

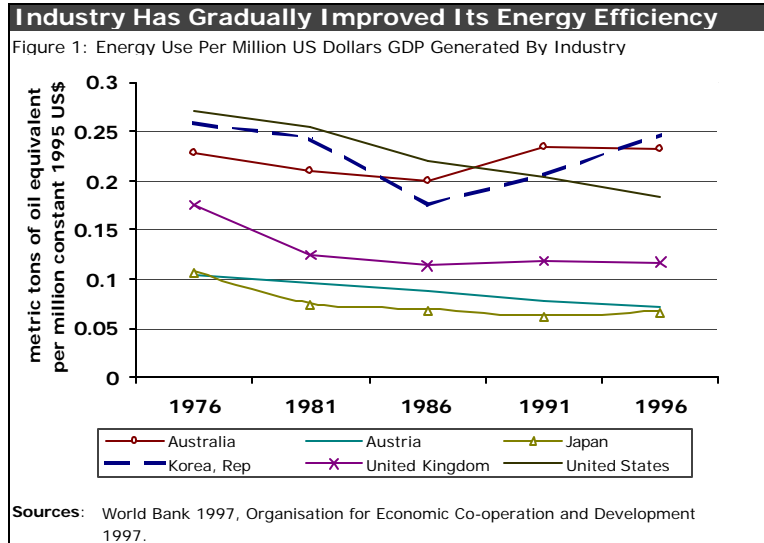
## EarthTrends: Featured Topic

Title: Are Business and Industry Taking Sustainability Seriously?  
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Business today is operating in a profoundly different “environment” than it did 30 years ago. Environmental management is no longer a relatively simple matter of controlling local pollution. Manufacturing companies may be held responsible for the impacts of their operations at every stage—from raw material extraction through distribution to consumer use and final product disposal. These impacts are sometimes distant in space and even in time. Managers must also deal with the expectations of a more environmentally aware public and the realization that reduced environmental impact must come without sacrificing product quality or function.

This new set of ground rules offers the most progressive businesses fresh commercial opportunities to distinguish themselves from their competitors on the basis of both product quality and environmental performance. For these companies, cleaner production processes, more recyclable designs, and new ways of delivering services with less material throughput represent aggressive investments in a changing marketplace where environmental values have greater business currency. But these companies are still the exception and not the rule.

Industry analysts recognize a natural progression of companies



through a number of phases since the 1970s: from basic compliance with environmental regulations, through environmental management aimed at reducing emissions beyond compliance, to broader concerns with resource efficiency and waste minimization, and finally to highly proactive goal-setting embracing environmental, social, and ethical concerns (Ehrenfeld et al. 1995). By the mid-1990s, the majority of firms in industrialized nations were still in the compliance phase. One recent estimate is that less than 20 percent of North American and European companies can be described as “proactive” in their commitment to improving environmental performance in alignment with sustainable development objectives, which hold that today’s wealth and lifestyles should not be achieved at the expense of future generations (Arthur D. Little International 1996:20–21).

Those companies that have taken a proactive stance are, nevertheless, playing a highly influen-

tial role in developing new concepts and practices to reconcile business and sustainability objectives.

### Eco-Efficiency and Product Stewardship

The concept of eco-efficiency merges ecological and economic goals. In practice, eco-efficiency involves improving the productivity of energy and material inputs to reduce resource consumption and cut pollution per unit of output—in essence, making more and better products from the same raw materials with less waste and impact. As such, it represents a “win-win” approach that benefits both the bottom line and the environment. An early pioneer, 3M, now claims that its Pollution Prevention Pays program has prevented more than 750,000 tons of polluting emissions since 1975 by cleaning up and redesigning processes and products, saving the company more than \$790 million (1)(3M 1997).

**Box 1**  
**Seven Dimensions of Eco-Efficiency**

Eco-efficiency is achieved by the delivery of competitively priced goods and services that satisfy human needs and improve quality of life while progressively reducing environmental impacts and resource intensity throughout the life cycle to a level at least in line with the Earth's estimated carrying capacity.

There are seven key dimensions of eco-efficiency that every business should take into account when developing products, introducing process changes, or taking other actions with environmental implications. They are:

1. Reduce the material intensity of goods and services.
2. Reduce the energy intensity of goods and services.
3. Reduce toxic dispersion.
4. Enhance material recyclability.
5. Maximize sustainable use of renewable resources.
6. Extend product durability.
7. Increase the service intensity of goods and services.

The greater the improvement in each of these dimensions—and the more dimensions in which improvement occurs—the more eco-efficient a product or process is (assuming that it also increases one's economic welfare).

**Source:** DeSimone 1997:47, 56-57

Eco-efficiency efforts cover a wide range of activities and often involve reconfiguring the product without degrading its performance. In 1989, Proctor & Gamble introduced concentrated detergent powders—called Ultra detergents—that were half the volume of traditional detergents. The products cleaned the same amount of clothes, but were more convenient for consumers to handle, used 30 percent fewer raw materials, required 30 percent less packaging, and cut the energy used for transporting the product to market (DeSimone et al. 1997:61).

Overall, resource efficiency has improved by about 2 percent per year in the industrialized countries since 1970 (though energy efficiency has barely changed since 1990) (Glyn 1995:49). (See Figure 1: Energy Use Per Million US Dollars GDP Generated by Industry.) These gains are due to technological advances and structural economic changes such as the shift away from energy-intensive heavy industry. A key aim of eco-efficiency is to accelerate this process. (See Box 1: Seven Dimensions of Eco-Efficiency.)

Indeed, the Factor 10 Club, a group of prominent figures in environment and development, have called for a ten-fold increase in the average resource productivity of industrialized countries over the long term (DeSimone et al. 1997:6). Many eco-efficiency initiatives to date have been driven by legislated pollution controls, either actual or anticipated. However, a number of companies are going beyond legal requirements, attempting dramatic reductions in their raw material requirements and emissions through the development of “closed loop” processing cycles in which wastes are completely recycled or reused and never enter the environment.

An eco-efficiency program established at SC Johnson Wax in 1990 has cut the company's manufacturing waste by half, reduced virgin packaging waste by 25 percent and the use of volatile organic compounds by 16 percent, while production rose by more than 50 percent. The company's largest plant “mines” methane gas from a nearby landfill and recaptures organic vapors from process lines to obtain one third of its energy needs; another plant con-

tinuously reuses 95 percent of its wastewater so that it is never discharged. The company has realized more than \$20 million in annual cost savings (Schmidheiny et al. 1997:20).

There is a growing trend to hold companies responsible for the environmental impacts of their products and services throughout their entire life-cycle. A wave of new legislation and industry/government agreements, especially in Europe, has extended the Polluter Pays Principle (which states that the polluting party should be responsible for the financial costs of mitigation or clean-up) from the manufacturing to the use and disposal phases of product life. Examples of measures include material taxes, mandatory recycling targets, and “take-back” requirements that direct manufacturers to collect and process various packaging and consumer products such as batteries, domestic appliances, and even cars at the end of their useful lives. In response, affected companies are redesigning their products: replacing toxic or hazardous materials, reducing packaging, and improving recyclability.

In some cases, as with office equipment, manufacturers are turning to reconditioning or rebuilding old equipment, rather than building every new machine from scratch. Xerox, for example, has developed aggressive product return practices to recapture old copiers for reconditioning. The company has found that even recycling low-value items such as toner cartridges can be profitable. In 1994, Xerox saved some \$2 million in raw material costs by reusing toner cartridges—enough to cover the costs of collecting the cartridges, including a cash incentive program to prod customers to join the recycling effort (DeSimone et al. 1997:75; ENDS 1996:19).

## Reshaping Incentives, Re-making Industries

Many business leaders have begun to realize that achieving truly sustainable enterprises will require going beyond incremental improvements in product and process efficiency to restructuring markets and changing the economic incentives that drive business and consumer behavior. (See Box 2: The Corporate Responsibility Movement.) One point of entry into this kind of transformation is to begin defining business success more in terms of the services or benefits provided rather than the quantity of products sold. In the United Kingdom, Ford Motor Company used this approach to reduce costs and environmental impacts associated with painting its new vehicles when it hired DuPont to manage its entire paint shop operation, rather than simply to supply paint. Ford pays DuPont not for the bulk of paint it applies, but for the number of vehicles painted. DuPont's incentive now is to use its chemical expertise to minimize the paint used per vehicle and to develop a more durable finish, rather than simply increasing the volume of paint it sells (Arnold 1997:6–7).

In other instances, the transformation to sustainability may mean reconfiguring an entire industry. The plastics industry is a good example. Interest is building now in chemical processes that depolymerize or "unzip" used plastics—a step well beyond traditional recycling technology, since it will yield materials equivalent in quality to virgin plastic and able to be used in all the applications of the original material. Polyester can already be unzipped in this way in commercial quantities with a process perfected by DuPont, and work is proceeding with nylon and other common polymers (Warren 1997:B1).

### Box 2

#### The Corporate Responsibility Movement

During the 1980s, the "corporate responsibility" movement emerged in response to the retreat of the state from what has been called the "moral domain of the economy" in the wake of widespread deregulation and privatization. Pressure on the private sector to consider its wider social duties also increased from external interest groups such as environmental NGOs. The result has been a move toward greater democracy, disclosure, and accountability, particularly in industry sectors with a high public or environmental profile.

The social dimension of sustainable development is still poorly defined from industry's perspective, but it is coming to be identified with responsibilities toward local communities affected by corporate operations, toward employees and their families, and consideration of ethical issues surrounding, for example, conservation, biodiversity, and animal rights. Measurement of a company's social and ethical performance is necessarily difficult and was at first resisted by business. However, "social auditing" is now emerging as a useful technique through which companies can demonstrate their openness to key stakeholders, improve staff loyalty, and gauge their wider public standing.

Social audits were undertaken in the early 1990s by a very few companies with assertive environmental and ethical policies—notably Bodyshop International and Ben and Jerry's Homemade, Inc. Today, there is increasing mainstream interest: the Co-operative Movement (wholesale and retail services) in the United Kingdom has completed a first audit, and Shell Oil, and British Petroleum announced publicly in 1997 that they would undertake social audits of their operations.

**Source:** New Economics Foundation, London, August 1997 (personal communication).

Widespread use of this kind of recycling process could help close the materials loop in the plastics industry, greatly decreasing the need for virgin materials and ultimately saving on production costs. But to make this kind of recycling meaningful will mean increasing the collection and return rate of plastics much higher than it currently is. DuPont is working towards this, at least with polyester, by licensing its recycling process to others in the industry and jointly developing a comprehensive collection system for used polyester. In other words, DuPont is enlisting the help of the entire industry to reshape the polyester business into a more sustainable and profitable form, allowing the business to expand into new applications, while trading on polyester's reputation as the "greenest" of polymers (Warren 1997:B1; Day 1997:10).

The developments outlined above, and many others, are being incorporated into business culture and daily operations through environmental management systems, voluntary codes of conduct, the use of performance indicators, and regular reports to

stakeholders, including employees, the local community, environmental activists, government authorities, and shareholders. The growth of innovative programs and self-regulation are important indicators of change. But it is clear that the steps taken so far represent just the start of a complex and lengthy transition to more sustainable enterprises.

Many environmentalists argue that the voluntary approaches prevalent so far will be too slow to deal with urgent problems of pollution and resource degradation and depletion. This is especially the case in newly industrializing countries where pollution is accelerating, but environmental concerns rank lower in business, government, and public priorities. And, in industrialized countries, progress in cleaning up production has not been matched by improvements in resource efficiency, especially when compared with the gains in labor productivity achieved this century. To date, policy measures intended to improve resource efficiency—notably energy taxes—have been strenuously resisted by industry.

Above all, progress is still generally confined to large companies and multinationals; their achievements are not matched by the vast mass of small- and medium-sized enterprises. Smaller companies often lack the knowledge and resources to make significant changes in their organization or technologies. Incentives are also lacking; the financial benefits of

“going green” remain controversial. A recent review of 500 firms across industrial sectors suggests that pollution prevention does indeed benefit operating and financial performance (Hart et al. 1996:30–37), but many small companies remain unconvinced (2) (Groundwork Trust 1995:16).

This suggests the need for more focus on ensuring that sus-

tainable industrial development is compatible with profitability. Government’s best role may lie in restructuring the “ground rules”—the environmental and health regulations, tax codes, and other government policies that influence the business environment—to increase incentives for “green” investments and practices.

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## NOTES:

1. Xerox’s European affiliate now recovers roughly two thirds of the 120,000 Xerox copiers discarded yearly in Europe, re-manufacturing most of them and using some for spare parts.
2. This Gallup survey of 300 small- and medium-sized enterprises in the U.K. revealed quite low levels of environmental awareness and a deep skepticism over the benefits of environmental action.

