

Environmentally SOUND

As a crop of environmental issues sprout worldwide, organizations should maintain a project management green thumb.

Companies that do business internationally face a continual onslaught of government requirements and policies. These run the gamut from individual country regulations to intergovernmental conventions and agreements, such as those of the World Bank and European Union, which prescribe specific actions for companies in managing their environmental responsibilities. Added to these demands are public expectations, which have helped fuel the trend toward environmental performance disclosure that many local and national governmental authorities now require.

The sheer volume and diversity of government requirements and policies pose considerable challenges for project managers. Of the increasing environmental demands that companies face today, sustainable development, the ISO 14000 environmental management standards and government policies and requirements are especially significant.

Coping effectively with these many issues requires both foresight and common sense. Robert Avery, a senior associate in product issues management at Eastman Chemical Co. in Kingsport, Tenn., USA, recommends caution in proceeding with policies that may be more conceptual than real. "Design and build only to existing regulations that are on the books," he says. "Don't build to meet assumed future regulations. Not only is this the low-cost alternative, but it may well be the most environmentally friendly alternative."

For example, Avery cites the industry practice from a decade ago of adding volatile organic compound (VOC) incineration units to chemical processes, which was done at the time because it was believed that VOCs were

Reprinted from PM Network, Project Management Institute, Inc., January 2002, Vol. 16, Number 1. ©2002 Project Management Institute, Inc. All rights reserved. Unauthorized reproduction of this material is strictly prohibited.

The service and trademarks "PMI" and the PMI logo, the certification marks "PMP" and the PMP logo, and the service and/or trademarks "PMBOK," "PM Network," "PMI Today," "Project Management Journal," and "Building professionalism in project management," are registered marks of the Project Management Institute, Inc., in the United States and/or other nations.

PLANNING AND 'PARANOIA' ARE KEY TO A SUCCESSFUL CLEANUP

According to Thomas Wey, director of environmental restoration at Environmental Quality in Cincinnati, Ohio, USA, the key to carrying out a successful cleanup is the extent and quality of the initial planning. "The most effective strategy for dealing with problems that emerge during environmental cleanups is to minimize the potential for problem development by thorough and comprehensive preplanning activities," he says. "The amount of preplanning necessary for each project is directly proportional to the magnitude and complexity of the environmental cleanup."

Wey says that preplanning should address all aspects of a project, including administrative, contractual, legal and technical areas. Plans also should specify all advance notifications, such as those involving local fire and police departments, and permit requirements and who will be responsible for making or obtaining them. "Advance planning will force the project team to think through the project from start to finish, to anticipate problems, discuss 'what if' scenarios, and develop practical solutions to most problems," he adds.

In planning environmental cleanups, Michael Lowder, a senior technical associate with Eastman Chemical Co. in Kingsport, Tenn., USA, advocates a healthy sense of paranoia. He says "it is generally preferable to be paranoid rather than assume that all will be well. I have had particular success holding 'nightmare sessions' during scope definition. This is an exercise where the appropriate team members meet to brainstorm about potential 'nightmares' that could arise during execution. We recognize the nightmare event and work through responses and mitigation approaches."

Beyond worst-case planning, Lowder says the best approach is to have functional experts on the project team who can watch for unexpected developments and advise the team as soon as a threatening situation arises.

In the linear cradle-to-grave scenario—an inherently wasteful method—valuable resources eventually end up in landfills.

harmful to the environment. "Now we've learned that because many areas of the country are NO_x-limited or have large amounts of biogenic VOCs, man-made emissions of VOCs are of negligible concern *in those geographical areas*. Whereas, now CO₂ emissions from the combustion processes are a concern as they may contribute to the greenhouse effect," he says.

Hans Buwalda, a director at New Zealand-based Work Environment Ltd., echoes Avery's recommendation for caution and common sense in coping with ever-changing international requirements and policies. "Project managers will continually be subject to emerging and changing environmental issues and stakeholder expectations," he says. "Proactive awareness and planning for these issues are required. Once policies and strategies have been developed, then implementation should be carried through a carefully scoped project to ensure that results are achieved. A project management focus and use of project management techniques help to reduce the risk of getting caught up in an activity for its own sake."

System Standards

The ISO 14001 environmental management system (EMS) standard, which is part of the ISO 14000 environmental management series, is designed to help organizations meet their environmental obligations and reduce the impact of their operations on the environment. It requires organizations to implement a series of practices and procedures that, when taken together, result in an environmental management system. The classification calls for a number of verifiable activities, including systematically identifying and reducing environmental impacts, periodic monitoring and follow up, and management review and corrective action.

Project managers are well positioned to implement these standards in their organizations—the project management methodology is a good match for the ISO 14001 EMS standard's performance-based, non-prescriptive design.

For example, inventory management can be a vulnerable area for companies that fail to factor environmental considerations in their decision-making. In the

LEAN AND CLEAN

A flexible, integrated management approach is taking the cleanup of a former Chevron refinery in Port Arthur, Texas, USA, to a whole new level. The remediation construction project involves the Chevron Environmental Management Company; Zachry Construction Co., the contractor; and CH2M HILL, which is providing science, regulatory strategy, construction management and engineering services. The three companies have set up a program management office using a "virtual company" business model, which they've named the Port Arthur Remediation Team (PART).

According to Kirk Brandt, an assistant construction delivery manager for CH2M HILL and a consultant to Chevron Environmental Management, the fee for Zachry and CH2M HILL is tied by performance metrics to the entire program. The fee for the two companies is 100 percent at risk, in proportion to the dollar volume of work and based on performance metrics graded by the three companies collectively. Metrics include hard safety performance as well as soft metrics for communications.

"This business model has resulted in a program organization where individuals from any company may work for individuals from any other company," Brandt explains. "The business model drives all three companies to behave as one team to maximize each other's success."

The program's organization structure is based on specific work phases and is supported by a management staff. Cross-functional teams are responsible for overall operations and for strategic and tactical direction.

Brandt says that one of PART's successes has been "the integration of staff between work phases. For example, constructors are brought up front into the early design phase of a project, and the design engineers remain responsible for engineering services during construction."

Another PART success has been its strong safety record. "We have worked over 2.1 million hours safely over the past six years," Brandt says. "Our people firmly believe in the planning and implementation of our work in a manner that will lead to no incidents. Our current recordable incident rate is 0.28, which is less than half of the industry average."

past, some of these companies have been caught off-guard when certain chemicals, such as those containing ozone-depleting substances, have been banned by government agencies. Organizations that apply project management techniques to their environmental responsibilities can better identify such situations in advance to help avoid regulatory citations, control costs and minimize other adverse effects on their operations.

Buwalda confirms the importance of project management techniques to ISO 14001 implementation. "I have managed several ISO 14001 implementation projects in the United States and Asia-Pacific. In my opinion, the successful use of ISO 14001 requires integrating the environmental management system with other business and project management systems."

New Challenges

Sustainable development is generally defined as the ability to provide for current needs without compromising the ability of future generations to do the same. Organizations worldwide are increasingly adopting this philosophy for social and economic justice reasons as well as for business purposes.

The practical manifestation of sustainable development is sustainable resource management. In adopting this management approach, companies make a transition from a cradle-to-grave to a cradle-to-cradle resource management model. In the linear cradle-to-grave scenario—an inherently wasteful method—valuable resources eventually end up in landfills.

With the cradle-to-cradle model, the concept of waste eventually becomes obsolete. Waste from producers and consumers becomes input for other producers and consumers or for the earth itself, and resources are cycled through the system to sustain future generations.

With the introduction of its OptiPlex line of computers, Dell Computer provides an example of a cradle-to-cradle approach. The new modular design of these computers allows for easy upgrading, disassembly, recycling and reuse, and the product's chassis is fully recyclable. This environmentally sound design has since been introduced in all nonportable Dell computers.

Another company that has adopted a sustainable development management approach is Nike. Through its Reuse-A-Shoe program, the company collects and

grinds up old sneakers, a process that yields rubber, fabric and foam. Nike uses the rubber and foam to make soccer fields, running tracks, tennis courts, basketball courts and climbing wall decking. The granulated fabric from the shoe uppers is recycled into carpet padding.

Nike's ultimate goal is to close the recycling loop—to make new Nike products out of old ones. The firm is working on designing athletic footwear to be disassembled and reused.

In adopting innovative sustainable management approaches like those at Nike and Dell, professional project management techniques can be very useful. Project management practices can help ensure that waste reduction, recycling, design for the environment and other sustainable resource management approaches are executed as efficiently and as effectively as possible.

Project management methods also can help in identifying further areas for improvement—and in monitoring and measuring to report verifiable results. According to Buwalda, in the course of implementing sustainable development management practices there is the possibility that "engagement in the process is considered to be sufficient, rather than achieving environmental improvement results. The use of appropriate project management techniques minimizes this risk."

Green Success

The transition from a linear to a sustainable, cradle-to-cradle system of materials use does not happen overnight. It involves an evolution of approaches, each more ambitious than its predecessor. Companies that give priority to resource productivity, process change and product innovation over time will achieve significant performance gains at a lower cost and gain a competitive advantage in the marketplace.

Through careful and considered application of project management techniques, project managers can contribute to efforts at sustainable resource management, as well as cope effectively with existing and emerging international standards and requirements. **PM**

Tim Solinger is a Stevens Point, Wis., USA-based freelance business writer specializing in environmental, health and safety issues affecting industry. His articles have appeared in *Compliance*, *Industrial Hygiene News* and the *Worker's Comp Cost Control Report*. He was previously editor for six years of the *Environmental Regulatory Advisor*.