

BUSINESS STRATEGY FOR THE BIO-ENVIRONMENT THE TECHNICAL POLICY

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We have been invited here tonight by Dr. Agni Vlavianos-Arvanitis to discuss the recently formulated business strategy for the protection of the bio-environment. Still, today, when most people speak of environmental protection, they visualize spotted owls, the rainforest, wetlands for ducks, closing of factories, and citizens demonstrating against landfills and incinerators. Always, right at the start, I like to remind people that protection of the environment ultimately includes and involves protection of public health, as well as, rational and sustainable development and utilization of natural resources.

It used to be taught in business schools everywhere that "the business of business is business." That business strategy is one-dimensional and the only important thing is the bottom line. After World War II, with increased prosperity and development, businesses started emphasizing an additional goal: contributing to society by creating jobs. More recently, in the 1980's, with the growing environmental protection movement and the resulting environmental regulations, many businesses started espousing new environmental ethics and mapping a specific and tangible business strategy for the protection of the bio-environment. Along with production and marketing strategies, a new dimension of profit which does not materialize at the expense of societal well-being and does not compromise natural resources, is rapidly becoming a primary focus of businesses everywhere.

The New Management. A Technical Approach

A three-fold strategy that can be utilized both as a management practice and a technical solution for the protection of the bio-environment has already evolved and includes:

Integrated Management of Resources

The new, more rational way of management decision-making involves considering, in advance, the impacts and the development of alternative plans and projects. Thus, one has the chance to foresee future adverse impacts and take proactive corrective steps to alleviate negative conditions, or choose alternatives that prevent pollution and non-sustainable utilization of resources and create the conditions for less-costly and easier-to-achieve control and treatment of unavoidable pollution and environmental damage. Integrated management leads to better cost-effectiveness, overall, and treats waste products and disposal as a resource that has to be managed and, if possible, made use of as well.

Abatement of Cross-Media Pollution

For decades, engineers and managers have been concentrating on one piece of the jigsaw puzzle of pollution control at a time, many times simply satisfying the bureaucratic regulatory requirements without really protecting the environment as a whole. Oftentimes, the solutions only represented a shell-game, whereby a liquid waste problem was solved by creating a sludge disposal problem which, in turn, was transformed into an air pollution problem, that may have been completely ignored. Each group of engineers and managers focused their attention and optimized solutions within the narrowly-defined parameters of their own project, without any concern about the problems generated by its completion. These problems became the project of another group of engineers and managers, who followed a similar gameplan.

Pollution Prevention and Waste Minimization

In the 1980's, many developed countries and major companies embraced the new philosophy of considering any discharged waste as a lost resource and emphasizing the new business strategy of pollution prevention. Companies focus on the reduction and generation of hazardous waste at the source, on the recycling and recovery of materials from waste streams, and on the use of clean technologies - to the extent economically practicable - as the best way to meet legal obligations, to improve their public image, and also to save money. The United States Environmental Protection Agency (USEPA) considers waste minimization or pollution prevention a top priority. Also, the National Association of Manufacturers, as well as the Chemical Manufacturers Association, support voluntary waste minimization as the preferred option and good corporate practice for the management of industrial hazardous waste.

For several years now, this new management and technical approach to environmental protection has been bearing more and more fruit, as an increased number of firms have been making it their corporate policy. For example, according to New York's 1993 Toxic Release Inventory (TRI), disclosed in late 1994, discharges of toxic chemicals to the state's air, water and land continued to decline for the fifth straight year,

below target-values set by the federal government. Toxic release data are submitted to the Department of Environmental Conservation (DEC) and the USEPA, under the requirements of the federal Superfund Amendments and Reauthorization Act of 1986 (SARA), by manufacturing firms that use large amounts of chemicals. DEC uses the TRI data to identify facilities, that together, generate nearly 95% of the hazardous waste, toxic air and water discharges in New York. According to the latest TRI report:

- New York State facilities have already met the federal target of a minimum 50% reduction by 1995 of releases and transfers of 17 risk-priority chemicals monitored under the USEPA's 33/50 program. The release to the environment of 19.5 million pounds of these chemicals represents a 65% decrease from the 1988 baseline amount of 56.3 million pounds.
- Air emissions of toxic chemicals in 1993 amounted to 45.9 million pounds, a 55% reduction since 1988.
- Releases to land in 1993 totaled 1.1 million pounds, 62% less than the 1988 total of 2.9 million pounds.
- Transfers of toxic chemicals in waste to publicly owned waste-water treatment plants equaled 8.3 million pounds in 1993, which is 65% less than the 1988 total.

Pollution Prevention Reshapes Environmental Business

The US environmental industry is a \$140 billion business that employs more than one million people. It generated roughly \$10 billion in revenues 25 years ago, when it consisted mostly of the public services of waste hauling, water delivery, and sewage treatment. Environmental Business Journal defines environmental industry not by "technology," but by "business segments" that integrate new technologies into engineered solutions to the vast array of environmental problems. Analysis from the 1994 environmental industry overview indicates that 74% of the industry revenues are from services and only 6% result from the sale of high-tech equipment; the remaining 20% are low-tech. The vast majority of their business was related to cleaning up "sins of the past" or controlling emissions from now outdated facilities, and each of these had a finite life span. Trends indicated that the industry could not sustain itself in its nascent form. The emerging paradigm shift in the pollution - and waste - generating community, from pollution control and cleanup to pollution prevention and waste minimization, mandated a similar shift in the environmental industry.

How is environmental industry developing around the world? Over the years, environmental problems have become increasingly international, as has the scope of environmental programs. The addition of hazardous materials laws further solidified the importance of national environmental policies. The effects of cross-border pollution brought environmental issues onto the international stage. A more recent and even greater incentive for international environmental regulation and standards is the proliferation of trade agreements. The North America Free Trade Agreement (NAFTA) was the first such agreement ever to be held, until the field on environmental regulations was leveled south of the border to assure the competitiveness of US and Canadian companies in Mexico. The European Union directives are attempting to establish the same level field among its member states.

The Recurring Myth of Jobs Versus the Environment

One of the key provisions in the Contract with America, a set of Congressional bills where the word environment is not even mentioned once, is a proposal to reduce the cost of regulations and federal mandates. However, this proposal indirectly goes against progress made in the area of bio-environmental protection. Once again, the most common criticism of regulations is that they cost jobs. However, in January 1995, the Economic Policy Institute released one more report titled Jobs and the Environment: the Myth of a National Trade-off, which found that most economy-wide studies show that environmental regulation has a positive impact on overall employment. Widespread fears of job loss from environmental protection are simply unfounded, and are being cultivated by politicians and businessmen to serve their own personal agendas. When job creation aspects of pollution control policies are factored in, environmental protection has slightly increased net employment in the US economy. Moreover, actual layoffs from regulations have been startlingly small.

Environmental protection raises employment levels because it makes intensive use of labor and domestically produced materials and because it provides some recession-proof stimulus to aggregate demand. Government data from the past two decades reveal that few manufacturing plants (about four per year) shut down as a result of environmental or safety regulations. These accounted for less than 0.1% of all large scale layoffs; hardly a reason to stop protecting the environment and public health. Furthermore, the data show that environmental regulation is not responsible for the long-term decline of manufacturing employment in the USA. The pollution haven effect - whereby industrial firms relocate to poor countries to take advantage of lax environmental regulation - rarely occurs. Firms are, indeed, relocating but the overwhelming reason is lower labor costs. In the mining and logging industries, where trade-offs between jobs and the environment are most evident, local job loss from environmental regulation can be significant. Even in this case however, new jobs can be generated in other industries, particularly those manufacturing substitute products for the timber and minerals preserved.

The "jobs vs the environment" debate in the US has been fueled by deindustrialization (the loss of over 3 million jobs in manufacturing during the 1980's) due, in part, to increased import competition, shifts in demand, and technological change. Environmental regulation has often been blamed for contributing to a shift in the US economy from manufacturing jobs to service employment. The report on Jobs and the Environment shows that the employment effects of shutdowns, capital flight, and productivity losses from environmental protection, have been small or non-existent. At the same time, money spent by the government and industry to protect the environment has created new jobs. According to the report, approximately 4 million people were employed directly or indirectly in the environmental protection industry, in

1993. Of course, the personal and societal costs of job loss and unemployment, whether due to environmental protection measures or general causes, cannot be overlooked. But these trade-offs are local and, in contrast to the amount of notoriety they have received, extraordinarily small. According to the report, job loss appears more likely as a result of corporate downsizing, import competition, or defense cutbacks. In the long run, markets for clean manufacturing and energy technologies - the US is currently among the world's leaders in the environmental technology field - can provide the kind of high-wage boost to the US economy that automobiles and defense provided in the 1950's and 1960's.

Conclusion

The new business strategy has been recognized as a necessity and has been adopted by most large companies, in order to stay competitive in national and international markets where consumers are increasingly environmentally conscious. Companies are also trying to force their competitors to comply with clean manufacturing standards, level the field and act as "consumers" themselves, and also force their various suppliers to conform. For example, Ashland Chemical's Responsible Care initiative for environmental protection is gaining new members daily and more and more companies - even in Japan and China - are getting certified to the ISO 9000 standards.

From our point of view as a society, and our concern for public health and preservation of the environment, we have no need for companies that survive economically by abusing the environment, destroying natural resources, and jeopardizing public health. There will always be better companies, concerned about quality of life, which will provide the necessary products, services and jobs.

Professor **Constantine Yapijakis** teaches Environmental Engineer-ing and is Director of Environmental Research at the Cooper Union for the Advancement of Science and Art, in Manhattan, New York. He has over 20 years of international experience, both academic and industrial, in all aspects of environmental engineering. He has taught in several universities in the New York metropolitan area, and has been involved in all the major projects for New York City. These include drinking water treatment and regional resources, quality management, solid waste management, industrial waste pre-treatment, and toxic waste minimisation programs. In 1997, from early May to mid-June, he was invited to visit the Universities of Beijing, Xian and Heifei, and Tongchi University in Shanghai, where he gave seminars to top management from industries on pollution prevention, waste minimisation and the ISO 14000 certification. He was also invited to visit the gigantic construction site of the Three Gorges Dam on the Yangtze River - fenced and guarded by the Army - where he discussed the environmental and socio-economic impacts of this unprecedented water resources project.