

### Accomplishments of an EMS

- Distributed environmental management responsibilities throughout the company;
- Decentralized environmental responsibility within the company;
- Increased visibility of environmental management within the entire business;
- Formalized employee training procedures and materials; and
- Created a new performance monitoring system for employee review.

Although Bear has not completed a formal evaluation of the EMS, Bartlett has seen the following bottom-line benefits among others:

- Reduced operating costs in some areas; and
- Reduced liability.

Additionally, the EMS has strategic value for the company in the following areas:

- Providing an important succession planning tool for dealing with employee turnover;
- Identifying ways to go beyond compliance and address non-regulated environmental issues;
- Helping to ensure that the company does not become complacent with regard to compliance and environmental improvements; and
- Maintaining and improving relationships with customers.

## C. Market Forces and Supply Chain Requirements

*Will Gibson, Project Leader, Tetra Tech EMI*

Will market forces, such as corporate procurement requirements, drive smaller companies to implement an EMS? Will Gibson, an EMS specialist with Tetra Tech EMI provided some insights from his experiences working with corporate Original Equipment Manufacturers (OEMs)<sup>10</sup> and on international EMS assistance projects.

Large OEMs are increasingly asking their supplier companies to meet certain environmental requirements in order to maintain or win contracts. Some OEMs, such as Ford, General Motors, and Toyota are now requiring their key suppliers either to have an EMS in place or to obtain ISO 14001 certification for their manufacturing facilities. Gibson remarked that

larger companies are embracing EMS and ISO 14001 within their own facilities because it improves the effectiveness of environment, health and safety programs. Currently, there are over 1,200 ISO 14001 certified facilities in the United States. The number overseas, however, is much larger.

One of the reasons that ISO 14001 Certification is on the rise, particularly outside the United States, relates to potential non-tariff barriers to trade. Many companies, especially in developing countries, are concerned about losing market access due to environmental restrictions. ISO 14001 Certification is seen as one way to demonstrate commitment to good environmental management practices. Additionally, many overseas OEMs are realizing that EMSs are critical for the bottom line. In India, Gibson noted, many OEMs are requiring both large and small suppliers to have an EMS to reduce the risk that the supplier will be shut down due to compliance violation or an accident.

Some OEMs are providing assistance and supplier training to implement EMSs. Ford, for example, has developed a training program for its suppliers both to encourage EMS implementation and to help reduce some of the costs involved in implementation.<sup>11</sup> Gibson also pointed out that overseas, many companies are exploring group certification as a means to reduce costs associated with ISO Certification.

## D. Discussion

Questions, comments, and issues raised following the presentation:

- An EMS Brand:** Several participants commented that the public neither knows nor understands what EMSs are or what they do. Consequently, there is little consumer pressure for products or services created by companies with EMSs. Within the business community, ISO 14001 is essentially becoming a brand-name EMS, valued by some corporate customers. However, considering that ISO 9000 is generally unknown to most consumers, it is unlikely that ISO 14001 or EMS will become more widely recognized without a greater public information campaign.
- ISO Lite:** Do small companies need a full-scale ISO 14001 compatible EMS, or is a scaled-down version sufficient? Some feel that some sort of scaled-down EMS is better for small businesses, while others feel that the current ISO 14001 framework is adaptable enough to not be a burden on a smaller company.
- ISO Lite, ISO Plus, or EMS With a Twist?** Several participants pointed out that there seems to be a number of different definitions or styles of EMS, besides the ISO 14001 model. Within EPA, it was suggested, at least three different models are being promoted. An example would

<sup>10</sup> The term OEM refers to companies who own a product brand, but outsource aspects of production to suppliers. Ford Motor Company is an example of large well-known OEM that relies on a network of suppliers.

<sup>11</sup> A copy of Ford's EMS training manual is available on the Pennsylvania DEP Web site. [http://www.dep.state.pa.us/dep/deputate/pollprev/Iso14001/Ford\\_Manual/fordmanual.htm](http://www.dep.state.pa.us/dep/deputate/pollprev/Iso14001/Ford_Manual/fordmanual.htm).

be an EMS that focuses mostly on compliance versus an EMS that promotes pollution prevention and DfE principles. Consequently, some participants believe that there is some uncertainty regarding what EPA considers an EMS or what the Agency is looking for from an EMS. Clarification is also needed as to any difference between phased approaches to implementing an EMS versus an EMS Lite approach.

- iv. Costs vs. Benefits:** For many small businesses, obtaining a permit may be less expensive and less time consuming than implementing an EMS. In this case, it may make better sense to focus on pollution prevention for eliminating permit requirements rather than the creation of an EMS since there is not a strong need for putting such a system in place.

### 3. Tools and Techniques

#### A. Kentucky ISO 14001/EMS Program

*Cam Metcalf, Kentucky Pollution Prevention Center*

The Kentucky Pollution Prevention Center (KPPC) is an independent non-profit technical assistance organization located at the University of Louisville. The KPPC was created through state legislation in 1988 to develop programs to reduce the use and release of hazardous and toxic pollutants. The Center currently offers a variety of environmental assistance programs, including:

- On-site technical assistance;
- Telephone support;
- Pollution prevention training;
- EMS and ISO 14001 training;
- Material & waste exchanges; and
- On-line resources.

Additionally, KPPC conducts research into pollution prevention applications and addresses environmental justice concerns. KPPC works with companies of all sizes, and the Center's EMS/ISO 14001 program has involved a wide range of companies.

KPPC's EMS/ISO 14001 program has three main elements: on-site gap assessments, training, and an EMS mentoring program. KPPC conducts EMS gap audits at no cost to Kentucky organizations, according to their needs. Following the audit, KPPC drafts and sends an audit and a technical assistance report with suggestions for improvements.

The Center's EMS training program features a series of four train-the-trainer workshops on the fundamentals of EMS followed by a two-day on-site implementation workshop. Training sessions enable the participant to become the EMS leader and trainer for their own company. In addition to instructor-led-workshops, participants also receive the following:

- Access to an on-line EMS model manual;
- A self-evaluation form with 14 elements and questions; and
- Relevant checklists.

An important complement to the EMS workshops is participation in an EMS mentoring program. This program functions in two ways. First, companies have the opportunity to be paired with a mentor from a company with an existing EMS. Second, companies have the opportunity to participate in a peer-to-peer or network-oriented mentoring program. These peer EMS mentoring programs are established in Bowling Green and in Louisville and are known as EMS Alliances.

To participate in an EMS Alliance, companies must pay a \$450 membership fee. Members benefit by learning how to make the implementation process easier and avoid pit falls. In addition to participating in Alliance meetings, members receive a free audit and access to a password-protected Web site.

#### Lessons Learned

- i. Support Groups:** Training programs and fact sheets are not enough for most companies, regardless of size. In addition, companies need on-going support through the EMS implementation process.
- ii. Mentors:** Mentors are a great source of guidance and motivation for companies implementing an EMS. Many companies are willing to mentor their peers because they gain valuable insights from the process.
- iii. Information Sharing:** Within the EMS Alliance, many share documentation, procedures, experiences, and other EMS-related tools. This exchange provides incredible resources for the participants, as well as the assistance provider.
- iv. Environmental Performance:** It is difficult to motivate companies to go beyond compliance, especially regarding non-regulatory environmental aspects. Focusing on how to promote overall environmental performance can be a more effective way to motivate more companies to go beyond existing requirements.

#### B. The EMS Municipalities Project

*Faith Leavitt, Global Environment & Technology Foundation (GETF)*

The goal of the EMS Municipalities Project was to test the applicability and benefit of an EMS on environmental performance, compliance, pollution prevention, and stakeholder involvement in local government operations. Sponsored by the U.S. EPA, from August 1997 through July 1999, the Global Environment & Technology Foundation (GETF) worked with 11 facilities or "fencelines" at nine local governments to develop and implement an EMS based on the ISO 14001 standard. While the local governments ranged in size and resources, all had some compliance problems in the past (see table at top of next page).

## EMS Municipalities Project—First-Round Participants

Participants	“Fenceline”	Staff Size
Town of Londonderry, New Hampshire	Department of Public Works	15
Massachusetts Department of Corrections, Norfolk	State Prison Facility (Power Plant, Wastewater Treatment & Industries)	31
Lansing Board of Water and Light, Michigan	Electric Generating Facility	35
City of Lowell, Massachusetts	Wastewater Treatment Facility	46
City of Gaithersburg, Maryland	Department of Public Works	80
Wayne County, Michigan	Wastewater Treatment Facility	100
City of Indianapolis, Indiana	Department of Public Works	150
City of Scottsdale, Arizona	Department of Water Resources, Department of Financial Services	1,500
New York City Transit Authority	Capital Programs Management	1,700

To provide training, GETF developed a four-phased EMS implementation program based upon experiences working with small companies. During each phase, teams of employees completed specific EMS requirements. Intensive two and a half day workshops were held at the beginning of each new phase of activity. These workshops prepared each of the participating organization’s “EMS Champions” to train and lead their EMS Implementation Teams through successful completion of the requirements in each EMS implementation phase. Additionally, each participant left with an action plan and set of materials. To monitor and measure progress, GETF would then follow up with each participant by phone.<sup>12</sup>

- Positive impact on environmental compliance and performance among the participants;
- Improved environmental awareness, involvement and competency throughout the organization;
- Better communication about environmental issues inside and outside the organization;
- Improved efficiency, reduced costs, greater consistency in overall environmental management;
- Better relationships with regulators; and
- Increased bond ratings for some municipalities.

PHASE I	PHASE II	PHASE III	PHASE IV
<ul style="list-style-type: none"> <li>■ Establish the program infrastructure inside the organization</li> </ul>	<ul style="list-style-type: none"> <li>■ Develop the Environmental Policy</li> <li>■ Determine legal and other requirements</li> <li>■ Determine significant aspects</li> </ul>	<ul style="list-style-type: none"> <li>■ Establish objectives and targets</li> <li>■ Design environmental management programs</li> </ul>	<ul style="list-style-type: none"> <li>■ Checking and corrective action</li> <li>■ Perform environmental management review</li> </ul>

GETF also developed a Virtual Office Network (VON), a password-protected Internet site that enabled participants to share information, documents, and tools and that provided a virtual venue for peer-to-peer mentoring. Additionally, GETF coordinated monthly conference calls with all of the participants to share information and to stimulate peer pressure.

Through the phased training process and the VON, all of the municipalities were able to establish an ISO 14001-based EMS. Additionally, project participants tracked costs and time spent on implementing the EMS.<sup>13</sup> The following are some of the benefits generated by the EMS project at the municipal facilities:

Based on the success of the first pilot, EPA has funded GETF to conduct a second EMS Municipality Project. This current round involves 14 public institutions that were selected from an application pool of 50 government entities.

### Lessons Learned

- i. **Conformance:** For many organizations, 80% of what they need to satisfy EMS elements is often there. Therefore, it is not necessary to create or reinvent procedures, policies, and so on. Rather, they need to be shown how these existing elements conform with the EMS framework and structure.

<sup>12</sup> For more information on this program, see the EMS Municipality Program final report, available on the web at <http://www.getf.org/projects/muni.cfm>

<sup>13</sup> See the project’s final report for more details.

- ii. **Empowerment:** Training sessions should focus on enabling the “EMS Champions” to become the trainers within their own facilities. Training should be seen as “training-the-trainer” sessions.
- iii. **Follow Up:** Participants need a lot of monitoring, measurement and assistance in responding to peer pressure. Given resource constraints, Internet-based communication tools and distance learning mechanisms are very helpful.
- iv. **Communication:** It is critical to communicate the success and progress of the program both to municipal employees and to elected and political leadership. Some participants published a project “good news” story every month.

## C. Trade Association EMS Programs

*Marci Kinter, Screenprinting & Graphic Imaging Association International*

Since 1999, the Screenprinting & Graphic Imaging Association International (SGIA) has worked in partnership with the EPA’s Design for the Environment (DfE) program to pilot an EMS training program for screenprinters. There are over 20,000 screenprinters in the United States, most of which have an average of 15 employees. Screenprinters currently face a number of federal and state environmental and safety regulations, primarily addressing air and waste issues.

Kinter described the EMS developed for the screenprinters as being “ISO 14001 With a Twist.” The twist represents specialized tools that address specific issues pertaining to screenprinters, such as information related to inks and products, pollution prevention, and health and safety. Because SGIA built on information developed by EPA’s DfE, the materials emphasized DfE practices. However, actual implementation of these elements was left to the discretion of the company.

To develop a workbook for the EMS training, SGIA adapted EMS information prepared by the DfE program. SGIA staff then facilitated a 12-month training process that began with a day and a half workshop followed by bi-weekly conference calls, homework, and two additional in-person seminars. SGIA developed sector specific tools for performing gap analyses, process mapping, drafting a manual template, and taking a compliance survey. To help cover some of the costs, all participants were charged a nominal fee.

SGIA acted as a catalyst and facilitator, but avoided dictating how the EMS should be implemented. SGIA left ISO certification of the EMS up to the company. Fourteen companies initially registered for the program, and thirteen successfully implemented an EMS. Most companies have not pursued ISO certification, since this process is often as expensive as a new screen press.

Having piloted the training program, SGIA is now looking for ways to roll out the training in a more decentralized manner to a greater number of printers. Like many associations, SGIA has limited staff resources for conducting intensive training. Therefore, they are looking to partner with local assistance providers that can use their materials and conduct the training.

To test this model, SGIA will be working with the Pennsylvania Small Business Development Center (PA SBDC) to coordinate the training program with Pennsylvania screenprinters. SGIA and the PA SBDC expect to work with ten printers because this is a good class size for the training processes. Partial funding for this project is provided by a grant from the Small Business Association.

## Lessons Learned

- i. **Commitment:** Developing an EMS and providing EMS implementation training consumes both time and resources. All parties need to be aware of the commitment required in developing an EMS.
- ii. **Limitations:** Both the assistance provider and the companies need to be realistic about what they can and cannot do. For very small companies, without a full-time environmental staff and with time constraints for environmental management, there is going to be a limit to the extent to which certain aspects of an EMS program can be developed. For example, it is unlikely that a small company will have all the resources to conduct an extensive Life Cycle Analysis. Additionally, for many small companies, ISO Certification is simply too expensive.
- iii. **Mentoring:** For small companies, particularly those where the personnel have no formal environmental management training, EMS development and implementation requires a great deal of guidance and mentoring from the assistance providers. Assistance providers need to walk the company personnel through the process, explain the rationale, and clarify the steps. Peer-to-peer mentoring also is helpful in enabling participants to share information on how they accomplish each phase as well as to motivate the companies through subtle peer pressure.
- iv. **Documentation:** At the start of the project, many printers were concerned that developing an EMS would create a “mountain of paperwork.” However, SGIA found that completing an EMS does not necessarily entail paperwork overload for small operations. The degree of documentation corresponds to the size of the operation.
- v. **Motivation:** For most small printers, there are few drivers for implementing an EMS. Some printers are facing supply-side drivers from OEMs. Because the cost of certification is comparable to a major capital investment for some printers, SGIA is approaching OEMs about accepting their programs as an equivalent procurement standard.

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## D. The European EMS Experience and Project Acorn

**Mark Barthel**, *Head of Sustainability Group, BSI, Ltd.*

What are the trends, and what is happening with EMS assistance to SMEs in Europe? Mark Barthel began his presentation by outlining some broad trends and differences in the EMS drivers in Europe. Barthel noted that in Europe, there is a shift from focusing just on environmental performance to including the environmental aspects of the products. This is affecting the emphasis of EMSs as well, driving them to look beyond the fences of facilities. The emphasis on product standards also is being examined in the regulatory area. Additionally, the European Union (EU) is looking for ways to link EMS to regulations and to tie EMS components into future pollution prevention directives.

There is also growing interest in the use of performance indicators. Barthel noted that the ISO 14031 performance standards are growing in use. In fact, new corporate transparency and reporting guidelines are being codified within the EU.

In Europe, SMEs have not widely embraced EMSs. According to a study, only 9% of all European Eco-Management and Audit Scheme (EMAS) registrations are from companies with 250 employees or fewer. Project Acorn was launched in the United Kingdom to explore ways to promote and help SMEs implement an EMS.

### Project Acorn

Project Acorn is a two-year pilot program coordinated by BSI and funded by the U.K. Department of the Environment. The goal is to help SMEs improve their environmental performance by assisting them with implementing an ISO 14001-based EMS with a set of performance indicators. These environmental performance indicators (EPis), which are structured on techniques outlined in ISO 14031, are designed to reflect the environmental aspects of SME activities, products, or service delivery.

There are two tracks for participation in Project Acorn: Fast Track and Slower Track. For the Fast Track, the program is implemented and registration is sought within less than one year. In the Slower Track, the process takes between 18 months and two years. The project uses a five-level approach to implementing an EMS, with an optional sixth level that facilitates public reporting or registration to the EMAS. These levels encompass the following activities:

1. Obtain top management's commitment to the project, conduct an initial environmental review, initiate culture change, and ensure ongoing commitment to continual improvement.
2. Identify all legal, customer and market requirements.
3. Confirm and manage significant environmental aspects and impacts.

4. Design and launch an effective EMS.
5. Check, audit and management review of the EMS for a specific cycle.
6. Verify data, public reports and seek EMAS registration.

Companies can join the project at any level, provided they can demonstrate completion of the elements and requirements at the previous level or levels. Throughout the pilot, the SMEs have access to modular training, consultants, a telephone helpline, and documentation support. Participants also receive a handbook to help them navigate their way through the EMS implementation process. Additionally, the project uses a specialized Web site that tracks progress in completing specific project milestones to foster a spirit of competition among the participants.

Two groups of companies are sought for participation in the project. A larger mentor company, which has a strong environmental management track record and has achieved ISO 14001 or EMAS registration, and a smaller supplier company that does not have an EMS. A secondary aspect of the project is the development an environmental management model that facilitates better supply chain communication between the larger OEM and their smaller supplier companies. Such a model also can create reporting mechanisms to assist with product Life Cycle Analysis.

Mentor companies have been asked to recommend smaller suppliers to participate in the program. For SMEs who want to participate in the program, BSI has helped to arrange for a large company customer of the SME to act as a mentor. Mentors receive recognition for their participation in the program. The SMEs are eligible for government training assistance throughout the EMS implementation process to train nominated employees in the use of environmental management tools and systems.

Mentors share customer-specific information and environmental management expertise, but also act as task masters for completing the implementation phases. Indeed, some mentors have sanctioned mentees for failing to meet specific requirements.

### Lessons Learned

- i. Training:** The methods and materials used for training personnel at large companies about EMS do not work with SMEs. Most SME personnel neither have the background nor the previous environmental management training of environmental staff in larger companies. SME personnel need much more tutorial time.
- ii. Flexibility:** BSI found that SME participants did not like daytime training. Either early morning or evening workshops worked better. Additionally, expect to spend about twice the training time.
- iii. Utility:** SME personnel are not interested in the theoretical aspects of an EMS and performance indicators.

Instead, they need practical information. The more information that can be intuitive, the better.

- iv. **Graphics:** Eco-mapping software, for example, has worked very well to help Acorn participants understand and conduct aspect analysis. Visual tools and graphics are excellent training materials.
- v. **Mentoring:** Having a mentor has helped tremendously for recruitment, motivation, and exchange of experiences.
- vi. **Implementation:** Because they are smaller and flatter in organizational structure, SMEs often can establish an EMS program much faster than a larger, more bureaucratic organization.
- vii. **Links:** BSI found that linking an EMS to business risk models is an effective way to demonstrate the value of an EMS.
- viii. **Recruitment:** On the average, two to four visits were required to motivate companies to sign up for the program.

## 4. Providers Session

### A. P2 Programs

**Sharon Johnson**, *North Carolina Department of Environmental and Natural Resources*

The North Carolina Department of Environment and Natural Resources (DENR) Division of Pollution Prevention initially became interested in EMSs as a way to promote pollution prevention (P2). Since most companies focus on meeting regulatory requirements, the DENR saw EMSs as a framework to help move companies beyond focusing solely on compliance. In 1998, the DENR joined the Multi-State Working Group study on EMS, and in 1999 DENR adopted an EMS policy. The latter drove the Division to start promoting EMSs within the Agency through training for DENR staff such as inspectors, rule writers, and so on. Additionally, the Division began examining ways to implement an EMS within the DENR.

The Division's primary vehicles for providing EMS information and assistance are workshops, its Web site, telephone support, compliance assistance programs, and enforcement agreements. The Division conducts EMS training for enforcement officers, in partnership with the National Enforcement Training Institute, and for government entities. To train its own assistance providers, Division staff work with lead auditors from registering organizations.

The Division's strength in EMS assistance is helping companies set objectives and targets and provide P2 information, once a facility has identified its environmental aspects and is looking for improvement opportunities. The Division is tied into several networks of P2 assistance providers, such as the P2 Roundtable, and works closely with the Waste Reduction

Resource Center, a regional clearinghouse affiliated with the Pollution Prevention Resource Exchange (P2Rx).<sup>14</sup> This network provides a wealth of information on sector-specific P2 opportunities.

Where the Division lacks experience is in documentation development and corrective action. Consequently, the Division's assistance is best suited for environmental aspect analysis and continuous improvement support. Although the P2 Division is not within the regulatory side of the agency, the Division still faces difficulties building trust with businesses.

### B. Manufacturing Extension Partnership Programs

**Vivian Harper**, *South Carolina Manufacturing Extension Partnership Program*

The South Carolina Manufacturing Extension Partnership (SC MEP) is affiliated with the national network of MEPs coordinated by the National Institute for Standards & Technology (NIST) within the Department of Commerce. This national network of 72 centers was established in 1989 to provide low-cost technical assistance to small manufacturers. The centers provide training on a broad range of manufacturing issues such as ISO 9000, inventory control, and AutoCAD.

All centers operate independently, but maintain a strong network for transferring knowledge, information, resources, and tools. Through this network, the centers pool resources to develop training. One of the tools developed by the MEP network is an ISO 14001 training toolkit.

The MEP ISO 14001 training is designed to help small manufacturers establish an EMS and obtain ISO 14001 certification. To date, both the SC MEP and other MEPs have worked with small manufacturers, some as small as eight employees, to establish an ISO 14001-certified EMS. However, the primary focus of the EMS/ISO assistance is to help the business gain a competitive edge through better management, rather than just certification.

MEP focuses on building partnerships, and in South Carolina, the SC MEP has established strong ties with the state universities, Small Business Development Centers, and Economic Development Agencies. The SCMEP is able to get the word out about its services through these networks, along with more traditional marketing approaches. Although the MEPs do not market to large companies, they often are contacted by OEMs to work with their suppliers.

### C. State Assistance Programs

**Robert Minicucci**, *New Hampshire Department of Environmental Services*

The New Hampshire Department of Environmental Services' (NH DES) interest in EMS grew out of the DES's own

<sup>14</sup> See [www.p2rx.org](http://www.p2rx.org) for more information on the exchange.

experience with developing a Total Quality Management (TQM) program. Through its internal TQM process, NH DES realized that management systems are effective and very beneficial. This experience made NH DES receptive to participating in a number of EMS-related pilot projects, such as EPA's Region 1 StarTrack program and the Multi-State Working Group EMS initiative (MSWG). As part of its participation with the MSWG, NH DES had hoped to work primarily with SMEs. However, the Department has found it difficult to involve small companies in this program.

Currently in New Hampshire, there are only a few organizations providing assistance on EMSs. DES's Small Business Assistance Program (SBAP) can provide information on EMSs to interested SMEs, however, EMSs are not the focus of the program. One of the most successful programs in the state has been run by WasteCap, a non-profit organization affiliated with the New Hampshire Business & Industry Association.<sup>15</sup> DES has offered workshops and trainings on EMSs for SMEs, but has had mixed results. The following are some of the lessons they have learned:

- Companies that understand quality management are more likely to successfully implement an effective EMS.
- In order to implement an EMS, the company must be well managed in the first place.
- Information provided for free is generally not valued as much as information that a company must purchase.
- An EMS must be a cross-functional team effort within an organization in order to succeed.
- EMS implementation takes a lot of time and support.
- Recruitment is difficult and time consuming.
- For small agencies, it may be more effective to direct people to EMS assistance programs at other organizations.

#### D. EPA's Assistance Centers

**Sherman Titens**, *Coordinating Committee for Automotive Repair (CCAR) Greenlink*

Established in 1994, the Coordinating Committee for Automotive Repair (CCAR) is an independent non-profit organization located in Overland Park, Kansas, that provides support to the automotive repair industry primarily through education initiatives. CCAR's Greenlink Web site ([www.ccar-greenlink.org](http://www.ccar-greenlink.org)) is an Internet-based environmental assistance resource for the automotive repair industry.

Started in 1995 with support from EPA's Office of Enforcement and Compliance Assistance, Greenlink is now one of ten Web-based compliance assistance centers.

#### Web-based Compliance Assistance Centers

- AgCenter– Agriculture Compliance Assistance Center  
• [es.epa.gov/oeca/ag/aghmpg.html](http://es.epa.gov/oeca/ag/aghmpg.html)  
Chemalliance • [www.chemalliance.org/](http://www.chemalliance.org/)
- Federal Facilities Compliance Assistance Site (FedSite) • [es.epa.gov/oeca/fedfac/cfa/](http://es.epa.gov/oeca/fedfac/cfa/)

Local Government Environmental Assistance Network - [www.lgean.org/](http://www.lgean.org/)

- National Metal Finishers Resource Center  
• [www.nmfrc.org/](http://www.nmfrc.org/)
- Paints and Coatings Resource Center  
• [www.paintcenter.org/](http://www.paintcenter.org/)
- Printed Wire Board Resource Center  
• [www.pwbrc.org/](http://www.pwbrc.org/)
- Printers National Environmental Assistance Center  
• [www.pneac.org/home2.htm](http://www.pneac.org/home2.htm)
- Transource, Transportation Environmental Resource Center • [www.transource.org/](http://www.transource.org/)

Through its Web site, CCAR Greenlink can provide assistance information at any time. Additionally, CCAR maintains a telephone hotline and fax-back services to address specific information.

CCAR measures the usage of its Web site by the number of pages visited or viewed per month. Currently, Greenlink receives over 30,000 page views a month, which is considered high by Internet industry standards. According to an evaluation conducted by CCAR and OCEA, 70% of these users take some sort of action after visiting the site. In addition to auto repair specialists, CCAR estimates that 30% of the users are other technical assistance providers.

Greenlink's high use rate stems from the organization's outreach efforts. CCAR currently works with over 300 automobile-related associations and has forged strong partnerships with the major industry magazines and publications. In many of the publications, CCAR maintains a small column or has its Web address referenced at the end of articles on environment and safety. CCAR also has forged strong connections to large Automobile companies (such as Toyota) who now refer its dealers and others to the site.

Like many small business sectors, promoting better environmental performance to the automobile repair sector is difficult. Part of what makes this difficult is the nature of the business. It is an hourly-rate, job-oriented business with no budget for environmental improvements. The basic business drivers are to make payroll, pay rent, make a profit, and avoid fines and penalties.

<sup>15</sup> WasteCap of New Hampshire is also affiliated with a regional network of WasteCap organizations in New England. For more information on WasteCap New Hampshire, see [www.wastecapnh.org](http://www.wastecapnh.org).

Additionally, auto repair technicians often have only a high school level education and frequently have not received training on environmental health and safety. Consequently, many technicians may have difficulty with or little patience for reading information on regulatory requirements. To help ensure that environmental, health, and safety information is understood, the CCAR Greenlink site is very visually oriented and has interactive “virtual shops.”

## E. Small Business Development Centers

**Chris Lynch, *University of Pennsylvania***

The national network of Small Business Development Centers (SBDCs) was established in 1980. The mission of the SBDCs is to provide managerial support and advice to existing and potential small businesses of 25 employees or fewer. There are currently SBDC offices in every state and in eight U.S. territories. SBDCs typically are located at universities or community colleges and receive half of their funding from the Small Business Administration. In Pennsylvania, the SBDC headquarters is at the University of Pennsylvania in Philadelphia and has 16 satellite offices across the state. The Pennsylvania SBDC (PA SBDC) typically sees 20,000 businesses a year, of which half are start-ups.

SBDCs typically work with businesses during a transition period, such as launching a company or growing and expanding an existing company. Companies that work with an SBDC usually grow faster and have a higher success rate than the average small company in the United States. For example, 86% of start-ups that worked with an SBDC made it through their first year, and 75% are still in business three years later. SBDCs work with businesses from all sectors, but 60% of all SBDC clients nationally are start-ups.

Environmental management assistance is considered a specialty program within the SBDC network, and most SBDCs do not offer environmental technical assistance. Typically, an SBDC will refer companies to other technical assistance centers for environmental advice. The PA SBDC is somewhat

unique in that it has been more actively involved in environmental issues. Currently the PA SBDC provides the following environmental services:

Partly because of its mission to provide managerial support, the PA SBDC became involved with providing assistance on EMS about four years ago. From the PA SBDC perspective, good business management means good compliance management.

Currently, there are only about eight SBDCs nationwide that provide assistance on EMS. However, SBDCs can play an important role in promoting and providing EMS assistance to start-up companies, which make up the majority of the SBDC clients. For such companies to embrace an EMS, there must be a strong business case and solid evidence that EMSs can achieve their desired business and compliance goals.

## 5. Working Group Sessions

The goal of the working group sessions was to develop a broad set of recommendations to inform and guide future work of assistance providers, state initiatives, and federal programs. The ideas and recommendations generated during these sessions form the basis of the recommendations outlined in Part I of this report. Three concurrent sessions were held that explored drivers for EMS adoption, tools and techniques for providing assistance, and steps to improve the existing network of EMS assistance providers.

### A. What Are the Significant Drivers That Will Create Demand for EMSs?

**What are the significant drivers that will create demand for EMS? How can assistance providers utilize these drivers?**

To explore what creates motivation and demand for EMSs, the Drivers Session began by identifying some of the barriers to EMS adoption by smaller businesses and organizations which are outlined below:

#### i. Barriers to EMS Adoption

##### Motivation

- Absence of consumer (general public) requirements or demand.
- Absence of customer requirements (for EMS).
- No public pressure or NGO pressure to implement an EMS.
- Absence of enforcement concerns or risks at the company.
- Lack of consistent message from government of the actual purpose or scope of EMSs.
- Not accepted or used in industrial or geographical area.
- Acceptance within company that environmental aspects are under control.
- Belief that EMSs are the current management “flavor of the month.”

#### **Pennsylvania SBDC Environmental Services**

- Confidential assistance for understanding environmental permit and compliance requirements;
- Confidential assistance for incorporating environmental considerations within strategic business management and planning activities;
- Environmental training seminars;
- On-site pollution prevention and energy efficiency opportunity assessments;
- Links to sources of technical and financial assistance;
- Quarterly newsletter; and
- Fact sheets and guidance materials

- Concern that public disclosure of environmental aspects could lead to negative public relations.
- Lack of trust in EMSs.
- Little acceptance of EMSs as relevant to other environmental initiatives.
- Low organizational priority for environmental issues.
- No bottom line value.
- Uncertainty regarding actual returns, with regard to return on investment and changes in relationship with regulators.
- Little relevance to businesses.

### Implementation Issues

- Fear of discovering non-compliance with regulations or permits.
- Fear of discovering or uncovering internal problems within the organization (staff issues, process issues, company policies, etc.)
- Resistance to changing the culture and traditions of the business.
- Viewed as complicated and unattainable.
- Concern about regulatory barriers (e.g. Title V Clean Air Act “entrapment”).
- Concern that EMSs might conflict with other management systems.
- Discomfort about what defines an EMS.

### Resource Issues

- Lack of information on how to implement an EMS.
- Lack of resources and time.
- Concern about operational management costs following implementation.

Because different organizations obviously face different barriers and will respond to different drivers, the group then developed a matrix of organizational sectors and drivers to use to access the influence of different drivers (*see Appendix*).

Through this matrix, the group identified four broad areas of EMS driver categories.

1. Business Benefits;
2. Government Actions;
3. Public Pressure and Demand; and
4. Financial and Legal Preferences for EMSs.

Due to time constraints, the group primarily focused on ways to leverage the business benefits and steps to make the business case for EMS. These steps are outline below.

### ii. Building the Business Case for EMS— Actions for the Next 12 months:

- **Collect** performance data—both environmental and operational.
- **Develop** information that shows how EMSs fit into business systems and sectors.
- **Create** a map illustrating how EMSs integrate into business systems.
- **Develop** resources to promote EMSs to specific sectors.
- **Tie in** EMSs to established priorities for the market sector, such as supply chain requirements.
- **Establish** peer and mentoring networks for EMS users.
- **Create** formal networks to promote EMSs to companies.
- **Leverage** third parties for direct marketing efforts.
- **Gather** information on EMS practices in other countries.
- **Promote** greater integration of environmental management into education institutions, such as vocational schools, universities, professional schools, and adult continuing education.

### iii. Driver-Sector Matrix Survey Findings

The Drivers Session participants completed the Driver-Sector Matrix after the workshop. Participants were asked to rank the impact of a driver on sector using a simple scale of 0 (no impact) to 4 (strong impact). All responses were then averaged by cell, row (driver), and column (sector) in order to identify which drivers are thought to have the most impact on each sector. The averaged matrix is presented in the Appendix.

The matrix represents a simple tool for organizing and quantifying individual opinions regarding the effect of different possible actions to promote or drive EMS adoption. The survey results and findings are not the product of a scientific study. Rather they were used to facilitate discussion. The following chart shows the impact of drivers on all sectors identified:

<b>Driver</b>	<b>Score</b>
ISO 14001 made a mandatory standard	3.11
Business benefits clearly demonstrated	2.88
Regulations require performance-based system	2.81
Enforcement policy favorable to EMS	2.64
Tax breaks for EMS	2.63
Consumer/public demand	2.53
Insurance benefits for EMS	2.53
EMS as a market access requirement	2.42
Customer (OEM) EMS Requirements	2.41
Polluter pays systems	2.31
Policies, statutes favor EMS	2.31
Business rewards clearly defined	2.30
EPA adopts ISO 14001 as a consensus standard	2.12
Corporate liability profile reduced by EMS	2.11
Federal and State EMS executive orders	1.99
Bond rating tied to EMS	1.95
Recognition programs	1.92
EMS shown to improve customer service via EMS	1.84
Environmental performance rating systems	1.83
NGO pressure	1.81
Increased marketing of EMS	1.80
Association membership requirement	1.75
Evaluation, rating, and labeling initiatives	1.69
Accreditation tied to EMS	1.63
EPA issues definition of EMS	1.36

The following are sectors most affected by the identified EMS drivers.

<b>Driver</b>	<b>Score</b>
SME manufacturing	2.638
Utilities	2.606
Health care	2.495
Agriculture and agro-business	2.490
Natural resources	2.417
SME service	2.281
SME retail	2.167
Educational institutions	2.088
Local government	1.838
Federal and state government	1.755

<b>Top 10 Drivers Affecting Small Manufacturers</b>	
Customer (OEM) EMS Requirements	4.00
EMS as a market access requirement	3.88
Tax breaks for EMS	3.63
ISO 14001 made a mandatory standard	3.38
Insurance benefits for EMS	3.25
Business benefits clearly demonstrated	3.25
Regulations require performance-based system	3.13
Enforcement policy favorable to EMS	3.00
Consumer/public demand	2.78
Corporate liability profile reduced by EMS	2.75

<b>Top 10 Drivers Affecting Utilities</b>	
ISO 14001 made a mandatory standard	3.44
Business benefits clearly demonstrated	3.33
Regulations require performance-based system	3.33
Market access requirement	3.22
Customer (OEM) EMS Requirements	3.11
Enforcement policy favorable to EMS	3.11
Tax breaks for EMS	3.00
Policies, statutes favor EMS	2.89
Business rewards clearly defined	2.78
Consumer/public demand	2.78

<b>Top 10 Drivers Affecting the Health Care Sector</b>	
ISO 14001 made a mandatory standard	3.13
Tax breaks for EMS	3.13
Business benefits clearly demonstrated	3.13
Insurance benefits for EMS	2.88
Enforcement policy favorable to EMS	2.88
Customer (OEM) EMS requirements	2.75
Corporate liability profile reduced by EMS	2.75
Regulations require performance-based system	2.75
Consumer/public demand	2.63
Business rewards clearly defined	2.50

<b>Top 10 Drivers Affecting Agriculture and Agro-Business</b>	
Customer (OEM) EMS requirements	3.33
Tax breaks for EMS	3.33
Market access requirement	3.25
Business benefits clearly demonstrated	3.22
ISO 14001 made a mandatory standard	2.89
Enforcement policy favorable to EMS	2.89
Regulations require performance-based system	2.89
Insurance benefits for EMS	2.78
Consumer/public demand	2.78
Business rewards clearly defined	2.67

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## B. Tools and Techniques Session

### What are the most effective models for promoting and providing EMS assistance?

To explore this question, the Tools and Techniques Session began with a general discussion about experiences promoting and providing support on EMSs. The following are some of the themes that emerged from this discussion:

- Provide sample documents, such as procedures and gap analysis tools;
- Provide project management training and tools;
- Provide time management training and tools;
- Keep information simple;
- Develop mechanisms for positive reinforcement;
- Demonstrate the market incentives for EMSs;
- Be clear about the amount of resources needed to go through process;
- Conduct site visits;
- Conduct a preliminary placement survey;
- Use mentors and peer support networks;
- Use listservs to foster mentoring;
- Ask mentors to review concerns and requests; and
- Combine mentoring with existing networks.

From this discussion, five different categories or areas of tools and techniques began to emerge:

- Existing Tools—Resources that are effective and available.
- Effective Approaches—Effective methods for working with organizations on EMSs.
- Diffusion Techniques—Effective methods for promoting awareness about EMSs.
- Recruitment Tools and Techniques—Effective methods for recruiting organizations into programs.
- Wish List Tools—Tools that providers wish they had.

To help capture the wealth of ideas being generated by the discussion, the group then created an inventory of different tools and techniques within these categories. This inventory is presented below by category.

#### i. Existing Tools

There needs to be better cataloging and awareness of existing tools for EMS implementation. Several effective resources are currently available, however, many providers are unaware of or do not know how to access the information. Some specific tools are outlined below:

##### Sector-based

- Sector-specific EMS templates (e.g., metal finishing, screenprinters).
- Sector-specific examples.

#### Implementation guides

- Georgia Tech ISO 14001 Implementation Program materials & training model.
- Compliance-focused EMS guides (e.g., CEC Guide, NEIC Guide, CEMP).
- EPA guidance manuals.
- Agency policy-level support documentation.
- Examples of company EMS manuals (electronic and hard copy).

#### Metrics/evaluation

- ISO 14031 Environmental Performance Evaluation Standard.
- EPI guidance.

#### Analytic tools

- The Toxic Use Reduction Initiative chemical and alternative technology and sector information library <http://www.turi.org/greenlist>.
- Waste-mapping tools available on-line at <http://www.etbpp.gov.uk>.
- The PZ Gem database of Web links <http://www.pzgems.org>.
- Eco-mapping tool (available on the European Commission Web site).
- “Greenware” type software.
- Facility planning for reduced use of toxics (Massachusetts).
- GAP audit tools.
- Checklists (P2 audits, compliance, etc.).
- CD-ROM tools, such as environmental law databases.

#### ii. Effective Approaches

The following methods were identified as effective formats for training:

##### One-to-one

- Mentoring/coaching.
- One-on-one on-site training.

##### Networking

- Creation of company bulletin boards and Intranet sites.
- Virtual communication tools: conference calls, listservs, Internet chat rooms, virtual connections that build trust.

##### Topical

- Gap analysis.
- Mass balance approaches to aspect analysis.
- Demonstration of specific techniques and technologies by companies actually using them.

- Sector-based approaches.
- Synthesis of ISO 14001 with ISO 9000.

### **Organizational initiatives**

- Moving the EMS programs out of the EHS office to break down functional dislocation and build cross-functional implementation teams.
- Empowerment of the local “champion” within firm.
- Train-the-trainer workshops for “champions” within the organization.
- Phased training.

### **iii. Diffusion Techniques**

The following were identified as effective ways to increase awareness and interest of EMSs:

#### **Document and communicate**

- Identify and use leaders to promote EMS.
- Show the value-added for performance-based compliance.
- Get companies to talk to the press with an EMS slant.
- Use good examples of actual case studies from various sectors.
- Recruit opinion leaders to promote EMSs within the community.
- Create a “broadcast buzz” for EMSs (e.g., change is good, EMS is about efficiency, everybody is doing it).
- Document bottom-line results concretely.
- Publish success stories.
- Partner with trade publications.
- Speak industry language.

#### **Build capacity**

- Educate NGOs and consumers.
- Build better understanding and support by NGOs of EMS’s potential by offering training, holding company open houses with an EMS “show and tell” session.
- Build EMS components into MBA/Environmental Management Degrees.
- Train regulators to promote EMSs.
- Encourage a business culture of learning through networking, journal reading, informed discussion, and attendance at conferences.
- Help create a critical mass of EMS knowledge in targeted sectors by supporting training, publishing articles in related media, and gaining the endorsement from sector leaders.

#### **Leverage organizations and incentives**

- Work with trade associations.
- Use community stakeholders and consumers to demand EMSs.

- Offer incentives to initiate EMSs (United Egg Produce Project XL Agreement).
- Work through industrial networks (e.g., sector based groups, supply chains, geographic areas).
- Provide recognition from state and EPA.

### **iv. Effective Recruitment Tools & Techniques**

The following were identified as effective ways to recruit organizations to participate in training or assistance initiatives:

#### **Leverage supply chains**

- Target companies with supplier mandates or new programs.
- Conduct OEM mentor recruitment events to identify small suppliers or to self-select suppliers.
- Suggest that OEM mentors use a risk-based approach to select critical suppliers to participate in programs.
- Leverage associations and business organizations.
- Work with associations and intermediary organizations.
- Work with Chambers of Commerce (most effective in smaller cities).
- Conduct recruitment events with trade associations to target membership and leadership in companies.
- Use networks, discussion groups, and association meetings as platforms to promote EMSs.

#### **Leverage compliance activities**

- Follow up with organizations facing notice of violations.
- Incorporate EMSs into Supplemental Environmental Plans (SEPs).

#### **Make the case**

- Promote EMSs as a succession planning tool for owner-operated companies and SMEs.
- Develop public awareness, advertising campaigns.
- Build the business case with qualified results from businesses with EMSs.
- Link EMSs to health and safety.
- Publish success stories.
- Obtain top-management buy-in and support at the outset by making the business case in financial terms (not tons of waste, PPM, etc). Continually sell top management on benefits.
- Obtain facility-specific data on costs, benefits, etc.

#### **Reach out**

- Initiate mentoring programs with community government, suppliers, vendors.
- Channel EMSs to programs through government help lines or departments.

- Submit articles to trade journals, newspapers, business newsletters, and P2/MEP newsletters.
- Send brochures to ISO/QS 9000 registered companies.
- Provide free EMS awareness seminars at locations statewide.
- Give presentations at association meetings; Chamber and Rotary meetings; CAMM, SSE and other professional meetings.
- Publicize the “Beyond Pinstripes” report (<http://www.wri.org>), which documents business schools with environmental management programs.

### **The personal touch**

- Bring in CEOs to promote EMSs.
- Attend business group luncheons.
- Conduct on-site business case presentations.
- Arrange one-on-one meetings with facilities.
- Target opinion leaders regionally.

### **v. Wish List Tools**

The following are among the tools that providers wish they had:

#### **Readily available information, documentation and analytic tools**

- A better system for making information more effectively available.
- User-friendly chemical information database.
- Examples of using 14001 as a base with Natural Step or with other 14000 documents (like 14031).
- Better benchmark information by sector (e.g., EPA set targets for companies to use when setting objectives and targets, like 33/50, but by media and sector).
- Web database of environmental laws with clear explanations so that SMEs can search by sector, site location, process, chemical, and material to ascertain applicable laws and their compliance needs.
- UN Environment Program toxicology database.
- Credible cost-saving success stories, especially related to operational efficiency and beyond.
- Environmental aspects lists for industry sectors.
- Recognition for various EMS models such as Responsible Care, Biosolids, and some critique by EPA of pluses and minuses of both.
- Guidance manual for companies to use for choosing an EMS consultant.
- One document with examples of different approaches to performing aspects and impacts.

- Good preventative action models related to P2 for “generic activities”.
- Examples of documented procedures.
- Sector-specific EMS templates available at a single Web site.
- National repository of business cases, case studies, and experiences from the real world with quantified cost and benefit data.
- Quantitative cost-benefit analysis for EMSs.

### **Networking support**

- Strong EPA EMS contacts within the regions.
- Strong state agency EMS contact list.
- Workshops to build greater trust and understanding between state providers and EPA.
- Links within EPA to regulatory programs with EMSs so that programs build on each other rather than emphasize their own unique initiatives.
- Single point of contact for EMSs at EPA regional offices.
- “Map” of available networks or service providers, programs, and experts.

### **Training/capacity building**

- Workshops on third-party verification.
- Improve awareness of management science.
- Train-the-trainer programs for EMS peer workshops, as in Southern California.
- “EMS 101” training program for SMEs.
- EPA-sponsored training for state assistance providers on a regular basis and around the country.

### **Communication systems and programs**

- Public awareness programs on EMS.
- Consolidation of EMS news into new documents, state contracts, supplier mandates, and use of EMSs in enforcement.
- Single, main EPA EMS Web portal that includes all pilots, tools, list serves, and other data.

### **Support for selecting auditors and registrars**

- Information on how to select a registrar.
- EPA-maintained or EPA-endorsed certification/accreditation for qualified auditors.
- Government-licensed registrars.
- More economical consultants.
- List of who is registered.

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## C. Providers Session

**Can the existing network of assistance providers be expanded to provide the best service and most effective use of resources? What are the gaps in the current provider networks with regard to sectors and geography?**

To address these questions, the Providers Session began by exploring four fundamental questions:

- What are your general impressions regarding EMSs and EMS assistance?
- What role do providers actually play?
- What are the tangible products of providers?
- Who is the customer?

The group then identified steps to build the market for EMSs and maximize the delivery of the service. The findings and ideas generated by the break-out session are outlined below.

### i. General Impressions Regarding EMSs and EMS Assistance

- Providers must have credibility. Therefore providers need high-quality and effective tools, techniques, and information. Standards, perhaps even certification, for providers may be helpful to ensure credibility.
- An EMS should be viewed as a guide, not a model, for small companies and organizations. Providers should mold an EMS to fit the needs of the customer. Providers should use pieces of EMS models that best suit the customer.
- ISO 14001 is written broadly enough to suit most consumers. Each company has to develop their own system, but sector-specific tools can be useful to a certain industry.
- Simplicity is key: Small companies do not always need all of the 14001 system. Some small companies are often better off choosing the specific elements they need and forgoing full certification.
- Providers need a network, support for sectors, human resources, and ways to contact experts for assistance (a database of specialists).
- The concept of “providers” needs to be extended to encompass a network of people, speakers, and mentors from different industries and locations.
- Providers must be able to train the trainer to spread the idea to others in the field; day-to-day operators respond to credibility.

### ii. What Role Do Providers Actually Play?

- Motivate the consumer and convince them to implement an EMS.
- Provide models and templates, peer connections.
- Help to fill gaps by identifying what elements are already in place and how to focus resources.

- Assist facilities with creating an EMS and setting goals and objectives.
- Help to coordinate information.
- Identify the “champion” within the organization who is the expert and advocate for the EMS.
- Coach; train; provide resources, such as ranking sheets for significance; and educate personnel to the standard.
- Help accomplish goals.

### iii. What are the Tangible Products of the Providers?

- Training;
- Information;
- Auditing;
- Procedure writing;
- Gap analysis;
- Aspect evaluation;
- Permit writing;
- Financial analysis; and
- Emergency preparations.

### iv. Who are Providers?

- Regulatory agencies, associations, Manufacturing Extension Partnership Programs, university-based assistance programs, Pollution Prevention Programs, and business networks.
- Providers vary by industry and geography.
- Many lists of providers are already available, just need to know where to find them.

### v. Steps to Build the Market for EMSs

- Increase outreach, networks, partnering, and joint ventures among organizations.
- Promote EMS training in business programs at universities, technical colleges, and community colleges.
- Tap into existing networks such as P2Rx network of providers and the PETE (Partnership for Environmental Technology Education) network of community college training programs.
- Identify EMS “champions” for training and support.
- Get involved in the greater business community.
- Create an association of providers to standardize practices and institutionalize the network (make recommendations and work through the existing system).

### vi. Steps to Maximize Service Delivery

- Identify potential mentors and peer groups.
- Make services affordable.
- Provide convincing information that demonstrates added value to the company.

- Recognize the uniqueness of small business.
- Be concerned about the cost and time of implementing an EMS.
- Create a market to identify problems.
- Identify what assistance is available for free and what costs money.
- Identify the initial contact for the small business, by location or sector, by working more closely with trade associations, SBAP, and government agencies.

#### **vii. Summary and Recommendations**

- Identify all existing and potential technical assistance providers and form a comprehensive list.
- Identify all existing providers and networks involved in EMS work.
- Survey the scope of EMS services currently being offered.
- Categorize the nature of these services.
- Establish an organization to carry on a continuing dialogue on EMS assistance, such as an association of service providers.
- Create a network model for how to develop effective networks at the regional level.
- Identify the strategic entry point within a business for promoting EMS.
- Collect and disseminate data that characterize the benefits of EMS for businesses, both financial and environmental.
- Catalog and characterize the benefit data so that they are useful to customers.
- Identify potential mentors and peer groups.
- Link EMS assistance to other environmental performance initiatives.

### **D. Summary of Recommendations and Actions from Working Group Sessions**

Following the Washington DC workshop, NEETF reviewed and consolidated the recommendations developed during the three working group sessions into the outline below. This list was then used to develop a survey for prioritizing the importance of the different actions.

#### **Inventory EMS Assistance Programs and Providers**

- Identify all existing technical assistance and potential providers and form comprehensive list.
- Survey and categorize the scope of EMS services currently being offered.
- Create a database or directory of EMS assistance providers.

#### **Strengthen the EMS Provider Network**

- Maintain the dialogue and discussion among EMS providers through additional workshops or annual meetings.
- Establish an organization to carry on a continuing dialogue on EMS assistance, such as an association of service providers.

#### **Support EMS Assistance Provider Capacity Building**

- Advocate EPA-sponsored training for state assistance providers on a regular basis and around the country.
- Establish standards, perhaps even certification, for providers to ensure quality and credibility of assistance.

#### **Build the Business Case for EMSs**

- Collect data that characterizes the benefits of EMSs for businesses, both financial and environmental data.
- Develop information that shows how EMSs fit into business systems and sectors.
- Create a map illustrating how an EMS integrates into business systems.
- Develop resources to communicate EMS benefits to specific sectors.

#### **Develop an EMS Internet Web site to Support the Work of EMS Providers**

- Create a national repository of business case information, case studies, and other material documenting experiences and the cost and benefit data of EMS implementation and operation.
- Establish a repository of federal and state EMS guidance documents.
- Provide sector-specific EMS templates available at a single Web site.
- Establish a portal for information on all pilots, tools, listservs, and other data.
- Provide EMS news on new tools and guidance, state contracts, supplier mandates, and use of EMSs in enforcement actions.
- Provide a “map” of available networks or service providers, programs, and EMS experts.
- Maintain a list of companies that are ISO registered.

#### **Support the Establishment of EMS Mentoring Networks**

- Identify potential mentors, existing peer groups, and organizations likely to support or participate in a peer EMS mentoring program.
- Develop resources focused on operating an EMS-oriented mentoring program.
- Conduct train-the-trainer programs for EMS peer workshops.

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### **Support the Development of a Common Set of EMS Assistance Tools**

- Create and provide a standard “EMS 101” training program for SMEs.
- Coordinate or consolidate development of implementation guides.

### **Support EMS Implementation Tools in Specific Sectors**

- Develop tools to assist with aspect analysis for specific sectors.
- Develop environmental aspects lists for industry sectors.
- Provide benchmark information by sector.
- Establish sector-based performance objectives and targets (e.g., EPA established targets for companies to use when setting objectives and targets, like 33/50, but by media and sector).
- Develop model procedures and other documentation templates.
- Develop sector information resources on regulatory requirements.

### **Support the Development of Tools to Assist With Aspects Analyses**

- Develop a document with examples of different approaches to performing aspects and impacts analyses.
- Establish a user-friendly chemical information database.
- Create an on-line database of environmental laws with clear explanations searchable by sector, site location, process, chemical, and material to help SMEs ascertain applicable laws and ways to comply.
- Provide good preventative action models related to P2 for “generic activities.”

### **Develop Tools and Resources on EMS Registration**

- Provide information on how to select a registrar.
- Conduct workshops on third-party verification.
- Have EPA maintain or endorse certification/accreditation for qualified auditors.
- Create a government-licensed registrar program.

### **Elevate EMSs Within Environmental Agencies**

- Establish an EMS coordinator within the regions as a single point of contact.
- Encourage state agencies to establish an EMS contact or coordinator.
- Conduct workshops to build greater trust and understanding between state providers and EPA.

### **Integrate EMS Into Other Environmental Programs**

- Link EMS assistance to other environmental performance initiatives.
- Link regulatory programs to EMSs as a means to help programs build on each other, rather than emphasize their own unique initiatives.

### **Increase Awareness of EMSs**

- Conduct outreach to the NGO community on EMSs.
- Work with trade associations and other industry groups, particularly at the local level, to promote EMSs.
- Explore ways to increase public awareness of EMSs.
- Encourage EMSs as a procurement requirement for suppliers by large companies (OEMs).

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## Part IV

# San Francisco EMS Assistance Strategy Workshop, Summary Report

### 1. Morning Session— Perspectives on EMS Assistance

#### Panelists:

- **Ruben Angel**, *Regulatory Manager*, Artistic Plating
- **Matt Atkinson**, *Ranch Manager*, Benzinger Family Wineries
- **Geoff Blake**, *Environmental Manager*, All Metals Processing
- **Leah Seki**, *Deputy Director*, City of San Diego Department of Environmental Services
- **Kathleen Thurmond**, *President*, Best Washington Uniform and Linen Supply, Inc.

#### Moderator:

**David Monsma**, *Senior Manager for Environmental Programs, Business for Social Responsibility*

The purpose of the Morning Session was to hear from participants in EMS assistance initiatives about the following:

- Why their organization participated in an EMS initiative;
- What assistance methods were the most effective;
- What benefits they received; and
- What they would recommend for future initiatives.

**Kathleen Thurmond**, *Best Washington Uniform and Linen Supply, Inc.*

Kathleen Thurmond, President of Best Washington Uniform and Linen Supply, Inc. of Long Beach, California, began the discussion by explaining why her company chose to work with EPA Region 9 and the California EPA (Cal EPA) to develop an EMS for her 50-person industrial laundry company. Thurmond became interested in developing an EMS for her company in 1996 while addressing water use and treatment at her facility. Because neither Thurmond nor her staff had a technical background, she initially sought out technical assistance for evaluating control technologies. Through her interactions with technical assistance providers, she became interested in developing a comprehensive environmental management strategy for her company rather than finding an end-of-the-pipe technological fix. She believed that developing

such a strategy would strengthen her company's existing commitment to providing quality and excellent service to its customers and community. Having a strong personal environmental ethic, Thurmond also was interested in instituting an organizational structure that would integrate environmental strategies into the operations of her business that would be effective and easy to maintain.

Fortunately for Thurmond, EPA's Region 9 was very interested in working with Best Washington to develop an EMS. For the Agency, Best Washington provided an opportunity to learn about the industrial laundry sector as well as how to design and implement an EMS for a small organization. By partnering with EPA, Best Washington was able to gain access to consulting and engineering resources that they would otherwise not be able to afford. Best Washington worked very closely with EPA to develop and implement their EMS, which Thurmond said was important for keeping the project on track, given all of her other responsibilities. Additionally, EPA gained assurances from the local sanitation board that they would not look for violations or issue fines during the EMS implementation process. This helped to alleviate Best Washington's concerns about exposure to enforcement actions from undergoing a great deal of scrutiny by regulatory agencies of the impacts and aspects associated with company's actions.

Since establishing the EMS, Thurmond believes that she has gained confidence in managing, monitoring, and addressing the environmental aspects of her company. Additionally, by creating a system for monitoring and reducing utility use, the EMS has saved Best Washington over \$2,000 in energy costs and reduced overall water consumption.

Best Washington is currently the smallest organization selected for participation in EPA's Performance Track. However, despite this success, Thurmond is concerned about maintaining the momentum to meet all of the targets and objectives established in her EMS. Like most small business owners, Thurmond must wear many hats. Consequently, having enough time to dedicate to her company's EMS is a major challenge.

**Matt Atkinson**, *Benzinger Family Winery*

Matt Atkinson is the Ranch Manager for the Benzinger Family Winery and currently is working with Cal EPA and the Davis-Bynum Winery to develop an EMS template for

wine makers. Atkinson explained that Cal EPA approached Benzinger because of his company's participation in the Sonoma Green Business Program and reputation for having a strong commitment to environmental excellence. Prior to being approached to participate in the California EMS Pilot Project, Atkinson knew little about EMSs or ISO 14001. After learning about the EMS approach, Benzinger, which is pursuing organic certification and instituting bio-dynamic agricultural methods, saw the EMS initiative as an opportunity to combine the winery's different environmental initiatives. Additionally, the winery saw the EMS initiative as a way to address water, energy, and diesel fuel use.

For Cal EPA, the winery EMS initiative represents an opportunity to study and understand material flows through an entire agricultural system, from growing to manufacturing, and to develop an EMS that integrates all of the processes into one system. Davis-Bynum and Benzinger also will develop metrics for evaluating sustainable agriculture practices. For both wineries, these metrics will be economically important because of the winery's belief that environmental quality is directly related to wine quality.

Benzinger is in the process of developing its EMS. Eventually, the winery will seek ISO 14001 Certification and will report performance data to the Multi-State Working Group National EMS Performance Database. Atkinson indicated that the biggest struggle is time, since he cannot devote all of his time to the project. However, having external organizations such as Cal EPA, consultants, and the Northern California EMS Working Group involved in the project helps to maintain the momentum. For Atkinson, identifying and prioritizing aspects and impacts has been the greatest challenge.

#### **Geoff Blake, *All Metals Processing***

Geoff Blake is the Environmental Manager for All Metals Processing, a medium-sized metal plating company specializing in aerospace applications. Like most metal platers, All Metals faces a fairly complex set of environmental issues stemming from the nature and variety of its operations and their associated waste streams. All Metals' initial interest in the Merit Partnership EMS Initiative for Metal Finishers arose from their desire to develop a better strategy for managing chrome waste.

Although Blake was familiar with the concept of an EMS and the ISO 14001 standard, he originally felt that an EMS for All Metals would be too costly and time consuming and was beyond the scope of what they needed. Having gone through the process of establishing both Quality Management Systems and aerospace industry certifications, Blake was leery of launching another management system initiative. However, what changed his mind was the development of an EMS template for metal finishers and the active involvement of the local metal finishers association. Because All Metals' previous experiences working with their local trade association on collaborative environmental projects were positive, Blake was confident that participation in the EMS

initiative would be on target and worth the time. Since implementing the EMS, All Metals has reduced chrome use and wastes, resulting in significant cost savings. As a result of these cost savings, Blake has been able to hire a specialist to help with testing and monitoring. All Metals also has cut its generation of stabilized sludge by 60% and can now recycle its sludge. Additionally, through their EMS program, All Metals now is examining ways to reduce cyanide and cadmium use and related wastes.

Having a sector-specific EMS template geared towards the metal finishing industry and working with a technical assistance provider who was knowledgeable about the industry was critical to the success of the EMS program, according to Blake. For the Merit Partnership EMS Initiative, technical assistance was provided through consultants from Tetra Tech EMI, who had significant work experience with the metal finishing sector.

Blake noted that businesses that operate on a job shop model or that perform defense contracting work face additional challenges in implementing and operating an EMS program. Speaking from experience, Blake stated that as a job shop, the materials, processes, and waste typically vary from job to job, which can make meeting targets and objectives more difficult. Defense contract specifications also do not allow the facility to make material substitutions or process changes that have less environmental impacts.

#### **Leah Seki, *City of San Diego Department of Environmental Services***

Leah Seki coordinates the City of San Diego Department of Environmental Services' EMS initiative. Prior to the Department's participation in the EPA's Municipality EMS Project, Seki was not familiar with EMSs or ISO 14001. Seki and the Environmental Service Department only became involved in the Municipality EMS Project after the City was selected for participation in the program and the project was delegated to her. Initially, Seki did not think that the program would be very interesting or particularly helpful for her Department. However, after participating in the program, she now believes that the EMS process has facilitated positive changes because it has forced the Department to think differently.

Wanda Redic-Bland from the City of Berkeley Solid Waste Management Division, which also is participating in the Municipality EMS Project, shared similar story of her office's entrée into EMS. Like Seki, Redic-Bland had never heard of an EMS until someone the Economic Development Office of the City of Berkeley told her that they were in applying for participation in the pilot project. The Economic Development Office was interested in participating because the city is promoting itself as a location for "green business." The EMS program seemed like a good fit with the city's vision. Redic-Bland also noted that her Department could never have established an EMS without the assistance they received from participating in the pilot project.

Although San Diego has not finished implementing their EMS, Seki is already seeing results. For example, potable water use for dust control has been reduced to zero. Additionally, employees have set higher targets than management in some cases, such as raising the fuel consumption reduction target from 10% to 30%. The Department also has made a commitment to replace cars in its fleet with alternative fuel vehicles.

Seki has found the phased training approach used in the Municipality EMS Project to be very effective. Additionally, having EPA's backing for the initiative has been important for gaining internal support for recommendations generated by the EMS process. Being able to tap GETF for technical assistance and support also has been very helpful, Seki noted. Additionally, Seki has found that having an outside consultant review documentation and conduct employee training has been very effective since employees tend to listen more to trainers from outside the office. An important lesson learned from the initiative, Seki said, was keeping the EMS process simple and focusing on a few key aspects to make the process feasible. Seki also recommends using a "slow diffusion process" to spread the word about the program internally and avoid hyping the EMS initiative. This prevents the program from being seen as the "flavor of the month."

#### **Ruben Angel, Artistic Plating**

Ruben Angel manages environmental issues for Artistic Plating, a medium-sized metal finishing company in Anaheim, California. Angel first became aware of EMSs from consultants and through his involvement in the Merit Partnership Program. Artistic Plating had been involved with the Merit Partnership Program as well as with other pollution prevention and conservation programs. Angel stated that his company has a strong environmental ethic and is concerned about the image of its industry. As a result, his company looks for participation in programs that help build trust within the community. For Artistic, volunteering to work with EPA and Cal EPA to test an EMS template for metal finishers seemed like a good way to ensure the company's and industry's credibility while taking proactive steps toward reducing toxic materials and water use. Additionally, Angel was interested in using the EMS as a vehicle for developing better measurement tools.

Since implementing its EMS, Artistic has been able to reduce its water consumption by 50% and eliminate TERC as well as the wide-scale use of nitric oxide acid. Artistic also is developing closed-loop systems. In addition, the EMS process has enabled Artistic to find process and management solutions to address problems that might otherwise be solved through the use of expensive technology. Angel estimates that Artistic has saved close to a half million dollars by not purchasing end-of-pipe control technologies. Additionally, Artistic is working with vendors on material substitutions and alternatives.

For Angel, having a template that focused thoroughly on four to five key aspects has made implementing the program workable. Trying to do everything all at once would have been too much, he noted. Angel also believed that some of the

most effective EMS training and implementation tools were those that involved all employees. Developing materials in Spanish and using graphic charts on a company EMS bulletin board to track progress helped facilitate organizational change, he noted.

## **2. Assistance Providers' Perspectives on EMS Initiatives**

### **Panelists:**

- **Bonnie Barkett**, *National Performance Track Coordinator, U.S. EPA Region 9*
- **Jennifer Smith Grubb**, *California EPA*
- **Rich Polito**, *Director, Maricopa County SBEAP*
- **Shana Harbour**, *Program Manager, U.S. EPA Headquarters*

**Moderator: Walt Tunnessen**, *Former Senior Director of the Business Program, NEETF*

In this session, representatives from county, state, U.S. EPA Regional, and U.S. EPA Headquarters discussed their initiatives and some of the lessons they learned along the way. Bonnie Barkett from the U.S. EPA Region 9 office began by discussing her office's exploration into EMS nearly seven years ago. Initially, the Regional Office found it difficult to get support for work involving EMSs, however, Barkett and others were able to demonstrate the need to examine EMSs partly through the willingness of consultants to volunteer their services to work on a few EMS pilot projects. The Region's initial work focused on understanding the drivers and barriers to EMS adoption by using the Merit Partnership Program for Pollution Prevention as a vehicle for engaging businesses in a discussion about EMSs. One of key lessons that Region 9 learned from these conversations was that companies tend to overestimate the cost of implementing an EMS and discount the benefits, when in fact, the benefits of having an EMS are much greater than the initial cost.

EPA Region 9 initially began working with small companies on EMSs because small businesses had generally not been examined in the context of the EMS. By working with Best Washington, Region 9 gained a better appreciation for the issues involved in implementing an EMS in a small company and the potential benefits. Additionally, Region 9 worked with the Metal Finishing Sector as part of the California Strategic Goals Program, to develop an EMS template and training program for that sector. This program was initially tested with Metal Finishers in Southern California and has now been expanded statewide. Currently, Region 9 is looking for ways to integrate EMS into existing programs and is promoting and working with companies participating in the Performance Track Initiative. Region 9 also is involved in the Municipalities EMS Pilot Program with the Cities of San Diego and Berkeley and working with federal facilities to establish EMS programs.

The California EPA (Cal EPA) has been working closely with Region 9. The State of California has one of the most active EMS programs in the country and has provided some of the early leadership for the Multi-State Working Group's current EMS research and policy initiatives. Like Region 9, Cal EPA's first major EMS initiative was working with the Metal Finishing Sector on testing an EMS template. Part of the success of this program has been the continued training on the EMS template to new companies by the Southern California Association of Metal Finishers. In order to bring the program to more companies, Cal EPA and EPA Region 9 are now working with the Northern California Metal Finishers Association to provide EMS assistance to companies in the northern part of the state. Jennifer Smith Grubb, EMS Project Coordinator, attributed some of the success of the project to the ability of the EMS initiative to create a "common cause" for all regulators (local, state, air quality districts, federal) and the industry to work collectively towards a common goal. This collaboration also has enabled the state to develop new methods to streamline permitting requirements for the EMS company participants.

In July 2000, the State of California passed legislation authorizing the creation of the Cal EPA Environmental Management Project.<sup>16</sup> The purpose of this project is to determine whether an EMS can produce higher levels of environmental performance by business and government facilities and better information about environmental protection programs for the public. Additionally, the project seeks to build collaborative partnerships between government, business, and public interest groups by identifying ways to provide businesses with greater flexibility in managing their environmental affairs in return for environmental performance that exceeds minimum regulatory compliance levels. Cal EPA currently is working with ten companies (*see box*) on the pilot. These companies also are providing data and information to the Multi-State Working Group's National Database on Environmental Management Systems.

Another aspect of the EMS Pilot is the formation of two EMS workings groups in Northern and Southern California. The working groups involve community groups; public interest organizations; industry; academia; and local, state, and federal regulatory agencies and provide a forum for dialogue about EMS design and implementation. Additionally, the working groups are developing a common understanding and knowledge of EMSs through training organized by Cal EPA and funded by a grant from the U.S. EPA Office of Water. Through the working groups, the state hopes to build interest and capacity at the local level.

### California EPA EMS Pilot Participants

- Anheuser-Busch
- Central Marin Sanitation Agency
- San Diego Metropolitan Wastewater Department
- IBM Corporation
- Lockheed Martin Aeronautics Company
- Artistic Plating
- Pentel of America
- Davis-Bynum Winery
- Benzinger Family Winery

The Maricopa County Small Business Environmental Assistance Program is one of a handful of county-based environmental assistance programs in the country. For Maricopa County, in Phoenix, Arizona, providing environmental compliance and technical assistance to businesses is viewed as important to economic development, partly because of the county's status as a non-attainment area for air quality. As a local program, Rich Polito from Maricopa County's Small Business Environmental Assistance Program has been able to build strong relationships with the local business community through the formation of a public-private environmental business alliance. Through this alliance, the county is able to both gauge demand for programs and assistance and introduce new concepts and approaches. From these interactions, the Polito has seen growing demand for EMS assistance. The county also is witnessing interest and demand for EMS assistance from a variety of sectors, including the construction and building industry. Currently, the county sponsors introductory meetings on EMS and is developing a mentoring program to provide peer-to-peer assistance.

From the national perspective, Shana Harbour from U.S. EPA Headquarters, noted that activity and work around EMSs has been decentralized. Within EPA headquarters, the Office of Policy, Economics, and Innovation (OPEI) has served as the lead for Agency policy regarding EMS and was charged with developing the draft EMS action plan as an outgrowth of the Aiming for Excellence Initiative. However, Harbour noted that there are many offices and regions within the Agency working on EMS-related projects. At the national level, OPEI is working with trade associations and examining ways to develop EMS resources within key sectors. Additionally OPEI will be developing tools to provide easier access to guidance documents and tools through the development of a "Pathfinder" Web site and expansion of the EPA EMS Web site ([www.epa.gov/ems](http://www.epa.gov/ems)).

<sup>16</sup> California Assembly Bill 1102.

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## Lessons Learned

- i. EMS Assumptions:** Most companies believe that implementing an EMS is either beyond the scope of their operations, too burdensome, too expensive, or beyond their internal capacity. Additionally many companies find ISO 14001 and the registration process intimidating. Consequently, many companies do not take a hard look at the benefits and costs of implementing an EMS. To effectively promote and provide assistance, the basic elements and purposes of an EMS should be stressed. Illustrating an EMS program as a system of checks and balances also is an effective way to communicate the purpose of an EMS.
- ii. Priorities:** Another way to make EMS more attainable is to focus on addressing a few key aspects and setting a small number of critical targets. This helps to build confidence and support for the EMS process.
- iii. Competitiveness:** The best way to engage companies in an EMS program is to demonstrate how an EMS can improve competitiveness. Most companies are skeptical whether good environmental management can improve business performance. Fortunately, for many companies, their EMS programs have identified opportunities for cost savings and improving operating efficiency in ways that also help to improve competitiveness. This is best hook for recruiting and selling assistance.
- iv. Partnerships:** Trade associations provide an excellent vehicle for reaching business and establishing credibility. Associations also can help to distribute EMS information and sustain momentum.
- v. Documentation:** Monitoring progress and getting numbers that illustrate the quick successes as soon as possible helps to build confidence in the process and value of the EMS program.
- vi. Confidence:** EMS programs can help remove much of the fear and lack of confidence that many companies have regarding meeting regulatory obligations and seeking guidance and assistance.
- vii. Cost:** Through such things as group training and mentoring, the costs of assistance can be significantly reduced. Working with associations to develop a sector-specific EMS template also is an effective way to reduce the cost of implementation.
- viii. Coordination:** The structure and process of providing EMS assistance provides a proper vehicle for improving coordination between various regulatory offices and agencies. EMSs should not be seen as a single media or jurisdictional issue.
- ix. Accessibility:** For an EMS to be truly effective, it must be integrated into all levels of the organization. While top management buy-in is critical, support and understanding of the purpose of an EMS by all employees, particularly line workers, is also necessary. Look for ways to make the objectives of the EMS accessible by all workers. In particular, be sensitive to language skills and educational backgrounds.

## Part V

# EMS Assistance Survey

### EMS Assistance Survey Findings

Sample size = 45 respondents.

#### Prioritization of Actions to Promote and More Effectively Provide EMS Assistance

High Priority (3.0—2.5) Medium Priority (2.5—2.0) Low Priority (2.0—1.5)

Action	Avg.
• Support sector-specific EMS implementation tools such as environmental aspects lists for industry sectors, model procedures and other documentation templates, and regulatory requirement profiles.	2.79
• Build the business case for EMSs by collecting hard numbers that characterize the benefits of EMSs for businesses, both financially and environmentally.	2.77
• Work with trade associations and other industry groups, particularly at the local level, to promote EMSs.	2.74
• Integrate EMSs into other environmental programs.	2.71
• Develop a robust EMS Internet Web site with a national repository of business case information, case studies, sector-specific EMS templates, federal and state EMS guidance documents, news on new tools and guidance, state contracts, supplier mandates, guidance for use of EMS in enforcement actions and other material documenting experiences, and cost and benefit data of EMS implementation and operation.	2.65
• Create and provide a Standard "EMS 101" training program for EMSs.	2.47
• Support the development of tools to assist with aspects analysis, such as documentation on different approaches to performing aspects and impacts analyses.	2.39
• Inventory EMS assistance programs and providers and create a central database or directory.	2.26
• Establish a user-friendly chemical information database to assist with aspect analysis.	2.26
• Increase public awareness of EMSs by reaching out to non-profit community.	2.26
• Develop information that shows how EMSs fit into business systems and sectors.	2.23
• Encourage EMSs as a procurement requirement for suppliers by large companies (OEMs).	2.23
• Coordinate or consolidate development of implementation guides.	2.21
• Strengthen the EMS Provider Network through ongoing meetings and an annual conference.	2.19
• Establish standards, perhaps even certification, for providers to ensure quality and credibility of assistance.	2.13
• Establish sector-based performance objectives and targets.	2.13
• Establish EPA-sponsored training for state assistance providers, on a regular basis and around the country.	2.10
• Support the establishment of EMS mentoring networks by developing resources and training programs for operating EMS-oriented mentoring programs.	2.06
• Establish an organization to continue the dialogue on EMS assistance, such as an association of service providers.	2.00
• Develop tools and resources on EMS registration, such as information on how to select a registrar.	1.65
• Have EPA endorse certification/accreditation for qualified auditors and maintain a list of qualified auditors.	1.65
• Create a government-licensed registrar program.	1.52

### **Sectors Identified as the Most Important EMS Promotion Targets**

- Small and Medium Manufacturing
- Natural Resources (mining, forestry, etc.)
- Agriculture and Agro-Business
- Utilities
- Small and Medium Service
- Federal Agencies
- Health Care
- Local Government
- State Government Entities
- Educational Institutions
- Small and Medium Retail

### **Factors Most Likely to Drive EMS Adoption**

*Ranked on a scale from 0 (no impact) to 5 (strong impact).*

<b>Factor</b>	<b>Avg.</b>
■ Business benefits of EMSs.	4.9
■ Tax breaks for EMS implementation.	4.5
■ Customer (OEM) EMS purchasing requirements for suppliers.	4.4
■ Insurance benefits for EMSs.	4.1
■ Performance-based regulatory system.	4.0
■ Enforcement policy favorable to EMSs.	3.9
■ EMS requirement for market access.	3.9
■ Demonstration of liability profile reduced by EMSs.	3.5
■ Policies and statutes favoring EMSs.	3.2
■ Consumer/public demand for EMSs.	3.1
■ Recognition programs.	2.9
■ "Polluter Pays" systems.	2.8
■ Bond ratings tied to EMSs.	2.7
■ Federal and state EMS Executive Orders.	2.6
■ ISO 14001 as an EPA consensus standard.	2.3

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## Part VI

# Appendices

### 1. Highlights From Increasing Small Business Competitiveness Through EMSs

*A Workshop on the Role of Associations, Washington, DC, November 8, 2000*

**Purpose:** To better understand how EPA can support associations in promoting EMSs as a means of increasing competitiveness and enhancing environmental stewardship.

#### Some Benefits of EMSs

- Improved environmental performance (e.g., reduced emissions and natural resource use).
- Increased knowledge and control of environmental, health, and safety issues by everyone in the facility.
- Holistic, multi-media approach to environmental improvement (i.e., avoidance of compartmentalization of issues and end-of-pipe solutions).
- Increased efficiency.
- Reduced exposure to employees.
- Higher confidence in prioritizing environmental issues (i.e., what the company should be spending their time on).
- Improved ability to provide project justification based on costs and benefits.
- Increased employee pride.
- Decreased costs (e.g., reduced chemical, raw material, and utility use; lower emission and disposal fees; reduced medical and biological monitoring; lower insurance premiums).
- Reduced liability.
- Improved customer relations.
- Expanded services.
- Increased green and niche marketing opportunities.
- Improved access to capital for new equipment.
- Increased focus on regulations that need to be changed because they are counter-productive.
- Increased profitability.

#### Hurdles to Address

- Developing an EMS requires some investment of resources, including staff and time.
- Many small businesses are not affected by federal environmental regulations, therefore increased compliance is not viewed as a benefit. Other incentives must be articulated.
- Currently there are few incentives at the state level for small businesses to adopt an EMS.
- Green marketing is challenging.
- EPA has limited EMS funding and staff resources.
- An association needs backing from key members, as well as leadership within the association, to move an EMS effort forward.
- Associations are also competitors of one another. They do not want their association dues to subsidize other companies in a way that would cause them to become more competitive.

#### Possible Roles for Associations and/or TAPs

- Tailor EMS guidance to a specific sector.
- Offer technical assistance to members, including hands-on, one-on-one assistance.
- Facilitate or encourage mentoring among member companies (which can be difficult at times due to competition among members).
- Work with state DEPs.
- Develop and conduct EMS training.
- Develop sector-specific pollution prevention and regulatory information.
- Help establish environmental improvement targets and evaluate results.
- Recognize companies that implement EMSs and the associated results.

#### Possible EPA Roles

- Clarify Agency objectives for EMSs (e.g., compliance, pollution prevention/risk reduction, and stakeholder communications).
- Convene a steering committee to guide small business EMS policy and activities.
- Set up an email group to facilitate EMS dialogue.

- Develop EMS marketing materials that associations can use with their members.
- Develop EMS tools and materials useful to companies and associations.
- Help “lead organizations” (e.g., associations, TAPs) develop sector-specific EMS guidance.
- Communicate more with states and regions.
- Facilitate interaction among assistance providers.
- Serve as a conveyor and broker of technical assistance.
- Conduct a sector assessment to determine EMS needs.
- Help evaluate environmental improvements due to EMSs.

## 2. Oregon’s Green Permit Program

*(From handout prepared by Marianne Fitzgerald, Oregon DEQ)*

The Oregon Department of Environmental Quality (DEQ) has developed a voluntary, incentive-based program to reward facilities that go beyond compliance and achieve superior environmental performance. The 1997 Oregon State Legislature authorized DEQ to issue Green Permits that may waive regulatory requirements and provide other benefits for facilities within this “performance track.”

### Program Description

A Green Permit modifies regulatory requirements after a facility has demonstrated that it can meet certain requirements. Rules adopted in 1999 require a facility to (1) demonstrate that they have achieved or will achieve superior environmental performance, (2) develop a public performance report, and (3) plan and implement a program for ongoing communication with interested stakeholders to provide input into the facility’s environmental program. A “tiered” approach offers different types of Green Permits, in which increasing performance receives increasing benefits.

“Green Environmental Management System Permits,” or GEMS Permits, require the implementation of a formal EMS to achieve results. Three types of GEMS permits may be issued, ranging from entry level to advanced, to allow a wide range of participants in the program. Benefits include public recognition, regulatory efficiencies through consolidated reporting, flexible permits, and other waivers requested by the facility; and enforcement discretion that focuses on the EMS to continually improve performance.

“Custom Waiver Permits” allow limited waivers of regulatory requirements if the waiver is needed to help the facility perform significantly better than otherwise required. Custom Waiver Permits do not require an EMS, but they do require annual performance reports and ongoing stakeholder involvement.

### Program Status

DEQ’s *Green Permits Guidance Manual* explains the mechanisms of the Green Permits Program (available upon request or at the Web address below). Two GEMS Achiever Permits (the middle tier) have been issued to date, and four more applications are under review. More than a dozen additional facilities have expressed serious interest in the program, although the application period is only open twice a year.

The program is funded through cost recovery, where the applicant submits a \$5,000 deposit with their Green Permit application. During the permit application process, the agency estimates a budget and may require additional cost recovery funds to cover agency expenses in reviewing, developing, administering, and monitoring the Green Permit. We estimate that it may cost our agency approximately \$4,000-5,000 (80-85 staff hours) to issue a Green Permit, but the actual amount will vary.

### Program Results

One of the key principles behind the Green Permits Program is that environmental performance will improve. The program overall addresses a wider range of environmental impacts than those currently regulated under Oregon laws and will result in a cleaner environment. The benefits to the facility include regulatory incentives, a partnership approach to environmental management, and public recognition of their environmental performance. The benefits to the public include better information about a facility’s environmental issues and performance as well as opportunities to constructively discuss the facility’s performance. The benefits to the agency include broader adoption of formal EMSs among regulated facilities throughout the state, ensuring a reliable process to facilitate continual improvement of the facility’s environmental program.

### Lessons Learned: Key Factors in the Success of the Program

**Broad Input:** The program began with focus groups in 1995, involving hundreds of people throughout the development and implementation of the program. Outreach methods included frequent mailings, meetings, and other conversations. Potential participants, non-governmental organizations, agency staff, EPA staff, and other interested persons were invited to participate at all phases of the program. Frequent communication is essential to success.

**Collaboration:** DEQ has established a close working relationship with EPA that implements the program through a problem-solving approach. A formal Memorandum of Agreement clearly defines the roles and responsibilities of the agencies. These partnerships, along with a broad, cross-media approach, effect a culture change that focuses on outcomes, rather than administrative details.

**Teamwork:** DEQ and EPA have assigned cross-media teams to work with the applicants and develop a holistic approach to the facility's environmental performance. Key staff have been appointed as "single points of contact" to facilitate dialogue among the players.

**Legislation:** Authorizing legislation, resources to establish the Green Permit Program, and cost recovery from participating facilities helped to gain acceptance of the program among agency management and helped to define an efficient process for applicants.

**Balance of Certainty and Flexibility:** The program elements have enough detail to assure participants of some degree of certainty, thereby lowering transaction costs while allowing for flexibility under individual circumstances.

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### 3. Driver-Sector Matrix

The Drivers Session participants completed the Driver-Sector Matrix after the workshop. The matrix represents a simple tool for organizing and quantifying individual opinions regarding the effect of different possible actions to promote or drive EMS adoption. The survey results and findings are not the product of a scientific study; rather, they were used to facilitate discussion. Participants were asked to rank the impact of a driver on sector using a simple scale of 0 (no impact) to 4 (strong impact). All responses were then averaged by cell, row (driver), and column (sector) in order to identify which drivers are thought to have the most impact on each sector. The following represents the average score of 10 responses:

Sector/Driver	Local Gov't	Federal State Gov't	SME Manufacturing	SME Retail	SME Service	Educational Institutions	Agriculture Agro Business	Health Care	Utilities	Natural Resource
• EPA adopts ISO 14001 as a consensus standard	2.33	2.50	2.50	1.50	1.63	1.89	2.22	2.25	2.44	1.89
• ISO 14001 made a mandatory standard	3.22	3.38	3.38	2.63	2.75	3.11	2.89	3.13	3.44	3.22
• EPA issues definition of EMS	1.22	1.38	1.63	1.00	1.13	1.22	1.33	1.63	1.56	1.56
• Insurance benefits for EMS	1.44	1.50	3.25	2.75	2.88	2.44	2.78	2.88	2.67	2.67
• Customer (OEM) EMS Requirements	0.78	0.75	4.00	2.50	3.00	1.22	3.33	2.75	3.11	2.67
• Tax breaks for EMS	0.89	0.88	3.63	3.25	3.25	1.67	3.33	3.13	3.00	3.33
• Policies, statutes favor EMS	2.22	1.88	2.38	1.88	2.13	2.11	2.56	2.25	2.89	2.78
• Enforcement policy favorable to EMS	2.56	2.50	3.00	2.00	1.88	2.56	2.89	2.88	3.11	3.00
• Business rewards clearly defined	1.67	1.38	2.63	2.38	2.25	2.11	2.67	2.50	2.78	2.67
• Business benefits clearly demonstrated	2.22	1.88	3.25	2.75	3.13	2.67	3.22	3.13	3.33	3.22
• Recognition programs	1.67	1.63	2.25	1.75	2.00	1.78	2.00	2.00	2.22	1.89
• Evaluation, rating, and labeling initiatives	0.78	0.75	2.38	1.75	1.75	1.44	2.11	2.25	2.00	1.67
• Corporate liability profile reduce by EMS	1.11	0.88	2.75	2.25	2.50	1.67	2.67	2.75	2.22	2.33
• Consumer/public demand	2.33	1.75	2.78	2.63	2.50	2.33	2.78	2.63	2.78	2.78

Sector/Driver	Local Gov't	Federal State Gov't	SME Manufacturing	SME Retail	SME Service	Educational Institutions	Agriculture Agro Business	Health Care	Utilities	Natural Resource
• Environmental performance rating systems	1.67	1.75	1.88	1.63	1.63	1.89	1.67	2.13	2.11	2.00
• Bond rating tied to EMS	2.44	1.63	1.67	1.50	1.75	2.11	2.00	2.25	2.44	1.67
• Accreditation tied to EMS	1.22	0.88	1.38	1.25	1.38	2.89	1.89	2.38	1.56	1.44
• Federal & state EMS Executive Orders	3.00	3.75	1.38	1.25	1.38	2.22	1.63	2.00	1.78	1.56
• Market access requirement	0.89	0.75	3.88	3.00	3.25	1.56	3.25	2.00	3.22	2.44
• NGO pressure	2.11	2.25	1.63	1.50	1.38	1.78	1.78	1.75	2.00	1.89
• Increased marketing of EMS	1.44	1.50	1.88	1.63	1.75	1.67	2.00	2.00	2.00	2.11
• Better customer service via EMS	1.56	1.63	1.88	1.88	2.13	1.78	1.78	2.00	2.00	1.78
• Regulations require performance-based system	2.56	2.38	3.13	2.88	2.88	2.44	2.89	2.75	3.33	2.89
• Polluter pays systems	2.00	1.88	2.63	2.38	2.38	2.00	2.33	2.38	2.56	2.56
• Association membership requirement	0.78	0.75	2.25	2.13	2.13	1.56	1.78	2.13	2.00	2.00

#### 4. Washington EMS Assistance Strategy Workshop Agenda

Thursday, January 11, 2001—  
Background and Discussion

Welcome & Meeting Logistics—  
Kevin Coyle, *President, NEETF*

Insights from EPA's November 9, 2000 EMS Workshop—  
Karen Chu, *U.S. EPA*

#### Drivers Session

What trends will create demand for EMS? How can assistance providers utilize these drivers?

- Government Incentives—  
Marianne Fitzgerald, Oregon Department of Environmental Quality's Green Permit Program
- Small Business Perspective on EMSs—  
Mike Bartlett, Bear Metallurgical
- Market Forces & Supply Chain Requirements—  
Will Gibson, TetraTech EMI

#### Tools and Techniques Session Part 1

What are the most effective models for promoting and providing EMS assistance?

- Kentucky ISO 14000/EMS Program—  
Cam Metcalf, Kentucky Pollution Prevention Center
- The EMS Municipalities Project—  
Faith Leavitt, GETF

#### Tools and Techniques Session Part 2

- Trade Association EMS Programs—  
Marcy Kinter, Screenprinting & Graphic Imaging Association
- The European EMS Experience & Project Acorn—  
Mark Barthel, BSI, Ltd.

#### Providers Session

Can the existing network of assistance providers be expanded to provide the best service and most effective use of resources? What are the gaps in the current provider networks with regard to sectors and geography?

- P2 Programs—  
Sharon Johnson, North Carolina Department of Environment & Natural Resources
- Manufacturing Extension Partnership Programs—  
Vivian Harper, South Carolina Manufacturing Extension Partnership Program
- State Assistance Programs—  
Robert Minicucci, New Hampshire Department of Environmental Services
- EPA's Assistance Centers—  
Sherman Titens, CCAR Greenlink
- Small Business Development Centers—  
Chris Lynch, University of Pennsylvania

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**Friday, January 12, 2001—Developing Recommendations**

**Break-Out Session Goals & Logistics**

**Concurrent Break-Out Sessions**

**Report Back, Wrap Up, and Next Steps**

## **5. San Francisco EMS Assistance Strategy Workshop Agenda**

**March 13, 2001**

**Welcome & Introductions**

### **Participants Perspectives on EMS Assistance**

Representatives from business and organizations participating in EMS programs informally discuss why they joined, the types of assistance tools and techniques that were the most effective, the benefits generated through their EMS, and recommendations for future initiatives and programs.

#### **Panelists:**

- Ruben Angel, Artistic Plating
- Matt Atkinson, Benzinger Family Winery
- Geoff Blake, All Metals Processing
- Leah Seki, City of San Diego Department of Environmental Services
- Kathleen Thurmond, Best Washington Uniform and Linen Supply, Inc

#### **Moderator:**

**David Monsma**, *Business for Social Responsibility*

### **Providers' Perspectives on EMS Initiatives**

This session looks at current local, regional, state, and national EMS Assistance Initiatives and will discuss ways to effectively promote and provide EMS assistance.

#### **Panelists:**

- Bonnie Barkett, U.S. EPA Region 9
- Jennifer Smith Grubb, California EPA
- Rich Polito, Maricopa County SBEAP
- Shana Harbour, U.S. EPA Headquarters

#### **Moderator:**

**Walt Tunnessen**, *National Environmental Education & Training Foundation*

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