

EMS Innovations in the United States

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Abstract

In the United States (US), many corporations operating internationally have implemented environmental management systems (EMS). What may be unique, however, is the extent to which the public sector has also been engaged in EMS development. The US Environmental Protection Agency (EPA) created the PEER (Public Entity EMS Resource) Center program to bring EMS tools to public sector organizations, including municipalities, public utilities, universities, and state and local governments. Presidential Executive Orders issued in the 1990's directed federal agencies to implement EMSs, and several states launched programs that encouraged or required EMS implementation. Under the leadership of the PEER Center, the EMS approach has also been applied to regions, linking community organizations and forging public-private partnerships. In addition, some organizations have found the EMS framework and process useful for managing sustainability initiatives and greenhouse gas reduction strategies.

Key Words

Environmental management system, PEER Center, EPA, public agency, government, regional, sustainability

Introduction

In the United States (US), many corporations operating internationally have implemented environmental management systems (EMS). What may be unique, however, is the extent to which the public sector has also been engaged in EMS development.

EPA EMS Programs

While the ISO 14001 Standards were being ratified in Geneva, the US Environmental Protection Agency (EPA) was developing a program, the PEER (Public Entity EMS Resource) Center, to bring EMS tools to public sector organizations. To demonstrate the benefits of the EMS, the EPA recruited a number of public entities – municipalities, public works departments and water utilities – to participate in a pilot program designed to train them in the EMS process and coach them through the development phases. From 1997 through 2005, this program brought over 30 public entities through this pilot program. Participants reported that they have seen significant costs savings in their operations, reduced risk, and improved communication. They also noted that the EMS process resulted in improved ability to meet compliance requirements, increased efficiency, improved environmental awareness and communication (both internal and external), and improved relationships with regulatory agencies.

Over the years, the PEER Center Program also produced several useful handbooks, reports, guidelines and other tools designed to facilitate EMS development. These documents, including *An EMS Troubleshooter's Guide for Local Governments*, *Achieving Environmental Excellence: EMS Handbook for Wastewater Utilities*, and most recently, the *Energy Management Guide for Water and Wastewater Utilities*, can be found at www.peercenter.net. The PEER Center also established eleven Local Resource Centers (LRC) throughout the country to support public entity EMS work. Each LRC operates independently, but are united in their mission and sharing their resources and implementation tools. The PEER Center and the eleven LRCs are currently working with municipalities, federal agencies, water and wastewater utilities, ports, transit agencies, and colleges and universities on EMS development.

In addition to the PEER Center program, EPA established the Performance Track Program, which encourages environmental excellence by recognizing both public and private facilities with strong environmental programs. Performance Track members must have an EMS in place for at least one completed cycle and have a proven record of environmental compliance. Performance Track members receive national recognition and some regulatory benefits, such as reduced self-reporting and low-priority status for routine federal inspections. There are 500 members, including large corporations, small businesses, and public facilities.

EPA has also adapted the EMS as a tool in enforcement cases. The EPA National Enforcement Investigations Center (NEIC) developed the Compliance Focused Environmental Management System (CFEMS) model that is sometimes used as a condition in settlement agreements. For example, if environmental management is identified as a root cause, the EPA may allow the facility to incorporate EMS implementation as part of a Supplemental Environmental Project (SEP). (www.epa.gov/Compliance/resources/policies)

Federal Agency EMS

In 2000, President Clinton issued Executive Order 13148, “Greening The Government Through Leadership in Government,” which directed all federal agencies to develop EMSs by December 31, 2005. In part, the Executive Order stated that: “Through development and implementation of environmental management systems, each agency shall ensure that strategies are established to support environmental leadership programs, policies, and procedures and that agency senior level managers explicitly and actively endorse these strategies.”

Each federal agency was granted some discretion in determining the appropriateness of the EMS to their individual facilities. In a 2003 presentation, Ed Pinero, Director of the Office of the Federal Environmental Executive (OFEE), noted that the federal agencies had implemented EMSs in 230 facilities, and 20 of them achieved ISO 14001 registration (mainly Department of Energy and Department of Defense facilities). Mr. Pinero noted that “hundreds of others” are working on EMS development. It is not certain how many agencies have implemented EMS; however, those agencies that have implemented EMSs are reporting benefits in operations and environmental compliance. (www.ofee.gov/ems)

In 2007, President Bush signed Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management,” which re-affirmed the environmental stewardship principles of the earlier Clinton Orders, and in particular the value of the EMS as the framework in which to manage and continually improve environmental stewardship.

State Innovation Programs

To promote environmental excellence and innovation, several states have launched programs that encourage or require EMS implementation. The Michigan Clean Corporate Citizen (C3) program is similar to the EPA Performance Track program in that it requires an EMS as a precondition and offers regulatory incentives in permitting and inspections. New Jersey’s Multi-Tier Program offers similar incentives to regulated entities; their key requirement, the Operations and Environmental Compliance Plan, is similar to an EMS. In recognition of the fact that the development of a comprehensive and robust EMS takes time, some states, notably Texas and Wisconsin, have implemented innovation programs that allow the applicant to enter the program with a commitment to develop an EMS along with a timeframe for completion.

The Virginia Environmental Excellence Program (VEEP) is designed to parallel the EPA Performance Track Program; however, like other State programs, it allows three different classes of participation that are defined by the facility’s phase of EMS implementation. In Georgia, a program called the Partnership for a Sustainable Georgia offers four levels of Partnership (Champion, Bronze, Silver and Gold);

additionally, there are also two tracks within the Partnership, the Environmental Management System (EMS) Track and the Sustainable Office Toolkit (SOT) Track. The EMS Track is designed for organizations that are developing and/or implementing a full EMS, while the SOT Track is designed for smaller facilities that are working toward sustainability but are resource-constrained.

Regional EMS

Under the leadership of the PEER Center, the EMS approach has also been applied beyond the borders of single organizations, linking community organizations and forging public-private partnerships in a regional EMS (REMS). The Plan-Do-Check-Act (PDCA) principles which provide the framework for the EMS can also provide a framework for several different organizations -- public and private sector, nonprofit organization, community groups, schools -- to establish common goals and collaborate on environmental improvement.

The Virginia Regional Environmental Management System (V-REMS) is an excellent example of a regional collaboration of public and private entities, addressing their shared community and environmental issues. Since 2003, V-REMS, under the leadership of the Global Environment and Technology Foundation (GETF), has been working on a cleaner environment for the Greater Richmond area. They have grown from four participants to 80, including cities, counties, local and regional public agencies, federal agencies, regulatory agencies, and private sector entities. Together, they have secured a grant to retrofit school buses with cleaner technologies and reduced ozone emissions in the region. They are working together on alternative energy technologies, stormwater management, and toxics reduction.

Bartow County, Georgia, located 40 miles northwest of Atlanta, is a county of 76,000 residents. The community leaders were concerned about the quality of life, and in particular, air quality. To implement the EMS, the County works in collaboration with the Chamber of Commerce, Georgia Tech's Energy and Environmental Management Center (one of the PEER LRCs), EPA Region IV Office, and others. The Bartow County EMS is composed of a community wide EMS and individual private sector EMSs; currently, 300 separate organizations and facilities are participants, uniting to work toward their quality of life goals. The Steering Committee creates and implements an EMS Action Plan, and through the EMS Action Plan, the organizations align their common goals so that the County-wide EMS has measurable performance results. As a result of this effort, some of the major industrial facilities have reported significant NOx and greenhouse gas reductions, water quality has improved, and there have been significant improvements in recycling. (www.cscaweb.org/EMS)

Issue-Focused EMS

The EMS process calls for an assessment of the organization's impact and the identification of the "significant aspects." In some cases, the "significant aspects" are readily apparent, or there exists an overarching theme or goal around which an EMS can be built. The best example of this is Sustainable Silicon Valley (SSV), a collaborative effort involving businesses, government agencies, and other public entities. SSV emerged from other multi-stakeholder organizations (Silicon Valley Leadership Group, Silicon Valley Environmental Partnership) with a focus on achieving environmental sustainability. SSV has developed sustainability goals, and as its first project, is working toward a CO₂ Emissions Reduction goal of 20 percent below 1990 levels by 2010. The businesses, government agencies, and other organizations that work with SSV pledge to reduce their emissions, share best practices and report their emissions annually. Twenty-two organizations have already met or exceeded their own 2010 CO₂ emissions reduction goals. In 2007, SSV announced cumulative carbon dioxide (CO₂) emissions reductions totaling 517,000 tons as of 2006, equal to taking 102,000 automobiles off the road for one year. (<http://www.sustainablesiliconvalley.org/>)

Fort Lewis, a Department of Defense training base located in the State of Washington, encompasses 86,000 acres and has a \$1.5 billion impact on the local economy. Recognizing this rather large footprint,

Fort Lewis developed a Sustainability Plan with a 25-year planning horizon. Fortunately, they already had an ISO 14001 EMS in the Public Works Directorate, and could build their ambitious sustainability goals into the PDCA structure. Some of their 2025 goals include 100% renewable energy, zero waste, and LEED (Leadership in Energy and Environmental Design) Platinum for all buildings. So far, they have been reporting good progress toward these goals. (www.lewis.army.mil/publicworks/)

The same tools that serve to provide accountability and consistency to the EMS can be applied to the management of a green building. The US Green Building Council (USGBC) LEED (Leadership in Energy and Environmental Design) standards are being used widely throughout the world. The standards offer clear benchmarks for designers and facility managers to follow in their paths to LEED Silver, Gold or Platinum ratings. Recently, Zero Waste Alliance (one of the PEER Center LRCs) worked with the design team and the management team for the Portland Convention Center (Oregon), the first convention center in the US to be certified under the new LEED standard for Existing Buildings. The LEED standards spell out what needs to be done, but it does not provide supporting guidance on how to ensure the accomplishments of actions, in particular the operation and maintenance actions after building commissioning. Zero Waste Alliance provided the design team with the EMS tools that will ensure the green measures they established during the building retrofit are implemented in a consistent and systematic way. Examples include policies that are articulated and communicated, operational controls that are documented and followed, training that is identified and delivered to the appropriate personnel.

Conclusion

There are many examples from across the US demonstrating that public sector organizations benefit from EMS implementation. From these examples, it is also clear the PDCA approach inherent in the EMS process serves as a strong foundation that can support a broad range of environmental goals, from regulatory compliance to greenhouse gas reduction.