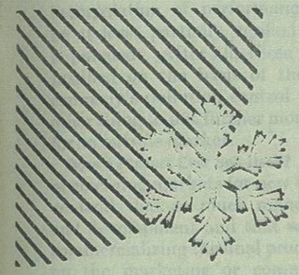
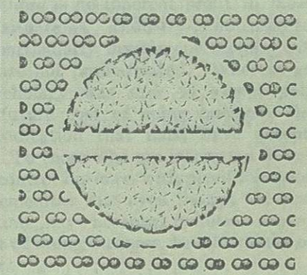
environmental management:



PITFALLS & PROFITS



In recent years, environmental mangement has been a popular business for actual and contemplated diversification. But there are a number of problem areas confronting prospective new entrants into this growing market. Here's a timely look at the existing dangers as well as the opportunities that they will face.

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By now companies which have entered the environmental management business and most of those which have watched it with interest have discovered that its profitability and growth have not been equal to the promises implicit in its press. Certainly, the national pollution problem has not been brought under control as yet, and it is not going to be solved very quickly in the future. On the other hand, it is just as certain that social concern for a better environment is not going to dissipate like last year's fad. There may be temporary lapses in the pressure for the abatement of pollution. There may be periods of reaction because of heavy costs and sacrifices required to fulfill environmental programs, but the emphasis should return as in a series of heartbeats and continue until the situation is finally under control.

Meanwhile, some common dangers have become apparent for the entrant into the pollution control market. Directions for more profitable participation are also becoming clear. Pitfalls and opportunities in six areas of activity are discussed here and summarized in Table 1.

Based on a paper contributed by the ASME Management Division.

Where Are the Pitfalls. . .

. . . in the Nature of Control Problems?

Defining Pollution. We are still searching for a better definition of pollution and for a better process of identifying specific pollutants. Even if a general definition of pollution were adopted, the actual identification of pollutants would still be inhibited by our ability, or inability, to scientifically understand their full effects or to prove their negative impact.

Changing Standards and Criteria. Markets in environmental management will not truly blossom until the pollution laws that are now on the books at least begin to become enforced. Enforcement, on the other hand, requires that sufficient criteria and standards by which to measure, judge, manage, and control pollution be established. Customers for pollution control systems will be hesitant to purchase proper equipment until the standards of enforcement are known. Those standards are difficult to establish until there are better criteria by which to measure pollution control or define a desirable environment. These criteria, in turn, cannot be fully developed until realistic priorities are placed upon health, conservation, economics, and aesthetics. Finally, these criteria cannot be clearly defined until further research has outlined the nature of contaminants, the means by which to measure them, and the techniques by which to control them.

. . . in Commercializing the Product?

The Home-Grown Product. A natural phenomenon of the evolving pollution control business has been the development of new products and procedures by manufacturing companies to solve their own pollution problems. The danger point in this natural corporate process does not lie in assignment of these problems to internal engineering staffs, because they are often the ones who are in the best position to solve those problems. The danger, however, lies in overestimating the competitive capabilities of the system that has been de-

veloped, the generality of its application, and the ease with which the system could be sold to outside parties.

The first question that must be asked of an internally developed system is just how it compares to systems already in the marketplace. One should not underestimate the psychological investment which internal inventors have with their device or system. The environmental field has been well trained to suspect claims made for control systems which are as yet unproven. It is important to insure that internally developed systems are fully tested and that the theoretical extrapolation of performance to similar installations be at least partially verified before commercialization is pursued. After all, these systems can be internally justified on the basis of the savings they lend to a company's pollution control problems. It is quite another thing to put further money into their development for an outside market.

Does a Product Ever Sell Itself? It is one of the curiosities of emerging markets for new technologies (like pollution control) that so much money is invested in research and development and that so little is often devoted to commercializing the final product. For those who work on the marketing or commercial development side, this irony is all too clear. For those who are on the research and development side, it is wise to review the other side of the picture. In marketing to the environmental management business, the mistake of underestimating the relative importance of marketing may be critical. In markets calling for new technologies, the importance of having a good product is, of course, paramount. Without a good or superior product, a new entrant into the business is at a serious disadvantage. Without at least a competitive sales effort, successful new entry is simply not possible.

. . . in the Character of Customers?

Another Cost of Doing Business. One of the first changes implied in the pollution control movement that had to be accepted was that it was going to be necessary despite the fact that there is no inherent profit in most pollution control situations. Industry is not used to putting monies, particularly investment monies, into endeavors that are not profit-related. Whereas general corporate psychology was slow to accept pollution control as a future cost of doing business, there is considerable indication that most have accepted it by this time. To those who are interested in entering the pollution control business with profitable products, it is good to remember that even though the customer may, by this time, have accepted pollution control as a legitimate cost of doing business, he still thinks of it as nonproductive.

Municipal versus Industrial. If pollution markets were defined to include at least air pollution control, water and waste treatment, and solid waste management, the bulk of the monies spent in these areas would lie in municipal or municipally related markets. Solid waste management is largely a business of municipal

TABLE 1 Summary of Problem Areas and Areas of Opportunity in Entering the Environmental Management Business

Areas	Problems or Pitfalls	Opportunities for Profit
A) Problem-related	Identification of pollutants Definition of criteria Setting of standards	Developing methodologies and technologies to solve problems of pollution control
B) Product-related	Comparative performance Proprietary advantage Professional credibility	Documentation of performance in comparison to competitive devices
C) Customer-related	A cost of doing business Municipal versus industrial Specialty versus full service	Attention to the special needs of each customer group
D) Market-related	Product visibility Customer specialization Heavy marketing investment	Commitment to an expensive effort in marketing and technical backup
E) Competition-related	Strengths of current suppliers Strengths of future suppliers R&D suppliers	Intelligence on corporate and market strengths of existing and potential competition
F) Timing-related	Mixed legislative record Mixed enforcement record Availability of monies	Sensitivity to the dynamics of society, ability to tolerate and the polluter's ability to pay

trash collection and disposal. Total expenditures for water and waste treatment still include a majority of municipal monies for water and sewage treatment facilities. Air pollution control, on the other hand, is primarily an industrial market, but one segment of it—the electric power industry—is closely related to municipal services.

This large municipal or public-sector market is important to an understanding of the problems of entering the environmental management field. Those companies which have not served municipal markets in the past may either be unaware of the requisites of serving that market or dedicated to staying at arm's length from it. The realities of the municipal marketplace may be a major hurdle for a new entrant into the business, but avoiding the municipal market removes a large potential from an environmental management venture. In short, municipal markets are often larger but usually less profitable than industrial markets.

Specialized versus Full-Service Customer Needs. There has been a growing trend toward the provision of a full line of products and services, or a "systems capability," to the environmental management business. This trend reflects the frequent need of municipalities and industry for assistance in understanding the newer pollution control problems and the range of alternative measures for their solution. In municipal markets, this need is met to a large degree by the reliance of municipalities upon the advice of consulting engineering firms. The consulting engineering firms, in turn, draw upon manufacturers for particular components of an overall system design.

To better understand the impact of a need for full service at this time and to understand the probable development of the market in the future, it is also well to watch another development in the industrial market. Particularly in these times when the central engineering staffs are low on work there is a growing drive to self-sufficiency in industry with regard to its own pollution problems. Thus, many companies already have capabilities to analyze their pollution control needs, to design a capable control system, and to define equipment specifications.

In terms of opportunity, there are many differences between a specialized-entry approach versus a broad-product-line and systems approach to the market. In most markets, the profits associated with specialty products are usually higher. In the environmental-management business, the same is true. Often, however, more profits may come from the provision of associated services than from the sale of traditional hardware, providing those services require a broader product line from which to solve the customer's problems. Although this approach may involve a number of products of marginal profitability, the overall value of providing a full product line and systems capability may justify it.

. . . in the Marketing Process?

Product Visibility. The environmental management marketplace has what might be termed a "high noise level." Products now available on the marketplace are traditional technologies typically sold as off-the-shelf equipment by established companies. As technologies are traditional and differences between competitive products are small, the differences that do exist tend to become exaggerated. As a result, a new entrant into the business, who has an honest improvement over existing pollution control systems, cannot be assured that the advantages of his system will be recognized in the din of competitive claims.

No pollution control system has been known to sell itself. In addition to contending with the high pitch of competitive claims, the new producer must convince experienced practitioners in the field who have learned to be suspicious of any new system which claims substantial improvement over existing systems. To deal with the promotional noise level, the new supplier must persevere in getting his message through to the customer and adorn his marketing pitch with substance, e.g., actual facts and figures on performance. To achieve credibility, the new supplier must endeavor to prove his system's capabilities to a skeptical professional community. In short, this marketing process takes considerable time, money, and effort.

Whence the Right Staff? One alternative to entering the environmental management business is to develop both technical and marketing capabilities internally. If the effort is already built on internal product developments, then the core for a technical effort is already in-house. The major problem then lies in finding the right people to commercialize the venture. If the corporation has "psychological" problems with adjusting to the differences between its present business and the environmental management business, then the commercialization alternatives include licensing, joint venture, or acquisition. Licensing obviously leaves a corporation more out of the business than in it with only a token realization of profits and relationship with the final market. Joint venture, while offering the potential benefits of complementary corporate capabilities, does involve the difficulties of agreeing on mutual goals between venture partners and limiting the horizons of individual efforts in the future.

Acquisition in the environmental management business requires a selective search for attractive companies from a list which has already been heavily picked over. There is a special problem of accommodating the kinds of organizations which are now in the environmental business with those which are typically considering entry into it. For the very reasons that acquisitions seem attractive, there are associated problems. While the marketing intelligence of existing companies may be their attraction, their lesser experience with research and development carries with it an implicit difference in staff and attitudes. These differences offer serious problems to a corporate marriage. Also, the addition of marketing intelligence or product lines through acquisition is primarily a means of buying time, and the benefits therefrom are temporary compared to the alternative of internal development. With the environmental management business thus far, buying time has not been all that important, but it may be more critical now.

. . . in the Character of the Competition?

Their Weaknesses and Strengths. As already noted, the traditional strengths of existing companies in the en-

vironmental management business lie in their knowledge of the problems of their customers, their personal familiarity with purchasing and engineering staffs, and their ability to adapt a piece of off-the-shelf equipment to a specific situation. Typical weaknesses of these companies lie in their financial resources, their research and development activities, and their capability for developing new technologies needed to control pollution. To meet these competitors, the new entrant must challenge their marketing prowess and at least equal their technical-product systems. To beat them, one must have a superior product and at least equal their marketing capabilities.

Emerging versus Entrenched Companies. The new entrant is also advised to keep his competitive eyes on other companies that can be expected to enter this business in the future. Thus, what may appear to be a competitive advantage now may become less of an advantage as more companies enter the marketplace. Thus, the foregoing description of typical advantages and disadvantages of the new entrant is a transitional one depending upon the inroads made by newer and more technically based competitors.

. . . in Timing?

The Legislative Record to Date. In reviewing pollution regulation in this country, one must remember that until 10 years ago the existence of a pollution parameter in corporate decision-making was unknown. Similarly, the governmental machinery necessary to understand, regulate, and enforce pollution control was practically nonexistent. What has been seen is the development of a completely new governmental system to handle an entirely new social issue in a very short time. If there has been a large amount of inefficiency, repetition, and mistaken management in the effort, it must be understood in this light.

While that is not an excuse for misspent monies, ill-advised laws, and short-sighted regulation, such problems will continue as the pollution effort both broadens and draws closer to enforcement. There has been a shortage of knowledgeable manpower to administer these laws in the past, and there will be so for some time. There has also been a lack of understanding of the nature of pollution, a lack of the ability to pay for the control of it, and a lack of the political sense needed for effective enforcement—conditions that will continue to impede progress in the future.

There are hopeful signs that at least one aspect of the situation is beginning to change. As in any new area of social concern, the earlier years are characterized by exaggerated positions on either side. Thus, conservation-minded prophets and industry apologists have exhausted much of their usefulness. There is a growing awareness of both the need to do something about pollution and the high social cost involved in controlling it. With more intelligent appreciation of these practicalities by both sides, improved legislation, more sensitive enforcement, and more responsible pollution control practice is beginning to develop.

Where Might the Profits Be. . .

. . . in Solving Pollution Problems?

There are many pollution problems for which there are no satisfactory answers. Major efforts are underway to solve them, and some candidate technologies are now apparent. This does not contradict the common observation that the technology to handle most of our current pollution problems is available and that the limiting factors are manpower, organization, and economics. With the reminder that no new technology will sell itself and that performance has to be proved, the development of a new technology to handle unsolved pollution problems is a leading avenue to profits.

. . . in Documenting Product Capabilities?

What traditional suppliers in this business typically lack is a healthy development budget. It is this disadvantage of present suppliers that new entrants can capitalize upon with their own technical sophistication. To the degree that a new supplier can develop new technologies, can document performance, and can implement successful application, the profits usually associated with quality products and quality backup may be realized.

. . . in Matching Customer Needs?

As in most industrial-service markets, a profitable route to proprietary advantage is to develop a strong marketing sensitivity to the specific application problems of customer industries. It is in this area of customer service and intelligence that the present suppliers of pollution control products enjoy their market leverage, and it is in this area that new entrants can also achieve profitable participation.

. . . in Acquiring Marketing Competence?

As successful market penetration cannot be assured by a good product alone, profitable participation in the environmental management business is probably foreclosed without informed marketing intelligence. The sources of this intelligence may lie in a company's internal knowledge of its own industrial processes, in the hiring of personnel with background in the environmental management business, or in the acquisition of companies with established market ties.

. . . in Exploiting Competitive Intelligence?

In addition to the development of a good product and the development of an informed sales staff, another tool for building a successful pollution control venture is a strategic study of competition. After the new entrant has done his homework on the relative strengths of his intended competition, he can then better maximize his own thrust in the marketplace by following competition into proven markets which are profitable (and which can stand another supplier), by outflanking competition into new areas of opportunity, by exploiting relative corporate strengths, and by matching competition in areas where head-to-head conflict is inevitable.

. . . in Being Ready at the Right Time?

At the rate that the pollution control movement threatens to accelerate, it has been the concern of many that it is too late to begin an effective drive into this marketplace. As national progress has not kept up with national ambition, however, it is not yet too late. There is still time to take the time to do it right.