

2.4 Dimensions of Cost: It's Almost Always More Than You Think

Our objective in this section is to look at the full range of costs associated with waste generation in businesses. Some dimensions of cost are often hidden, difficult to assess, frequently overlooked, or ignored. Increasingly, competition comes in part from companies that do pay attention to waste costs and innovate to eliminate those costs.

The Traditional Cost Model

While accounting systems vary in the costs classifications, typical cost categories include:

- C direct costs such as materials and labor,
- C manufacturing overhead, or operating costs,
- C office or administrative overhead,
- C sales and service costs, and
- C research and development.

These categories may vary or be combined in different ways depending on the type of business.

Managing waste and the associated costs involved is often referred to as the “**cost of doing business**” or as part of the **overhead costs** related to manufacturing, service, or office areas. It is a convenient way to deal with miscellaneous business costs, when the more pressing matters relate to getting the product out the door or making sure that the service provided is what the customer wants. Providing a good product or service will always be the driving force for businesses. However, as our economy is increasingly affected by the global market place, new types of competition will affect virtually any business.

Linking all the identifiable costs to a product or service category rather than to an overhead category is a more effective way to understand the impact of waste-related costs. The business can more accurately assess whether that product or service is profitable in its present form, and reasonably justify process modifications that reduce wastes and associated costs. Where process modifications do not have reasonable paybacks, for example, a company may drop that product or service. The company may choose to outsource parts or supplies that can be produced more efficiently elsewhere.

The Environmental Cost Model

The Global Environmental Management Institute (GEMI) developed a primer on cost effective pollution prevention initiatives that outlines an alternative model for waste-related costs. This model has also been promoted by the U.S. EPA in its Pollution Prevention Benefits Manual. This method acknowledges that traditional cost accounting methods resulted in waste-related costs, or **environmental costs**, being distributed in various categories from direct cost to overhead costs.

Environmental costs are classified in four categories:

- C direct costs;
- C hidden costs;
- C contingent liability costs; and,
- C less tangible costs.

Each category is reviewed for waste-related cost examples that could be examined to determine the cost-benefit of implementing a waste reduction project. The categories have been adapted or limited to focus attention on the many dimensions of costs associated with waste, including other cost factors when conducting a cost accounting analysis of process changes for waste reduction purposes.

Direct costs are linked with the process, product, or service. They may include wasted raw materials, labor and waste management costs, and wasted or excess energy consumption.

Disposing of solid and hazardous waste is the most tangible cost typically associated with waste streams. Fees are charged to both **transport** and dispose of materials. These records are easy to obtain. When solid and hazardous wastes are generated, usually part of the waste results from lost **raw materials** that already have been paid for once. As an environmental engineer at a farm equipment manufacturer states, "It seems silly to imagine that it's okay to buy raw materials, cut it up, and then throw (a bunch of) it away."

Labor cost is associated with managing waste materials on the floor, using building space for waste material storage, and for operating costs for **pollution control** and **recycling equipment**. **Excess energy consumption** can be a separate waste issue. However, it is also an extension of equipment operating costs related to waste management. These represent easily quantified, ongoing expenses.

Hidden costs represent a large category of waste-related miscellaneous costs. Many of these costs can be quantified. However, they are not often directly linked to wastes or hazardous materials. Major hidden cost sources include **regulatory compliance** activities, **health and safety** issues, **legal services**, and **insurance**.

Regulatory compliance can be very time consuming. The many responsibilities include: recordkeeping, monitoring, reporting, manifesting, training, labeling, spill responses, required plans, environmental audits, permitting, remediation, office support, and equipment costs.

Health and safety requirements include training or preparedness, protective equipment, maintenance of Material Safety Data Sheet files, medical surveillance, and insurance. Costs are also incurred with increased sick time resulting from exposure to hazardous or toxic materials in the workplace. Insurance costs are often higher due to the medical implications, the greater risk associated with on-site storage and use of hazardous and toxic materials, and the potential for liability.

Legal services are more likely to be a significant factor for manufacturers who use or have used hazardous materials, or are subject to more comprehensive regulation. This does not mean that small businesses and the service industry need not worry about legal expenses. Examples of non-manufacturers that could face significant legal costs are dry cleaners and auto service shops. These businesses may have had a history of land disposal, an accidental spill, or a leak that may have resulted in environmental contamination requiring cleanup or remediation.

Contingent liability costs result from the future costs of unexpected events. These could include: **accidental spills** or releases of pollutants and **regulatory penalties**, future **noncompliance penalties**, and **cleanup or damage costs** from past activities. These costs can include **personal injury claims** from employees, former employees, or neighbors. **Property damage suits** result from contaminated soils, groundwater, and diminished property values.

A few years ago, a small farm family discovered their leaking fuel storage tank would cost over \$300,000 to remediate after it had contaminated the groundwater. Remediation costs exceeded the farm's value. Similarly, a very small wood products manufacturer saw a chance to sell the business property for \$325,000 slip away when an environmental audit of the property uncovered a past spill or disposal that affected the property. Although the exact origin of the contamination was disputed, remediation costs exceeded the value of the potential sale.

Less tangible costs may be hard to identify and even more difficult to quantify. However, they can have a very negative impact on the business. These costs are often called **image** and **relationship costs**. For example, the EPA's TRI, or Toxics Release Inventory, requires companies to report releases of listed chemicals. This brings unwanted publicity to many companies. However, many companies then focus on those materials, and commit to reducing or eliminating use of those materials. Public relations are often improved following these initiatives.

A contrary public relations approach by a Midwestern company was less successful. The company was the largest air emission source in the state. Using TRI data, the company said it was not polluting the environment because it was within its permit release levels. Such claims are certain to prompt some public skepticism, and this could set the stage for unwanted limitations on company growth. Good relationships with the host community can be crucial for granting future zoning adjustments or accessing expanded utility capacity. Difficulties in this process arise if a community feels threatened by the activities of the business.

Good environmental image is increasingly important in many other business relationships. Customers are insisting on more environmentally friendly products and services. This includes businesses and vendor relationships. Business customers and private consumers want less waste associated with products, and customers may demand changes in specifications that reduce their environmental problems.

Investors and lenders are increasingly wary of doing business with companies with adverse environmental reputations, or those having site contamination problems. Businesses must demonstrate a proactive approach to environmental responsibility to attract capital. Similarly, regulatory agencies want businesses to make a sincere effort. In recent years, there has been a trend by the U.S. EPA and state agencies to be more lenient on compliance problems when companies demonstrate commitment and effort to correct problems and to reduce or eliminate waste. Businesses deliberately avoiding compliance are much more likely to face fines or penalties.

Sources:

An Introduction to Environmental Accounting as a Business Management Tool, EPA 742-R-95-001, June 1995.
Finding Cost-Effective Pollution Prevention Initiatives: Incorporating Environmental Costs into Business Decision Making, a primer, Global Environmental Management Institute (GEMI), Washington, D.C., 1994.