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MEMORANDUM

APR 21 1993

TO: All Subcommittee Members

FROM: Susan Bloss *SB*

DATE: 4/16/93

SUBJECT: March 31, 1993 Draft Stewardship Indicator Subcommittee Teleconference Minutes

Enclosed are the draft minutes from the March 31, 1993 Stewardship Subcommittee teleconference. Please note that the next subcommittee teleconference is Tuesday, May 4, 1993, at 10:00 a.m. Please contact Joel O'Connor if this time is not convenient.

Please have your comments ready for the next meeting.

MEETING SUMMARY

EOWG Stewardship Indicators Technical Subcommittee

Telephone Conference

March 31, 1993

Participants: Joel O'Connor, Libby Driscoll, Marna Gadoua, Barbara Knuth, Sally Lerner, Sue Mihalyi, Teresa Monahan, Lois New, Jennifer Rae, Samuel Sage, George Werezak, Tim Yagley

Welcome:

Joel O'Connor welcomed Libby Driscoll of Health and Welfare Canada to the subcommittee and had everyone introduce themselves.

The proposed agenda was reviewed and unaltered. Joel said that he will be presenting a summary of the subcommittee's progress to EOWG on April 28-29, 1993. The indicator matrix will be a useful summary tool for such a presentation.

Discussion of Matrix of Indicators:

The subcommittee generally agreed that the scope of the indicators under development were appropriate and that the topics of motivator and intentions were well covered in Barbara Knuth's proposal. The only voiced reservation was that if possible, the matrix should be broken down into six specific indicators and not eight.

Discussion of Indicator Scopes:

Effectiveness Among Interactions Between Public, Industry, and Government

Samuel Sage and Louise Knox have been working on this indicator and will be ready to make a presentation at the workshop. Samuel and Louise will be asking workshop attendees if they feel there is enough data to support an indicator. Samuel will have a summary of available data prepared for the workshop. Samuel also hopes to get a more defined indicator scope at the workshop breakout sessions. He feels there will be no problem with meeting the 12/93 deadline for providing the indicator.

Joel encouraged Samuel to strive for a crisp rather than vague scope.

Corporate Volunteerism

The scope for this indicator has been well defined in previous meeting minutes. George reported that he has been extremely busy since the last subcommittee meeting and has produced nothing new on the indicator. He faxed the indicator materials to Tim Yagley, and the subgroup will teleconference next week to polish the indicator.

Suggestions included:

1. The goals and objectives of this indicator should be transmitted to Barbara so she can incorporate them into the survey. Surveys containing corporate volunteerism questions would be distributed only to targeted individuals.
2. The corporate volunteerism subgroup should discuss proposed survey numbers with Barbara to make sure they are adequate for the subgroup's needs. There might be the need to increase the operational budget of the survey if additional numbers are needed. There is still time for this coordination since the timing of the survey has not yet been determined.
3. Another group has studied corporate volunteerism, setting a precedent for this type of study. An article on this study, "Framework for Assessing Discretionary Corporate Performance Toward the Environment," Environmental Management, Vol. 15, number 2, 1991, pgs 163-178, will be included in the meeting minutes package.

Environmental Volunteerism

Sally reported that some data for this indicator would be gathered via directories and the survey will include questions on volunteerism such as motives and changes in activity. Leaders of environmental organizations have already been identified as a subset for survey focus.

Suggestions included:

1. It might be possible to update the directories in the process of gathering information. Atlantic States Legal Foundation has the software to do this.
2. Many NYSDEC-associated stewardship activities occurring that are not listed in any directories. Various agencies should be contacted to also acquire this type of information. This type of information could be added to the directories, but only with the permission of the individual groups since many of them (for instance classroom groups) may not want the publicity.

Population Density

Information on population density is being tailored to the Lake Ontario Basin, as a subindicator. A preliminary presentation could be made on the subject with a qualifier that not much work has been done with this subindicator.

Suggestions included:

1. The survey should be developed to include some population questions. The subcommittee can get information without turning this topic into a full indicator.

2. Population density should just be an ancillary measure.
3. The survey will include questions on demographics and existing government information on population density can be summarized for the subcommittee's purposes. Individual demographics information is important for making e.g. urban vs. rural comparisons.

Remaining Proposed Subindicators

Barbara Knuth will consider the remaining subindicators when framing the survey.

The subcommittee debated removing the subindicator categories from the matrix for presentation simplicity. Some subcommittee members felt that including them would diffuse the focus from the main indicators. Others felt that excluding them might cause workshop participants to reinvent the wheel. The compromise will be to briefly explain to participants the subcommittee's process for reaching the current indicators, but not spend a great deal of time rehashing previously discussed indicators not now under consideration.

Toxics Release Inventory (TRI) Indicator

Samuel Sage has gathered the TRI data for all counties in the Basin. Once charted, this information shows a decline over the past four years of toxics released. Data for 1991 should be available before the workshop. Samuel is working with EPA to try and present this information in a GIS format.

Suggestions included:

1. Canadian TRI type data is under development now but will not be available until next year. This information should be included in the indicator.
2. The Lakewide Management Plan might have information that would be useful for the indicator. This should be investigated.

Toxicant Loss Indicator

Joel is considering \$20k for a pilot program for this indicator. A firm from Virginia will be conducting the program for only PCBs and mercury during the pilot phase. For instance, the firm will study the life cycle of products and toxicant loss, to estimate the rates of loss of PCBs from capacitors rusting in upstate New York. The essence of this proposed pilot program still needs the review of the full subcommittee. Joel will distribute a summary of the proposal.

Suggestions included:

1. A Canadian task force looked at this type of information for the IJC. The final product should be available in the next two weeks. This information will be

forwarded to Joel so he can provide it to the Virginia firm.

Discussion of Survey Strategy and Funding:

The subcommittee agreed that Barbara Knuth's survey would be our major measurement instrument. The subcommittee intends to ask EOWG to fund the survey effort. Section three of the proposal outlines a \$40k budget for drafting survey questions, conducting a pilot survey effort, and drafting the final survey. Barbara Knuth is currently developing a list of targeted recipients for the pilot effort. The pilot effort will involve a sample size of approximately 400 individuals. This is in line with what had previously been proposed.

Once the survey has been approved by EOWG, the final proposal will have to be approved by Cornell University. The Cornell approval should take a week or two.

EOWG, which is meeting in April, only meets once a year. Joel agreed to present the pilot proposal, in broad terms to EOWG at its April meeting. Ideally the proposal will be ready and approved by EOWG soon after our May workshop, and by Cornell shortly thereafter.

Barbara will further discuss the survey scope with other subcommittee members in preparing the workshop materials. Barbara will specifically work with Jennifer Rae to explore linking the survey into some Health and Welfare Canada projects since interagency efforts usually receive widespread support. Jennifer is the co-chair of the Human Health Indicators Subcommittee.

Discussion of NYS DEC Scoping Sheet for Workshop:

Not all of the subcommittee members had received scoping sheets, but they agreed to review the elements of the scoping sheet.

The purpose of the workshop is to solicit comments and suggestions regarding the indicators from key publics who would potentially use indicator information. The subcommittee wants to structure the indicators so they will produce an effective measure for all those who wish to use the information. The subcommittee is also open to suggestions of omissions in the proposed indicators.

Invitations have been sent out for the workshop. Response has not been as enthusiastic as hoped. Invitations were sent out to representatives of RAP committees, government personnel associated with Lake Ontario issues, industry, academia, and involved individuals.

Approximately 75-100 invitations were mailed in the hopes of receiving 25-40 positive responses. If the number of positive responses is low, additional invitations will be mailed.

The subcommittee members had several questions regarding the workshop:

1. Was the location of the meeting included in the invitation?

No. That information will be provided to invitees in the next mailing. ASLF will also

be calling invitees that have not responded.

2. When will the pre-meeting mailing go out?

We are shooting for the last week of April. We will call people next week, send a mailing to those who positively respond, and then send out the pre-meeting mailing.

3. Where is the workshop going to be held?

The workshop will be at the University Inn at SUNY, Buffalo. Non-agency attendees will have their accommodations paid for by the subcommittee.

Joel, Samuel, Lois, and Barbara will hold a teleconference to review the scoping summary prior to distribution to the full subcommittee. Each indicator developer will be expected to have a presentation ready for the workshop.

The deadline for providing Samuel with materials for the pre-meeting mailing is the middle of April.

The next subcommittee meeting will be a teleconference prior to the workshop. Please call Joel (212-264-5356) if May 4, 10:00 - 1:00 is not a good time.

A Framework for Assessing Discretionary Corporate Performance Towards the Environment

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ABSTRACT / This article reviews the existing models of corporate social responsiveness and develops a theoretical framework with which to examine corporations' discretionary performance with respect to one social issue, that of the environment. Discretionary indicators of corporate response to environmental issues are developed and tested within this framework. Twelve companies from five different sectors were selected for the survey, based on prior knowledge of their commitment to environmental concerns. Primary data was collected from personal interviews, and secondary data was

obtained from company documents, annual reports, and other forms of publically disclosed information. Empirical results varied, but certain voluntary indicators, such as composition of the board of directors, the environmental affairs function, community support, and the annual report are considered to provide strong indications of discretionary corporate performance. Philanthropy and company products proved to be less satisfactory indicators of corporate commitment to the environment. The aggregated results revealed a correlation between the final rankings of firms' discretionary environmental performance and whether those companies are process or product oriented. Linkages between discretionary elements and those of economic and legal requirements were not explored.

During the past two decades, the increase in environmental degradation has become a predominant public issue. During this time, businesses have been subject to greater social pressures and demands concerning their responsibilities towards the environment than ever before. Windsor and Greanias (1984) note that in the 1970s and early 1980s, a new kind of business climate arose. The principal factor affecting the change was the growth of general government regulation of business. Behind the rise in regulation lay a public cynicism towards business and a new set of environmental activists committed to making companies responsive to noneconomic considerations. At first, corporations reacted defensively, but increased prominence of social and political forces led some businesses to realize that they must pay more attention to their surrounding environment. The result of this enhanced awareness has been the emergence of new corporate behavior patterns.

This study examines current levels of corporate response to environmental concerns. The objectives of the research are twofold: first, to develop a framework that is classificatory in nature, and can be used to evaluate corporate response to environmental issues; and second, to apply the classification to the responses of a cross-section of industries, using discretionary corporate variables as indicators of responsiveness. In order to examine corporate social responsiveness, one must

look beyond the traditional legal and economic criteria for assessment of performance. Discretionary responsibilities are neither required by law, nor are they expected of business in any ethical context (Carroll 1979). No attempt will be made in this study to correlate discretionary with economic, legal, or ethical aspects of behavior, but rather, the focus is on establishing and applying a framework for discretionary responsibilities alone.

Review of Existing Conceptual Frameworks

A number of empirical studies have examined corporate response to social issues. The overriding research constraint to observing corporate involvement in social or environmental issues has been the lack of consensus as to what constitutes a valid measurement of corporate responsiveness. Two of the best conceptual models in the literature are those developed by Sethi (1979) and Carroll (1979). Sethi (1979) divided corporate response patterns into three levels of action: (1) social obligation, (2) social responsibility, and (3) social responsiveness. Social obligation involves corporate behavior in response to market forces or legal constraints. The criteria for legitimacy in this area are exclusively legal and economic. Social responsibility implies bringing corporate behavior "up to a level where it is congruent with current prevailing social norms" (Sethi 1979, p. 66). This category does not require a radical departure from the norm; it is simply a step ahead—before new societal expectations are codified into legal requirements. Sethi's third stage of ad-

KEY WORDS: Environment; Discretionary indicators; Corporate social responsiveness

aptation of corporate behavior to social needs is expressed in terms of social responsiveness. The issue here is not how the corporation should respond to social pressure, but what its long-term role in a dynamic society should be. The corporation is expected to anticipate the changes due to the emergence of social problems in which the corporation must play an important part, and act in a proactive manner. Sethi applied his analytical model to the analysis of the controversy that arose in 1970 concerning the sale of infant formula foods in less developed countries (LDCs). It was believed that there was a connection between bottle feeding and infant health problems. In that year a United Nations forum on nutrition, PAC (Protein Calories Advisory Group) claimed that aggressive marketing of a Nestle infant formula product in poor countries was responsible for a sharp drop in breast-feeding there. The World Health Organization passed a code on marketing breast-milk substitutes in order to halt the decline in breast-feeding. At first, multinationals responded only to the prevailing laws and market conditions, a response of social obligation. Then a few, such as Nestle and Abbott sent representatives to the PAC meetings, marking a decision point between the social obligation and responsibility stages. Abbott then moved to an approach that helped to mitigate negative impacts in the LDCs by committing \$100,000 to a breast-feeding campaign. This signaled a shift to the social responsiveness stage.

Carroll (1979) expands on Sethi's framework, developing a three-dimensional model of corporate performance. The first dimension represents the type of social issues of concern, and covers a wide range of issues from environmental to product safety. Carroll's second dimension emphasizes the dynamic nature of the corporate response pattern as a continuum from reaction and defense (do nothing), through accommodation to eventual proaction (do much). The third dimension consists of four categories: economic, legal, ethical, and discretionary responsibilities (Figure 1). These four categories are by no means mutually exclusive, nor are they meant to portray a continuum with economic concerns on one end and social concerns on the other. According to Carroll (1979), the relative magnitude of each responsibility is suggested by the relative area given to each on the social responsibility dimension of Figure 1.

The economic component of Carroll's model represents business's obligation to be productive and profitable. The legal component suggests that the economic responsibilities need be approached within the confines of written law. Ethical responsibilities represent the unwritten codes and values implicitly derived from

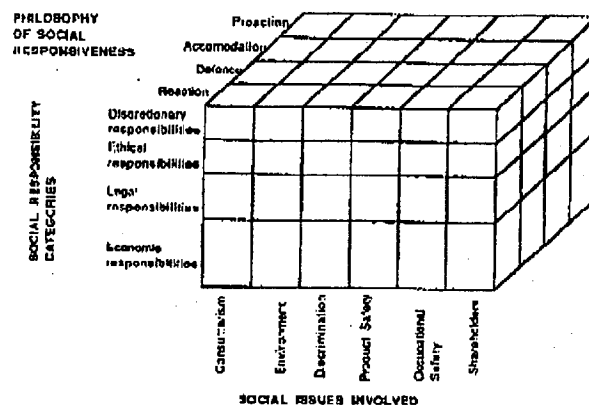


Figure 1. Carroll's Corporate Social Performance Model. Source: Archie Carroll, 1979. "A Three-Dimensional Conceptual Model of Corporate Performance." *Academy of Management Review*, vol. 4, no. 1, p. 503.

society. In contrast, discretionary responsibilities are those that are beyond the legal and economic criteria and are not generally expected of business in an ethical sense. Thus, if a company does not participate in a discretionary area, it is not considered unethical (Carroll 1979). Individual companies have a great deal of discretion in selecting environmental issues to which to respond and what the magnitude of the response will be, before regulations eliminate the voluntary aspect of response.

Carroll illustrates the use of his classification system with Anheuser-Busch's test-marketing of a new adult beverage called Chelsea. Because the beverage contained more alcohol than the average soft drink, consumer groups protested by calling the beverage "kiddie-beer," and insisted that the company was being socially irresponsible by making such a drink available to youth. The company's first reaction was defensive—claiming that it was not dangerous and would not lead youngsters to stronger drink. The company's later response was to withdraw the beverage from the marketplace and reformulate it so that it would be viewed as safe. The company concluded that this was the socially responsible action to take, given the criticism. According to Carroll, the company found itself in the consumerism segment of his model, and the social responsibility was ethical (the product introduced was legal, in that it conformed to the maximum alcoholic content standards). As it became clear that so much protest might turn an ethical issue into an economic one, the company moved along the responsiveness dimension in Carroll's model from reaction and defense to accommodation.

The literature described above addresses the nature

and categories of corporate social performance. There is a second body of literature that deals with the evolutionary nature of a particular type of response. Sethi (1979), Ackerman (1973), and Bauer (1978) evaluate corporate response over a period of time, since different issues gain importance to different industries within different time frames. Sethi (1979) divides the elapsed time of an issue into four stages: (1) pre-problem, (2) problem identification, (3) problem remedy, and (4) prevention stages. Sethi acknowledges that there is some overlap, because social problems do not fall neatly into discrete groups, nor can they be solved in distinct successive steps. Ackerman (1973) classifies corporate social response in three broad stages: (1) the recognition of and commitment to respond to an issue, (2) the acquisition of specialized knowledge and skills to deal with it, and (3) the implementation of the response and its integration into standard operating procedures. Bauer (1978) suggests three similar stages of responsiveness; (1) identification, (2) commitment, and (3) implementation. Bauer senses that the implementation is complete not when the particular goal is accomplished, but when the change in behavior is such that the goal will be accomplished and will continue to be accomplished through the institutionalization of the process. Thus, the response process is complete when the new management procedures are in place and can be monitored and evaluated as to their effectiveness. Wartick and Cochran (1985) note that Carroll's framework can be complemented by the addition of a social issues management dimension with three levels; identification, analysis, and response development. Clarkson (1988) adds "implementation" as one stage of social issues management to Wartick and Cochran's (1985) framework.

In order to quantify the location of a particular company within the "environmental" issues portion of a framework, a set of indicators and a measurement scale for each indicator must be developed. With her examination of oil refining companies' performance with regard to air pollution, Logsdon (1985) was one of the first to look at indicators of corporate response in the environmental field. Logsdon examined four components of response: technical (actions to reduce refinery air pollution), informational (annual reports and corporate policy statements), administrative (changes in organizational structure to assign responsibility for the issue), and political and legal actions related to air pollution. Logsdon applied two response patterns, resisting or accepting, to the issue of air pollution, over a 35-year period. Her categories of response are exceedingly broad and difficult to quantify.

At the same time, her continuum of response is limited to two levels over a period of time.

Theoretical Framework for the Study

To summarize, the literature provides evidence for at least four dimensions in a theoretical framework of corporate responsiveness. This study will utilize aspects of all four and incorporate elements of Carroll's (1979) conceptual model into a framework designed to measure corporate responses to environmental issues. The full range of one dimension, that of corporate responsiveness, will be used to measure one component of each of the three other dimensions (the discretionary component from social responsibility, environment from social issues, and the implementation stage from issues management).

Discretionary indicators implemented in response to environmental issues will be ranked on a four-point scale of corporate responsiveness. Carroll's continuum of response from "do nothing" to "do much" (reaction to proaction, Figure 1) is modified in terminology and definition to classify the corporate indicators on the following four-point scale:

0. Defensive: do nothing or denial
1. Appeasing: do the minimum required to maintain a good public image
2. Progressive: issues approached with desire to improve social conditions
3. Proactive: anticipatory; being a leader among all industries in advancing social conditions

Figure 2 represents the schema from which the theoretical framework for the present study is drawn. In the present study, "responsiveness" will denote a company's response to a certain stimulus and will not be used as a level of ranking or classification, as in Sethi's work.

Some indicators do not demonstrate sequential progression from one level to the next, but rather illustrate independent stages of development. In other words, a company may exhibit appeasing and proactive responses to an indicator without fulfilling the requirements for a progressive response. This occurs most frequently when, for example, the two lower levels of responsiveness are measured on one scale (such as dollars) while the third is measured by a different characteristic (the presence or absence of a program).

The indicators were selected to be as general as possible, so that they are applicable to all sectors of industry. In a few cases, an indicator is not applicable,

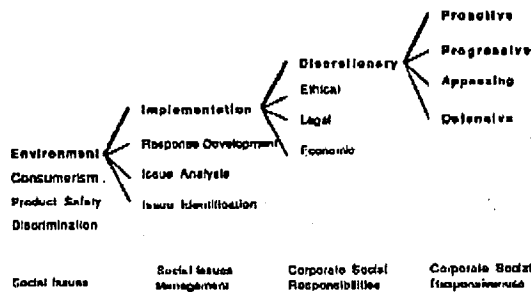


Figure 2. Schema outlining the framework for the study.

thus necessitating a NA (not applicable) response. Since no single indicator can be considered sufficiently complete or unambiguous, Logsdon (1985) recommends that an aggregate measure be calculated in the summary results to provide a stronger basis on which to assess corporate response to environmental issues. Such a procedure will be followed in the present study.

Description of the Indicators

The following nine indicators of discretionary motivation have been selected for this study: (1) board of directors, (2) the environmental affairs function (EAF), (3) internal recycling, (4) product waste recycling, (5) energy conservation, (6) philanthropic donations to environmental causes, (7) community support, (8) environmental impacts of company products or services, and (9) environmental statements/section in the annual report. The rationale for selecting these indicators is discussed at some length below, with the levels on the four-point scale being defined for each.

Indicator 1. Board of directors. In his discussion of the Exxon Valdez oil spill, Rubenstein (1989) points out that companies are spending considerably more time in the boardroom discussing what they are doing to the environment and what the environment may be doing to their economic returns. This suggests that the board composition and activities deserve investigation as an indicator of corporate responsiveness.

Jones (1980) considers a change in the structure of the board of directors due to a response to social issues as an indicator of improved corporate social responsibility. The present study will examine whether environmental interests are represented on the board. Members of the board can be either internal or external appointees to the board. Internal directors represent employees of the firm whose main responsibility to the company is in the area of environmental concerns. These employees would be found at the senior corporate level. An outside director is an independent appointee to the board, who is not a large

stockholder, and whose company does not do business with the corporations in question.

Pfeffer (1972) interprets the presence of external directors who are financiers as a company's measure of coping with capital markets and lawyers (on the board) as a measure of coping with regulatory agencies. In Pfeffer's terms, having an outside environmental appointee at the board level represents a company's attempt to deal with environmental issues. By analogy, the appointment of internal directors fulfills these same conditions, but an internal employee is bound to be more constrained in his comments on his company's performance than an external director. As Strand (1983) suggests, representation of constituent groups on the board of directors provides evidence of corporate concern for (environmental) issues. Bowman and Haire (1975) support this concept, identifying the presence of outside, nonbusiness directors as an attempt to bring to the board a connection with powerful forces that could potentially constrain the firm's activities. In addition, Pfeffer (1972) maintains that board composition is not randomly designed, but rather, is the result of a rational organizational response to the conditions of the external environment. Companies are voluntarily making changes in the boardroom by appointing representatives to the board with a broader diversity of backgrounds, and by forming committees of the board to evaluate the performance of specific areas of concern to the corporations (Weidenbaum 1987). Weidenbaum indicates that directors take more initiative at the committee level than in board meetings, suggesting that the establishment of an environmental committee of the board deserves consideration.

The status quo of firms is not to have appointed a director whose main function is environmental concerns, thus marking the lowest ranking for this indicator. An environmental policy committee at the board level represents the appeasement level, since such a committee can be formed without the presence of either an internal or external environmental director. At present, the appointment of an internal environmental director represents a progressive approach. Since external directors are less constrained in their comments than an internal director may be, the appointment of an external director represents the proactive commitment by the company to environmental concerns.

The ranking used in this study of board composition and activities, corresponds to the theoretical framework as follows:

0. no environmental directors or policy committee
1. environmental policy committee of the board

- 1, internal director appointed to the board
- 3, external director appointed to the board

Indicator 2. Environmental affairs function. Chaganti and Phatak (1983) studied the role of the environmental affairs function (EAF) in four unrelated companies, and charted its progress from inception to institutionalization within four firms' corporate structure. The environmental affairs function is concerned with the management of the physical environment by corporations, and deals with the different levels of environmental decision-making in companies. In some cases, the onus is on individual managers to take environmental responsibility for company operations. In others, corporate (senior) management forms a committee or department to oversee all environmental issues relating to the company. From the survey, it appears that environmental committees consist of representatives from policy, engineering, public affairs, communications, and legal departments. These committee members carry principal commitments to other departments, with environmental affairs representing only a portion of their corporate obligations. Strand (1983) suggests that the establishment of new departments, such as an environmental affairs department, indicates a corporation's willingness to respond to social issues. An environmental affairs department (EAD) is headed by a member of corporate management (vice president) and has a small permanent staff that oversees all environmental concerns pertaining to the company. EAD responsibilities include: overseeing the decision-making process at the operational level, communicating environmental information to all levels of employees, and scanning current trends to be alert for potential problems that are significant to the company. The department also is in a position to choose and oversee environmental projects undertaken within communities.

The assignment of middle or senior managers to oversee specific environmental issues can be regarded as a public relations approach, and thus is assigned the ranking of appeasement. The more progressive approach would encourage the establishment of an environmental committee, while the proactive level is evident with the establishment of an environmental affairs department. To correspond to the theoretical framework classification, the EAF has been ranked as follows:

- 0, no assignment of responsibility for environmental concerns
- 1, assignment of management to follow environmental issues

- 2, establishment of an environmental committee
- 3, full-time environmental affairs department

Indicator 3. Internal recycling. Internal recycling programs within a corporation indicate the level of commitment by both employees and management towards reducing waste. Materials with potential for recycling at the present time include: fine paper, cardboard, newspaper, mixed paper, glass, cans, and food waste. These materials exist in large quantities in corporate offices and cafeterias and have been widely publicized as being recyclable. The materials were classified on the scale in accordance with the economic return and the ease of handling the material involved. For example, procedures for collecting fine paper and cardboard from corporations are in place in most large cities in North America. They are easily collected, and can be sold for profit in the market place. For this reason, these materials are ranked at the appeasing level. Mixed paper, newspaper, glass, and cans are less convenient for companies to recycle and rank at the progressive level. Food waste from cafeterias is the most difficult to recycle and represents the proactive stage of commitment. Thus, the higher the classification, the less the convenience and economic returns associated with the material involved. These levels are by no means mutually exclusive. On the contrary, any firm can exhibit positive responses to any one or all of the indicated levels. The internal recycling programs were ranked as follows:

- 0, no internal conservation programs initiated
- 1, recycle fine paper and/or cardboard
- 2, recycle one or more of mixed paper, newspaper, glass, and cans
- 3, recycling of food waste from the cafeteria.

Indicator 4. Product waste recycling. Dowd (1985) illustrates how industry can undertake housekeeping procedures to recycle waste products without incurring additional expense. This represents the appeasing level of ranking. Minor expenditures made on waste reduction and recycling are considered prescriptive, illustrating some initiative to improve environmental conditions. Finally, major investment decisions toward waste reduction and recycling are considered proactive. Certain problems can be anticipated with this indicator. First, many major expenditures are not totally the result of discretionary policy but are the result of threatened or actual legislation. Second, product waste recycling measures are commonly undertaken for economic, rather than discretionary environmental reasons (Campbell and Glenn 1982), and this indicator

may, therefore, belong in the economic dimension of the framework. Corporate process waste recycling and reduction programs were evaluated as following:

- 0, no manufacturing process waste recycling or reduction
- 1, institute housekeeping procedures that reduce waste with no expenditure involved
- 2, minor expenditures made towards waste reduction and recycling
- 3, major investments made towards waste reduction and recycling

Indicator 5. Energy conservation. Energy conservation has been used by Clarkson (1988) as an indicator of corporate performance in his Canadian survey. A number of studies have documented the savings in energy consumption due to applications of small changes in operating procedures and equipment (Vinto 1980). Employee education programs on energy conservation and procedure modifications in offices and operation sites, such as the use of energy-efficient lighting and building temperature controls, indicate minor expenditures with high pay-back potential. These activities by firms represent the level of appeasement in the present study. Major expenditures toward energy conservation, such as the purchase of energy-efficient machinery, represent the progressive level. The proactive approach encourages the establishment of energy management programs, which incorporate energy concerns into operational procedures. The energy conservation indicator is ranked as follows:

- 0, no energy conservation policy
- 1, minor expenditures towards energy conservation
- 2, major expenditures towards energy conservation
- 3, energy management program

Indicator 6. Philanthropic donations to environmental causes. Corporate philanthropic programs have been examined in the past (Levy and Shatto 1980, Kedia and Kuntz 1981) as an indicator of corporate social responsiveness. Hohnes (1977) found that different industries showed different levels of commitment to charitable donations, suggesting that it is important to look at philanthropy as an indicator of environmental response. Motivation towards philanthropy has always existed, due to the beneficial tax deductions that exist for corporate giving to recognized charitable causes.

Mescon and Tilson (1987) suggest that charitable donations are the time-honored tradition of returning part of a company's profits to the community. They point out, though, that there is a growing corporate

movement towards professionalizing the contribution function. The underlying strategy of this new style of philanthropy is for a company to obtain a tangible return for its contribution. In the present study firms will be ranked on the relative importance environmental programs play in their donation policy. The absence of donations to environmental causes implies definite resistance and ranks at the defense level. The percentage of total donations made to environmental causes differentiates the appeasement and progressive levels. Of the studies that have looked at philanthropic expenditures, none have provided guidelines for high and low levels of donations. Therefore, responses from the questionnaire were used to establish these levels. Small recognition of environmental programs (less than 1.0% of budget) represents appeasement. Donations above this level illustrate greater commitment to environmental issues and are considered progressive. Establishment of the environment as a legitimate category of donation recipients (along with health, education, culture, sports) is considered to be proactive in this study. Philanthropy is measured on the following scale:

- 0, no donations to environmental causes
- 1, environmental donations represent a low percentage of budget
- 2, environmental donations represent a significant percentage of budget
- 3, environmental programs recognized as one category of donations

Indicator 7. Community support. Mactaggart and others (1977) point out that several companies have developed policies of supplementing monetary support with gifts in kind to the community: lending professional staff, and providing facilities, supplies, and transportation services. Olivastri (1989) comments that firms' annual reports now often mention both financial support to environmental groups, as well as the firms' participation in community environmental events. Levy and Shatto (1980) recognize that time donated by company personnel to charities can be included as a measure of corporate philanthropic activity.

In the present study, a company's community support is evaluated at several levels, to complement philanthropic results. Support of the community by providing physical resources (meeting rooms, audiovisual equipment) corresponds to the appeasement or public relations stage of development. A more progressive indication is represented by the involvement of staff in environmental programs, varying from local group in-

involvement to senior executive appointments to government task forces. The proactive stage is represented by a company's partnership approach with committed groups to environmental projects. An example of this type of approach would be an agreement between a company and a local or national environmental organization to fund a conservation or environmentally oriented program. The degree of community support is not sequential, and therefore a firm can have staff involved in environmental programs without having provided physical resources to the community. Community support is ranked as follows:

- 0, no indication of community support
- 1, lending physical facilities (meeting rooms, audiovisual equipment)
- 2, staff involvement in environmental issues
- 3, partnership approach with environmental groups to community projects

Indicator 8. Company products or services. A number of companies in Ontario are producing and marketing a group of "environmentally friendly" products. Moreover, Environment Canada has developed a logo that it will issue as a seal of approval for specified environmentally compatible products (Roseman 1989). West Germany pioneered the concept of environmentally friendly products in 1978 with its "blue angel" logo and seal of approval. Canada is only the second country to attempt such a program. The validity of the term environmentally friendly products was somewhat controversial at the time this report was prepared.

Firms that do not have any environmentally friendly products represent the defense stage, implying nonacknowledgment of environmental concerns with their products. Existing products that are marketed as environmentally compatible products represent "doing the minimum" and thus rank as appeasing. Companies that have developed new products in response to environmental concerns represent a progressive level of commitment. Service companies can also be measured on this scale, since some services, such as recycling in the delivery of waste management service, can be considered as environmentally friendly. Trying to minimize all the impact on the environment, using a cradle-to-grave approach through production, consumption, and disposal of a company's products would be considered proactive.

Companies were asked if they would refer to any or all of their products as being environmentally friendly. Their responses were ranked according to the following:

- 0, no attempt to develop environmentally friendly products
- 1, firm's standard products or services marketed as environmentally friendly
- 2, new products or services developed in response to environmental concerns
- 3, company minimizes the impact of one or more of its products on the environment, at the production, consumption, and disposal stages.

Indicator 9. Environmental statements/section in the annual report. Olivastri (1989) questions whether annual reports are good indicators of corporate response to the environment and concludes that, despite their weaknesses, the utility of the annual report lies in the fact that it is one of the few pieces of information, outside of advertising, that is a publicly available record of a company's activities. Several previous empirical studies (Bowman and Haire 1978, Abbott and Monsen 1979, Logsdon 1985) have used companies' annual reports as indicators of the relative emphasis a company puts on social issues. In the present study, the appeasing, "doing the minimum" level, will be defined by environmental concerns being mentioned in a limited way in the annual report. Bowman and Haire state that a firm can express its concerns once in the president's letter. After that formality is out of the way, the firm may say no more. This suggests that if a company chooses to comment further, a progressive stage occurs when comments are integrated throughout the report. Integration places environmental considerations in the same text with operations, innovations, and financial highlights. The presence of a specific environmental section, corresponding in length and substance to sections devoted to product description or company innovation, represents proaction in the company's reporting on environmental concerns.

A content analysis of the annual reports is also undertaken to aid in quantifying the level of performance of the companies surveyed. The percentage of pages committed to environmental comments will be calculated, relative to the total number of pages in the descriptive or nonfinancial segment of the report. The correlation between the content analysis and the survey results will be established. Content analysis can only be considered an approximation of the level of corporate responsiveness to environmental issues, since it is often difficult to define what is or is not a sentence or comment on environmental subjects (Aupperle and others 1985). All environmental comments recorded were positive statements, none being critical or contradictory towards environmental issues or legislation.

Table 1. Corporate information of companies surveyed

Company	Canadian head office	Ownership	CDN Sales 1988 (\$ billions)	Canadian employees 1988 (000s)	Main products or services
Abitibi-Price	Toronto	Canadian	2.6	12.3	Forest products
Alcan	Montreal	Canadian	2.76	3.5	Aluminum
Ault Foods	Mississauga	Canadian	3.5	15.0	Dairy products
Campbell Soups	Mississauga	70% foreign	0.35	2.2	Convenience foods
Dow	Sarnia	100% foreign	1.56	3.7	Chemicals
DuPont	Mississauga	75% foreign	1.37	4.0	Chemicals
Inco	Toronto	54% foreign	1.2	14.0	Nickel
Labatt	London	Canadian	1.6	4.8	Beer and wine
Laidlaw	Burlington	Canadian	0.32	5.9	Waste disposal and transportation
Loblaw	Toronto	Canadian	8.3	33.0	Distributor of consumer products
Noranda	Toronto	Canadian	6.2	31.0	Minerals, forestry, and energy
Procter & Gamble	Toronto	100% foreign	1.4	3.5	Consumer products

To correspond to the theoretical framework classification, the environmental content of the annual report has been ranked as follows:

- 0, no mention of the environment
- 1, passing mention made of environmental concerns
- 2, environmental comments integrated throughout the annual report
- 3, specific section on the environment

Methodology

Primary data for most variables were collected from personal interviews. Secondary data were obtained from company documents, annual reports, public communications, and other forms of publicly disclosed information. The research methodology used was comparative case analysis. Post and Andrews (1982) remark that the method shows greater explanatory and predictive power than a single case study, and De-Fillippi (1982) observed that comparative case studies ensure the retention of the richness of the case study along with the empirical generalization of the comparative study.

Twelve companies were selected for the sample, based on prior knowledge of their commitment to environmental concerns and a number of other criteria. First, only companies with demonstrated achievement of a high level of corporate social response for at least one indicator were selected. Second, only companies operating in Canada were sampled, to ensure uniformity of legislative and regulatory practices. Finally, companies were drawn from five different sectors of

economic activity, in order to determine whether the indicators chosen were appropriate for more than a single sector. Table 1 provides summary information on company location, ownership, and size. All companies selected are among the largest in their respective sectors, with sales ranging from \$32 million to \$8.3 billion annually.

The multisectoral approach has proven to be effective by Merenda (1981) and Chaganti and Phatak (1983) in their studies of firms' corporate social involvement from different sectors. Post and Andrews (1982) hold that indicators of corporate response can be compared across sectorial lines when the research questions are defined in terms of (environmental) issues, rather than in terms of industry-specific production. Rather than formulate a questionnaire around activities such as food production, smelting procedures, or pulp and paper production, questions should be based on issues such as water and air pollution, which are affected by activities in a variety of sectors.

Certain difficulties arise when assessing diverse companies that are held by a parent company. The decision must be taken as to examine the issues as a single entity (as with Noranda), or break down the holding company into its component parts (as done with John Labatt Co.).

With multinational firms, local executives with the most knowledge of the Canadian operation were interviewed. Certain difficulties were encountered using multinationals in the survey. Some, such as Dow and Procter and Gamble, are 100% foreign owned, thus taking the decision-making factor out of Canada. Fur-

Table 2. Discretionary indicator 1: Board of directors; composition and policy committee

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Policy committee											1	
Internal director								2				
External director												
Total	0	0	0	0	N/A	0	0	0	2	0	1	N/A

thermore, the trend towards global corporations, such as Alcan, is not represented in this study, which just examines Canadian responses to the indicators.

Analysis of the Survey

Indicator 1. Board of directors. The appointment of board members who represent environmental interests is a significant indicator, albeit the total scores were very low. Board members are becoming more concerned about directors' liability and want all areas of corporate concern and conflict well represented at the board level. Only Noranda has an environmental policy committee at the board level (Table 2), and Laidlaw is the only firm surveyed that has appointed an internal employee with environmental responsibilities to the board. Dow Canada and Procter and Gamble both are 100% owned in the United States and do not have Canadian boards. Instead they have management committees comprising senior managers, who serve as a guiding body for the Canadian companies. Dow Company, the US parent, has an environmental policy committee at the board level, but this is not included in the evaluation of the Canadian operations. The question of ownership illustrates the difficulty of applying this indicator to multinationals operating in Canada.

The ranking proposed for this study may well change in future years as the board of directors composition takes on greater importance for firms from an environmental point of view. In the future, the appointment of external directors may only represent a progressive level.

Indicator 2. Environmental affairs function. All the companies surveyed have assigned staff responsibility for environmental measures at middle and/or senior management (Table 3). Most companies stressed the decentralized nature of their companies and the im-

Table 3. Discretionary indicator 2: Environmental affairs function

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Management assigned	1	1	1	1	1	1	1	1	1	1	1	1
Committee	2	2			2	2			2	2	2	2
Department					3				3	3	3	
Total	3	3	1	1	6	3	3	1	6	6	6	3

portance not only of having a senior executive responsible, but also of delegating this responsibility to their line managers. Five firms have environmental affairs committees that function as the central locus of responsibility. Four others have environmental control committees at the operational level, while the executive vice president's office holds central responsibility for environmental concerns in their environmental department. Campbell Soup Company Limited indicated that their US parent company has an environmental affairs department as part of another department and that the Canadian operation is in the process of establishing a similar function.

The environmental affairs function is a significant indicator, showing the level of commitment of the firms to environmental issues. Even if the company infrastructure indicates a high degree of decentralization, the most responsive firms have centralized organizations that oversee the issues at a senior level. As the literature shows, centralized authority is essential for strategic issues (Chaganti and Phatak 1983, Post and others 1983), whereas decentralization of the responsibility is essential for operational issues (Ackerman 1973, Post and others 1983). In view of this differentiation, the indicator requires redefinition for future use.

Indicator 3. Internal recycling. Nearly all companies surveyed carried out some form of recycling of fine paper and/or cardboard. These companies have contracted with outside services to pick up and recycle the materials. Three-quarters of the firms also undertake some form of mixed paper, newspaper, glass, or can recycling. None undertook recycling of food waste from the cafeteria (Table 4).

Internal recycling can be a positive indicator a corporation moving towards internalizing its environmental concerns. The practice is not uniform, though,

Table 4. Discretionary indicator 3: Internal recycling

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Fine paper, cardboard	1	1	1	1	1	1	1	1	1		1	1
Mixed paper, news, newspaper, glass	2	2	2	2	2	2		2				2
Food waste from cafeteria												
Total	3	3	3	3	3	3	1	3	0	1	3	

since some companies recycle one material at one operational site and another material at a second site. In the case of Dow Canada, for example, the company has cardboard recycling at every site, fine paper recycling programs at several, and soft drink can recycling at two (Richmond Hill and Fort Saskatchewan). Thus each company does not necessarily have uniform recycling procedures throughout its operations.

Indicator 4. Product waste recycling. Companies were asked directly whether they had undertaken housekeeping procedures to encourage product waste recycling, as well as making minor or major expenditures towards the same goal. All companies had some housekeeping procedures, and most firms have made major investments in waste reduction (Table 5). DuPont reported annual expenditures of \$5 million and Abitibi-Price \$45 million over the last five years on environmental protection procedures. Dow Canada reports a capital expenditure of \$17 million last year, and Noranda, \$45 million in plant modernization expenditures. Campbell Soup Co. reports minor expenditures, while Laidlaw considers the indicator nonapplicable, since it is a service industry. Procter and Gamble did not identify major or minor expenses, but simply stated that developing packaging is an expensive on-going research process. Their response was considered to represent major expenditures.

Indicator 5. Energy conservation. Nearly every company surveyed indicated a high level of concern for energy conservation. Most proclaimed that efficient energy use made good business sense. Energy programs were all initiated in the 1970s when the world experienced an energy crisis, and the procedures have been maintained ever since. Expenditure levels were inferred from the survey responses, placing education

Table 5. Discretionary indicator 4: Product waste recycling

Indicator	Company										
	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Housekeeping	1	1	1	1	1	1	1	1	1	1	1
Minor expenditure			2								
Major expenditure	3	3	3	3	3	3	3			3	3
Total	4	4	4	4	4	4	4	1	1	4	4

programs, energy audits, lighting and temperature controls in the minor expenditure classification. The purchase of energy-efficient equipment is inferred to represent major expenditures. Nearly all firms met the criteria for both some form of minor and major expenditures towards energy conservation, while three-quarters have energy management programs in operation (Table 6).

The questions involving energy-efficient lighting and temperature controls became problematic where corporations are tenants rather than owners of their buildings. Since the tenant pays for the cost of utilities, there is little financial gain for the developer to implement energy-savings programs. Recently, however, low energy consumption has been used by the developers as a sales tool (Vinto 1980). The majority of the tenants leasing office space today are well aware of the increasing utility costs that can be added to total rental space costs. Procter and Gamble indicated that its choice of location for a new head office was influenced by their builder's energy commitments and was therefore considered to have achieved the appeasement level. Questions involving the issue of alternate fuels for company vehicles also were difficult to appraise, since some companies use common carriers (e.g., Procter and Gamble) rather than their own trucks for transportation. DuPont uses alternative fuels such as propane, in the company trucks, where the highways offer fuel service. DuPont trucks that travel the Trans-Canada highway may be propane driven, whereas more remote routes do not have propane outlets for such trucks.

Indicator 6. Philanthropic donations to environmental causes. Most firms indicated that their total philanthropic budget was set at approximately 1% of pretax revenue. Just over half the firms surveyed showed actual commitment to environmental programs from

Table 6. Discretionary indicator 5: Energy conservation

Indicator	Company											
	Abitibi-Price	Alcan	Auk Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Minor expenditure	1	1	1	1	1	1	1	1	1	1	1	1
Major expenditure	2	2	2	2	2	2	2	2	2	2	2	2
Energy management program	3	3	3	3	3	3	3	3	3	3	3	3
Total	6	6	3	4	6	6	6	6	3	6	3	3

their philanthropic budget (Table 7). Of these, five firms donated more than 1% of their philanthropic budget to environmental concerns and indicated that the environment was a donation category in their philanthropic policy. Dow Canada has an environmental donation category, but would not disclose any empirical information on the amount donated. Since it is obvious that Dow must contribute something to the environment, they have been arbitrarily assigned a conservative figure of no more than 1%. Procter and Gamble was the only company that donated more than 1% to environmental programs, without having established the environment as one of its donation categories. DuPont does not consider the environment as a charity (such as hospitals or education), and therefore uses other budgets for environmental causes. Of the firms that donated at all to environmental causes, only one firm (Labatt) indicated giving less than 1% of its total philanthropic budget to the environment. Since the literature does not afford any empirical guidelines for ranking donations, this level of less than 1% of budget serves as the level of appeasement for this indicator. These results are not totally indicative, though, of all corporate commitment to environmental projects. A large percentage of support to environmental causes comes from indirect funding (budgets other than philanthropy) of community projects, which will be dealt with in the next indicator.

Indicator 7. Community support. Many firms stated that their policy is to help in community projects where their facilities are located, when requests are made. These activities take place at the local level, with local initiatives, of which the head office is not always apprised. Many companies help with local groups but could not state specifically that environmental concerns were among them. Eight of the firms encour-

Table 7. Discretionary indicator 6: Philanthropy

Indicator	Company											
	Abitibi-Price	Alcan	Auk Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
< 1% of budget					1			1				
≥ 1% of budget	2					2		2	2	2	2	2
Environmental category	3				3	3		3	3	3	3	3
Total	5	0	0	0	4	0	5	1	5	5	5	2

aged employee involvement in community activities, and of these, half, (Loblaws, Dow, Inco, Noranda) have senior executives who have community environmental commitments (Table 8). Community initiatives are witnessed in seven of the corporations' activities. DuPont, in collaboration with the Ontario Ministry of the Environment and the Environmental and Plastics Institute of Canada (EPIC), has launched a pilot project in Durham to expand plastic recycling to include rigid plastic containers (HDPE) and film (PE). Similarly, Noranda has undertaken a tripartite agreement (with Environment Canada and the World Wildlife Fund) to support the Wildlife Toxicology fund that will directly aid in protecting wildlife from the harms caused by toxic chemicals. Inco participates with the Ontario Ministry of Natural Resources and a Sudbury conservation group in the transfer of goslings from Toronto Island to Inco's tailings basin in Sudbury. Inco has started a "greening" of Sudbury program in which tree seedlings are started in mined-out areas (depth 1600 m, constant 25°C), and then transplanted in the region. Dow Canada has extensive wetlands protection projects, at both its Sarnia and Fort Saskatchewan locations, and the Loblaws Company has recently sponsored a national conference on the environment. Abitibi-Price was the corporate sponsor of Focus 2000, a high-school forum on sustainable development and is actively involved in a community forest management project. Laidlaw operates Amnesty Days, a program providing chemical technicians and transportation for communities to dispose of their household liquid toxic waste.

Dow Canada was quick to point out that firms give to programs from which the company can receive something in return. Alcan, for example, gives to university programs that collect data significant to Alcan's interests, be it environmental or not. As Mescon and Tilson (1987) predict, philanthropy is not necessarily a

Table 8. Discretionary indicator 7: Community support

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Physical resources				1		1		1	1	1	1	1
Personnel	2			2	2	2	2	2	2	2	2	2
Partnership	3			3	3	3		3	3	3		
Total	5	0	0	6	5	6	2	6	6	6	1	

clear indicator of a company's commitment to any one concern. This indicator does not tell the complete story and should be supplemented with information from activities in the community. A further study could examine promotional and operating budgets for environmental commitment.

Community support provides a significant indication of firms' commitment to environmental issues that would not be otherwise recognized. Although these projects are often regional, they do indicate a corporate level of awareness that is pervasive throughout the infrastructure. This has positive implications for environmental responsiveness within a firm.

Indicator 8. Company products or services. The major difficulty encountered with this indicator is in the way that companies viewed their products. Alcan considers most of its products compatible since so much aluminum (cans, building materials, packaging, electric cable, automotive parts) is recyclable. It also claims that aluminum is not as environmentally threatening as plastics and toxic products. Ault Foods considers that all its products are environmentally compatible, since all milk products are natural and nontoxic. Campbell Soup Co. says that all its products are biodegradable, and Inco indicates that the 5-cent coin is its only pure nickel product. None the less, these companies all qualify for the appeasing level, since no attempt has been made to improve products' environmental performance (Table 9). At the progressive level, Abitibi-Price has developed padded envelopes using recycled paper instead of bubble pack and industrial towels made from recycled paper among its environmentally compatible products. Dow has developed plastic products that are recyclable, and a form of styrofoam insulation that does not affect the ozone layer. This insulation also uses less energy to produce than glass insulation. Loblaws has a well-known environmentally

Table 9. Discretionary indicator 8: Company products or services

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Standard products		1	1	1			1	1			1	
New products	2				2	2			2	2		2
Cradle-to-grave approach												
Total	2	1	1	1	2	2	1	1	2	2	1	2

friendly products program of 100 products, including organic plant fertilizers, unbleached coffee filters, and recycled paper products. Procter and Gamble's packaging contributes to source reduction of waste, since its plastic bottles can now be refilled from pouches (Enviro-pac) and many boxes (L'ide) are made from recycled paper. Laidlaw's operations were considered progressive, since new procedures in waste management were brought into effect to accommodate and encourage recycling and hazardous waste disposal. This indicator is difficult to apply to the service industry, since it is difficult to assess cradle-to-grave delivery of services.

The survey responses bear out the confusion that exists concerning the concept of environmentally friendly products. A product such as paper may be recyclable or biodegradable, but the product may create excess landfill (e.g., disposable diapers) compared to the next best alternative. Also, the production stage is often detrimental to the environment. Companies view their products as compatible, while society often views the process of developing those products otherwise. Original attempts to develop a cradle-to-grave definition for these products has proven difficult. Environment Canada presently endorses three categories of environmentally friendly products in its Environmental Canada program, having developed guidelines for refined lubricating oil, construction material made from recycled wood-based cellulose fiber, and products made from recycled plastics. Six other guidelines are in draft form. I believe that company products should be discussed in qualitative terms until a generally applicable definition of the concept of environmentally friendly is reached.

There is evidence that companies consider their products more environmentally compatible because of

the packaging. A future study could include the effect of the companies' pressures on suppliers to provide more compatible products. Purchasing policy could provide an indication of corporate responsiveness.

Indicator 9. Environmental statements/section in the annual reports. One third of the companies made no mention of the environment in their annual reports. Two mentioned the environment briefly, while half the companies surveyed integrated the environment in the president's message to the shareholders as well as throughout the report (Table 10). Three of these companies included separate sections on the environment in their annual report. This illustrates the companies' increased concern and commitment to the environment. Content analysis was undertaken for the same annual reports, with the percentage of pages committed to environmental concerns being calculated, relative to the total number in the descriptive or non-financial segments of the report. Statements such as Alcan's "confronting our own environmental challenge," and "to take practical steps to prevent or abate all forms of pollution which result from our operations," are representative of the environmental content in the annual reports. All environmental comments recorded were positive statements; none were recorded that were critical of or contradictory towards environmental issues or legislation. Content analysis substantiated the questionnaire results, and with one exception, the higher the environmental content, the more integrated the environmental comments. Both Inco and Noranda exhibit a proactive approach to environmental reporting and record higher content analysis of environmental comments in their annual reports. Alcan exhibits a high content of environmental material in its report, but does not have a specific section on the subject, thus producing contradictory results. With all other firms, the content analysis reinforces the findings of the ranking levels. Since the annual report is one of the few publicly available documents of corporate commitment, this indicator is valuable in assessing corporate responsiveness.

Summary of Results of Discretionary Indicators

The scores for all indicators were totaled for each company, the results standardized by dividing the total by the number of quantified responses, and the companies assigned ranks based on their average scores (Table 11).

The results have been retabulated in Table 12 to better illustrate the levels of rankings and the companies' orientations. The results fall into three natural divisions, which suggest proactive, progressive, and

Table 10. Discretionary indicator 9: Annual report

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaws	Noranda	Procter & Gamble
Few references	1									1		
Integrate comments	2			2	2	2					2	2
Specific section							3				3	3
Total	1	2	0	0	2	2	5	0	0	1	5	5
Content analysis*	0.1	9.4	0	0	3.4	5.5	10	0	0	2	7.5	6.2

*Pearson product moment correlation coefficient = 0.84

appealing classifications. The results in Table 12 also indicate that process-oriented companies from this sample have higher average scores than do product- or consumer-oriented companies. The distinction between product and process innovative procedures is a useful one because process innovation relies on the purchase of technology openly on the market, whereas the confidentiality of product innovation tends to keep innovation in-house (Oakey and others 1982). Process companies in this study are those in which processing activities are the focus of environmental concern and whose products are not consumer-oriented (e.g., Noranda, Inco). On the other hand, the actual products provide the focus for environmental issues for product-oriented firms. Both production and distribution companies are considered to be product-oriented (e.g., Campbell Soup, Loblaws). In this study, five of the top six scores belonged to companies that are process-oriented (Table 12). Conversely, five of the bottom six scores belong to consumer-oriented companies. Alcan fits into both product and process categories, since Alcan siding is known as a consumer product, but in fact, most of Alcan production is directed towards secondary manufacture. The fact that process-oriented companies exhibit higher results in the present study may well be explained by the fact that these companies, as Oakey and others (1982) suggest, innovate more readily and have been the target of greater social and political pressures for a longer period of time than have product-oriented companies. Regulators have focused on the nonsustainable effects that natural resource extraction, manufacturing, and solid and chemical waste disposal have had on the environment. The companies involved in these processes have become sensitive to environmental issues and are therefore more likely to have integrated environ-

Table 11. Results of indicators on the discretionary scale

Indicator	Company											
	Abitibi-Price	Alcan	Ault Foods	Campbell Soups	Dow	DuPont	Inco	Labatt	Laidlaw	Loblaw	Noranda	Procter & Gamble
Board of directors	0	0	0	0	N/A	0	0	0	2	0	1	N/A
EAF	3	3	1	1	6	3	3	1	6	6	6	3
Internal recycling	3	3	3	3	3	3	1	1	3	0	1	3
Product waste recycling	4	4	4	3	4	4	4	4	1	1	4	4
Energy conservation	6	6	3	4	6	6	6	6	3	6	5	3
Philanthropy	5	0	0	0	4	0	5	1	5	5	5	2
Community support	5	0	0	0	6	5	6	2	6	6	6	1
Company products	2	1	1	1	2	2	1	1	2	2	1	2
Annual report	1	0	0	0	2	2	5	0	0	1	5	5
Total	29	17	12	12	33	25	31	16	28	27	34	23
Average score	3.2	1.9	1.3	1.3	4.1	2.8	3.4	1.9	3.1	3.0	3.8	2.9
Ranking	4	9	11	11	1	8	3	9	5	6	2	7

Table 12. Relationship between company rankings and their orientation

	Av. score	Rank	Company	
Proactive	4.1	1	Dow	P
	3.8	2	Noranda	P
	3.4	3	Inco	P
	3.2	4	Abitibi-Price	P
	3.1	5	Laidlaw	P
	3.0	6	Loblaw	C
Appcasing	2.9	7	Procter and Gamble	C
	2.8	8	DuPont	P
	1.9	9	Labatt	C
	1.9	9	Alcan	P/C
	1.3	11	Campbell	C
	1.3	11	Ault	C

*P = process oriented; C = product oriented.

mental concerns throughout their operations. Conversely, these results of discretionary activities may be the result of process-oriented firms feeling obliged to improve their corporate image, since their environmental record has become questionable in the eyes of the public. At present, consumer pressure is mounting regarding the type of products required by society. This would suggest that product- or consumer-oriented companies are at an earlier stage of response and are starting to integrate environmental concerns more within their organizations. In the future, the relative positions of process- and product-oriented firms may well change, as the latter increase their response to outside pressures. Moreover, the levels of ranking for each indicator may change, as an action that is deemed proactive today may be considered appcasing in the future.

The overall ranking of companies is not overly sen-

sitive to the summation method used in this study. To check the robustness of these rankings, a second summation method was applied to the data in Tables 2-10. This method selected each company's highest score rather than summing the scores in each table. When the average of the highest score from each table was calculated, the rankings were virtually identical in terms of the major groupings found in Table 12.

Conclusion

The theoretical framework proposed in this article provides a suitable working model for assessing discretionary environmental measures that have been taken by the companies surveyed. Since the discretionary indicators in this study have not been correlated with economic or legal responsibilities, the results do not hold any predictive power for the surveyed companies in these latter two categories. In fact, the ranking of a company in these other areas of responsibility could be quite different from rankings on the discretionary scale.

The results obtained from using the suggested indicators are meant to be descriptive rather than predictive. Even so, the results are varied in their representativeness of a company's performance regarding the environment. The board of directors produced low results as an indicator, but this is a significant area of development for discretionary activity for companies and should be pursued. The environmental affairs function is also an important indicator of companies' commitment to institutionalize environmental concerns. The examination of the annual report should be included in any study of corporate discretionary performance, since it is one of the few pieces of publicly available reporting on the companies' activ-

ities. Corporate recycling programs are essential to environmental issues, but the line between discretionary and regulatory-driven decisions becomes less distinct.

Company products and philanthropy, on the other hand, produced survey responses that are misleading. Environmentally friendly products must be dealt with in a qualitative way until a standardized definition is agreed upon. Philanthropy, as an indicator, cannot be examined in isolation from community support, which is evolving as a very important indicator.

Further studies of discretionary activities should include the examination of promotional and operational budgets as applied to community projects for indications of environmental commitment. An essential complementary study to this article would examine other categories of corporate social responsibility, such as the legal, economic, and ethical, as outlined by Carroll (1979). Linkages between these categories and the discretionary element provide an important focus for future research. Finally, the framework should be applied to other companies that do not have a known record in environmental issues and to smaller firms for all categories of corporate responsibility.

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Manufacturing

Dow's Cleanup Czar Opens the Gates

Two years ago, David T. Buzzelli was named Dow Chemical's first corporate vice president for environmental issues. Now, Dow has a program to cut its key toxic emissions in half by 1995. It also shares its product plans and other sensitive material with a group of outside environmental advisers. Some company critics still aren't impressed, saying Dow continues to block important legislation. But other outsiders say they have been encouraged by the changes. Dow, they say, deserves credit for choosing Mr. Buzzelli, an important line manager, and then giving him enough clout to do the job. Indeed, Mr. Buzzelli is representative of a new breed of environmental manager. "The stigma is gone," Mr. Buzzelli says, from a job that used to promise little influence and no future. By John Holusha.

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David T.
Buzzelli of
Dow Chemical.



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Sec 3 (Business) pp. 1, 3.

Audits Across the Sea

ENVIRONMENTAL audits are becoming one of the major tools used by manufacturers to insure compliance with the increasingly complex web of anti-pollution laws and regulations.

At Dow, each operating unit undergoes a company-run audit every two years. Last year, more than 120 audits were performed at Dow facilities worldwide, said David T. Buzzelli, the company's vice president for environmental, health and safety matters.

Like the financial audits they are patterned on, environmental audits compare a facility's operations with company and regulatory standards. Mr. Buzzelli said the audits are "very, very specific," measuring discharges of chemicals and checking to see that a spill protection device is in place if one is required.

However, Mr. Buzzelli does not have a small army of auditors who sally forth from Dow's headquarters in Midland, Mich., to check on the company's operations in 33 countries. Instead, teams of line managers from one geographic unit go into the plants of another unit to conduct the reviews. Americans, for example, usually audit European plants.

The audits, which generally take about a week, are used at several levels. Local managers are expected to correct any deficiencies that are uncovered. And senior management uses them to make sure that local managers are moving quickly enough to solve any problems.

"We have a long history of tight internal standards," Mr. Buzzelli said. "Usually our internal standards are tighter than federal and state regulations."

Dow Chemical's Cleanup Czar Unlocks the Gates

Dave Buzzelli has the clout to bring environmentalists in as advisers.

By JOHN HOLUSHA

MIDLAND, Mich.

FOUR times a year, David T. Buzzelli, a vice president of the Dow Chemical Company, prepares for a meeting that could have a major impact on the company's operations. To get ready, he gathers information on manufacturing plans and product offerings, including material the company considers confidential.

But this is no ordinary meeting of executives. Instead, Mr. Buzzelli will share the company's plans with a panel of outsiders comprising Dow's Corporate Environmental Advisory Council.

Inviting environmental advocates to examine the way it conducts business is something new for Dow, which in the mid-1980's fought the Environmental Protection Agency, all the way to the Supreme Court to prevent airplane inspections of its emissions. But it is typical of the things that have happened since Mr. Buzzelli was named two years ago as the company's first corporate vice president for environmental, health and safety matters.

Now, Dow has a program in place to cut its key toxic emissions in half by 1995. Plant managers who once ignored anyone beyond the fence are forming community advisory panels and inviting the neighbors in to see how things are done. And the company has pledged — at least in theory — to phase out products and applications that do not meet environmental standards.

Strong stuff for a company whose best-known product may still be the napalm it produced during the Vietnam War. But Mr. Buzzelli insists that Dow, the nation's second-largest chemical company after Du Pont and the maker of such best-selling consumer products as Saran Wrap and Ziploc bags, has changed. The company's future, he said, depends on how well it manages its environmental responsibilities and how convincing its efforts are to the public.

"Environment issues are a key factor in the financial success of the company," he said. "This is not about altruism. We concluded that people who do not pay attention to the environment will not be successful."

Not everyone is convinced Dow has gone completely green. Daniel J. Weiss, a legislative affairs director of the Sierra Club, said Dow is a leading member of the Chemical Manufacturers Association, which he said routinely lobbies against laws aimed at reducing emissions. "The company's engineers have realized they can save money by reducing pollution, but unfortunately that does not extend to their policymakers," Mr. Weiss said. "They still use political money and their contacts to block legislation."

But Manik Roy, a scientist with the Environmental Defense Fund, which is not a member of the Dow advisory council, said the company's new openness is a step in the right direction. "It's possible to work with these people, even if we do not agree with everything they say," he said.

ENVIRONMENTAL advocates are not compromised by their participation on panels like the one at Dow, he said. "If nothing else, it never hurts to learn more about what they are doing," Mr. Roy said.

The seven-member council includes Lee Thomas, a former administrator of the E.P.A.; Joanna Underwood, president of Inform Inc., a New York-based environmental research organization, and Anthony Cortese, dean of environmental programs at Tufts University.

Whatever the true depth of Dow's commitment to the environment, Mr. Buzzelli represents a new breed of environmental manager, students of industry say.

In the past, many companies dumped the job on a staff type with little influence and no future. But Mr. Buzzelli was an important line manager, serving as president of Dow Canada, when he was tapped in August 1990 for his current post. "The stigma is gone," said Mr. Buzzelli, who now reports directly to Frank P. Popoff, Dow's chief executive, and is a member of the company's top-level management committee.

"In the old days, the environmental manager was the bearer of bad news, a janitor with a tie," said J. Gary Taylor, publisher of the newsletter Environmental Health & Safety Management. "But a guy like Dave Buzzelli has the respect of line managers. He brings credibility to the job."

People like Mr. Buzzelli are showing up on the organization charts of many top corporations, as the complexity and cost of meeting anti-pollution regulations has risen and public concerns about environmental issues have been translated into such laws as the Superfund and Clean Air acts. According to Arthur D. Little, a consulting firm in Cambridge, Mass., 49 of the top 100 manufacturing companies in the country had vice presidents in charge of environmental affairs in 1991, up from 38 in 1990.

ENVIRONMENTAL stewardship is one of the biggest management challenges of the 1990's," said Stephen Poltorzkycki, a director of Little's environmental consulting operations. The job used to be part of manufacturing, added Ladd Greeno, another consultant at Little. Now, he said, "it includes research and development, sourcing, sales and marketing, community relations and stockholder relations. The Dave Buzzellis are being asked to cut across many areas."

Indeed, Mr. Buzzelli says he is part executive and part pitchman, spending about half his time on internal company affairs and the rest meeting with public policy and environmental groups, giving interviews and making speeches. "The first year I gave 50 speeches," he said. "Reaching out has a high priority."

It is a role well suited to Mr. Buzzelli, who is 51 years old. Although a chemical engineer by background, he speaks glibly and without technical jargon. Of medium height and balding, he is quick to smile and tries to put visitors at ease with informality.

Mr. Buzzelli said Dow has long been concerned about the environment and pollution issues, and points to its relatively small \$26 million Superfund liability as evidence. Other companies have liabilities amounting to hundreds of millions of dollars to clean up chemicals and other wastes dumped over the years.

"We established the first toxicology testing lab in history in 1935," Mr. Buzzelli said. "We started a pollution prevention program in 1965 because it made sense economically." Dow's Waste Reduction Always Pays, or WRAP, program, adopted in 1986, is often cited by environmentalists as a good example of how companies can save money by finding new uses for materials once discarded as waste.

But Mr. Buzzelli admits that most of these efforts were undertaken at the operating level, with little company-wide coordination. "E.H.S. was not very well integrated," he said.

His job, he said, is to "bring togeth-



Photo by Peter Vass for The New York Times

David T. Buzzelli, Dow's vice president for environment, health and safety, at the company's incinerator in Midland, Mich.

er globally" all of Dow's environmental undertakings. And his writ also includes looking at the company's line of products and the uses to which they are put after being sold and how they are ultimately disposed.

"My job is to integrate E.H.S. into the basic business strategy of the company," said Mr. Buzzelli, whose operations involve 2,000 of Dow's 62,000 employees. "We want the business managers to take ownership of the issue. That is relatively new for us."

Yet it is Mr. Buzzelli — and fellow E.H.S. executives at other companies — who could wind up holding the bag if a major environmental disaster occurs.

DE FENSE lawyers warn that recent anti-pollution legislation and sentencing guidelines could make environmental managers the subject of criminal prosecution, in effect the designated jailbird.

"With the advent of these guidelines, corporate management and

employees in the environmental area are for the first time truly at risk of going to jail," said Paul G. Wallach of the Washington firm of Hale & Dorr in a paper prepared for an environmental conference earlier this year.

Mr. Buzzelli said it is not something he spends much time worrying about. "I do not focus on legal liability personally," he said, adding that the company conducts regular environmental audits and moves quickly to correct problems that are uncovered.

Bringing in environmentalists to

comment on the company's products and operations has been a bracing exercise, Mr. Buzzelli admits, particularly for a company that is a major producer of plastics. Plastic products and packaging have been a special target of environmental advocates because they are usually brightly colored and conspicuous, are typically used only for a short time and endure for centuries after disposal.

NEVERTHELESS, Mr. Buzzelli said the process has been useful. In a recent talk to the Midland Rotary Club, Mr. Buzzelli said the Corporate Environmental Advisory Council has had a "significant influence on the company. We are hearing things we've never heard before."

The opportunity to get the ear of top management made joining the council "utterly irresistible," said Ms. Underwood, president of Inform. Council members, she said, "can request any information we want from the company, including information it regards as confidential." While it is still too soon to see much substantive change, she said, Dow appears to be making a good-faith effort to listen.

Mr. Cortese, the dean at Tufts who is also on the council, agreed. He cited "some pretty impressive discussions, not just with the E.H.S. people, but with the ones who actually run the business."

He, too, said it is still too early to assess whether the company really has embraced green values. "They still have a long way to go," he said, "but it is very interesting to watch the transformation." ■