

Business and the Environment: The Shape of Things to Come

John S. Willson and J. Ladd Greeno

The environmental genie has been let out of the bottle. Around the world, in a wide range of industries, environmental issues are changing the course of business.

Electronics and telecommunications companies are being forced to give up chlorofluorocarbons. Consumer product manufacturers are sharply reducing their packaging materials and developing recycling programs. Automobile producers and appliance manufacturers are designing products for disassembly. And chemical companies and other process industries are spending millions of dollars to clean up past problems – their own and others'. In the United States, environmental issues are changing the fundamental cost structure of the electric utility industry, redefining the economics of the logging industry, and shutting down or relocating some 20 percent of the refinery capacity of the domestic petroleum industry. Meanwhile, environmental considerations have at least temporarily derailed the North American Free Trade Agreement.

At the same time, environmental pressures have created opportunities for products and services that are relatively benign to the environment, such as reformulated gasoline, concentrated fabric softeners employing less-bulky packaging, and corrugated nonwood pallets. They have also rejuvenated mature products – such as baking soda, which is now seen as an environmentally sound cleaning agent – and indeed whole industries. For example, trash collection, formerly a local and regional business, has emerged as a rapidly growing multinational commercial sector and has added hazardous waste treatment and disposal to its offerings.

Clearly, the forces driving these fundamental and far-reaching changes require – and are getting – the attention of senior management. The nature of that attention varies by region. In Europe, there is a considerable push for the development of formal environmental management standards, e.g., by the British Standards Institute and the International Standards Organization (ISO). The momentum for such standards is just beginning to build in North America; it is appreciably lower in Asia and the Pacific regions (Exhibit 1). These disparities will erode rapidly as environmental issues continue to gather strength.

Most managers acknowledge the magnitude and complexity of environmental issues. Far fewer have recognized the opportunities these issues present for competitive advantage. These foresighted firms, nudged into action by the environmental push, are now effecting manufacturing efficiencies, improving yield management, and minimizing waste. Many are fostering innovation in energy use, product design, sourcing, and packaging; developing open-door policies and bridges to groups that had been until recently confirmed adversaries; and developing or redefining their corporate policies, objectives, and strategies to incorporate an environmental business ethic.

Though many of these efforts carry distinct risks, the benefits can be both broad and deep. When Procter & Gamble funded an analysis documenting the environmental impact of both disposable diapers and reusable cloth diapers, the results might have either helped or harmed the company's disposable diaper business. As it turned out, the study revealed that the two products have more or less equivalent impact on the environment – effectively derailing the developing view that disposable diapers were more harmful to the environment than were reusable diapers.

When McDonald's formed an alliance with its ostensible antagonist, the Environmental Defense Fund, to develop a pollution-prevention strategy and subsequently decided to move away from polystyrene packaging, it sent a clear message to customers: recycling is a critical issue that McDonald's takes very seriously. Customers likely also got the message that McDonald's has the strength and know-how to provide leadership to an entire service industry in managing packaging choices and recycling.

When Dow Chemical opened its doors at the highest level to a new external advisory committee comprising environmental experts from government, public interest groups, and academia, it bolstered the confidence of both its local communities and the public, essentially assuring them that the company was drawing on external expertise to help improve environmental performance. These innovative approaches involved much vision, courage, and business savvy.

Early Indicators

We have identified four environmental developments as early indicators of the shape of things to come:

- Life-cycle analysis
- Changing bases of competition
- The new environmental accountability

- Environmental partnerships

Exhibit 1

Force of Environmental Drivers by Region

	Europe	North America	Asia/Pacific	Latin America
EHS momentum of change	<i>High</i>	<i>Moderate to high</i>	<i>Low to moderate</i>	<i>Moderate</i>
EHS standards	<i>High</i>	<i>High</i>	<i>Low (except Japan)</i>	<i>Low to moderate</i>
Government enforcement	<i>Moderate</i>	<i>Moderate to high</i>	<i>Low</i>	<i>Low</i>
Industry involvement	<i>Moderate to high</i>	<i>High</i>	<i>Low to moderate</i>	<i>Low</i>
Industry liability	<i>Moderate</i>	<i>High</i>	<i>Low</i>	<i>Low</i>
R&D efforts	<i>High</i>	<i>Moderate</i>	<i>Low (except Japan)</i>	<i>Low</i>
Public involvement	<i>High</i>	<i>High</i>	<i>Low to moderate</i>	<i>Low to moderate</i>
Worker involvement	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Low to moderate</i>
Green consumer demand	<i>Moderate to high</i>	<i>Moderate</i>	<i>Low</i>	<i>Low</i>
Green investor demand	<i>Moderate</i>	<i>High</i>	<i>Low</i>	<i>Low to moderate</i>

Life-Cycle Analysis. The term „life-cycle analysis“ in this context refers to the notion that it should be possible to assess, before or after the fact, the full impact that a given material, product, or process has on the environment, both during its lifetime and after its disposal. This concept, which is still evolving, will mature to guide sound product and process development. Companies will learn to use sophisticated scientific and valuing techniques in planning new materials, products, and processes in order to achieve an optimal balance of performance, cost, and environmental characteristics.

Some companies have already made great strides in this area. 3M, for example, has a *Product Responsibility Guidelines Life Cycle Model* that encourages business units to consider „environmental, health and safety issues associated with materials and design in the concept phase, thereby avoiding potential delays caused by the need to redesign or reformulate later.“ Bristol-Myers Squibb has launched a major companywide initiative called *Pollution Prevention Throughout the Product Life Cycle*. It states: „In order to understand a product’s environmental impact, each stage of its life cycle – from design, manufacture, and use to ultimate disposal – must be examined. The product life cycle represents a new approach to environmental management, and it is the cornerstone of Bristol-Myers Squibb’s pollution prevention process.“

The public, already keenly interested in the impact of products and materials on the environment, health, and safety, is becoming increasingly sophisticated about how to measure that impact. Today’s approach – measuring the impact of products *after* they have been manufactured and put in use – will shortly be considered not only inadequate but negligent. Once companies are able to understand the issues and make informed tradeoffs before the material, product, or process ever leaves the drawing board, customers will expect that they do so – and may also insist on having a voice in the process.

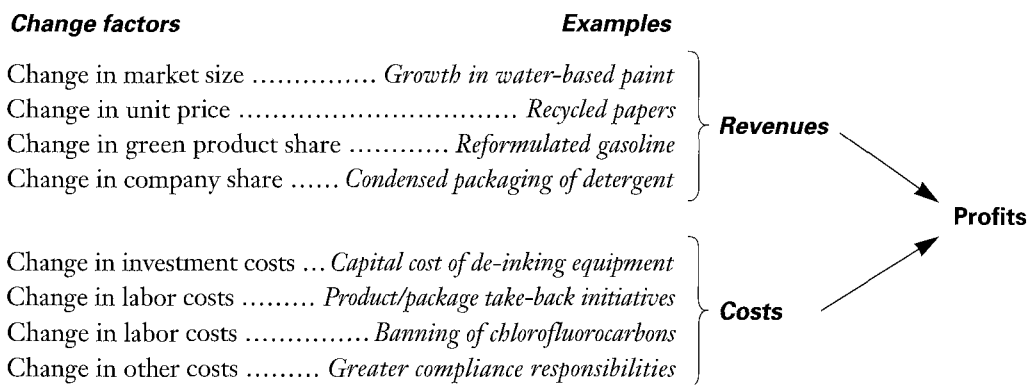
Recent advances in life-cycle thinking include the U.S. Environmental Protection Agency's publication in early 1993 of a document entitled *Life Cycle Design Guidance Manual*. This booklet was developed to help organizations reduce the total environmental impact and health risks caused by product development and to encourage them to consider environmental requirements at the earliest stage of design, rather than focusing on end-of-pipe solutions. Similarly, the Society of Environmental Toxicology and Chemistry (SETAC) has been responsible for fostering much of the early interest in and development of life-cycle thinking and techniques. Acting as a catalyst, SETAC has helped drive industry, government, and public interest groups to work together to advance life-cycle thinking. We expect this collaboration and the implementation of life-cycle planning to move forward quickly, enabling companies to integrate life-cycle thinking into their product design and development processes alongside performance, cost, and cultural and legal considerations.

Changing Bases of Competition. We expect to see quantum changes in the impact of the environment on the dynamics of competition. In the oil industry, for example, three of the six key external forces driving the business worldwide are environmental issues: substitute fuels, environmental regulations, and environmentally driven technology change. Of course, the fortunes of the oil industry are inextricably intertwined with those of the automobile industry and affect all other transportation sectors. In a recently published paper on „Finding the Motor Fuel of the Future,“ Lodwick Cook, chairman and chief executive officer of ARCO, sums up the future this way: „We see reformulated gasoline as successor to conventional gasoline for the great majority of motorists. If we are right, clean gasoline will bridge the present and the future, carrying us to the fuel systems of tomorrow, probably electricity in some form.“ Whatever the future ultimately brings for these industries, the environment will play a major role.

And the environment will affect the cost of doing business across many other industries as well. Besides the obvious costs of regulatory compliance and end-of-pipe waste treatment, there are less obvious costs, such as the funding of environmentally benign substitute materials and less-polluting process equipment (Exhibit 2). Companies' efforts to satisfy consumer demands for change while keeping the costs of change within reasonable bounds are meeting varying degrees of success. The paper industry, for example, is developing recycled papers, but finding it competitively difficult to charge the higher prices needed to recoup high capital expenses – e.g., investments in de-inking equipment. This situation may improve through the efforts of a newly formed alliance dedicated to creating demand for recycled paper. Its members include Johnson & Johnson, the Prudential, Time Warner, McDonald's, Nationsbank, and Duke University.

Exhibit 2

Far-Reaching Impact of Environmental Issues on Profitability



No doubt the environment will ultimately affect competition in ways that we cannot yet begin to fathom. Imagine, for example, that fast-food chains were held environmentally responsible for the fumes generated by the cars idling in their drive-through lines; that manufacturers were responsible for taking back not only the packaging from the products they sell but the used products themselves (as may soon be the case in Germany); or that certain plastics now widely used were found to be harmful to the environment and banned. Clearly, the environment has the potential to change underlying competitive assumptions – not overnight, but certainly much more quickly than in the past. Those companies that recognize both the threats and the opportunities inherent in this new reality will be better positioned to succeed. Texaco, for example, attributes much of its recent marketing success and improved prospects to the fact that it anticipated the refinery upgrade implications of Clean Air Act requirements for alternative fuels and took action before its competitors did.

The New Environmental Accountability. Traditionally, corporate handling of environmental issues has been circumspect. Even today, though there is much talk about being more responsive to outsiders, most companies are still cautious about revealing too much about their operations. However, like it or not, regulatory requirements are now forcing companies to deliver sensitive data on their environmental performance into the public domain. And today's requirements are only the beginning. Government and public pressure will push industry to provide more detailed environmental information – and public access to that information will grow.

Though the United States was the first to establish disclosure requirements through environmental and financial reporting statutes, other countries are rapidly catching up. Since 1987, under the Superfund Amendments and Reauthorization Act (SARA), U.S. companies have been required to submit annual documentation on their release of more than 400 chemicals listed in the Toxics Release Inventory (TRI). All the major U.S. federal environmental statutes also include one or more disclosure rules relating to consumption, production, or emissions of hazardous substances. Recent changes to the TRI reporting process under SARA have added new questions on toxic wastes recycled and treated both on-site and off-site, as well as on corporate pollution-prevention initiatives. In Europe, though community right-to-know legislation is less advanced, the United Kingdom and France already have pollution registers and the European Community has issued its Directive on Freedom of Access to Information on the Environment. Thus, widespread efforts are under way to empower individuals, groups, and communities to question what are acceptable environmental risks from industrial operations and push for standards that go beyond what now may be legally permissible.

Perhaps as significant as the issue of public access to this information is the potential for possible misinterpretation of the data on industry's environmental performance. Taken out of context, information of this kind can distort public impressions of corporate performance. Observers may draw inappropriate comparisons between unlike situations. This „translation“ problem underscores the importance of providing accurate environmental performance data, understanding what the data mean in the broader context of the corporation's overall environmental posture, and explaining this information effectively to all the organization's stakeholders.

Some forms of information disclosure are likely to be more strictly regulated. With respect to financial disclosure, for instance, North America has taken the lead in developing accounting standards and disclosure rules. The Financial Standards Accounting Board's FASB 5 rule states that potential environmental liability (like any other liability) must be accrued by a charge to income where it is likely that a loss has been incurred (and assuming that the amount can be reasonably estimated). The Canadian Institute of Chartered Accountants has developed suggested environmental guidelines to account for capital assets. The United Kingdom, Japan, and the European Community also have legislation that addresses accounting practices for contingent liabilities.

In 1989, the US. Securities and Exchange Commission warned companies to more fully disclose their potential Superfund liabilities. As a result, more companies have included this type of information in their annual reports. However, many still find this difficult, given the complexities and uncertainties. When a 1992 poll asked 500 U.S. companies whether they fully disclosed their environmental liabilities in financial statements, 62 percent admitted having exposures that they had not yet recorded (*Corporate Finance*, February 1993).

As environmental accounting practices and other means of assessing environment-related financial liabilities become more sophisticated, companies will not be able to hide behind lack of experience or the absence of standards. Government and the public will become increasingly dogged about tracking corporate environmental liability information – and the performance it reflects. Recognizing these challenges, companies are launching a range of initiatives: measuring their own progress against voluntarily established emissions-reduction targets, establishing internal environmental and operating databases to gain maximum information value from existing data-collection efforts, and developing ways to communicate directly with stakeholders.

Environmental Partnerships. Historically, out of concern for the potential liabilities involved, companies have tended to manage environmental issues privately. This isolationist approach has not helped them respond fully and flexibly to their key stakeholders' evolving needs. Recently, some companies have begun to „partner“ – at first in relatively risk-free industry association coalitions such as Responsible Care, the National Recycling Initiative, and the Global Environmental Management Initiative. Some companies have even begun working with traditional antagonists, teaming first with local community groups and then with public-interest groups and government agencies. An interesting example is Amoco Corporation's work with the U.S. Environmental Protection Agency to find more cost-effective means for curbing air pollution at its Virginia refinery; another is Ashland Oil's inclusion of environmentalist Patrick Noonan on its board of directors, (see „Six Imperatives for Excellence in Environmental Management“ and „Finding Common Ground Through Alliances and Partnerships,“ both in this issue of *Prism*.)

As competitive pressures continue to intensify, more companies will reach out to a wider range of partners in order to develop more cost-effective solutions to managing the environment for corporate and public benefit. Companies will work with each other and with public interest groups, academic institutions, and regulating agencies in a wide variety of coalitions, partnerships, joint ventures, technology transfers, and sponsored

research. Such partnerships can in some cases confer market advantages. They can also contribute to positive working relationships with groups that can help companies gain fair and effective hearings for their views on pending regulatory initiatives.

In responding to these early indicators from the marketplace, senior managers face a twofold challenge:

- To anticipate the company's environmental exposures and accountabilities; and
- To make sure these are understood and managed, not as the purview of an expert few, but throughout the organization, as a normal part of doing business.

In other words, they must lead their organizations into the next generation of environmental management.

Next-Generation Environmental Management

Even the current leaders in corporate environmental management will need to make important changes to their existing programs. To make additional progress toward environmental excellence, they will need to shift their environmental management from a largely functional approach to a more business-oriented perspective. In making this shift, they will significantly change the way their organizations look and operate. Increasingly, a state-of-the-art environmental management program will have the following characteristics:

- *It will be incorporated in business processes.* The needs of environmental stakeholders will be addressed and satisfied through critical business processes – such as product development, manufacturing, delivery, and service – that incorporate environmental concerns across the full product life cycle. These business processes will be continuously improved to achieve superior performance, which is defined to include environmental performance.
- *It will be integrated into corporate strategy.* Stakeholder environmental needs will be reflected appropriately in the existing corporate and business-unit strategic and operations-planning processes as an integral component – not as an afterthought or add-on. The environmental „vision“ will be part of the broader business vision.
- *It will be line driven, not staff driven.* The organization will be seamless with respect to environmental management. Line managers will be fully knowledgeable about their environmental obligations and will carry full responsibility, authority, and accountability for the environmental performance of their operations. In turn, they will look to much leaner corporate and business-unit environmental staffs only for specialized expertise and services that cannot be provided cost-effectively on a decentralized basis. Line management performance objectives, annual reviews, and incentive/ reward systems will reflect explicit environmental considerations.
- *It will be business led.* The chief corporate staff officer responsible for environment will have the ear of line management. He or she may be a seasoned executive with significant previous line-operating responsibility and experience in the organization. In such cases, tenure in the position, rotated every three to four years, will be regarded as a reward for fast-track candidates who have the potential for still higher levels of line-management responsibility.
- *It will be measured and communicated broadly.* Reliable end-of-process and in-process measures will capture and track environmental performance against objectives. Measurement results will support continuous process improvements, personnel evaluations, and an aggressive internal and external communication program. Information on environmental progress will go routinely to key stakeholders.
- *It will be leveraged for strategic advantage.* The company will leverage its strong environmental performance, as well as its participation in innovative voluntary efforts sponsored jointly with outside groups, to increase its ability to influence events and control its own destiny.

Companies that move swiftly to establish next-generation environmental management programs along these lines will have a solid head start on controlling environmental risk, containing costs, and achieving excellent environmental performance.

John S. Willson is a director of Environmental, Health, and Safety Consulting at Arthur D. Little, where he focuses on improving the organizational and management effectiveness of corporate environmental programs. His clients have included Fortune 500 companies across a broad range of industries.

J. Ladd Greeno, senior vice president of Arthur D. Little, Inc., is managing director of the company's 'worldwide activities in Environmental, Health, and Safety Consulting. An internationally recognized authority on environmental management and auditing, Mr. Greeno is frequently called on to advise corporate management and boards of directors regarding ways to increase the level of assurance provided by their environmental, health, and safety programs.

The authors wish to acknowledge the contributions of Ralph Earle III, a senior consultant in Arthur D. Little's Environmental Business and Strategy Practice.