

## **Viewpoint**

### **Full-Cost Accounting**

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When it comes to full-cost accounting, nobody has all the answers. Certainly we don't. We do know, however, that air, water, and land are not the „free goods“ our society once believed them to be. They must be redefined as assets so that they can be appropriately and efficiently allocated. Ideally, we would live on their „interest“ rather than deplete the assets themselves.

As one of many economic instruments proposed to market incentives for environmental management, full-cost accounting aims to price goods and services to reflect the true environmental costs of their production, use, recycling, and disposal. This new paradigm takes us into unfamiliar economic terrain, where each step forward must be carefully thought out. For example, if crops grown in California were priced tomorrow to reflect the full cost of water, much of the agricultural industry in that state would be destroyed.

Full-cost accounting raises a wide array of issues – and creates many exciting possibilities. The first step in implementing it is healthy debate on those issues and possibilities among all sectors of society.

Today, economists at the World Resources Institute, the United Nations, and other institutions are exploring how nations can include natural resources on their balance sheets and in their estimates of gross domestic product. Although it is fairly simple to place a dollar value on mineral and petroleum resources, it is significantly more difficult to place a value on a wetland, a forest, or a species. Nevertheless, a true picture of a nation's wealth should ultimately include an accounting of all its resources.

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Similarly, industry must take into account both the resources it uses in production and the environmental impact of its products and services. A key tool in initiating full-cost accounting will be life-cycle analysis (LCA). This process, also in its developmental stages, systematically identifies and describes each step of a product's life, from raw materials to final disposal.

The process of developing this new tool will require consensus among industry, government, academia, and the environmental community. In Europe, a group has recently been formed to achieve this consensus – SPOLD, the Society for the Promotion of LCA Development. Similar efforts will need to be coordinated throughout the world so that we can learn how to price products to reflect their true cost – including environmental costs.

The resulting „true“ pricing will permit consumers to make informed choices without needing to rely on „green“ advertising, seals, or guides. The best-priced product will be the best choice – for both their wallets and their world.

Take the diaper debate, for example. Which are environmentally preferable, disposable or cloth? Cloth advocates point out that disposable diapers fill landfills. Disposable advocates claim that the full cost of handling and laundering cloth is higher than the cost of landfill space. Full-cost accounting could help resolve this question . . . and if consumers preferred the less „eco-efficient“ product, they could purchase it at a premium to help pay its environmental bill.

In situations in which full-cost accounting cannot give manufacturers or consumers all the information they need to make choices, it will at least give them a profile, or snapshot, of the environmental and economic considerations inherent in the product. For example, prices should appropriately reflect regional differences; a gallon of fresh water should cost more in Arizona than in Michigan.

True and full accounting, a simple enough concept on the surface, will be highly controversial and hard to implement. A major barrier is our individual bias and the potential for polarization. On one side, some environmentalists think full-cost accounting is the perfect solution and want immediate implementation. On the other, some business interests want to reject it out of hand. There is considerable risk in taking the concept of full-cost accounting too far too soon, before industry or society is ready for it. The challenge is twofold: first, to gain consensus and then to agree on a timetable.

If a particular company, business, or industry moves forward too quickly, its ability to compete may immediately suffer. For example, if the plastics industry decided to build the entire environmental cost of its products into the price, while the paper industry decided not to do so, consumers would be more likely to select paper over plastic in competitive applications – a choice that might or might not be the best one for the environment.

Yet for industry to ignore full-cost accounting or reject it out of hand could be a serious mistake. If industry doesn't address its own environmental challenges, government will undoubtedly intervene. Ultimately, the

adoption of full-cost accounting may determine a company's long-term survival.

The alternative to adopting full-cost accounting is to postpone paying our environmental bills, allowing them to accrue at heavy interest, and increasing the likelihood that they will be managed by governments – which are inclined to focus on political, rather than economic, agendas.

Governmental management often takes the form of financial instruments, such as environmental taxes, which are potentially counterproductive. Unlike full-cost accounting, which is designed to reduce society's environmental impact by changing behavior, taxation has as its essential purpose the raising of revenue. The U.S. government, for example, has been fairly unsuccessful in using the tax system to correct or change behavior, as evidenced by the ozone depletion excise tax. The tax was created to encourage industry to shift away from using chlorofluorocarbons. In the past year, however, it has been proposed that this tax be applied to chemicals that have no ozone depletion potential. The purpose of the tax became to raise money, rather than to change behavior. To avoid both command-and-control regulation and the inefficiency of taxation, sentiment is growing in industry and among some members of the environmental community for efficient, voluntary, preemptive initiatives.

As a beginning, there are some positive economic changes companies can make voluntarily. First, they can charge environmental costs directly to the offending products, rather than spread them among all products arbitrarily. Products and processes that use natural resources should carry the burden.

An example of this concept could be found right at your curb. In most communities trash collection is charged on a flat-fee basis. In some, this service is provided free of charge – until a new landfill or incinerator is needed. Some forward-thinking communities charge by the volume of waste placed at the curb. Charging for pickup bag by bag not only recognizes cost, but also can dramatically reduce household trash.

Similar practices are being implemented within industry. For example, Dow's Michigan division built a certified hazardous waste landfill in 1982. At that time, it was estimated to last 25 years – until the year 2007. But over the last several years, the company began charging each plant according to the actual waste it brings to the landfill. Suddenly, it became more economical for the plants to adopt new technology and to make process changes to reduce their waste. Solid waste from the site has been reduced by nearly 50 percent over the last several years. Today, that same landfill is estimated to last an additional 27 years – until the year 2034.

A second independent action companies can take is to ensure that when they enter new businesses and build new plants, their forecasts for future environmental costs are realistic. Plants built by the chemical industry today will still be operating 20-25 years from now. Selection among alternative projects must be done on the basis of projected environmental costs. The trouble is, there aren't many guideposts to help management make informed decisions.

The solution may be found by asking, Is the production of this product using excessive resources and could it tolerate paying the full costs of those resources? Such questions begin to build a mind-set that will lead to farther steps toward full-cost accounting.

An early example of full-cost accounting in the chemical industry dates back nearly 15 years. Monsanto started charging a \$5 deposit on its drums used for product distribution. This visionary company didn't want the drums disposed of carelessly. They realized that dealing responsibly with drums would save them money and trouble in the future. In some Superfund sites today, clean-up costs are as high as \$1,000 per drum.

Inherent in sustainable development is the concept of pollution prevention rather than end-of-pipe treatment. Because full-cost accounting mandates capital investment for clean production, it will require justification for that investment. If we accept pollution prevention as the ultimate in environmental reform, we must apply full-cost accounting to today's processes, including waste treatment, to justify the required new investment for pollution prevention. Prices in the interim may have to increase temporarily until the waste is eliminated.

Today, some important steps are being taken in that direction. In Germany, for example, Volkswagen will take back its VW Golf automobiles at the end of their useful lives. To do that economically, the company should build that cost into the price of the automobile so that the customer pays for the automobile's ultimate disposal or recycle cost.

This concept will undoubtedly change the way the automobile industry views its products. Cars will be designed differently so they can be more efficiently recycled and reused. On top of that, Volkswagen is viewing its action as a competitive edge. In such cases, full-cost accounting is not only an environmental incentive, but also a marketing weapon.

There are countless examples where full-cost accounting is working. Nonetheless, if misapplied, it could cause businesses and entire industries to become uncompetitive. It is imperative that we gain experience with full-cost accounting gradually, so that someday it will be built into the price of everything produced and bought.

It is a long leap to universal adoption of full-cost accounting. It is not a popular concept with those who would pollute now and pay later, those who use environmental issues as a platform for taxation with no real environmental benefit, or those who profit from environmental disinformation. But for those who are sincerely concerned about the environment, full-cost evaluation offers a target on which we can focus current activities to ensure that both manufacturers and consumers pay, e.g., through a „pollution-added cost,“ like a value-added tax, which would be charged at each level of conversion of raw materials to finished products.

Certainly the implementation of full-cost accounting and other economic instruments cannot be accomplished in isolation. It will require debate and finally cooperation among governments, industry, and the environmental community – nationally and internationally.

Clearly this is a complex issue. Although industry cannot immediately build full-cost accounting into its accounting and economic evaluation methods, it certainly can put some tests in place and begin disciplining itself. We can make a start on a four-step process:

- Debate and discuss the concept
- Develop new tools, such as LCA
- Measure and assign environmental costs
- Eventually, price products accordingly

It will take years to accomplish, but when implemented correctly, full-cost accounting will improve environmental performance more than any other action, program, or regulation in place today.

The chemical industry changed its future forever when it adopted the Responsible Care® program to improve the industry's environmental and safety performance. Pollution prevention has become the foundation of our efforts to reduce the impact of processes and products on the environment. Full-cost accounting is a critical enabler for pollution prevention to become a reality.

Voluntary full-cost accounting is one real alternative to today's adversarialism, command and control, overlegislation and overregulation, and national environmental self-interest – at the expense of real environmental reform. Full-cost accounting may well be the most important step down the path to sustainable development.

*®Responsible Care is a service mark of the Chemical Manufacturers Association.*

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