1.1 Waste as a Measure of Business Efficiency

Michael Porter and Claas van der Linde wrote in the September-October 1995 issue of *The Harvard Business Review,* that "pollution equals inefficiency". This simple statement makes intuitive sense to business, but is it understood well enough to cause most businesses to evaluate their processes and change how they do business? Probably not without some help.

It has often been said that we are a throw-away society. While not an exclusively American trait, perhaps we excel at it more than most countries. This is an important and revealing fact about the cultures of American consumerism and American business. The United States has been able to obtain material resources relatively cheaply. In turn, this has fueled a strong economy and perpetuated some fundamentally flawed assumptions about business costs.

In the past, both manufacturing and non-manufacturing businesses often viewed waste as a cost of doing business. Efforts were made to be efficient, but there was little incentive for businesses to eliminate all forms of waste. Many processes produced an inevitable waste stream which was folded into overhead operating costs.

Pollution Control

The public began objecting to environmental pollution in the 1960s and 1970s. During this time, federal legislation began to require pollution control. In addition, companies saw a dimension of costs related to waste that included some incentives not to pollute. However, the incentives did not always prevent wasteful pollution generating practices. Instead, increasingly complex regulations were implemented by all levels of government. Thus began a new era of adversarial relations between government and business.

Pollution control measures had a positive environmental impact, but did not boost the bottom line of businesses and manufacturers. Industry argued that competitive pricing in a free enterprise system forced companies to produce goods, services, and maintain profits. Companies had to meet consumer demands while accessing a limited supply of commodities and minimizing waste. Pollution controls did not add value to those products and services. They were seen as a threat to profits. Increased costs for pollution control meant higher consumer prices.

However, in the 1970s environmental interests, with support from some economists, argued that it made economic sense to pay the higher prices resulting from pollution controls. Environmental economists argued that economic activities had impacts outside the realm of producers and consumers. They viewed these impacts as "externalities". These included the impacts on clean air or clean water which could negatively affect people not involved in the business transaction. It was argued that higher prices could be justified if a more global view of economic activity were considered. For example, increased health costs from polluted air or water could have significant societal costs because an industry released air emissions or discharged pollutants into a river.

Waste Prevention

Pollution control was a core of the 1970s arguments and remains a significant part of waste management systems. Some companies even chose a more sensible approach that addressed both environmental and industrial concerns. In 1975, 3M Company began “Pollution Prevention Pays”, the “3P” program. The company saw it did not make "sense" or "cents" to create a waste which represented a loss of resources, and then pay again to control the polluted wastes.

3M realized that if they could change their processes or materials to reduce or eliminate the waste stream causing the pollution, they saved both money and resources. They realized additional savings by reducing or eliminating pollution control costs. It was a front-end solution called source reduction. For 3M, it meant more than $500 million in savings over 20 years, based on the reduced costs from the first full year of each pollution prevention project.

Corporate Culture Change

A fundamental change in business acumen is needed for a company to shift from pollution control to pollution prevention. Management must see the bottom line value of investing in pollution prevention. Effective waste prevention strategies require that the entire organization understand its importance, and be supported in efforts to identify pollution prevention opportunities. It parallels the Total Quality Management (TQM) principles fostered by Demming in Japan and more recently in the United States.

Demming did not set out to prevent pollution, but rather to develop an organizational culture inherently efficient in delivering quality goods and services. He promoted a work environment that encouraged individual achievement through teams or groups, enabling or encouraging people to excel according to their strengths. Instead of the traditional top-down management favoring individual performance standards backed by individual incentives and penalties, Demming focused on achieving quality and efficiency by giving employees more responsibility in a group setting to identify and implement quality improvement strategies.

Competitive Markets

While the 3M model was available, it was not widely known or adopted by United States companies for over 10 years. The Demming revolution in Japan impacted the United States economy in a many areas, from cameras to electronics to automobiles. The most significant impact came from quality automobiles sold at a competitive price. Japan made a serious entry into the United States auto market in the 1970s, but many of those first vehicles had quality problems. The United States auto producers did not worry about Japanese competition. During the 1980s, however, quality became synonymous with Japanese autos. By 1990, *The Wall Street Journal* reported that Japanese auto makers produced cars with half the energy and half the waste than did United States automakers.

While the sudden shift in auto industry dominance was the result of many reasons, the Japanese used the Demming model and quickly improved quality. Raw materials were expensive for Japan to import, thus Japan had a strong incentive to generate little waste. This reveals how easily Japan achieved quality and low production costs. The same management system that allowed companies to produce fast quality improvements had also **reduced waste and prevented pollution.**

Competitive Business Today and in the Future

As Japan clearly demonstrated, **reducing waste also reduced costs**, leading directly to global competitiveness. That returns us to Porter and van der Linde equating pollution or waste with a measure of efficiency. They have argued that some regulation is essential to force companies to find innovative ways to reduce or eliminate waste. Rather than eliminating regulations, they argue for eliminating regulatory barriers to innovations that will lead to eliminating waste.

For United States companies, whether they have adopted "TQM" strategy or another quality management system, regulations and global competition will force changes. Successful companies will find innovation is the key to maintaining a competitive edge. This manual gives small business counselors basic tools to help companies identify basic waste reduction strategies, and to find the help these companies need to be competitive.

The next few sections introduce terms, concepts, and strategies that can be easily delivered by economic development counselors such as Small Business Development Center counselors, or their counterparts in the public and private sectors.

This introduction has attempted to equate pollution prevention with waste reduction or elimination, which in turn means cost reduction. The theme emphasized in this manual is **waste reduction leads to cost reduction.**