



POLLUTION
PREVENTION AND
PROFITABILITY

A P R I M E R F O R L E N D E R S

Northeast Waste Management Officials' Association

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"Pollution Prevention really pays in reduced environmental impact, and in new sales, lower costs, higher quality, less regulatory impact, and fewer liabilities."

-Robert Bringer, Vice President of 3M Company, discussing the benefits of 3M's Pollution Prevention Pays program

Contrary to popular thinking, protecting the environment and improving business profitability are compatible objectives. In fact, taking a proactive approach to environmental management — based on preventing rather than controlling pollution — enables companies to lower costs, reduce liability risks, and improve operating efficiency.

For lenders, the threat of exposure to a customer's environmental liabilities is a deterrent to doing business. After numerous cases of unforeseen involvement, banks have placed some industries and types of projects "off-limits," and carefully scrutinize borrowers for compliance with environmental regulations. But this focus on current risk and compliance may fail to take into account what potentially valuable customers are doing to limit *future* risks and problems.

In the following pages, you will learn how pollution prevention can enhance traditional loan evaluation criteria. Specifically, this booklet explains how a company's investment in pollution prevention

- Provides an indicator of management competence
- Generates both direct and indirect cost savings
- Enhances profitability and competitiveness as well as environmental quality.

Traditional environmental management approaches incur costs without necessarily eliminating future liability risk.

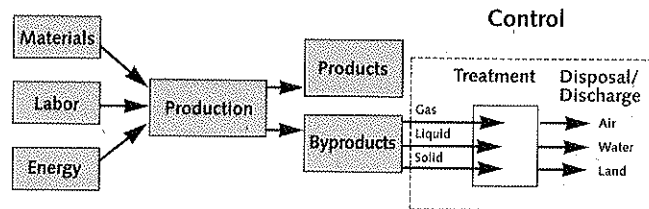
How does pollution prevention differ from pollution control?

Throughout the 1970s and 1980s, pollution control was the primary means for achieving environmental protection. Control strategies include the treatment and/or disposal of industrial byproducts or waste and discharge to the air, water, or land. This approach, however, has serious drawbacks including:

- High costs for treatment equipment, waste disposal, and regulatory compliance, and
- Increased liability risk for any company that uses, transports, or disposes of hazardous materials and wastes.

In fact, for many U.S. firms (especially smaller companies), the costs and risks of the pollution control approach have led to impaired competitiveness and reduced creditworthiness — and therefore limited access to financing.

The Pollution Control Approach



Today, a shift to strategies and practices designed to prevent, instead of control, pollution is imperative in the face of

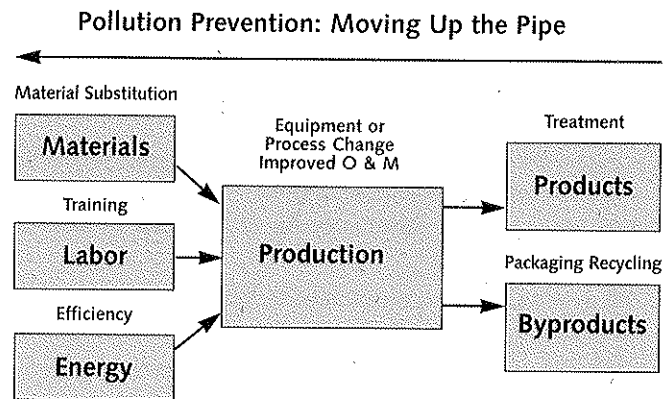
- the soaring costs of regulatory compliance
- the principle that the “polluter pays,” and
- the growing number of environmental tort lawsuits.

In contrast to control strategies, pollution prevention (also known as waste minimization or source reduction) limits the generation of waste during the process of producing goods or services. As such, pollution prevention is similar to Total Quality Management (TQM). Just as TQM emphasizes “building in” quality during production rather than repairing defects at the end of the line, pollution prevention strategies adjust the process to reduce the generation of waste rather than treat waste as it leaves the plant.

Both TQM and pollution prevention improve efficiency and quality by eliminating activities and inputs that cost money and add no intrinsic value. Pollution prevention practices can include changes in the design, inputs, production, and delivery of a product. In particular,

- *Raw material substitution:* switching to less hazardous materials
- *Process modification:* changing the production process to improve efficiency and reduce the use of toxic substances
- *Equipment upgrade:* installing more efficient equipment to reduce raw material consumption and produce less waste
- *Product redesign:* reducing certain raw materials in products or packaging, or improving manufacturability.

In keeping with the Total Quality Management paradigm, pollution prevention focuses on process-based prevention of waste (defects) instead of end-of-pipe treatment (repair).



POLLUTION PREVENTION Defined by P2 Act of 1990

Any practice which reduces the amount of any hazardous substance, pollutant, or contaminant entering the waste stream, or otherwise released to the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

Prevention-based measures generate significant savings in both direct and indirect costs.

How do companies benefit from investing in these changes?

Pollution prevention strategies can generate immediate, highly visible savings as well as longer-term, less tangible benefits. According to a survey by the New Jersey Department of Environmental Protection, facilities that had prepared pollution plans projected savings of \$7.40 for every \$1.00 invested.

Among the direct gains from investing in pollution prevention projects are cost savings for:

- raw materials
- production labor
- compliance costs, and
- waste disposal and transportation.

In addition, pollution prevention investments can provide indirect cost savings by reducing

- special handling and storage requirements
- hazardous materials training
- paperwork involved in monitoring, record keeping, permitting, and disposing of toxic materials, and
- insurance expenses related to storage of flammable or hazardous materials.

What's more, pollution prevention programs offer some longer-term, less tangible benefits that are difficult to quantify, such as

- reduced long-term liability risk associated with cradle-to-grave responsibility for toxic material use and disposal
- improved public image as an environmentally responsible business
- new potential to take advantage of "green market" trends
- improved employee health and safety
- enhanced relationships with local communities, and
- reduced regulatory headaches.

The following company profiles illustrate how actual businesses have managed to achieve many of these benefits.

Hubbardton Forge: Immediate Environmental and Efficiency Returns

Hubbardton Forge is a manufacturer of wrought-iron lighting and fireplace accessories located in Castleton, Vermont. For years, Hubbardton painted its products with a conventional solvent-based lacquer spray. Problems with the quality of the finish, the difficulty and cost of applying the spray, and chronic environmental and safety issues arising from the use of solvent (a flammable, toxic substance) then led the company to consider alternative approaches. As a result, Hubbardton invested in an electrostatic powder coating system, a relatively new technology that uses static attraction to draw powder (paint) onto an unfinished iron surface — providing higher efficiency, better quality, and lower environmental impact.

Hubbardton funded half the \$80,000 project cost internally and borrowed the balance from 1st Vermont Bank, where the company had been a customer for five years. Although the company's financial condition and business prospects were sufficient to justify the loan, the environmental benefits of the powder coating project and the company's environmental management philosophy provided the bank with an added margin of comfort.

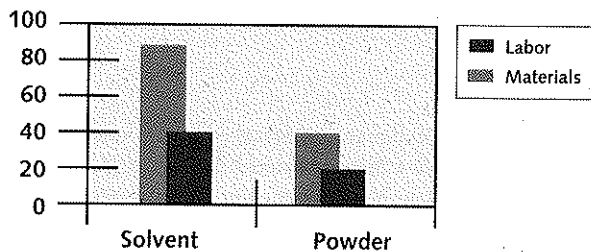
The loan officer understood the immediate gains as well as the longer-term, more intangible benefits of the company's proactive approach to environmental management. Most important, he recognized that, given the bank's exposure to Hubbardton's liability risks, it needed to pay attention to the company's environmental management strategy. The lender believed that paying attention to a firm's approach to environmental responsibilities is "important because it measures your feeling about management and their capacity for taking a long-term perspective on the business."

After almost two years of operation, the new system has generated environmental quality and efficiency gains including:

- Elimination of toxic emissions
- 98 percent reduction in use of toxic material
- Lower labor and materials costs for coating
- Faster production speeds
- Improved product quality

Based on operating data, Hubbardton estimates that the project has a payback period of 2.5 years and an internal rate of return (IRR) of 24 percent.

Year 3 Projected Savings (\$ Thousands)



National Chromium Co., Inc.: Renewed Profitability Through Pollution Prevention

National Chromium Co., Inc., located in Putnam, Connecticut, is another example of a company that improved its performance while meeting its environmental responsibilities. This chrome-plating company serves customers with a variety of surface-finishing needs, ranging from single, multi-ton steel shafts to thousands of one-ounce parts for household appliances. The chromium used in the plating operations is highly toxic and strictly regulated.

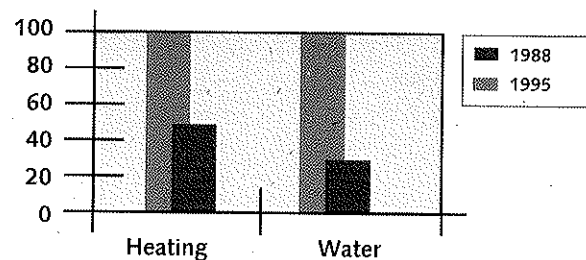
In 1988, National faced an uncertain future: its antiquated facility had severe ground contamination and substantial chromium air emissions, and its wastewater treatment system did not satisfy state regulators. Without major investment in new process equipment and pollution control technologies, the business would not survive. To make matters worse, the condition of the site and the status of legal actions filed by the state obstructed access to external financing.

With no viable options, other than closing down the plant, the owner of National Chromium was able to forge a consent decree with the Connecticut Department of Environmental Protection based on a credible plan to achieve compliance. In exchange for greater flexibility in cleaning up the site, the owner agreed to a significant investment in new plant and equipment. By mid-1995, National Chromium was nearing completion of its new 10,000 square-foot facility incorporating structural design features, upgraded production equipment, and refined process techniques to minimize raw materials usage and maximize internal recycling. These changes produced significant dollar savings in:

- plant heating costs
- water usage
- raw materials

The new operations eliminated the source of site contamination, reduced chromium air emissions 99.5 percent, and significantly improved the effectiveness of wastewater treatment.

Percent Cost on Constant Volume 1988-95



National Chromium's strategy of proactive environmental management played a key role in establishing the conditions (the consent decree) under which Citizens National Bank (CNB) was willing to loan the company \$600,000. It also influenced the bank's assessment of and confidence in management's ability and competence. Despite the potential risks of making a loan collateralized by property that was severely contaminated, CNB was nevertheless assured of National Chromium's commitment to cleaner production under the terms of the agreement with the state.

Other Success Stories

Along with Hubbardton Forge and National Chromium, many other firms and organizations have achieved business success with highly visible pollution prevention initiatives. Among them are:

3M Company

Since its inception in 1975, 3M's employee-based Pollution Prevention Pays (3P) program has prevented more than 650,000 tons of pollution worldwide and saved more than \$750 million. For example, 3M's electronic products plant in Columbia, Missouri makes flexible electronic circuits from copper sheeting. In the past, 3M used various hazardous acids and other chemicals to clean the sheets before they could be used in the production process. They replaced these chemicals with a specially designed machine with rotating brushes that scrubbed the copper with pumice. In the first year of operation, this new process saved \$15,000 in raw materials and disposal costs, and continues to eliminate 40,000 pounds of hazardous waste each year that would otherwise be generated.

Polaroid

Polaroid's Toxic Use and Waste Reduction (TUWR) program was launched in 1988 largely in response to negative publicity. TUWR is now credited with a significant drop in toxic substances use as well as gains in operational efficiency and improvements in manufacturing process and product design. For example, Polaroid's film assembly plant in Waltham, Massachusetts devised and implemented a new method for removing grease from metal parts. This new procedure has dramatically reduced the plant's use of a common industrial solvent, trichloroethane (TCE). By switching to an aqueous solvent-based washing, the plant has reduced the facility's annual use of TCE by more than 85 percent and saved thousands of dollars in solvent purchase and disposal costs.

Hyde Tool

Hyde Tool, a family-owned business that manufactures hand tools, managed to restore its competitive position by relentlessly focusing on pollution prevention supported by new cost accounting practices. The company has cut its annual discharge of process wastewater from 29 million gallons to 1 million — on the way to zero. Hyde Tool has also reduced its potential future liability by diverting 1,000 tons of the solid waste generated from its tool-grinding operation from a landfill to use as an ingredient in the production of blacktop.

Difficulty in securing financing is widely cited as an obstacle to pollution prevention projects.

What are the primary obstacles to implementing pollution prevention programs?

The adoption of pollution prevention has been hampered by the persistence of the pollution control mindset embodied in existing regulatory and corporate policies and practices. In addition, surveys and anecdotal evidence indicate that access to financing has been a barrier. In many cases, this is an internal company issue. Unlike mandated pollution control, discretionary pollution prevention projects must compete on overall financial grounds with other demands for capital.

External financing can also be a constraint, especially for smaller firms. The difficulties may stem from lack of creditworthiness, liability exposure, or insufficient knowledge about lending requirements and procedures. In addition, project-specific issues can create obstacles — for example, equipment specialized for a single site may have limited value as collateral.

In some cases, an improved understanding of pollution prevention can have important implications for a financing decision. In particular, banks should keep the following factors in mind when evaluating applications:

- *Management competence:* Viewing pollution prevention as an integral part of Total Quality Management, rather than an environmental control strategy, can help distinguish forward-thinking managers from reactive ones.
- *Cash flow:* Many of the costs of environmental compliance are lumped into overhead accounts and are generally “hidden” from project analysis. Recognizing how a pollution prevention project can reduce these costs can support cash flow projections that might otherwise seem too optimistic.
- *Long-term competitiveness:* By taking a prevention-based approach, a company is setting itself on the path toward improved competitiveness through reduced risk, improved efficiency, and a focus on value-adding activities.

As a lender, what can I do to encourage pollution prevention?

As the case studies presented here demonstrate, environmental protection and financial success are compatible objectives. Proactive environmental management can enhance efficiency and competitive advantage. Understanding the basic principles and benefits of a prevention approach can help you identify and support those companies that will likely succeed in today's increasingly competitive economy.

To augment the information provided in this booklet, you may want to examine the role of pollution prevention in industries and companies with which your institution has lending relationships. Of particular interest might be the specific savings in overhead costs that pollution prevention initiatives have generated. As a starting point, the next page provides a list of organizations and publications to consult for additional information.

And you can help potential loan customers make smart investments in pollution prevention by asking the right questions:

- Does the firm appear knowledgeable about environmental compliance requirements?
- Does the customer have a proactive approach to managing environmental risks and responsibilities?
- Has the customer fully evaluated pollution prevention opportunities? (Many states have technical assistance programs that offer free help.)
- Does a proposed project reduce environmental liabilities and risks?
- Does the customer understand all the potential savings a pollution prevention project can generate — particularly in those environmental costs that are included in overhead?

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Where can I get more information?

The two pollution prevention examples presented in this primer summarize longer case studies that you can order from NEWMOA by calling the phone number listed below. The following organizations will provide additional information about pollution prevention and identify other resources to consult in your region or for a specific industry.

Pollution Prevention Information Clearinghouse (PPIC)
U.S. Environmental Protection Agency
401 M Street SW
Washington, DC 20460
(202) 260-1023

Enviro\$ense, EPA's full-spectrum environmental information system. Via World-Wide Web: <http://es.inel.gov>. Via BBS, with modem and communications software: (703) 908-2092.

National Roundtable of Pollution Prevention Programs
2000 P Street NW Suite 708
Washington, DC 20036
(202) 466-7272

(The National Roundtable can put companies in touch with state and local agencies that provide free technical assistance on pollution prevention.)

Northeast Waste Management Officials' Association (NEWMOA)
129 Portland Street
Boston, MA 02114
(617) 367-8558

The following list presents a sample of the publications available on the subject of pollution prevention and financial analysis of pollution prevention projects. The organizations cited above can also provide additional references.

A Primer for Financial Analysis of Pollution Prevention, American Institute of Pollution Prevention, 1993, available through PPIC.

An Introduction to Environmental Accounting as a Business Management Tool: Key Concepts and Terms, U.S. EPA, 1995, available through PPIC.

Improving Your Competitive Position: Strategic and Financial Assessment of Pollution Prevention Projects, Training Manual, NEWMOA, 1994, available through NEWMOA.

Green Ledgers: Case Studies in Corporate Environmental Accounting, World Resources Institute, 1995.

Beyond Compliance: A New Industry View of the Environment, B. Smart, World Resources Institute, 1992.

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About NEWMOA

The Northeast Waste Management Officials' Association is a nonprofit interstate governmental association providing a forum for increased communication and cooperation among the member states, a vehicle for the development of unified positions on various issues and programs, and a source of research and training on hazardous and solid waste management and pollution prevention. NEWMOA's members are the program directors of the hazardous and solid waste and pollution prevention programs for the state environmental agencies of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont.

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