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The Role of Pollution Prevention in Sustainable Development

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Benjamin Franklin is credited with making the statement, “an ounce of prevention is worth a pound of cure” almost 250 years ago. Although society has changed substantially since Dr. Franklin’s time, the importance of using a prevention approach to solving problems has not. While prevention is often forgotten in favor of command and control approaches, ultimately it makes the most sense from an economic and societal standpoint. There is an accepted rule of total quality management that it takes ten times the unit cost to fix a problem in-house and one hundred times the unit cost to fix a problem that has left the facility. The value of the pollution prevention approach to addressing environmental problems is the main focus of this presentation. In the United States, the term pollution prevention, (or P2), is defined as “any practice which avoids, eliminates, or reduces any pollutant prior to recycling, treatment or disposal.” This has been expanded to include the efficient use of raw materials, energy, water and other natural resources, as well as the creation and conservation of natural habitats. While it seems intuitive that no organization would want to encourage, initiate or increase the waste that it generates, the fact is that this occurs routinely as a result of new products, business growth or expansion, new technology or using a less experienced labor force. It is important to realize that the opportunities for P2 are in the inputs and activities of all processes and that once a waste is generated it must be recycled, treated or properly disposed.

The productivity equation (materials + labor + equipment + energy + time = products + waste) serves as a basis for determining opportunities to reduce the waste term to zero. The DuPont Company has a “Goal is Zero” program which addresses product defects, worker safety and pollution. A corollary equation has the first five terms equal “assets and liabilities.”



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The management of assets is what most businesses are familiar with and comfortable doing. They have established systems to manage their financial assets, production and service assets, and personnel. In order to achieve sustainable development, organizations are developing environmental or natural resource management systems as well as community involvement systems. These five systems form the basis for a sustainable development program since they address the three aspects of sustainable development: economic, environmental and social. The five asset management systems are interdependent, so that the consequences from decisions that are made in one area are addressed in the other areas.

The first step that an organization must take in developing an environmental management system is to obtain support from senior level management. This usually comes from a mission statement that identifies the company's commitment to environmental excellence. The mission statement should include the use of pollution prevention as the remedy of first choice in addressing environmental issues. Also, the mission statement should be signed by all of the senior managers, thus insuring its credibility and commitment of resources. Once the environmental mission of the organization is clear, the remaining steps of identifying aspects and impacts, prioritizing activities, establishing teams, collecting baseline data, testing alternatives, and implementing improvements follow more easily.

There are six basic pollution prevention approaches that businesses can utilize in addressing the highest priority environmental impacts. These are: process efficiency improvements; material substitution; inventory control; preventive maintenance; improved housekeeping; and closed-loop recycling. Examples of successful implementation of all of these approaches will be included in the presentation.

Businesses are also realizing that there have been substantial changes over the past few decades which affect the value of their company. Instead of simply using the bottom line as the indicator of a company's value, other factors, such as environmental



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footprint, reputation, and other intangibles play a greater role in determining a company's value. The stakeholder dynamic is being more closely monitored by organizations, especially given today's internet access and information transfer. There are several examples of "successful" companies that have ignored this change to their own detriment.

It was Albert Einstein who said, "The significant problems we have cannot be solved at the same level of thinking with which we created them." Therefore, innovative approaches to current environmental problems are needed. This begins with the basic processes within an organization. Once the wastes from these processes are eliminated or reduced to near zero, then the forward-thinking company looks at their waste generation from within their facility. Examples would be reducing the energy usage from lighting and water usage from lavatories. Again, once these issues have been addressed, a company's entire property is evaluated for opportunities to reduce landscaping costs, water usage and to increase natural habitat.

The community involvement system discussed earlier can be utilized at this point to create positive relationships with the local community. Projects which provide positive benefits to the community, such as stream restoration and environmental education, are being underwritten by US companies regularly. This eventually leads to actions which have local impacts as well as global results. Reduction in CO₂ emissions by promoting car pooling or telecommuting or increasing the capture of CO₂ by creating more forested areas are examples of successful projects that have been implemented in the US.

The phrase "think outside the box" has become very popular. However, in the P2 world, we promote the idea of making the box bigger, until it encompasses the entire planet.