EH&S Advisor

Thinking Outside the Box:

Supply Chain Environmental Management Brings Strategic Thinking Beyond the Factory Walls

by Richard MacLean, Competitive Environment, Inc., Scottsdale, Arizona
with Riva Krut, Benchmark Environmental Consulting, Hartsdale, New York

Environment, health, and safety (EH&S) programs have historically focused on the activities in and around the factory walls. No longer. Corporations are expanding their attention to include EH&S issues and opportunities derived from improved supplier and customer relationships—encompassing the entire supply chain from cradle to grave. Supply Chain Environmental Management (SCEM) may be a strategy to position your company to reduce supplier costs and provide greater value to your customers.

SCEM is a growing issue that is receiving increased attention in a variety of sectors, particularly electronics. It holds strong implications for suppliers at each stage of the manufacturing process, as well as for end users of finished goods and services. This article outlines the evolution of SCEM as well as current trends, and provides some advice on positioning your organization to take strategic advantage of SCEM.

MOVING TOWARD SCEM

EH&S aspects at any stage of the chain, from raw materials production to finished products and services, can add or subtract value to a customer. If your company happens to be in the "middle" of the supply chain and your customer or raw material supplier has a significant EH&S problem, you have a problem too. If you can offer suggestions that add value anywhere in this chain, everyone wins. This is not rocket science, but all too often EH&S managers can form myopic visions of where their "responsibilities" begin and end.

SCEM is, in effect, a logical extension of existing supply chain management programs combined with ongoing programs to demonstrate product value or resolve customer issues. Unique to SCEM are some of the internal and external forces that have lead to its adoption. For example, European legislation requiring electronics manufacturers to recycle their products at the end of their lives has forced companies to re-examine their products. Some firms have moved aggressively to put in place product take-back schemes. The Xerox Corporation cites the European legislation as one of the forces driving its remanufacturing program.

Environmental considerations are increasingly being pushed forward into R&D and design, because the success of a take-back program is linked directly to the product's design. There is some irony in the fact that end-of-life regulations should impact supplier relationships at the beginning of the product life cycle, but there are many examples that demonstrate the impact of design and the environmental connections between the different stages of a product's life.

Take-back regulations have not been implemented outside of Europe, and policy in the United States at the moment favors voluntary measures to achieve the goals of the European legislation. For example, the U.S. Environmental Protection Agency (EPA) has recently published a booklet providing case studies in voluntary efforts.[1] The President's Council on Sustainable Development suggests that extended product responsibility is an important step toward corporate sustainability, but one that is best achieved through voluntary measures and public-private partnerships.

In addition to government activities, a number of non-government organizations have advocated that companies impose their own standards on their subcontractors. In addition, organizations such as the Silicon Valley Toxics Coalition (SVTC) and the Rainforest Action Network (RAN) are looking beyond their companies' own environmental policies to consider the impacts of supply chain issues on the environment.

Investors are increasingly paying attention to companies' environmental records as socially screened portfolios are gaining popularity. Messages of investor concern reach companies most

directly through shareholder resolutions. For example, the New York-based Interfaith Center for Corporate Responsibility has filed shareholder resolutions concerning SCEM with Hewlett-Packard and Intel. This effort demonstrates that there is real concern among investors about companies' SCEM practices, stemming from a suspicion that (1) price competition may encourage contracting suppliers with low EH&S standards, and (2) operations in countries with lower environmental regulations may be environmentally unsound.

ENLIGHTENED SELF-INTEREST

Not all of the forces pointing toward SCEM are external; many are commonsense responses to corporate needs. Among them are some of the biggest forces behind the shift to SCEM. These include the following:

- Risk management—One of the most compelling factors promoting corporate SCEM is the threat of liability and risk issues regarding suppliers' environmental practices. Furthermore, the potential of an interruption of service or a liability issue concerning a supplier prompts companies to assess and minimize risk.
- Intrinsic benefits of SCEM—Many companies are finding that there are fundamental advantages to being involved with their suppliers' environmental programs. These basic benefits to business include cost reduction through pollution prevention programs, the benefits of cooperation at the design phase, and the feedback that companies may receive from suppliers on their own environmental programs.
- Concern for EH&S impacts—As companies attempt to enhance their own EH&S records, many realize that their success is incomplete without improvements on the part of their suppliers as well.
- Corporate image—Closely related to many of the factors above, there is concern about protecting brand name equity. This is a particularly sensitive issue when a company is the target of a media campaign, but a majority of companies recognize the advantage in presenting strong environmental images, and the necessity of incorporating SCEM. The corporate image motive is enhanced by the practice of eco-labeling, already an important market motivation in Europe.
- Consistency of approach—Many companies are not only producers but suppliers as well. And the practice of SCEM is expanding beyond first-tier suppliers to look at second- and third-tier suppliers also. The combination of these two facts means that SCEM can beget SCEM: companies that are suppliers to other firms are sometimes encouraged to initiate environmental programs with their own suppliers for the sake of further-reaching supply chain environmental management.

IMPLEMENTING SCEM—PARTNERSHIPS WITH LIMITS

These various forces driving SCEM have increased interest among companies, but SCEM implementation has not been

ADVISOR CHECKLIST

Supply Chain Environmental Management

1. **Examine the internal and external forces driving SCEM and evaluate their relevance to your company:**
   - External forces: regulatory threats, consumer pressure, investors, and commercial customers.
   - Internal forces: risk management, eco-efficiency, life cycle analyses, environmental management systems (EMS), internal benefits, corporate image, and concern for environmental impact.
   - Consider cumulative impact of all of these drivers, not just individual impact.

2. **Make the business case to executive management on the benefits:**
   - Highlight the marketplace benefits of environmentally sound products and processes.
   - Promote SCEM as a means of environmental risk management. Point out the possible liability arising from (1) an uncoordinated approach to supply chain management (i.e., not including EH&S considerations), and (2) not systematically and proactively considering SCEM issues.

3. **Develop a cross-functional team:**
   - Develop effective mechanisms to bring procurement and environmental staff together.
   - Timing is everything; be at the table early in the process. The design stage is the place in the life cycle of a product with the most potential to shape the product and the processes.

4. **Use the latest SCEM tools including audits, questionnaires, and product specifications. This process involves**
   - developing effective mechanisms for use of audits and questionnaires;
   - bringing together the needs of procurement and EH&S departments;
   - collaborating as customers to produce a single supplier standard for common suppliers; and
   - reducing the burden on suppliers through the development of industry standards.

uniform. If SCEM has not been considered in your company, it may represent a significant, untapped opportunity. Just creating an inventory of suppliers can be enlightening. For example, in 1997, United Technologies Corporation had some 175,000 employees. But when they did an inventory that year, they found that they also had 150,000 suppliers. Needless to say, they have brought this under control and at the same time implemented a leading program in SCEM.[2]

Our experience is that EH&S managers wishing to utilize SCEM tend to make up a program from scratch to address an apparent problem with preconceived notions on how to fix it. We recommend the problem first be analyzed to determine if SCEM is even appropriate. If it is the right course of action, there is a range of tools available (see Figure 1 for a listing). If you want to establish an SCEM program, you might want to first review the list to decide which initiative would be most appropriate. Figure 1 is not all-encompassing, but it does represent a fairly thorough accumulation of what is happening in the field. Additional literature and references can be found from organizations such as the U.S. Agency for International Development's Asia Environmental Partnership (US-AEP) (*http://www.usaep.org*), the Center for Advanced Purchasing Studies (*http://www.capsresearch.org*), Business for Social Responsibility (*http://www.bsr.org*), and the Chemical Strategies Partnership (*http://www.chemicalstrategies.org*).

SCEM proposes a new model for the relationship between companies and their suppliers. It represents a shift from the old business model of communicating with suppliers primarily through purchase orders, to a model of shared problem-solving. At its most advanced, the supplier is encouraged to become a consultant to the customer. Developments in process and production methods do not just come from requirements along the supply chain; they are also evolving as suppliers and firms cooperate and anticipate one another's environmental and business needs. In the new business model, the supplier is a strategic partner for the customer in dealing with all aspects of production, from design to waste management.

That said, there are limits to how far these relationships can and should go. Instead of decreasing risk, a company may unwittingly take on additional potential liability. For example, if a company handling potentially toxic materials provides very specific instructions on the processing, handling, or disposal of this material or product to others along the supply chain, it may begin to assume additional liability, should this support or involvement later prove to be faulty. Examples might include specifying the disposal site or providing direct management oversight to certain operations.

Conversely, these relationships may need to go farther than currently envisioned. For example, if this same company knew that certain precautions were necessary to protect human health and the environment and it failed to provide some

Prequalification of suppliers
- Require or encourage environmental criteria for approved suppliers
- Require or encourage suppliers to undertake independent environmental certification

Environmental requirements at the purchasing phase
- Build environmental criteria into supplier contract conditions
- Incorporate EH&S staff on bid selection and sourcing teams

Supply base environmental performance management
- Develop supplier environmental questionnaires
- Perform supplier environmental audits and assessments

Build environmental considerations into product design
- Jointly develop cleaner technology with suppliers
- Conduct Life Cycle Assessment (LCA) in cooperation with suppliers
- Engage suppliers in Design for Environment (DfE) product innovation
- Coordinate minimization of environmental impact over the extended supply chain
- Develop tools that assist in the DfE effort

Cooperate with suppliers to deal with end-of-pipe environmental issues
- Reduce packaging waste at the customer/supplier interface
- Reuse/recycling of materials in cooperation with the supplier
- Re-use initiatives (including buy-backs, leasing)

Reverse logistics
- Give supplier incentive to reduce customer's environmental load

Influence legislation to facilitate better SCEM policies
- In cooperation with suppliers, lobby to strengthen appropriate environmental regulation that levels the playing field for SCEM practitioners
- Lobby on behalf of SCEM initiatives

Work with industry peers to standardize requirements
- Create or work with an inter-firm procurement group to collaborate on environmental issues
- Standardize supplier questionnaires

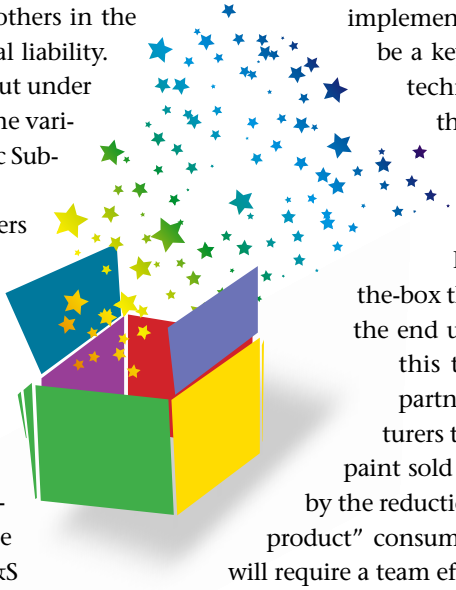
Inform suppliers of corporate environmental concerns
- Issue statements of EH&S priorities or requirements to suppliers
- Draft and distribute your comprehensive SCEM policy

Promote exchange of information and ideas
- Sponsor events to facilitate discussions between customers and suppliers on environmental issues
- Host training and mentoring programs

Figure 1. Tools in SCEM.[5]

minimum level of support or disclosure to others in the supply chain, it might also assume additional liability. This may be not only an ethical obligation, but under some circumstances a legal obligation (e.g., the various notification requirements under the Toxic Substances Control Act).

A strategic relationship with your suppliers and customers must be tempered with the realization that (1) there may need to be limits on how far you can go in *directly managing* someone else's EH&S obligations, and (2) there is a heightened sensitivity of your own company's obligation to act responsibly. There is no bright dividing line for management to use when balancing these two seemingly contradictory considerations. Past case studies offer some guidance; two excellent EH&S examples are the famous Kepone toll pesticide production lawsuit involving Allied Chemical in Hopewell, VA, in 1974[3] and the current General Motors lawsuit over the Malibu fuel tank design.[4] Both lawsuits centered on the questions What did they know? and When did they know it?



Please recognize that the preceding discussion should not discourage SCEM. If anything, it makes a case to *encourage* it. Much of the bad publicity that corporations receive today is over inaction to correct situations that should have been investigated and dealt with appropriately. The child labor/sweatshop issues faced by companies such as Nike and Kathy Lee Gifford's Wal-Mart line of clothing are examples of supply chain issues that have had major repercussions for an entire industry. What should they have done/known and when could they have done it/known it?

The implementation of an effective SCEM program that avoids these issues depends on the ability of the environmental staff to influence the R&D, product design, and procurement departments. To influence these groups you will need access (i.e., a "place at the table"), support from business management, and support from other departments, especially legal and risk management. A team approach is essential. If it does not exist now, you should first prepare a business case to management to demonstrate the value of an SCEM program.

CONCLUSION

SCEM may prove to be a very effective way for firms to spread clean technologies and promote voluntary environmental management. Companies have the power to effect enormous changes in the environmental performance of their suppliers worldwide, without intervention or regulatory involvement.

Savvy suppliers will recognize the competitive advantage of green products and processes in the coming years, and will position themselves accordingly. As more companies begin to implement sophisticated SCEM programs, it will be a key advantage to suppliers to have clean technologies already in place. Companies that take steps now to begin the process of greening will find that they are well positioned to answer rising concerns about environmental management.

Positioning at this level requires out-of-the-box thinking—a focus on the big picture and the end user's ultimate needs. An illustration of this type of progressive positioning is the partnering by paint suppliers with manufacturers to shift the profit metric from gallons of paint sold to finished units painted. Both benefit by the reduction in waste generation and "traditional product" consumption. Achieving these breakthroughs will require a team effort using the latest tools and a systematic approach. EH&S managers will need to position themselves to be "at the table" or champion SCEM if these concepts do not currently exist within the company.

REFERENCES

1. U.S. Environmental Protection Agency. *Private Sector Pioneers: How Companies Are Incorporating Environmentally Preferable Purchasing*; EPA742-R-99-001, June 1999.
2. Krut, R.; Karasin, L. *Supply Chain Environmental Management: Lessons from Leaders in the Electronics Industry*; U.S.-Asia Environmental Partnership: Washington, DC, 1999.
3. *Chem. & Eng. News*, *54*, 119-120.
4. *Wall Street Journal*, September 29, 1999, Page A1.
5. Derived from Riva Krut and Leslie Karasin, 1999, US-AEP.

Please Ask; Please Tell

Is there an EH&S topic you would like to address in the EH&S Advisor? Do you have information to share with your colleagues, and are interested in possibly co-authoring a column on the subject? *EM* is very interested in your ideas. Please contact Richard MacLean at phone: (480) 922-1620, or e-mail: maclean@competitive-e.com.

About the Authors

Richard MacLean is president of Competitive Environment, Inc., Scottsdale, AZ, and director of the Center for Environmental Innovation (CEI). He can be contacted at phone: (480) 922-1620, e-mail: maclean@competitive-e.com, and at *http://www.Competitive-E.com.*

Riva Krut is president of Benchmark Environmental Consulting, Inc., in Hartsdale, NY. She works on SCEM, EMS design and implementation, and corporate environmental reporting. She can be contacted at phone: (914) 422-2655 and e-mail: benchmark@mindspring.com.