

*The name Volvo is considered by many to be synonymous with safety. In recent years, the company has undertaken a coordinated effort to expand that image to improve environmental performance as a strong point for their products. This case details the motivations behind that effort, outlines the steps taken to improve Volvo's environmental management, and evaluates its success to date.*

# EXTENDING THE UMBRELLA OF SOCIAL CONCERN: VOLVO'S STRATEGIC APPROACH TO ENVIRONMENTAL MANAGEMENT

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**I**n the late 1980s, Volvo CEO Pehr Gyllenhammar and other top managers believed that heightened environmental pressures directly

threatened the survival of Volvo's products. Gyllenhammar had recognized the conflict between environmental protection and Volvo's products as far back as 1972, when he declared: "Volvo does not wish to protect the auto at any price and under all conditions. It is in Volvo's best interest that the auto is used in such a way that it does not cause environ-

mental damage."<sup>1</sup> It was not until a decade later, however, that Volvo expanded its commitment to environmental protection.

This policy is unique in both its breadth and its early emergence in the field of environmental management. Cornelius Smith, vice president for Environmental Affairs at Union Carbide, would later describe Volvo's policy as being among the most progressive corporate environmental policies that he had ever come across.<sup>2</sup> It preceded similar moves by many other leading companies, and also preceded the formulation of such industry initiatives as the Coalition for Environmentally Responsible Economies, the Chemical Manufacturers Association's Responsible Care Program, and the International Chamber of Commerce's Business Charter for Sustainable Development.

By establishing this new policy, Gyllenhammar sought to make environmentally conscious operations, like safety, a cornerstone of Volvo's corporate

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strategy and image. This meant developing a comprehensive approach to address the total life cycle impacts of Volvo's products. The policy called for Volvo to strive continuously to reduce the environmental impacts of its products and manufacturing processes and mandated that the company go be-

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—Olle Boethius  
Manager of Environmental Affairs, Volvo

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yond applicable regulations to improve environmental performance. To implement this progressive policy, Volvo created a variety of new organizational structures and management systems.

### Positioning Volvo For Change

Volvo was incorporated in 1915 as a subsidiary of AB SKF, a Swedish ball bearing manufacturer, and in 1935 it became an independent company. Today, the Volvo Group consists of four product companies: Volvo Car Corporation, Volvo Trucks and Busses, Volvo Penta (marine and industrial engines), and Volvo Flygmotor (aircraft and space engines)—cars, trucks and busses being its largest operating sector. Under the leadership of Gyllenhammar, Volvo's business strategy has been to focus on niche markets. With a reputation for safety, quality and durability, Volvo has targeted a number of high end niche markets, and has traditionally held a strong and relatively stable position. Intense competition in the early 1990s threatened Volvo's position in these markets, and several changes have been undertaken to address these problems. Organizational changes, such as the consolidation of the truck and bus divisions, have been instituted to make more efficient use of group resources. Joint ventures and alliances have reduced the cost of research and development.

Volvo's activities have always been strongly influenced by the social commitments of its leaders. Gyllenhammar expanded the scope of the

Group's social commitments beyond product safety, a focus as far back as 1927, to include workplace issues. Explains one employee, "If one were to go back to the 1970s, a young Pehr Gyllenhammar came into Volvo. He was very interested in the 'quality of life' and made several dramatic moves to increase the quality of Volvo work life...His fundamental concern was with the compatibility of industry with humanity." Gyllenhammar introduced new manufacturing systems at two of Volvo's automobile plants to address these concerns. Although some questions remain as to whether these new systems offer either the human fulfillment or productivity that can be found when using alternative production techniques such as lean production, Gyllenhammar's actions have inspired the people at Volvo to be concerned about worker safety and job satisfaction.<sup>3</sup> With the announcement of the new environmental policy, Gyllenhammar further extended Volvo's umbrella of social concern.

Volvo has a long history of environmental activity, and was one of the first industrial manufacturing corporations in the world to adopt a formal environmental policy.<sup>4</sup> Until the mid 1980s, the primary emphasis of Volvo's environmental strategy was compliance with applicable regulations. It had some notable achievements in this regard, such as the development of the three-way catalytic converter with Lambda Sond. During the course of the '80s, a general growth in environmental awareness in Sweden and throughout the world alerted Volvo managers to the elevated importance that environmental issues would exert on business decisions.

Even more important, Volvo managers were strongly influenced by local changes in environmental activism. In the mid 1980s, Volvo applied to the Swedish Licensing Board for Environmental Protection for a permit to expand the Torslanda paintshop, its largest paintshop in Sweden. Volvo's environmental activity was subject to unprecedented scrutiny. Environmentalists also protested Gyllenhammar's active support of the "Scan Link," a road and railroad running from Oslo down the West Coast of Sweden to Denmark. Thousands of seals were dying in the North Sea off the coasts of Sweden; environmental concerns were rated the number one political issue; and for the first time members of the Green party were elected to the

Swedish Parliament. Angry environmentalists directly confronted Volvo, Sweden's largest corporation, about its environmental record.

As Volvo's top managers faced this change in the salience of environmental issues to the public, they became aware of the need for environmental action within Volvo that went beyond compliance. Gyllenhammar decided Volvo should expand its commitment to environmental protection. Remembers Inge Horkeby, manager of environmental protection in Volvo's Technical Development Department, "Gyllenhammar heard [the changing interests from the public] and realized that we have to have our own goals in the future. It was a way for him to manifest a true conviction that industry had to show the way and to find a...better image for the company. We were not the ones trying to back off from our responsibilities. We wanted to fix them." Fixing these problems early and communicating these actions to stakeholders could also give Volvo competitive advantage.

### **A New Environmental Strategy**

In October of 1988, Gyllenhammar formed an environmental task force whose members included the top managers of each Volvo company. The task force was charged with creating an environmental policy for the Volvo Group and programs to implement this policy.

One goal of Volvo's environmental strategy was to increase its legitimacy and credibility in the environmental arena. This first required gaining control of and improving Volvo's environmental performance. Gyllenhammar had already begun to sell Volvo in Sweden on its environmental performance; he had observed that although Volvo was working hard on environmental issues, it could not effectively communicate what it was doing. Gyllenhammar felt that he had to have stronger evidence to back the claims that he and Volvo were making.

At the same time, managers realized the competitive opportunities presented by environmental issues, and, as they already had with safety, wanted to build concern for the environment into a cornerstone of the company. Explains Olle Boethius, manager of environmental affairs at Volvo Car Corporation: "At the time of the policy, we had to define our own strategy. We had to decide whether or not our environmental activities should be used to

profile the company." In other words, they had to decide whether or not environmental issues should be used commercially, and, if so, how should the company present itself with regard to these issues. Volvo decided to develop a unique company environmental profile, as had previously been done with safety. If, however, Volvo managers were going to claim that they cared about the environment, it was necessary to be able to back up these claims. "To profile is a sensitive issue," explains Boethius. "It is not that easy to build up, but it is very easy to fail...The more it appeals to the senses [like safety], the easier it is to destroy."

The task force designed an environmental policy to implement these ambitious strategic goals. Volvo pledged to take a "total view" with respect to the environment, which meant considering environmental impacts over the product life cycle. This required that the company look beyond its own walls to suppliers, distributors, and customers; and required that they actively communicate with these stakeholders about Volvo's environmental activities. A credible image also requires consistency in environmental performance across geographic areas. Therefore, Volvo pledged to strive to attain a uniform, worldwide environmental standard for process and products.

Given the ambition of this strategy, the task force placed these goals in the financial and product constraints of the organization. To accommodate financial constraints, the task force decided that while the company had sufficient resources, they should "opt for manufacturing processes that have the least possible impact on the environment," and invest in environmentally-oriented activities to the greatest extent possible. If the financial situation were reversed, however, the statement allows for an appropriate modification of environmental activities.

### **Matching Ambition With a New Management System**

Once this strategy had been developed, programs needed to be designed to implement it. In 1989, the task force produced a report that described Volvo's new environmental policy and programs for implementing this policy. The report outlined guidelines based on a list of management initiatives created by Gyllenhammar and given to the environmental task force.

Programmatic Categories	Choices in Environmental Management
<i>Procedures and structures for environmental policy</i>	A structure for environmental management helps firms to internalize and meet their regulatory and more proactive environmental goals. In addition, this helps to allocate environmental responsibility, specify the flow of internal and external information, and offer guidelines on how to carry out environmental activities.
<i>Mechanisms to monitor and review environmental performance</i>	The potentially severe consequences of poor environmental performance necessitates accurate monitoring of environmental achievement. Two main mechanisms accomplish this: direct reporting of environmental activity and environmental auditing.
<i>Incentives and controls to encourage environmental achievement</i>	Incentives and controls are important to emphasize commitment to environmental performance, and to encourage employees to perform in a manner which is consistent with this commitment. Incentives recognize and reward environmental achievements, innovations, and programs in order to motivate employees. Control mechanisms assess environmental performance in performance evaluations.
<i>Guidelines and tools for environmental investments</i>	Environmental investments frequently do not offer short-term financial pay-backs when evaluated by traditional accounting procedures. Financial guidelines can suggest how managers can consider such benefits as long-term financial savings and avoided costs when making environmental investments. Tools to help evaluate environmental performance in financial terms can be created.
<i>Methodologies and tools to assist environmental decisionmaking</i>	One of the most difficult tasks of environmental management is to assist employees making decisions about complex environmental issues. To reduce uncertainty in environmental decisionmaking, companies can employ tools to help evaluate the environmental impacts of product and process decisions, systems to record company activities and their associated risks, or standard operating procedures to guide employees when performing environmental related tasks.
<i>Guidelines for communication with stakeholders</i>	To ensure external support of the environmental strategy, managers have to communicate with company stakeholders. These programs could include participation in environmental debates and financial support of environmental activities.

*Exhibit 1*

The management choices made by Volvo fit into six generic areas:

- Procedures and structures for environmental policy.
- Mechanisms to monitor and review environmental performance.
- Incentives and controls to encourage environmental achievements.
- Methodologies and tools to assist environmental decision making.
- Guidelines for environmental investments.
- Guidelines for communication with stakeholders.

These categories are outlined in *Exhibit 1* (above).<sup>5</sup> Within each of these categories, compa-

nies can choose from a variety of options. Volvo's managers realized that the company could not completely live up to its new commitments within existing systems for environmental management, therefore the task force outlined several programs to implement its environmental strategy.

#### **Procedures and Structures for Setting Internal Environmental Goals**

The Task Force Report detailed new mechanisms for the Volvo companies to set dynamic internal goals. Long-term environmental goals are set in three to five year plans (the length depends on the company's own planning cycle), reviewed and updated yearly. Using these long-term plans as guidelines, one year goals are then

set and revised annually. These plans and goals can cover such areas as production and product performance, information gathering and dissemination, environmental training, overall management structure and programs, internal and external communication, and public relations. The goals, explains Ulf Jansson, environmental manager in product engineering at Volvo Car Corporation, are explicitly meant to push Volvo ahead of regulations. "We could just say 'meet all the legal requirements and nothing more'. Then we wouldn't need the minimum standards. We have decided to go further."

Each section of the Volvo Group, including divisions like the Data Group, are required to participate in the planning process. Goals are set at each level of the organization. While top managers in each subsidiary set broad long-term goals for their company, managers at the project level set both three to five year goals and very specific one-year minimum standards.

The Task Force Report also outlined a new decentralized organizational structure in which group companies could set their internal goals. The new structure included a small corporate level environmental group and environmental offices in each of the product companies. This structure served several purposes for Volvo. First, it offered a forum in which environmental goals and decisions could be made and discussed. Second, along with established reporting procedures, the structure facilitated the review of environmental activity, to ensure that this activity was consistent with company and group goals and policies. Third, the structure specified who in the company is responsible for environmental activities.

The president of each company, for example, holds responsibility for implementing the environmental policy. *This is important because it clarified the legal and corporate responsibilities for Volvo's environmental performance, giving Volvo a greater amount of control over its environmental activities.*

### **Review of Company Achievement and Group Consistency**

The new environmental structure served as a mechanism to ensure that companies and divisions are meeting their internal goals and living up to the spirit of the Volvo policy. Yearly achievements at each level of the company are compared to the

minimum standards set the year before and are then reported to a higher level in the company for assessment. In addition, the task force developed an environmental auditing program as another mechanism to follow up minimum standards and three to five year plans.<sup>6</sup> There is one permanent auditor who selects an audit team from a pool of about twenty employees throughout Volvo, depending on their area of expertise. This auditing structure was selected for three main reasons: (1) it would be small and flexible; (2) it would use experts within the organization, leading to a more effective audit; and (3) it would allow auditors to disseminate information about observed environmental performance throughout the organization.

Like the usual concept of an environmental audit, Volvo's internal audits serve to ensure that regulatory requirements are met. For the most part, however, the audit team concentrates on upcoming legislation and the plant and companies' own internal minimum standards. Environmental management and routines are also scrutinized to ensure that environmental responsibilities are delegated in a competent manner. To date, thirty-eight of the forty-one Volvo plants have been audited.

In 1994, the board decided to start preparing for an introduction of an environmental management system common to the whole Volvo Group. The Volvo Environmental Management System (VEMS) is designed to encompass current major standards. The first step for Volvo in the VEMS process was to prepare three of their plants to meet the European Eco-Management and Audit Scheme (EMAS) standards. There is significant overlap with Volvo's established auditing program for those plants targeted for EMAS verification and registration. However, EMAS audits are more detailed and comprehensive than Volvo's internal audits. Required elements of the EMAS review process are shown in Exhibit 2 (page 10).

### **Other Tools to Enhance Environmental Decisions**

The Task Force Report outlined a plan for environmental training with three goals: (1) show that Volvo was serious; (2) teach Volvo employees about environmental problems and the corporation's contribution to them; and (3) inform employees about environmental activities at Volvo and about what

### Required Elements of the EMAS Review Process

- Assessment, control and reduction of environmental impact
- Energy management, savings and choice
- Raw materials management, savings, choice and transportation
- Waste avoidance, recycling, reuse, transportation and disposal
- Noise management
- Selection of new production processes and changes to production processes
- Product planning (design, packaging, transportation, use and disposal)
- Environmental performance and practices of contractors, subcontractors and suppliers
- Prevention and limitation of environmental accidents
- Contingency procedures in case of environmental accidents
- Staff information and training on environmental issues
- External information

#### Exhibit 2

they personally could do to improve Volvo's environmental performance. The report outlines who should be trained, the nature of the training, and how often training programs should be repeated.

The first environmental training class, for 450 of Volvo's top managers was given in January 1989. An employee remembers that at that first seminar "Mr. Gyllenhammar stated that anyone that does not care about environmental issues [and] does not comply with environmental goals hasn't got a place in Volvo...*It was very clear.*" He then made each company president get up and state how their company would commit to environmental goals of the Volvo Group.

Many training classes follow a format similar to that original program. Environmental specialists from government, industry, and environmental organizations speak about the consequences of environmental phenomena, such as global warming, ozone depletion, urban air pollution, and depletion of natural resources. Volvo uses training programs to stress its commitment to solving environmental problems, repeating Gyllenhammar's strong declarations. This also enhances internal communication about environmental issues and creates a common base of understanding within the company. Training informs employees who in the company is knowledgeable about environmental issues, increasing internal communication with these experts. The Volvo Car Company has recently committed to train all its employees, as well as suppliers, market organizations and dealers—in total, about 70,000 people.

Another tool developed to enhance environmentally sound decisionmaking was a smart set of

investment criteria. Managers designing environmental management structures must decide how to consider environmental impacts of decisions relative to other investment criteria. As with other companies, projects at Volvo must routinely use certain return on investment criteria. To address this issue, the task force specified a guideline for managers to make investment decisions:

Prior to making decisions concerning major process or production changes which result in pollutant emission or other environmental adverse effects, measures shall be taken to enable such decisions to be based on the utilization of the best technology from an environmental viewpoint. Decisions concerning deviations from this policy shall be made by top company management.

This type of criteria is important for a number of reasons. First, it ensures responsible delegation of environmental decisions because it forces any decisions to adopt more adverse solutions up to top management. Boethius recalls, "We did not want any president standing there saying 'I didn't know'." Second, the statement encourages managers to look at environmental investments differently than other investments. As a result, Volvo has started to put money into activities without the payback that was required before. This type of guideline is especially important for middle managers, whose main concerns are traditionally quality and cost. Without this clause, managers could easily block environmental initiatives before they would have the chance to get

to the company Environmental Working Groups and Executive Committees. Third, the clause has an important psychological impact because it places the burden of proof on those supporting options that are not as environmentally compatible, regardless of the cost.

Committed to taking a total view of environmental issues, Volvo needed to find mechanisms that enabled employees to assess the environmental impacts of its products and processes at initial design stages. To achieve this objective, Volvo helped to develop and introduce two decision tools—MOTIV and EPS—to help employees make more environmentally compatible material and chemical choices. These tools communicate complex environmental impacts of material and chemical selection decisions in a way that can be understood by product and process engineers. The introduction of these technologies represents an important change for Volvo because it allows the organization to lower the level at which environmental decisions are made, bringing in life cycle environmental considerations at the beginning of product and process development.

EPS was created to help designers compare the life cycle impacts of their material choices. Developed in cooperation with the Federation of Swedish Industries and the Swedish Environmental Institute, the principle tool of the EPS system is the definition of "environmental indices" in the form of numbers. Taking into account natural resource depletion, raw material extraction, land use, and emissions into air, water, and soil, these indices measure the environmental impacts of various material choices at each stage of product production and use. The designer compares a single Environmental Load Unit (ELU) for each material choice.

The simple choice that EPS presents to designers is unique in the arena of life cycle analysis because it is the only system currently being used in industry that offers so simple a presentation. As such, it has had many critics. EPS was chosen, however, explicitly because of its simplicity. Explains Jansson, "Other [life-cycle systems] available are too complex—you need something like this to make it work." To avoid misuse of the numbers, the system is completely open for people to alter assumptions underlying the final numbers, and each number is presented with its range

of uncertainty, to help users understand the significance of the ELU.

Volvo also decided to adopt a computer database, MOTIV, which holds information on approximately ninety percent of the chemicals used in the company. The system gives users access to detailed information on environmental, health, and safety risks; in-company chemical use; and available chemical replacements for the chemicals in the database. MOTIV takes relevant information from several sources such as toxicologists, environmental regulations, and local in-house instructions, and converts it into a form which is understandable and clear to the users. The system, used by most of the major companies and divisions at Volvo, contains information from throughout the Volvo Group and is accessible to all group members. Since its introduction in January 1991, more than 100 people have been trained on MOTIV.

The most important aspect of MOTIV, asserts Urban Wass, manager of industrial hygiene at Volvo, is *how* it is used in the organization. Usually, all new chemicals to be used in Volvo are reviewed by the Industrial Hygiene department in Technological Development. MOTIV has changed this process by giving the information that is needed for these types of decisions to people in research and development, product development, and production. This information is used not only to resolve short-term chemical emergencies, but also to assist product and process chemical choices. The system helps answer environmental questions directly in production—the best place to make process decisions.

MOTIV costs approximately \$380,000 to develop and \$170,000 per year to maintain. From this investment, however, Volvo has actually saved approximately \$170,000 annually after expenses. Savings come from identification of wasteful chemical practices and simplified access to chemical information; reducing the number of chemicals that Volvo uses since MOTIV's introduction by fifty percent.

As part of the profiling effort, Volvo takes the job of communicating their environmental activities seriously. At the group level, Volvo actively communicates their activities to stakeholders. One way this is done is through extensive involvement in local and global environmental debates. Another way Volvo communicates with regulators and environmental interest groups is by inviting them to

participate as speakers in environmental training classes. In addition, the Volvo Group has become more involved with the environmental community, through an annual 1.5 MSEK (approx. \$225,000) environmental prize and other awards and scholarships to support environmental research and activities. Similar communication activity occurs at each product company, varying in intensity depending on the product and its market.

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### **Making Ambition Real Over Time**

As described earlier, the management system created for environmental activities was decentralized. Similar to other group level initiatives, it was designed so that most decisionmaking activities would occur at the company rather than the group level. This would more actively involve individual companies in environmental initiatives and allow each company to adjust its management systems to meet its own unique needs and capabilities.

The danger of decentralization, however, is the chance of inconsistent environmental performance. A few years into implementation of the program, undesired performance inconsistencies were observed across the Volvo companies. Minimum standards across companies and divisions varied in breadth, specificity, and level of performance; and, possibly of greater concern, the effectiveness of chosen management structures varied among product companies. A failed merger attempt with Renault in combination with a severe market downturn had also drawn attention from environmental issues in some of the companies.

In addition, as discussed earlier, Volvo's environmental policy allowed for a modification of environmental activities, depending on available finan-

cial resources. For a time, a financial downturn affected the types of environmental investments that were undertaken at Volvo's production facilities. In the late '80s, the company had the resources to invest in large environmental projects. Remembers Horkeby: "There was a mutual understanding in Volvo as an entire company—that processes were going to change... [It was] so obvious what we had to do—at the same time there was a certain budget with which we could work... Luckily, we had the money then!" This availability of finances allowed the program to get off to a strong start.

This positive financial trend, however, reversed in the late 1980s and early 1990s. While Volvo continued to invest its profits from earlier periods, financial constraints started to become a serious obstacle to program implementation. The flexibility of the management programs at Volvo allowed each company to accommodate its environmental activities to these new financial constraints. For example, some program planners shifted environmental activity from capital investments to less costly monitoring, planning, and preparatory activities for future environmental improvements.

In light of these implementation issues, environmental leaders in the company knew that they needed to push harder if they were going to be a world leader in environmental performance, as the company planned. After the breakup with Renault in December 1993, Volvo Group executive members revisited the environmental strategy and started to push harder for environmental changes. As explained by the current director of environmental affairs, Anders S. Rison Karrberg, "Volvo as a group has an objective to be and be considered as one of the world's top three automotive companies in environmental care by the year 2000. This vision is now communicated internally and externally. Improved financial performance of Volvo will allow a more aggressive response to this challenge."

Corporate-wide "working groups" were established in six major areas: recycling, EMAS, environmental information, production, products and city transport. The group also developed the Volvo Environmental Management System (VEMS) to further direct member companies. Where needed, company level environmental structures were also changed to increase coordination and empowerment. The car divisions' structure was changed, for example, when the AB



Volvo Board suggested that it had to have a clearer and stronger priority on environmental performance. The car company formed an Environmental Competence Centre, which brings together twenty-five environmental personnel in the Volvo Car Company, and approved Ulla-Britt Fraejdin-Hellqvist as head of the center. One benefit of this organizational form is that it acts as a strong pressure group to integrate environmental issues into company decisionmaking. It also clearly identifies where responsibility lies within the company. Since these changes, environmental employees report more commitment to, and support and resources for, environmental initiatives within the company.

### Evaluating Success in Terms of Volvo Culture and Key Stakeholders

Overall, Volvo has made significant progress in changing internal attitudes and decisionmaking procedures regarding environmental performance. One sign of the organization's change is in employee attitudes. Before, explains Inge Horkeby, it was difficult to communicate about environmental issues. "Now, you can feel that there has been a big change in the attitudes and communication about environment in the company. It has been a hot subject in the past years and within Volvo there has been a tremendous amount of interest—you feel like you are really achieving something."

Volvo has also had some success in pushing environmental decisionmaking down in the organization. Decision making tools, such as MOTIV and EPS, distribute information to people lower in the organization and enable them to participate more actively in decisionmaking processes. In addition, new programs have fostered an atmosphere in which environmental innovations are more easily discussed and encouraged. Before the policy, there was no structure in which environmental decisions and goals could be systematically reviewed.

This structure, along with the guideline for environmental investments, has reduced resistance often encountered at middle management. Kerstin Sterner, environmental manager at the Truck Corporation, explains that the policy prevents middle management from blocking environmental initiatives that spring from lower levels of the organization. The Truck Corporation,

for example, was considering using new types of plastics with better environmental attributes, but cost more. An employee formulated a proposal to introduce one of these plastics in the truck cab. The Working Group heard of this idea and invited him to an Environmental Council meeting where they evaluated how the new product satisfied the relevant policies and technical requirements. Since it met these requirements, took less energy to make, gave off less emissions, and was only slightly more expensive, the proposal was accepted. Sterner notes that "a few years ago, this was not possible—there was no one to go to before. As long as cost and quality requirements were met—it was okay."

The structure also helps Volvo influence current and future regulatory pressures. At Volvo's Technical Development Center, they have learned that if Volvo is in front of legislation, it can have more input into the development of new regulations. They feel that if a company waits, it will be forced to use technology that may not be the best choice for its plants and possibly for the environment.

While changing internal attitudes and approaches to environmental performance were important for legal reasons, Volvo also wished to enhance external perceptions of the company. Within Sweden, it is clear that Volvo has improved its image and reputation considerably. This increase in pride allows the organization to have a more satisfied work force and enables Volvo to attract more competent people to the company.

Swedish regulators reported that they saw a change in Volvo's attitudes during the late 1980s and felt that Volvo was serious about its commitments. Local regulator Kersten Aswald has observed large changes in the attitudes of Volvo employees. Before the policy, she thought many Volvo employees "just found environmental demands ridiculous. They only saw one problem at a time. Now they very much accept [that] their contribution to [environmental degradation] is a problem."

Environmental changes at Skovde engine plant provide an example of the kind of innovative environmental technologies Volvo has implemented. During the permitting of the Skovde plant, Volvo proposed to the Licensing Board for Environmental Protection that they add reverse osmosis to the ultrafiltration techniques already being used in order to concentrate and better separate the wastes

from the cutting fluids. The Licensing Board did not mandate this proposal, as the proposal addressed the treatment of fluids which most plants in Sweden release directly into the environment. Instead, Volvo instituted this proposal because they felt it was unethical to release the waste untreated. According to Peter Adler, a regulator with the Swedish Environmental Protection Agency, at a meeting with the environmental manager from the Skovde plant, the "Licensing Board for Environmental Protection had to ask of Volvo two times 'Can you really manage this?' Usually, it is the other way around!"

The Skovde case further illustrates how the new environmental policy and programs have encouraged more incremental environmental improvements in manufacturing processes. Many of the minimum standards at Skovde focus on smaller sources of waste, such as chemical durability, monitoring and reduction of small solvent losses, and mapping and subsequent reduction of energy usage. Environmental manager Magnus Tholander explained, "The main objective is that we should not waste our natural resources. It may be that in the process the costs are reduced because we buy and destroy less, but these are secondary reasons. It is unethical to waste resources—here and in the rest of industry."

Local environmentalists, although more skeptical of Volvo's activities, have reassessed their view of Volvo over the past several years. Chris Agren, the Swedish NGO secretariat on acid rain, thinks that:

[Volvo has definitely] been more thorough than other Swedish companies in trying to be green....They do not just have a green CEO, but they are also performing education within their own company, which is very important for results. [For an effective environmental policy, you] have it at all levels, and Volvo has been conscious of educating at these levels...They are one of the few companies that did this fairly early.

He also appreciates the honesty in Volvo's approach. Comparing them to one of their main competitors, he comments: "I don't like Saab's advertisements. They lead to a false understanding [of the environmental impacts of their cars]. They imply that you can improve the environment by using

the car. Volvo has been more careful by not using such vulgar arguments."

Agren can, however, still perceive a discrepancy between Volvo's actions and its performance. This is most evident in fuel economy, and he points to the new 850's high power engine as an example of this problem. When he questions Volvo executives about this, they reply that it is what the Volvo consumer wants. Ulla-Britt Fraejdin-Hellqvist, head of environment at Volvo Car Corporation, admits that legislators and industry do have a large responsibility in this area. At the same time, she explains, the customer must also do his or her bit. "The dream is to get everybody to use the gas pedal lightly. When it comes to driving, we are good at making demands on others, but most people reckon that 'if I press the accelerator a bit more, it doesn't matter so much.'" Mr. Agren responds to this line of reasoning, "What they don't say, however, is that they (Volvo) have a large influence on the consumers."

It may be too soon to determine how Volvo's environmental activities have influenced consumer perceptions of the company. If these issues become more salient factors in the automobile marketplace, Volvo may benefit directly. Although most consumers currently seem unwilling to pay a price premium for environmental improvement, Volvo's target market may be more likely to break this mold. As with safety, these customers may be willing to pay a premium price for Volvo's environmentally superior products earlier than other consumers. Even if this does not occur, Volvo's environmental efforts may serve to strengthen their profile as a "caring" company. "Now," explains one employee, "with Volvo, people are not only safe in the car but also safe from the car. It is the next logical step."

#### Can Others Ride with Volvo's Directions?

Like many other companies in the late '80s, Volvo was under increasing criticism for its environmental record. Pehr Gyllenhammar recognized that the global environmental crisis would profoundly influence Volvo's core businesses, threatening the very existence of its products. He guided top managers to devise a new environmental policy and management system to build environment as a cornerstone for the future survival of the company.

The approach taken by Volvo is unique in its early recognition of the strategic importance of the environment, and in its effort to integrate environment into its business strategy and operations. Part of this strategy was to take a long-term view of environmental issues and to operate under the assumption that environmental issues will eventually exert an influence on consumer decisions. The decision to build a company and product "profile" that extends safety to include environmental responsibility drives many of Volvo's efforts.

To implement the new policy, Volvo initiated comprehensive change in their management system. A new structure for environmental decisionmaking has opened paths for discussing environmental improvements and for setting and reviewing environmental goals. This structure, while creating new abilities within the organization, was designed to fit with the existing decentralized structure so as to reduce resistance to the change. Top management commitment led to increased employee concern for and participation in environmental decisionmaking. With environmental auditing, these were the primary incentives and controls relied upon. This choice again fit with an existing company culture, which had a strong history of social concern and did not require the use of stringent control mechanisms to encourage environmental action.

A central piece of Volvo's program, the management system offered a method for Volvo to take a "total view" of its environmental performance, as well as the potential to improve continually its environmental performance throughout the product life cycle. Goal setting activity directly enhances each divisions' capability for continual improvement. New technology systems have increased Volvo's ability to monitor and use environmental information over the total life cycle, making it easier to integrate environmental concerns into the design stages of products and processes. Environmental guidelines for suppliers and distributors, as well as research on vehicle scrapping and recycling, are additional components of this life cycle approach. Volvo intends to continue this life cycle focus and has publicly announced that by the year 2000, the first Volvo with a complete life-cycle declaration may see the light of day (the declaration will include about eighty percent of the life cycle).<sup>8</sup>

Larger questions still loom. With its competitors in the automobile industry, Volvo may have to ask what role the automobile can play in a sustainable society. Environmental, transportation, and

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mobility issues are all interacting to create a hostile environment for the automobile. This hostility can be seen in Europe, where cities are already implementing bans or restrictions on vehicle use.

Volvo has started to address these concerns in their new 850 line, designed with engines that are lighter and more compact than Volvo's old family of engines. In addition, in preparation for other future environmental trends, this engine is designed to work, and give peak performance, on methanol mixtures with only minor modifications. Volvo has also developed an experimental "hybrid" vehicle and created a "city traffic" program to participate in the development of more proactive policies in the area of transportation. Related strategies such as "city cars" and IVHS show promise in addressing these concerns, but they may not be enough to satisfy societal demands. Automobile companies may eventually need to consider diversification into alternative transportation markets and public education on environmentally responsible use of the automobile. Since Volvo AB produces products related to a wide range of transportation vehicles, they feel that they are well prepared to adjust to society's changing transportation needs. When this time arrives, Volvo will be well positioned for leadership in its industry.

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ENDNOTES

- 1 Whelan, J. (1989, November 27). We can save the earth: A special advertising section. *Time Europe Edition*.
- 2 Smith, C. C. 1990. "Proactive Corporate Environmental Management," in *Environment: Another Challenge for Industry*. Rome, Italy.
- 3 Womack, J. P., Jones, D. T., & Roos, D. 1990. *The Machine That Changed the World*. New York: Rawson Associates.
- 4 Sten Langenius, Welcoming Address in *Managing and Developing Environmental Auditing Programs in European Industries: Seminar at Volvo, Gothenburg, Sweden, 27 November, 1991*.
- 5 Rothenberg, S., Maxwell, J., & Marcus, A. 1993. "Issues in the Implementation of Proactive Environmental Strategies," in *Business, Strategy and the Environment*. 1(4), 1-12.
- 6 This program was developed along with the Federation of Swedish Industries. Members of the Federation, including Volvo, thought that auditing was something that industry should implement on their own before they lost control of the process to an undoubtedly less effective government auditing process.
- 7 As quoted in Edstroem, Maria, "Ulla-Britt saetter alla pa Volvo i miljoeskolan" ("Ulla-Britt Puts Everybody at Volvo into Environment-School"), in *Ny Teknik*, Issue 14, 1995.
- 8 "Volvo Miljoemaerks foere ar 2000" ("A Volvo Will be Environmentally Labeled Before the Year 2000"), in *Ny Teknik*, Issue 6, 1994.