

THE COALITION FOR ENVIRONMENTALLY RESPONSIBLE ECONOMIES
(CERES): ANALYSIS OF ITS VALUE AND IMPACT

by

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Voluntary environmental initiatives are increasingly being relied on to promote improvements in corporate environmental management practices, yet there has been little study of the effectiveness of these efforts. This thesis outlines key criteria of an optimum voluntary standard and applies this framework in an evaluation of the Coalition for Environmentally Responsible Economies (CERES), a voluntary environmental code of conduct. The research addresses the benefits that CERES provides to multiple stakeholders and its impacts on the environmental management and performance of endorsing firms. This thesis argues that CERES provides unique benefits due to efforts in promoting relationships among diverse stakeholders and improving corporate accountability by committing firms to annually assess and disclose their environmental performance. Although CERES endorsement may lead to process efficiencies, an

important finding of this research is the limitation of CERES in terms of driving innovative changes in the sustainability of the actual products and services.

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CHAPTER I

INTRODUCTION

As we approach the end of the twentieth century, it is increasingly apparent that alternative measures are needed to preserve the natural environment for future generations. In the absence of effective regulatory or legal intervention, voluntary initiatives may be a viable mechanism for promoting improvements in corporate environmental impacts and the overall sustainability of business operations. If voluntary initiatives are to be relied on as a tool for environmental improvements, a framework for assessing the effectiveness of these efforts needs to be established and applied in an evaluation of the current voluntary environmental codes. Using such an approach, this research paper demonstrates that the voluntary environmental code developed by the Coalition for Environmentally Responsible Economies (CERES) offers the potential for improving corporate environmental management programs and practices, in addition to providing indirect benefits to a multitude of stakeholders.

Over the past decade, the efforts of environmental organizations, industry groups, and governmental agencies have led to a proliferation of voluntary environmental initiatives for businesses. The role of voluntary environmental standards and codes has greatly expanded during the 1990s, both in terms of the number of organizations participating as well as the variety of objectives. The landmark

partnership between McDonald's U.S.A. and the Environmental Defense Fund (EDF), beginning in 1990, was instrumental in demonstrating to industry the value of participating in voluntary initiatives. Since then, corporations have been faced with a myriad of opportunities and choices for involvement in voluntary environmental endeavors. Such a tremendous increase in voluntary efforts has left many firms with questions as to which initiative would add value to their organization. At the same time, socially responsible investors, environmental advocates, and management professionals are faced with the dilemma of determining which of these voluntary efforts hold significant potential for environmental improvement and which are merely hype.

These voluntary initiatives fall into two broad categories. The first category encompasses those in which companies participate in partnerships or more narrowly defined efforts to improve specific environmental impacts. For example, the McDonald's and Environmental Defense Fund partnership focused on reducing packaging waste. The U.S. Environmental Protection Agency has initiated several voluntary programs including the Green Lights Program, which aims at increasing energy efficiency, and the WasteWi\$e program, which focuses on reducing hazardous waste. Within this first broad category, there are many other voluntary initiatives with various missions, such as to promote recycling, improve water quality, reduce waste, decrease toxic emissions, or to improve environmental conditions through other means.

The second category includes those voluntary initiatives in which firms adopt or endorse a set of standards or principles. CERES falls into this classification, along with the International Chamber of Commerce (ICC) Business Charter for Sustainable Development, the Chemical Manufacturer's Association (CMA) Responsible Care®, the American Petroleum Institute Standards to Protect Health and Environment (STEP)

and the International Organisation for Standardization (ISO) Environmental Management Standard (14001). For each of these initiatives, the organization has developed a set of voluntary principles or specifications addressing a broad range of environmentally related issues.

The Coalition for Environmentally Responsible Economies (CERES) stands apart from other voluntary environmental initiatives due to its groundbreaking efforts to promote dialogue and relationships among diverse stakeholders, its mission to encourage greater corporate accountability through public disclosure of companies' environmental practices and performance, and its leadership role in standardizing a cutting-edge reporting tool. Preliminary results indicate that CERES endorsement may also have a positive impact on environmental performance, although additional study is needed to provide more conclusive evidence. Overall, the CERES organization offers benefits for its corporate members, public interest groups, and communities, and the environmental management and social investment fields as a whole.

With increasing corporate participation in voluntary environmental standards, a framework must be established to evaluate the effectiveness of these efforts. This research study proposes such a framework and applies it to CERES to determine whether this particular voluntary code has resulted in environmental improvements or other indirect benefits.

Scope of Study

This research paper will demonstrate that corporate participation in CERES can provide benefits to multiple stakeholders and improve the endorsing organization's

systems and programs for environmental protection. This study will also highlight the limitations of CERES and opportunities for improvement. Since CERES was intended to promote corporate environmental responsibility, or “to pressure companies to clean up their environmental act” (Zack, 1992, p. 56), it raises several questions about the actual effects on stakeholders and the environment. This study explores three related research questions. First, what indirect benefits, if any, does the CERES initiative provide to stakeholders, where the stakeholders¹ are defined as corporate organizations, investors, public interest groups (e.g., environmental organizations, labor coalitions, etc.), and local communities. Second, since value can be added in many ways, have the efforts of CERES have resulted in improvements in the environmental programs or strategies of its endorsing members. Finally, has participation in CERES led to measurable improvements in environmental performance. For the first two questions, I followed the framework for empirical research using qualitative data, a small number of cases, and non-statistical procedures to draw causal inferences (Mitchell & Bernauer, 1998). For the final research question, I relied on a quantitative analysis using reductions in annual releases of Toxic Release Inventory chemicals, adjusted by production units, as a proxy for improvements in environmental performance.

The scope of this study has been restricted to manufacturing companies. Although the terms *corporation* and *firm* are used in this paper when referring to CERES members, endorsers of the principles actually include not only industrial companies, but more diverse organizations such as consulting and research groups, financial institutions, an environmental grantmaker, a religious group, and other non-

¹ Organizational stakeholders include the firm's employees, shareholders, customers, and suppliers. The influence of or effects on the media is not specifically addressed within this study.

profit organizations (CERES home page, Participating Organizations). In addition, despite the fact that this study is primarily based on U.S. experience, the CERES Principles are designed for worldwide application.

Why the Need for Voluntary Environmental Codes?

With all the improvements in environmental quality that the U.S. has made since the 1970s, why should corporations participate in voluntary efforts such as CERES when they are already faced with a significant regulatory burden? At first glance, efforts at environmental protection appear to be working. Emissions of particulate matter have decreased by seventy-eight percent since 1970. Over the last twenty-five years, wastewater standards have kept more than one billion pounds of toxic pollutants out of the nation's waterways. From 1988 to 1993 alone, the overall volume of those chemicals targeted by the Toxic Release Inventory that were released into the environment was reduced by forty-three percent (EPA 25th Anniversary Report).

Despite the progress that has been made, a closer review of the state of the environment reveals that there are still disturbing trends and a significant amount of work that must be done to preserve the environment for ourselves and future generations. Over sixty million Americans live in metropolitan areas that fail to meet air quality standards for at least one pollutant. Total emissions of nitrogen oxides, which contribute to smog and other environmental problems, have increased by fourteen percent since 1970. Worldwide levels of carbon dioxide, one of the greenhouse gases, have increased by eight percent. In the U.S., there are still about forty percent of surveyed waters that are not clean enough for basic uses. Wetlands continue to be

destroyed at a rapid pace of about 70,000-90,000 acres each year. Our solid waste increased by one-third from 1970 to 1994, rising from about 3.3 pounds per person per day to 4.4 pounds per person per day (EPA 25th Anniversary Report). Despite materials efficiency gains (i.e., 20 to 30 percent reductions in material intensity as a measure of gross domestic product), the total use of materials in the U.S., as well as in Japan and Germany, rose by an average of almost 28% over the past twenty years (Day, 1998, par 12). Energy consumption in the U.S. is also predicted to increase by at least twenty percent over the next twenty years. Compounding this further, the Energy Information Administration projects that based on current trends, even by 2010 renewable energy sources will only account for seven percent of total energy consumption (Day, 1998, par 13). These data indicate that significant steps are necessary to halt the course of environmental deterioration and to preserve the natural environment upon which we depend for the next century and future generations.

Of course the enormity of environmental problems in the U.S. cannot be placed solely at the doorstep of American businesses. The consumption practices and habits of each American play a profound role in the environmental impact, and so must also be considered in the quest for greater sustainability. Yet, the role of U.S. business is an essential ingredient in efforts to produce significant environmental improvements, not only due to the sheer volume and intensity of their impact, but also the amount of resources they can bring to bear and the number of Americans' lives that they touch. To reduce the overall impact, individuals in developed countries must reduce consumption and make better informed purchases and investment decisions. Businesses must improve the systems and processes for the production of goods and the delivery of services, as well as the actual products and services being offered. Where businesses do

not enact a proactive approach, it is likely that governments will eventually impose more stringent regulatory requirements. A commitment to a voluntary environmental standard provides corporations with an opportunity to proactively achieve some of these needed improvements.

CHAPTER II

THEORY

To assess the value offered by a voluntary environmental code, it is helpful first to review the command-and-control and market-based approaches that have been used to date, and their respective shortcomings. Until the last decade, environmental protection occurred primarily through application of prescriptive regulatory controls, and later, the use of market-based approaches. Today, affected firms and regulators² alike widely recognize that a transition to performance-based standards and voluntary initiatives offers significant opportunities that may form the cornerstone of protection efforts in the next century.

The era of command-and-control environmental regulation began in the 1970s. This was triggered by the publication of Rachel Carson's Silent Spring in 1962, a growing environmental movement in the U.S., and environmental problems that could no longer be ignored (e.g., burning of polluted Cuyahoga River). The U.S. Environmental Protection Agency (EPA), established in 1970, promulgated a series of regulations throughout the decade to support the newly enacted Clean Air Act, Clean

²In addition to relying on more voluntary programs, the U.S. EPA's strategies for the future include 1) developing consensus-based standards through negotiations with industry representatives, environmental groups, concerned citizens, and local governments, 2) empowering the public with information, 3) applying multi-media approaches, 4) forming partnerships with communities, and 5) using more market-based incentives (U.S. EPA Strategic Plan, 1997, Introduction).

Water Act, Toxic Substances and Control Act, and the Resource Conservation and Recovery Act. These regulations focused primarily on point sources, single media, and end-of-pipe solutions, as opposed to current, more evolved efforts emphasizing pollution prevention and multi-media approaches. The standards stipulated the methods and technologies to be used in controlling environmental hazards and left little to no room for innovation or flexibility on the part of industry. This first wave of environmental protection was based not only on regulatory intervention, but also a tradition of legal approaches, where citizen groups brought suits against industry and corporations challenged aspects of legislative standards. Although government, industry and citizens groups initially made significant strides to improve the systems for environmental protection through the regulatory and legal approaches, much time, effort, and financial resources have been lost in legal gridlock. In addition, the prescriptive nature of these early standards did not promote comprehensive approaches to prevent pollution at the source or encourage companies to pursue comparative advantages by applying innovative solutions. The nature of these regulatory standards failed to provide incentives for companies to continuously improve their environmental impact once they complied with the minimum legal requirements (Gunningham, 1998, p. 319). Over time, we learned that application of legal solutions and the traditional command-and-control regulations was costly and not necessarily the most effective means for environmental protection.

After command-and-control regulations, the second phase of environmental protection has relied on market-based approaches. These policies attempt to use market forces to provide financial incentives for consumers (e.g., deposit refunds to promote recycling) as well as for corporations. Market approaches for corporate environmental

protection include the use of pollution fees or taxes and tradable permits. The EPA began experimenting with emissions trading as early as 1974 and formalized the program in 1986. Although the use of the market has achieved some success, this type of system also has inherent shortcomings. First, the market alone is not necessarily an effective means of environmental protection. There are many important considerations that will not be accounted for by the market. For instance, the market will not necessarily force corporations to take those costs that are typically externalized and internalize them to account for social costs and non-market considerations (e.g., public goods nature of many resources, intergenerational aspects). Second, we lack a widely accepted system to place an accurate economic cost on an environmental resource, or its loss.

Existing efforts using command-and-control and market-based incentives focus on only one part of the big picture. These approaches have targeted the processes and operations related to the production of a good or service, but not the actual product or service that is being offered. There are obvious benefits to improving the processes for creating a particular good or service, but the real opportunity for significant reductions in environmental impact arise from innovation in the types of products and services being offered to consumers (Day, 1998).

Since command-and-control and market-based regulatory approaches alone have not been sufficiently effective, we must look to alternative methods for restoring and maintaining environmental quality. Since many organizations have embraced voluntary environmental codes as the next wave of environmental protection, it is important to understand the characteristics of these initiatives and how they will lead to benefits for stakeholders and the environment.

In examining the factors contributing to a voluntary environmental code's ability to provide environmental and indirect benefits, I identified seven key attributes. These characteristics are interrelated and reinforce the effectiveness of one another. Based on a review of current literature on environmental management and empirical evidence from the past decade, we can expect voluntary codes to have a meaningful impact – rather than merely being *window dressing* or *green washing* – and directly or indirectly provide benefits to stakeholders when they:

1. Emphasize or facilitate a transition to an environmental, health, and safety management systems approach
2. Focus on performance, not prescriptive methods. More specifically, if they provide a framework for their members to establish specific goals and performance indicators to measure progress in achieving the objectives
3. Establish meaningful dialogue with and capture the interests of diverse stakeholders
4. Require periodic reporting and public disclosure on environmental programs and performance
5. Announce or communicate the participation of endorsers to interested parties to reinforce the effectiveness of the disclosure aspect and promote accountability
6. Drive a forward thinking or pro-active approach, especially if the initiatives anticipate future regulatory initiatives or the direction of environmental management norms
7. Address holistic issues, such as the improvement and innovation of an organization's products and services, not just the processes and systems used for their manufacture and delivery.

Of course, this is not to say that those voluntary codes or partnerships with a more limited agenda – not possessing all of the above characteristics – are not capable of achieving improvements in environmental protection. In addition, for those companies considering a voluntary initiative, it is also important to ensure there are clearly defined and agreed on missions and goals, and that the organization has the necessary support to make and follow through on such a commitment. However, this analysis was conducted from the perspective of attempting to identify the primary attributes that would be

optimal if an organization was to adopt only a single voluntary environmental code.

There may be a small minority of U.S. companies that are so proactive and progressive as to meet these criteria through internally-driven programs and community advisory panels or other outreach efforts. For the majority of U.S. companies, these criteria represent best practices for a voluntary environmental code. The following sections provide additional detail and corroborating evidence to demonstrate how each of these seven characteristics provides benefits to stakeholders and the environment.

Management Systems Approach

There are few, if any, who would argue against the benefits of a management systems³ approach to corporate environmental protection. Historically, environmental issues were managed separately from other business functions. Companies developed individual compliance programs addressing a single media or point source, often without an underlying company environmental policy or strategy. Even in those cases where an overall environmental mission and objectives existed, many did not have the necessary management commitment and leadership or designated roles and responsibilities to be effective. As our knowledge of environmental protection has progressed, we have realized a need to manage environmental issues as an integrated business function.⁴ The transition to a management systems approach has occurred in progressive companies over the last ten to twenty years, or perhaps even earlier for

³ Management systems include elements such as policy and mission statements, defined organizational roles and responsibilities, procedural and programmatic documents, a training program, a performance measurement system (including strategic goals and short-term targets, performance indicators, and an audit and management systems assessment program) and a documentation system.

⁴ For a discussion of environmental management in the context of operations management, see Newman & Hanna (1996) in the International Journal of Operations and Production Management.

those truly forward thinking firms. Now, many of the larger firms have implemented an environmental management system, and it's spreading throughout medium- and small-sized organizations as well.

Even though not all voluntary initiatives emphasize a management systems approach (e.g., due to a more targeted focus on a specific media or issue), there is little controversy surrounding the need for and benefits of an environmental management system. More attention will instead be focused on the remaining portions of this section.

Although performance standards and measures should be an inherent part of an effective environmental management system, not all management systems approaches emphasize the need to establish goals and meaningful indicators to measure progress (or lack of progress) towards objectives. For this reason, the criteria for a Performance-Based Framework and Measurements and for a Management Systems Approach have been addressed separately. This rationale also applies to the need for a separate section on a forward thinking or proactive approach.

Performance-Based Framework and Measurements

The prescriptive approach of the command-and-control regulations has been widely described as costly, cumbersome, inflexible, and of limited effectiveness, with specific reference to the fact that it is at the end of its useful life (see Abelson, 1993; EPA, 25th Anniversary Report; Gunningham, 1998; Hemphill, 1992). Application of a performance-based framework, on the other hand, has the potential for enhanced value for all stakeholders interested in improving environmental protection, and can also lead to business advantages for participating firms. The link between environmental performance and business value has been demonstrated in several studies. For instance,

applying the resource-based view of the firm, Russo and Fouts found that environmental performance and economic performance are positively linked, although companies in high-growth industries are more likely to obtain higher returns from improved social performance than those in low-growth industries (1997). Although causality has not been established well in academic studies, it is generally accepted that operational improvements that minimize throughputs of materials and energy can provide business advantages (Reed, 1998). These findings provide businesses with incentives for continuous improvement, rather than merely complying with the minimum regulatory requirements.

Instead of prescribing the specific methods that must be used to reach the desired outcome or goal, a performance based approach to environmental management allows organizations to determine the best way to achieve a goal based on their specific industry, operations, resources, size, organizational culture, etc. The flexibility of a performance based standard, combined with the increased resource base afforded firms who participate in voluntary initiatives, can lead to innovation, which may in turn offer environmental improvements as well as increased business value. This can be accomplished by redesigning a process more efficiently, as opposed to many corporations' responses to the command-and-control standards where pollution control technologies were added bit by bit to manage the release of a specific substance or media. Often this occurred without adequate consideration of the most effective means of controlling pollution or preventing it in the first place. Corporations have also gained business advantages by reducing raw material inputs and waste outputs through re-use, recycling, and conservation approaches. More importantly, by modifying their product or service to be more environmentally sustainable, corporations can expand into new

markets. For instance, both Interface and IBM have experienced significant success, widely covered in many articles and other media, with this type of approach.

It is important not only to establish performance-based standards, but also to establish a measurement system which can be used to track progress in meeting the overall objectives and intermediate targets. As Clarkson describes, "Performance and nonperformance are concrete, measurable criteria. If an issue is being managed, there will be data" (1995, Stage 2, par 20). By establishing long-term goals, short-term targets, and indicators to measure performance, firms are provided with a clear picture of their progress in meeting the performance standards and those areas requiring additional attention or improvement. An effective performance measurement system can be an important tool not only in helping senior management and executives determine how successfully the corporate strategies are being implemented and achieved, but also in helping line managers understand what actions they are responsible for to support the corporate strategy and vision (Sieger, 1992, p.46). Where companies use the same indicators and measurement units, comparisons can be made across time and between different firms. This can be used internally for benchmarking purposes, and externally for green consumerism or socially responsible investment decisions. Building on the adage that "what gets measured gets managed," we expect that where voluntary codes drive the establishment of indicators and targets, companies will have a better understanding of the areas where they should be tracking performance as well as their actual impact and opportunities for improvement.

Diversity of Stakeholders

Facilitating the participation of or feedback from diverse stakeholders is valuable in its own right, in terms of encouraging and upholding the democratic principles upon which this country was founded, but it is also a good business strategy.

Historically, there was little dialogue or collaboration on environmental management between certain stakeholder groups. Although this does not hold true for all instances (e.g., depending on specific industry, environmental area, facility, etc.), in general there has been a tradition of adversarial relationships between particular stakeholders, whether it is the regulator and the regulated, corporations and environmental watchdogs, or local facilities and surrounding communities. Stakeholders are traditionally defined as individuals or groups who influence, have an interest in, or are influenced by the actions of an organization. It could even be said that stakeholders are so influential that their satisfaction determines corporate success (Greeno & Robinson, 1992). Stakeholders can exert their influence on an organization in a multitude of ways, such as purchasing or boycotting products, voicing concerns at shareholder meetings, mobilizing public opinion, or filing a suit, to name just a few.

As the executive director of the Environmental Defense Fund points out, one of the most significant positive developments in the environmental arena during the early 1990s was the development of discourse between non-governmental organizations, industry, and the public (Krupp, 1995, p 9). With the increase in voluntary initiatives over the past decade, more cooperative, collaborative approaches have been adopted. Maxwell and others discuss the value, such as improved performance and image, that can be created by applying a non-market strategy targeting interactions with

stakeholders (1997, Environmental Pressures as a Strategic Opportunity, par 3). For example, by establishing meaningful partnerships within the communities where they operate, firms can accelerate market growth, reduce risk, improve their image, form relationships valuable for recruitment and supplier needs, and facilitate learning for both sides (Arnold & Day, 1998, p. 16). A voluntary initiative with diverse representation provides enhanced value over those that target only one or two groups of stakeholders. Many studies have argued for the need to incorporate the resources and voices of a broader range of stakeholders (for example, Gunningham, 1998, v, par 1). A broad base of participation is crucial not only for maximizing the available resources and expertise that can be applied to environmental improvements, but also in helping different groups to better understand the positions and interests of those with opposing views. Although giving voice to such a wide range of voices and issues may make it more challenging to reach consensus, it is more effective to provide a forum for the exchange of ideas rather than letting differences escalate to the point of heated conflict or even resolution through legal means. As mentioned previously, this is a waste of resources that could be more beneficially applied to collaborative efforts towards actual environmental improvements.

Annual Report and Public Disclosure

Another key criterion for a voluntary code is a commitment for member organizations to prepare regular, periodic reports on their corporate environmental practices and performance levels and to publicly disclose this data. In the absence of government intervention, information on corporate environmental programs and performance has not necessarily been provided by the market (Tietenberg & Wheeler,

1998, p. 5). Stakeholders, such as concerned citizens, shareholders, and potential investors, should be provided with data on the impact of company operations, as well as the environmental strategies and improvement efforts, so that they can exercise their right to influence the organization through informed decisions and actions. In addition, the practice of preparing and disclosing an environmental report can also be valuable from a business standpoint.

With the exception of the Toxic Release Inventory (TRI) reporting requirements,⁵ U.S. businesses have no regulatory obligations to publicly disclose data on their environmental performance. Although companies must include information on environmental liabilities in their annual report, as mandated by Securities and Exchange Commission (SEC) standards, there are no legal requirements to prepare annual environmental reports or to disclose comprehensive information on environmental programs and performance. Initially very few companies voluntarily engaged in this practice. Although the number has grown over the past decade, it still does not include the majority of firms. For instance, in a survey of the 1991 annual reports for six hundred and forty-five (645) Forbes 500 corporations, only thirty-four percent of firms addressed environmental concerns. The remaining seventy-three percent of firms did not discuss environmental issues anywhere in the report or the letter to stockholders (Kreuze, 1996, p. 38). A study of international environmental reporting conducted by KPMG found that, between 1993 and 1996, forty-three percent of the U.S. firms surveyed produced environmental reports. As of 1998, only about three hundred

⁵ Where chemical use exceeds established thresholds, firms must also provide data to local emergency planning and response commissions or other state agencies, which can then be accessed by interested parties such as community members. However, this type of information says little to nothing about an organization's actual performance, nor is the availability of the data widely communicated to the public.

companies worldwide produced corporate environmental reports, although there were others that included limited environmental information in their annual reports to stockholders (White & Zinkl, 1997, p. 3). However, without established standards on environmental reporting, firms have incentives to draw emphasis to and report only positive information, and to understand or omit any negative data.

Another limiting factor in the effectiveness of those reports and disclosures that do occur is the quality and consistency of the data. A United Nations survey of 222 firms from the U.S. and around the world showed that although companies increasingly tend to report some information about their environmental impact, the data is inconsistent and does not lend itself to comparisons between companies, industries, and countries (Cheney, 1993). For instance, the study cited above on international reporting found that although eighty-seven percent of the reports prepared contained quantitative information, only thirty-seven percent included quantitative targets or goals, and only twenty percent contained both goals and deadlines (White & Zinkl, 1997, p. 3).

Although the number of companies completing corporate environmental reports has grown over the last decade, improving the quantity of information available, the quality and value of the environmental information included is an area that is ripe for improvement. As each firm designs its own report format, indicators and overall metric system, comparisons become difficult and report users are struggling to try and use the information for investment decisions, consumer product choices, and company benchmarking purposes. In the absence of a regulatory standard, voluntary codes are a means to encourage the reporting practice, and to provide a standard for the consistency, quality, and balance of the information reported.

Preparing an annual environmental report in and of itself is a valuable exercise for businesses to undertake since it can be a helpful tool in identifying progress or deficiencies over the last year, and those areas that require improvement. However, without public disclosure the value provided to other stakeholders, such as communities, consumers and public interest groups, is severely limited.

The value of public disclosure is based in part on the premise that when empowered with information, the public will respond either through the marketplace, the political arena, or through contact with the organization. Tietenberg and Wheeler argue that since firms have incentives to mislead the public, either by exaggerating their progress or selectively omitting or burying negative data, transparency of the report is essential (1998, p. 9). Gunningham also recognizes the significance of transparency and accountability (1998, v, par 1), noting that informed communities can “more effectively act as a countervailing force, compensating in part for the inadequacy of regulatory resources” by applying pressures to firms where performance is inadequate (vi, par 31). This means that not only must the report be accessible to interested stakeholders, but also that the data must be in a format that can be used by the public. In this manner, the community and other interested stakeholders can question performance data and raise issues of concern. For example, where target levels and the firm’s actual performance data are both reported over a specific time frame, users of the report can track the company’s improvement over time and judge whether they have been successful, or at least made good faith efforts, in meeting the established goals. The usefulness and accuracy of the information can be improved through a standardized method of data collection and reporting, such as using a common set of indicators applicable across industries and a more customized subset for specific business sectors.

Disclosure of an environmental report will not only have an impact on the audience but also on the organization. Lev (1992) describes the potential for a significant impact on stakeholders' perceptions of the firm and subsequently its market value by applying a strategy of voluntary information disclosures. Although some companies recognize that disclosing environmental information to stakeholders before it is legally required may improve their corporate image and credibility, traditionally more attention has been focused on what firms stand to lose by sharing this type of data (e.g., criticism from community or environmental groups, loss of sales, etc.) than what they stand to gain. Investors are increasingly using social performance criteria to evaluate those firms in which they invest their money. According to one source, the total amount of investments decided on the basis of social criteria probably exceeds a trillion dollars, providing firms with a powerful reason to be environmentally conscious and to disclose those results (Kreuze, 1996, p. 37). Companies that fail to respond to this pressure could encounter detrimental effects ranging from loss of investor confidence or market share to bad publicity (Fuller, 1995, p. 9). For instance, if a competitor provides this type of data, a company that does not stands at a disadvantage. The company disclosing environmental performance data has an opportunity to gain a competitive advantage (Maxwell et. al., 1997). In addition, by publicizing performance data, it provides organizations with additional incentive for improvement (Gunningham, 1998, vi, par 16).

Communication of Involvement

External and internal communication of a firm's commitment to an environmental code is important for three primary reasons. First, it reinforces the

disclosure aspect. If interested parties are not informed that an organization has adopted a voluntary code, they can not hold firm's accountable to that commitment, or take advantage of data that may be publicly available as a result of participation, such as an annual environmental report.

The second and third reasons apply mainly to organizational stakeholders. Internal communication of the company's endorsement of a voluntary code informs employees of the direction and goals of the organization, specifically their commitment to achieving a particular environmental code or standard. If executed properly, this or subsequent communications should inform employees of their roles and responsibilities in meeting that commitment and the interim targets the organization is striving towards. This is important since, according to goal theory, establishing specific goals improves an individual's focus and persistence in reaching the objectives (Hacker & Brotherton, 1998, p. 4).

Finally, by communicating their involvement in a voluntary code, firms may be perceived as more environmentally responsible, thus enhancing the corporate reputation. This can serve not only to increase a firm's ability to recruit and retain better candidates and to improve community relations, but may also lead to indirect business or financial gains. To frame this theory, we must first establish a causal relationship between participation in voluntary environmental initiatives, or positive environmental events, and the effect on corporate image. Although no academic studies were identified specifically on the response to corporate involvement in voluntary environmental codes, Klassen and McLaughlin (1996) reported a link (not causality) between environmental performance and perceptions of a firm. Looking at the parameters of their study in more detail, we find that they used announcements of environmental awards as a proxy for

environmental performance. They identified significant, positive stock returns after positive environmental events, and negative effects after announcements about firms experiencing environmental crises or fines. It follows that announcement of involvement in a credible, voluntary environmental initiative - or the public disclosure of environmental improvements reported as part of the participation - would have similar, although perhaps less significant, effects.

The reputation of the firm will impact their ability to recruit and retain high caliber candidates. For instance, a 1991 McKinsey study found that, of four hundred and three international executives surveyed, sixty-eight percent agreed that firms with a poor environmental record will experience increasing difficulties in obtaining high quality personnel (Dechant & Altman, 1994, p. 8). As the quality of staff improves, optimally this will indirectly translate into increased capability for innovation and environmental improvements.

In terms of community relations, a negative public image can lead to a loss of public support and difficulty in convincing communities to support new company sites in their area (Gunningham, 1998, v, par 13). Involvement in voluntary codes that outreach to interested stakeholders, on the other hand, may improve organizations' reputations and the good will of the communities where they have operations (Jacobson, 1992, p. 9).

A positive corporate reputation may also indirectly improve financial performance. A study conducted by the research firm Clark Martire & Bartolomeo found that there was no relationship between the size of a company's assets and its reputation, but there was a strong correlation between financial performance (e.g., total return and earnings growth) and corporate reputation. They used data from

Fortune's 14th annual Corporate Reputations survey, where more than 11,000 experts were asked to rate the ten largest companies by revenues within select industries. Of the eight criteria used in the evaluation process, one was responsibility to the community and/or environment. Ratings were then compared between companies in the industry and between the 417 total corporations included in the survey to come up with an overall list of the top ten most and least admired firms. Clark Martire & Bartolomeo correlated financial indicators with companies' standings on the most admired list to show the tie between corporate reputation and financial performance (Fisher, 1996). As further evidence, Russo and Fouts (1997, p. 540) reference the link between corporate environmental reputation and profit established in studies by Harrison (1993) and Piasecki (1995).

Forward Thinking

A voluntary environmental code that is forward thinking and encourages its' members to adopt a proactive approach provides benefits both to organizational stakeholders (e.g., employees, shareholders, etc.) and for other stakeholders interested in environmental improvements (e.g., communities, environmental organizations, regulators, etc.). By focusing on a cutting-edge, beyond compliance strategy, organizations find incentives to exceed the minimum requirements outlined in the regulations, leading to enhanced environmental quality, and also demonstrate their role as a leader in environmental management.

A proactive approach to environmental management can lead to a number of business advantages, including improved quality, reduced costs, enhanced environmental reputation, and new market opportunities (Maxwell et. al., 1997, par 1).

Being more proactive may allow corporations to shape the course of ensuing regulations or to avoid regulatory intervention altogether, if voluntary approaches prove effective. More specifically, a proactive approach may allow industry to develop standards that are more flexible and efficient and typically less costly than those imposed by a regulatory agency. Focusing on the right kind of goals (e.g., reducing waste and pollution at the same time) may allow businesses to lower costs of production and become more efficient.

Adopting a proactive environmental strategy provides firms with the opportunity to capitalize on many of the same market advantages discussed in relation to a performance-based approach (Gallarotti, 1995; Maxwell et. al, 1997). As Gallarotti describes, "Staying one step ahead of evolving green legislation may even lead to opportunities to dominate markets when laws change, a nice complement to the opportunities of dominating new niches through product differentiation" (Conclusion, par 3).

Holistic Framework

The need for a holistic framework can be interpreted in a number of ways, many of which are relevant for this analysis. First, the voluntary code should address not only the processes and systems used to create and deliver a product or service, but the actual impact of the product and service. It is essential that process efficiency efforts are coupled with initiatives for product enhancement, such as improvements in product durability and service intensity. For instance, imagine a company that manufactures disposable plastic food containers and encourages consumers to buy them because they are so inexpensive they can be disposed of after a single or several uses. No matter how

efficient their production process is or the efforts they take to reduce the environmental impact from manufacturing, the company is still incurring a significant detrimental effect on the environment. By encouraging the "throw-away" society that is already rampant in American culture, this company would be contributing to deterioration of environmental quality through increased materials use and waste generation, as well as the irresponsible message sent through such an advertising campaign. As Robert Day of the World Resources Institute astutely describes:

"Process efficiency also has hidden, negative effects, however, that make it an ineffective tool by itself for achieving sustainable development. While the firm's immediate environmental impacts are reduced, the financial savings from process efficiency are eventually steered toward additional consumption, either by the firm or its customers. This effect is not inherently negative, because consumption drives economic growth, but in the absence of major shifts toward sustainable technologies this additional consumption exacerbates our global challenges" (1998, pars 19-20).

Focusing on improving the manufacturing processes alone, where many firms are locked into "dead-end" technologies, can detract from an organization's ability to innovate and develop "radically new, more sustainable products" (par 22).

In terms of the process efficiencies being promoted, the approach offered by a voluntary code should emphasize pollution prevention, not just emissions control. Instead of addressing a single point source, the initiative should be founded on a multi-media approach incorporating all relevant environmental risks and opportunities. For instance, one effective means for promoting a holistic framework is by committing member firms to adopt a life-cycle analysis approach for evaluating the environmental risks and opportunities of a product or service from cradle to grave.

Finally, the initiative should be holistic in the sense that it applies not only to the specific environmental impacts on water, air and land, but also to how these in turn affect communities and other stakeholders. For instance, voluntary codes should address other integral issues, including sustainability, environmental justice, worker health and safety, and community relations and outreach, among others.

CHAPTER III

METHODOLOGY

In selecting the case studies used in this research paper, one hundred percent of those CERES endorsing firms that met the established criteria were included. There were three criteria used for sample selection. In efforts to ensure adequate data for analysis, only those firms with U.S. operations, a minimum of two hundred and fifty employees, and that had endorsed the principles in 1995 or earlier were included. Although there are non-U.S. companies that have endorsed the CERES Principles, such as The Body Shop International PLC, it was necessary to restrict the sample to those firms with U.S. operations since the U.S. EPA Toxic Release Inventory data was central to the quantitative analysis. The company size criteria was established with intentions of excluding the smaller firms who in most cases would not be tracking environmental performance data prior to endorsement, and thus would not have baseline data to allow a comparison of environmental programs and performance before and after endorsement. Finally, companies that adopted the principles after 1995 were excluded since there would not be a sufficient number of annual reports and associated data for the post-endorsement period.⁶ Based on these three criteria, the following ten CERES member companies were selected for study: Arizona Public Service Company, Aveda

⁶ At the time of writing, the most recent available annual CERES reports are for the year ending 1997.

Corporation, Ben & Jerry's Homemade, Inc, Bethlehem Steel Corporation, General Motors Corporation, Green Mountain Power Corporation, H.B. Fuller Company, Polaroid Corporation, the Sunoco, Inc., and the Timberland Company.

Qualitative Evaluation

All annual CERES Reports for each of these firms were reviewed using a content analysis approach to identify changes during the post-endorsement period. More specifically, the background data in the initial CERES Report for each sample firm was closely examined to develop an understanding of the state of the organization's environmental programs and strategy prior to endorsement. By knowing the date of endorsement, it was possible to identify changes that had occurred since that point in time. Key programmatic and strategic areas of interest were traced forward through the last year of reporting data available to evaluate whether participation in CERES had impacted the firm's programs or strategies. Wherever possible, phone interviews with the firms' CERES representatives were conducted to obtain supplemental information, clarification, and data on any more recent changes. Through both methods of data collection, I also tracked other variables, such as changes in relevant personnel or organizational structure and other voluntary initiatives in which the firms participated.

Quantitative Analysis

For the quantitative portion of this study, the number of CERES-endorsing companies included in the final sample was significantly reduced. This was not done deliberately, but due to constraints in the publicly available data. Although those companies that have endorsed the CERES principles report a number of quantitative

indicators of environmental performance, that is not true of those non-CERES endorsing companies that comprise the control sample population. For this reason, the Toxic Release Inventory reports were relied on as the sole indicator of environmental performance. Therefore, only those CERES-endorsing companies for which there were appropriate companies and publicly available Toxic Release Inventory (TRI) data with which to compare them were included in the quantitative analysis.

The TRI report is a regulatory requirement under the Emergency Planning and Community Right-to-Know Act (EPCRA Section 313) that applies to all facilities that manufacture or process more than 25,000 pounds or otherwise use more than 10,000 pounds of any listed chemical during the calendar year. The TRI reports are contained in a publicly available database that includes annual submissions from more than twenty-five thousand facilities across the U.S. Unfortunately, the first year of reporting for electrical utilities is for 1998, so there is no TRI data available for two of the firms in the sample of CERES endorsers, Arizona Public Service and Green Mountain Power. In addition, for those facilities where releases are less than the ten thousand pound reporting threshold or the chemicals targeted by the TRI are not a part of company operations, the reporting requirements do not apply. This resulted in the exclusion of Aveda Corporation, Ben & Jerry's, and the Timberland Company. Finally, in selecting control companies for meaningful comparison to the CERES endorsers, it was necessary to identify a similar company that operated in the same primary SIC codes, had U.S. operations, and reported normalization data (e.g., production units or other data which could be used to adjust toxic releases) specifically for those operations being compared. Although even with a highly diversified company it may be possible to obtain toxic release data by the type of operation – to facilitate a comparison between

other companies that operate in the same industry sub-code – unless all the companies of interest report normalization data for the particular operation being studied and report it in the same units, the comparison would not be very meaningful since there would be no way to adjust the data to account for differences in size. General Motors Corporation, H.B. Fuller, and Polaroid Corporation had to be excluded from the quantitative analysis portion of the analysis due to this reason. For the remaining two CERES endorsers, Bethlehem Steel and Sunoco, an appropriate control set was established and corresponding TRI data was collected to allow for comparison. However, Bethlehem and the steel companies were later eliminated from the analysis because I was not able to adjust for a change in operating practices at Bethlehem that impacted TRI releases. Previously, Bethlehem sent electric arc furnace dust to an off-site facility for recycling, so it was not required to be reported as a release to the environment. With the implementation of a new waste management technique in 1996, the dust is now sent to another off-site facility where it is chemically stabilized to a non-hazardous material, using a patented process developed by Bethlehem, and then deposited in a landfill. Since the material is landfilled, it must be reported as a release to the environment even though it is considered non-hazardous (Bethlehem Steel Corporation 1997 CERES Report). Because data was not available to adjust for the resulting increase in their 1996 aggregate releases to the environment, it is not possible to accurately determine whether Bethlehem's CERES endorsement in 1995 has had a significant impact on their environmental performance.

The control samples for the oil sector were identified systematically by reviewing the primary Standard Industrial Classification (SIC) codes of companies in the same industry sector and then applying additional criteria. For example, the next

step in the selection process was to ensure that for the SIC codes of interest, operations were conducted in the U.S. and the company reported normalization data for the particular U.S. operations of interest. Based on these results, Amoco and Shell Oil Company were selected as controls for the Sunoco sample. All three firms report production units in terms of U.S. annual refinery input. In addition, they all participated in the EPA 33/50 program, a voluntary initiative aimed at further reducing releases of select chemicals on the TRI inventory. To obtain data on each firms' reportable emissions, the EPA TRI database was searched by the company names (and variations) and the Standard Industrial Classification (SIC) code corresponding to petroleum refining (SIC 2911). Based on the results of this query, the aggregate chemical releases to the environment for all facilities with a primary SIC code of 2911 were summed to obtain annual totals for each of the three firms. The raw data for the annual production units, releases, and normalized releases for each of the three firms are contained in Appendix B.

To evaluate whether CERES endorsement had a significant impact on Sunoco's performance, regression analysis was conducted with the independent variable, CERES endorsement, and the three regressor variables: normalized TRI releases for Sunoco, Amoco, and Shell. To perform the quantitative analysis, I used SAS statistical software, specifically the Time Series Cross Section Regression (TSCSREG) procedure, which deals with panel data sets consisting of time series observations for each of the cross-sectional units. One benefit of the TSCSREG procedure is that it allows users to select the appropriate model for the structure of the random errors, based on the error structure model most appropriate for the data to be analyzed (SAS Inc., 1993, p. 873). The Parks model of error structure was used, which assumes a first-order autoregressive model

with contemporaneous correlation between cross sections, meaning the following error structures are considered: 1) heteroscedasticity, 2) contemporaneously correlated, and 3) autoregression (pp. 871, 882).

CHAPTER IV

BACKGROUND ON THE COALITION FOR ENVIRONMENTALLY RESPONSIBLE ECONOMIES (CERES)

To better understand the potential impact and benefits of CERES, it is useful to first review the historical context and the organization's goals, provisions, and initiatives. The consideration of environmental issues as a guide to investment decisions was popularized in the mid-1980s. However, socially responsible investment decisions have been hindered by inadequate information on corporate environmental management. In June 1988, the Social Investment Forum, composed of socially responsible investment groups, began to develop criteria for investors to use in evaluating corporations' environmental practices. The Coalition for Environmentally Responsible Economies (CERES) was the result of a group of social investment practitioners outreaching to environmental professionals in efforts to address the data gap on the environmental performance of U.S. firms. After a series of informal meetings in late 1988, CERES was officially established in 1989. Two of the key individuals involved in this process were Joan Bavaria, president of Franklin Research and Development Corporation, and Denis Hayes, a well-known environmental advocate.

The coalition, composed initially only of environmental organizations and socially responsible investment professionals, held their first meeting on April 14, 1989. The first meeting was attended by representatives from the Sierra Club, the Audubon Society, Environmental Economics, the National Wildlife Federation, World Resources Institute, the Global Tomorrow Coalition, First American Financial Co-Operative, Hambrecht and Quist Venture Partners, and the Social Investment Forum Board. Representatives from organizations such as the United Nations Environment Program (UNEP), the U.S. Public Interest Research Group, and the Industrial Union Department of the AFL-CIO joined later meetings (Hoffman, 1996, CERES's Origins, par 4). Examples of other CERES coalition members include the Fair Trade Foundation, the Rocky Mountain Institute, the Council on Economic Priorities, and the Interfaith Center on Corporate Responsibility (CERES home page, Participating Organizations).

Over the summer of 1989, the group developed a code for environmental conduct called the Valdez Principles, named after the March 1989 Exxon Valdez oil spill in Alaska's Prince William Sound. The principles, which included ten guidelines for environmentally responsible behavior, were publicly announced on September 7, 1989. According to David Sand, former CERES project director, the number one priority was disclosure. At a presentation to the MIT work group on business and the environment in 1991, he stated that, "We want a standardized way of letting investment managers know about environmental aspects of the business. If you look at a company's financial sheets, you know that they will be the same for a big company as well as a small company, allowing easy comparison. We want that here" (Hoffman, 1996, CERES's Origins, par 7).

To obtain assistance in developing stronger principles that would be accepted as a standard throughout industry, in November 1989 CERES presented the principles to seven corporations who they believed had outstanding, responsible environmental programs. Although some firms were understandably upset that they had not been asked for input earlier in the process, several companies wanted to work with CERES in refining the principles. The next meeting was held in December and attended by over thirty representatives from the fifteen invited corporations. Later that month, the first letters were mailed to potential signatories, with a total of approximately 3000 companies contacted by CERES, including all the Fortune 500 firms (Hoffman, 1996, CERES's Origins, par 11). Initial corporate reactions to the principles were mixed; some believed the principles too stringent or too vague, while others saw them as a useful management tool.

In conjunction with Earth Day 1990, CERES organized a series of media releases on the principles in efforts to encourage corporations to become founding signatories. Despite the press coverage, initially fewer than twenty corporations signed the principles, none from the Fortune 500 and mostly only small companies who already had strong environmental reputations. The coalition's next strategy was to place resolutions before stockholders of some of the country's largest firms, taking advantage of a U.S. securities law that allows any stockholder who owns one thousand or more shares of a company for a year to introduce a referendum at the company's annual meeting (Nash & Ehrenfeld, 1996). A total of twenty-three shareholder resolutions on the Valdez Principles were proposed in the spring of 1990, with seven directed at chemical companies and nine at oil companies. Most of the shareholder resolutions

were sponsored by religious groups working through the Interfaith Center on Corporate Responsibility (ICCR).

In April 1992, the first modifications to the wording of the principles were initiated. In addition to including a disclaimer to make the principles more non-binding, the name was also changed from the Valdez Principles to the CERES Principles, to remove the negative connotation associated with the oil spill. Other major revisions included the removal of principles calling for the appointment of a director-level environmental advocate and the creation of a board-level environmental committee. By 1994, "signing" the principles was no longer required, but rather companies were "endorsing" the principles. Bavaria explains that, although CERES has made a significant effort to maintain their integrity, they have a better, more evolved understanding of their role, not as a legislative or certification institution, but as an organization that can build relationships with companies and encourage a positive change in environmental management practices (Hoffman, 1996, Political Negotiations Effect CERES's Changes, pars 3 & 7). Through their meetings with corporate representatives, CERES members have realized that the phrasing of the principles is crucial since words (e.g., "minimize") may mean one thing to environmental organizations, but something entirely different to corporations (Bavaria & Dodson, 1992, p. 22). Together, these changes helped gain the endorsement of several large U.S. corporations, including Sunoco, General Motors, Polaroid Corporation, and H.B. Fuller.

Goals

When CERES was first established in 1988, the primary goal was twofold: 1) to provide consistent, comparable and publicly available information to facilitate socially responsible investments and 2) to improve the relationship between companies and the general public. Minutes from the first CERES meeting held on April 14, 1989 show that the founding goals had expanded to: “guide the allocation of capital, influence corporate behavior, and create public support for environmentally sound policies” (Hoffman, 1996, CERES’s Origins, par 5).

Principles

When the coalition first began drafting the principles, their objectives were both to introduce the idea of an environmental ethic, as well as to provide a framework for assessments against the “historical context of a business entity and community norms” (Bavaria and Dodson, 1992, p. 23). Their hope was that by introducing and encouraging an environmental ethic as an integral aspect of corporate strategies, environmental degradation would be minimized or eliminated, relegating the immense remediation projects of the 1970s and 1980s to an icon of the past era. Since endorsers of the principles commit to publishing an annual report outlining the corporation’s environmental impact, policies, and progress, CERES hoped to establish a standard of environmental accountability (Brown, 1990, p. 13). The ten principles are included in Appendix B.

Annual Reports

With endorsement of the CERES Principles comes the commitment to prepare and publicly disclose an annual environmental report based on standardized questions across ten environmental and social areas. CERES does not require third-party verification for endorsing companies. The organization feels that its requirement for companies to publicly disclose the results of their self-audits, including specific data on releases and consumption, represents a form of verification since it provides the public with a means to challenge information that does not appear to be accurate.

Initiatives

Although since 1992 CERES has hosted annual conferences for endorsers of the principles in efforts to promote collaboration and cooperation among the coalition members, their most important and far-reaching initiative is on global reporting.

The Global Reporting Initiative (GRI) was initially launched in the fall of 1997, although the roots can be traced back to 1992.⁷ The mission of the GRI is to “establish, through a global, voluntary, and multi-stakeholder process, the foundation for uniform corporate sustainability reporting worldwide” (White & Zinkl, 1998, p. 1). Although

⁷ Sponsored primarily by Amoco and IBM in collaboration with CERES, throughout 1992 representatives negotiated the development of the Voluntary Environmental Reporting Initiative (VERI). CERES' role was to develop the reporting requirements and act as an information clearinghouse, but they would not evaluate the submitted reports. The initiative gained the support of about eight other companies, such as Dow and DuPont. Eventually, due to strained relations with CERES after Sunoco's endorsement (due to the concessions made) and the fact that some companies were uncomfortable with the reporting requirements from the onset, VERI dissolved. However, Amoco and IBM, in collaboration with about eight other companies, officially launched the Public Environmental Reporting Initiative (PERI) in May 1993 (Hoffman, 1996).

currently being spearheaded by CERES, the GRI is intended to be launched independently and is actually a collaboration between companies, accountancy bodies, financial institutions, environmental organizations, government agencies, and other public interest groups worldwide. The GRI participants include institutions such as the United Nations Environment Programme (UNEP), Canadian Institute of Chartered Accountants, Council on Economic Priorities (CEP), World Business Council for Sustainable Development (WBCSD), Investor Responsibility Research Center (IRRC), the Centre for Science and Environment from India, and the Environmental Auditing Research Group from Japan. Technical support is provided by the Tellus Institute/Stockholm Environment Institute, an independent, non-profit research organization. Some of the companies that participated in the development of the GRI include General Motors, British Petroleum, Electrolux, and ITT Industries, among others. During 1999, an institutional home for the GRI will be explored, with the possibility of setting up an independent organization or housing the initiative within another institution.

The GRI plans to develop three tools: 1) a general set of core metrics applicable across industries, 2) sets of sector- or industry-specific metrics, and 3) a consistent format for reporting the metrics along with key information on a company's sustainability performance. The standard is intended to integrate reporting requirements from organizations including CERES, UNEP/SustainAbility, WBCSD, CEP, and IRRC. The proposed guidelines were formally released at an international symposium in London on March 4-5, 1999, which was co-sponsored by CERES, UNEP, WBCSD, the Association of Chartered Certified Accountants, the Stockholm Environment Institute and others. According to the GRI guidelines, companies must provide a CEO statement,

a company profile and financial performance statement, an assessment of company policies, organizations and systems and management, stakeholder relationships, product performance, and a sustainability overview (CERES home page, CERES Press Room). After incorporation of the feedback and testing results, the release of the first GRI product is anticipated for early 2000 (White & Zinkl, 1998).

CHAPTER V

RESULTS

The following sections present the results from both the qualitative and quantitative aspects of this study. The first section of the Results applies the framework for the seven key criteria of a voluntary environmental code, established in the Theory chapter, in an analysis of CERES. Following this assessment, the next section reviews the impact of CERES on the environmental programs and strategies of its endorsers, based on the ten sample firms outlined under Methodology. Finally, the last portion of the Results chapter presents the findings from the quantitative analysis of CERES' impact on firm environmental performance, using one endorser from the oil refining.

Indirect Benefits: Analysis of Voluntary Code Criteria

Based on the optimal characteristics of a voluntary environmental code established under Theory, I analyzed the indirect benefits provided by CERES through a comparison to three other voluntary codes: the Chemical Manufacturer's Association (CMA) Responsible Care® Program, the International Chamber of Commerce (ICC) Business Charter for Sustainable Development, and the International Organization for Standardization Environmental Management Standard (ISO 14001). Although there have been numerous industry-sponsored voluntary codes in the last several years, I

relied on CMA's since it is the most widely known and also served as a model for some of the newer industry environmental standards. It is important to note that this analysis is based primarily on a comparison of the principles or specifications and associated tools (e.g., CERES report form, CMA Codes of Management Practices), and not a thorough review of how well the criteria have actually been implemented in sample firms for each of the four standards.

These comparisons are necessary to provide a contrast and more readily allow an overall analysis of CERES, but in reality, some firms may choose to participate in CERES combined with an industry or trade organization and perhaps even ISO 14001, depending on the market drivers for their particular industry sector. David Sand, former project director for the CERES Principles, explained that guidelines for corporate environmental principles can be symbolized by three concentric circles where the inner circle represents the internal company strategies and initiatives to improve environmental performance, the middle circle corresponds to industry- or sector-specific environmental standards (e.g., CMA Responsible Care® and API STEP), and the outer circle embodies a set of environmental codes that apply across all companies and industries, such as the CERES Principles (Bennet, 1993, p. 23) or the ICC Charter. In a sense, this is a comparison of "apples to oranges" yet it is still a useful exercise and yields important findings on the strengths and deficiencies of these voluntary standards. The four codes have been systematically evaluated and assigned a qualitative rating ranging from *poor*, *fair*, *good*, to *superior* based on the extent to which they contain a requirement for or provide guidance on each of the seven key criteria of an optimum code.

Management Systems Approach

The principles or specifications in all four of these codes are based on a management systems approach to environmental protection. The degrees to which they require specific elements or provide guidance for implementation of a management system vary to a considerable extent. Table 1 and the following sections outline how well each of the codes addresses and drives a transition to a management systems approach.

TABLE 1. Analysis of Management Systems Approach

Voluntary Code	Management Systems Approach
CERES ICC Charter ISO 14001 Responsible Care®	Fair to Good Fair Superior Good

The ISO environmental management systems standards (ISO 14001: Specification with guidance for use and ISO 14004: General guidance on principles, systems, and supporting techniques) provide the most sophistication, specific requirements, and guidance. CMA and CERES provide the next level of detail and commitment, followed by the ICC Charter.

ISO 14001 is directly solely at establishing requirements for standard elements of an environmental management system. It contains comprehensive specifications for establishing and documenting the underlying processes and systems needed to better manage environmental issues. For firms that have no environmental management

system in place, adopting the ISO 14001 framework may indirectly lead to environmental improvements through enhanced management practices. For those facilities with a mature environmental program that already have a management system in place, implementation of ISO 14001 may entail little more than a documentation requirement (Corbett & Kirsch, 1999, pp. 9-10). Although several studies are underway, there is currently no evidence to suggest that implementation of ISO 14001 will necessarily lead to improved environmental protection or reduced environmental impact. The results of research projects currently being conducted on this topic may yield conclusive findings on whether or not organizations certified under ISO 14001 achieve improved environmental performance.

In addition to its Guiding Principles, Responsible Care® consists of specific management practices for each of its six codes. For instance, the management practices for the Pollution Prevention Code require members to have a program that includes management commitment (through policy, communications and resources), the establishment of priorities, goals, and action plans, the measurement of progress, and other management system elements. Each of the other five codes has similar requirements outlining the management processes and systems needed to meet the provisions of the specific code and the overall Guiding Principles.

The CERES report, which was devised with input from corporate members, places greater emphasis on management systems than do the principles, which were developed by environmental organizations and investment groups (Nash & Ehrenfeld, 1996). The CERES Principles by themselves are fairly weak, but are much more valuable when combined with the report form, which focuses on a management systems approach and contains questions directed at a number of elements of such a system.

Although the nature of the questions in the report form may lead organizations without a comprehensive management system to identify deficiencies in various areas, the principles or report form do not provide the structure or guidance needed to develop and implement such a system. Endorsement of CERES combined with application of an ISO 14001 or similar framework would provide a valuable combination, since ISO contributes the management system structure and CERES the underlying environmental commitment and principles.

The ICC Charter contains a requirement for endorsers to “integrate these policies, programs, and practices fully into each business as an essential element of management in all its functions” (ICC Business Charter for Sustainable Development). Although the Charter recognizes the need for integrated management of environmental issues and addresses some management system elements such as employee training, the requirements are general and somewhat ambiguous in nature. Of the four voluntary standards, the ICC Charter is the weakest in terms of establishing specifications and guidance for a management systems approach.

A more exhaustive review of each of the four codes in terms of specific management system elements (e.g., management commitment and leadership, audit and assessment, training, documentation, incorporation of environmental issues in incentive and performance review programs, etc.) is outside the scope of this project and is left for future studies.

Performance-Based Framework and Measurements

Each of the voluntary standards was evaluated to determine if and how well it established criteria for performance standards and for measurements systems. The results are listed in Table 2 and described in the following sections.

TABLE 2. Analysis of Performance-Based Framework and Measurements

Voluntary Code	Performance Standards	Performance Measurement
CERES	Good	Fair to Good
ICC Charter	Good	Fair
ISO 14001	Poor	Good
Responsible Care®	Fair to Good	Fair to Good

All four of the environmental codes reviewed are performance-based in the sense that they do not establish prescriptive requirements for technology or methods used to meet goals. With the exception of ISO 14001, the other three voluntary codes have established a set of guiding principles that adoptees strive to meet. However, none of these codes currently require firms to meet specific environmental performance standards as a condition of participation, or within a certain time frame after the initial commitment. ISO 14001 provides specifications for an environmental management system, but not standards of environmental performance. In essence, it is a process standard, not an environmental performance standard. ISO 14001 certified organizations commit to continuous improvement of their management system, but not necessarily to their environmental performance.

In terms of performance measurement systems, under CERES, Responsible Care®, and ISO 14001, firms commit to establishing environmental goals or targets and measuring their performance and progress towards these goals. The ICC Charter principle on compliance and reporting asks firms to measure environmental performance, but it does not provide guidance or specific details on what should be measured, nor does it address the use of goals or targets.

The specificity and explicitness of the commitment for performance measurement varies among the standards, with the ICC being the weakest and addressing the issue only as noted above. ISO 14001 contains requirements for firms to establish and document environmental objectives and targets (including the means and time frame for achieving the objectives) and to measure the environmental aspects of their activities, products and service (Jackson, 1997, pp. 69-74; Tibor, 1996, pp. 55-56). The Responsible Care® Guiding Principles do not explicitly address the need for a performance measurement system; however, it is covered under the associated management practices. For instance, the Codes of Management Practices require establishment of quantitative reduction targets for Pollution Prevention and goals for implementing Product Stewardship. Their performance measures include an assessment of incidents for process safety and for health and safety, an evaluation of toxic releases based on an EPA regulatory requirement, and surveys of employees, community residents, and customers (CMA Responsible Care® Codes of Management Practices). Under CERES, like CMA, the principles themselves do not require the establishment of goals or measurement systems, but the annual CERES report specifically addresses targets (both in terms of the actual measure and the year) and the measurement of progress under a number of areas. For example, the report asks firms to report their

targets and performance for workplace safety, material and resource conservation (e.g., chemicals, electricity, fuel), and emissions and waste (CERES Report Form).

Diversity of Stakeholders

The evaluation of the diversity of stakeholders considered both those stakeholder groups that actively participated in the development and modification of the different codes, and those that are currently involved in or receive direct or indirect benefits from these initiatives. As outlined in Table 3 and discussed in the following sections, the diversity of stakeholders involved in and provided benefits by CERES far exceeds the other three initiatives. For this section in particular, it is important to remember that, for the most part (with the possible exception of CERES for which additional data is available since it was the subject of this study), these qualitative ratings and the discussion which follows are based on a review of the principles or specifications and not evidence from how well they have been implemented.

TABLE 3. Analysis of the Diversity of Stakeholders

Voluntary Code	Diversity of Stakeholders
CERES	Superior
ICC Charter	Fair
ISO 14001	Poor
Responsible Care®	Fair to Good

Of these four voluntary codes, CERES is the only initiative founded by groups with no industry alliances. The CERES Principles were developed largely through the efforts of socially responsible investment professionals in conjunction with

environmental and other public interest groups. They were modified based on feedback from corporations and coalition members.

The other three standards were developed by industry-associated organizations. Responsible Care® was developed by the trade association for the chemical industry, the ICC Charter was developed largely through the efforts of the international commerce organization in conjunction with the Global Environmental Management Initiative,⁸ which is a group of representatives from large firms across different industries (Nash & Ehrenfeld, *Origins of the Major Codes*, par 2), and ISO was developed by select governments and their industry representatives. ISO develops standards to facilitate the international exchange of goods and services for all sectors of industrial activities (ISO home page, About ISO). Krut and Gleckman argue that the ISO 14001 standard setting process excluded key governments and constituencies (e.g., environmental organizations, public representatives, etc.), with a bias towards the national standard setting bodies from the developed world and their industry representatives (1998, pp. xii and 3).

No other voluntary initiative offers such a broad representation of stakeholders as CERES. Although the initial outreach was from investors to environmental advocates, CERES' efforts quickly broadened to include labor, community religious organizations and other public interest groups (e.g., environmental justice). This is an important distinction since earlier, well-founded criticisms of the mainstream environmental movement targeted on their narrow-minded scope and exclusion of labor and grassroots groups. CERES members include not only endorsing corporations and

⁸ Although GEMI played a large role in developing the ICC Charter, it does not require its members to adopt or implement the charter (Nash & Ehrenfeld, *GEMI and the ICC Charter*, par 3).

various environmental groups, but also investment firms, public interest associations, international governmental organizations, religious groups, labor coalitions, and other social entities. As Smith describes, "the diverse membership of CERES promotes community interests and public accountability in a more inclusive way than can chambers of commerce or industry associations which are biased toward industry" (1993, p. 312). Involvement with CERES has taught environmental and social groups more about industry constraints and positions, while helping corporations to better understand the opportunities for environmental and social improvement. It provides a forum to exchange ideas, address conflict, and share lessons learned. Rather than addressing differences in the media or through legal means, stakeholders are able to discuss them in person, in the "spirit of mutual respect and consensus building" offered by the CERES coalition structure. Many CERES members believe this "trust-based approach to conflict resolution" to be one of the most valuable elements of the initiative (CERES home page, About CERES: FAQ, par 14). As J. Robert Banks, Vice President, HES, Communications, & Public Policy for Sunoco describes, companies have limited resources and are not always able to establish a dialogue with so many different stakeholders. By participating in CERES, companies are provided with a single point of access to these diverse constituents and able to get a broad perspective. Due to this, the review of annual reports performed by the CERES coalition for its member companies is a very valuable process (Banks, 1999a).

In terms of involving and benefiting communities and other external stakeholders, all of the voluntary codes, with the notable exception of ISO 14001, encourage adopting firms to be open to public concerns or seek outside dialogue. For instance, the CMA initiative includes a Code of Management Practices specifically for

Community Awareness and Emergency Response. There is a requirement for an outreach program, continuing dialogue with local citizens, and regular evaluation of the effectiveness of community outreach and communication efforts. The Responsible Care® Guiding Principles address a fairly diverse group of stakeholder, including employees, customers, carriers, suppliers, distributors, contractors, and local citizens of surrounding communities. A noteworthy accomplishment of the CMA is the establishment of a Public Advisory Panel for the program, which consists of fifteen individuals (outside of the chemical industry) from various areas of environmental, health and safety. The Panel meets four to five times a year and provides feedback to the CMA. The ICC Charter includes a requirement for adopting firms to “foster openness and dialogue with employees and the public” (ICC Business Charter for Sustainable Development). Although this principle is vague, it at least is more proactive than the reactive stance taken by ISO, which only calls on firms to document and respond to communication from outside groups. In addition, the ISO requirement pertains only to “relevant” communication, so it is left up to the organization to determine the inquiries that are considered to be of relevance.

Annual Report and Public Disclosure

The CERES commitment to conduct an annual self-assessment and develop a report for public disclosure exceeds the requirements in all three of the other voluntary codes. None of the others mandate public disclosure of environmental performance data, although they all contain non-specific requirements for periodic assessment and reporting. The extent to which the four voluntary codes meet the optimum

characteristics for annual reporting and public disclosure are outlined in Table 4 and described in the following sections.

TABLE 4. Analysis of the Annual Report and Public Disclosure

Voluntary Code	Annual Report	Public Disclosure
CERES ICC Charter ISO 14001 Responsible Care®	Good to Superior Poor to Fair Fair Fair	Good to Superior Poor Poor to Fair Poor to Fair

CERES endorsers commit to conducting an annual self-assessment and disclosing the results in an annual environmental report. The CERES report is a consistent, standardized method for reporting environmental practices and performance. The quality of the CERES report has been recognized by institutions such as the United Nations Environment Programme and the consulting firm SustainAbility Ltd. (CERES home page, About CERES: Environmental Reporting). For instance, in a 1997 UNEP/SustainAbility international survey of corporate environmental reports, half of the top ten ranked reports, including the top two, belonged to CERES companies (White & Zinkl, 1998, p. 1). CERES' comprehensive and balanced reporting structure encourages companies to report not only the positive news, but also their overall performance and efforts to address deficiencies. Where companies do not have a particular system or program in place (e.g., Supplier Relationships), they are asked to describe why and to note any plans or current efforts for implementation.

Although it is important for corporations to set goals and measure improvement, the most powerful and beneficial aspect of the CERES report, combined with its

standardization of certain performance measures, is the fact that it is made public. For some voluntary initiatives, companies can participate and leverage this to improve community relations and increase media coverage in efforts to be branded *green*.

Although this may potentially open these companies up to increased public scrutiny, the general public is not provided with the information base needed to lead to greater corporate accountability. With CERES endorsement comes a commitment to publish annual reports disclosing environmental practices and performance data, empowering the public with both the ammunition (qualitative and quantitative figures) and the means (listing of company and CERES contact information) to hold corporations accountable.

Under ISO 14001, certified organizations must make their environmental policy available to the public; however, there is no such requirement for data on environmental performance or impacts. ISO 14001 also requires firms to conduct audits and management reviews, but there is no corresponding requirement to make the findings from these evaluations publicly available. CMA member companies annually evaluate their progress in implementing each code of management practice, but are required to report on their progress only in general terms. In addition, this data is reported only to the CMA⁹ and no individual company information is available to the public (Nash & Ehrenfeld, Environmental Management Systems, par 6). The ICC Charter contains only the vague requirement to "periodically provide appropriate information to the Board of Directors, shareholders, employees, the authorities and the public" (ICC home page, Compliance and Reporting Principle). It is left up to endorsers to interpret the frequency of "periodically" and the types of data that would be considered "appropriate."

⁹ The CMA does compile an annual report on Responsible Care®; however, it includes only aggregate data on the percent of companies categorized by how well they meet each of the six codes.

Communication of Involvement

Communication of involvement is crucial to the effectiveness of the information disclosure aspect and reinforces stakeholders' abilities to hold corporations accountable to their commitment. The emphasis and adequacy of each of the codes in this area is rated in Table 5 and described in the sections that follow.

TABLE 5. Analysis of the Communication of Involvement

Voluntary Code	Communication of Involvement
CERES	Good
ICC Charter	Fair
ISO 14001	Poor to Fair
Responsible Care®	Good

To evaluate how well adoption of these codes is communicated to the general public, I attempted to obtain a listing of member companies for each of the four standards. Both CMA¹⁰ and CERES maintain a listing of member companies on their internet sites. In addition, CERES endorsement is typically – for the larger firms - accompanied by some form of press release or other media coverage. For instance, Bethlehem Steel's endorsement was cited in the Business Ethics journal as one of the five "Best Moves" of 1995 (CERES home page, About CERES:FAQ). Through an initial review of the internet sites and on-line publications for the ICC and for GEMI, I was not able to identify a listing of companies who had adopted the ICC charter. Later

¹⁰ Membership in CMA, which accounts for almost ninety percent of the U.S. chemical manufacturing industry, mandates participation in Responsible Care®.

search results indicated that a list of companies who have adopted the charter can be obtained by contacting the ICC headquarters (ICC home page, Business Charter for Sustainable Development). For ISO 14001, one of the requirements of certification is a public declaration that the management system is being implemented (Krut & Gleckman, 1998, p. 10); however, the effectiveness of this practice in the U.S. is limited. Although the most recent facilities receiving ISO 14001 certification are sometimes published in industry or trade journals, obtaining a comprehensive list of U.S. registered sites is a more complicated task. First, the certification process for ISO 14001 is highly decentralized (Corbett & Kirsch, 1999, p. 1). ISO is involved only in the development and maintenance of the standards and does not play an active role in certification, nor does it maintain a list of those facilities that have been certified. Further, there are a number of global registration bodies approved to accredit registrars. For instance, under the U.S. Registration Accreditation Board (RAB) alone, there are about ten to fifteen accredited registrars. Adding even more complexity, firms in the U.S. may seek to receive registration with an auditor accredited under a registration body from another country. Of those accredited registrars with internet sites, some maintain listings of facilities they have certified, while others do not. Although there is one U.S. organization attempting to compile a database of certified facilities, from experience on a different research project, I have found their listing to be incomplete due to a time lag in getting registrations posted and also since it does not incorporate data from all of the accredited registration bodies.

As established in the Theory section, involvement in pro-active, forward thinking initiatives can enhance environmental protection efforts, demonstrate a leadership role to stakeholders, shape or influence emerging norms or even regulations, and capture market opportunities. Qualitative ratings for each of the codes are outlined in Table 6, based on how progressive their principles and objectives are, and how well they anticipate future trends.

TABLE 6. Analysis of Pro-Active or Forward Thinking Approach

Voluntary Code	Forward Thinking
CERES	Good
ICC Charter	Fair
ISO 14001	Poor to Fair
Responsible Care®	Fair

CERES offers unique value not only through its advances in promoting greater collaboration among diverse stakeholders and making corporate environmental data publicly available, but also due to its cutting-edge efforts in standardizing corporate environmental reports and disclosures. The practice of environmental reporting and disclosure is gaining momentum. At the World-Congress of Accountants in 1997, the IASC announced it was putting reporting of environmental issues on its long-term agenda (American Institute of Certified Public Accountants, 1998). In addition, trends in countries traditionally considered more environmentally progressive than the U.S. indicate a shift to increased emphasis on environmental reporting and public disclosure.

In some countries, it has even become a regulatory requirement. For instance, as of 1996, Danish companies in certain industry sectors must produce annual environmental reports, referred to as Green Accounts, for submittal to the Danish Commerce and Companies Agency. Some of the reporting information is then made public (White & Zinkl, Green Metrics, p. 14).

The Netherlands has also recently introduced an environmental reporting requirement where companies across eight industry sectors must publish a report starting with the 1998 calendar year. Governments in Austria, New Zealand, and Sweden are considering legislation that would require corporate environmental reporting (White & Zinkl, Green Metrics, p. 14). In 1996, the Australian Environmental Protection Authority and the Department of State and Regional Development formed an association to develop a guidance document on "Environmental Performance Evaluation and Reporting for Private and Public Organisations." The Environmental Protection Authority later released a report which prescribed a number of specific environmental disclosures that firms should consider making (Deegan, 1998).

The concept of a public disclosure program has even spread to Indonesia, the Philippines, Mexico and Columbia. For example, to supplement for weaknesses in pollution control due to budget and staff limitations and corruption in the judicial system, Indonesia implemented the Program for Pollution Control, Evaluation and Rating (PROPER), which uses a single index to rate the environmental performance of industrial facilities and then publicly discloses the results. The program was rolled-out by Indonesia's National Pollution Control Agency (BAPEDAL) in 1995 and, although it is too early to predict long-term trends or successes, initial results indicate that the

program has achieved environmental improvements at a very low public cost (Tietenberg & Wheeler, 1998, pp. 15-16).

Both the ICC Charter and Responsible Care® encourage a beyond compliance approach through their performance-based standards. However, neither ICC or CMA have championed pro-active, forward thinking initiatives, such as CERES' early quest to make corporate environmental data publicly available and more recent efforts to develop an international model for standardized performance measures and reports.

ISO 14001 is consistent with, but did not really anticipate, current trends in implementing systems for managing environmental issues as an integral business function. There are many critics of ISO 14001 who believe the standard is a lost opportunity (Krut & Gleckman, 1998). Where the standard merely specifies elements of an environmental management system and reinforces the status quo, it could have focused more on improvements in environmental performance and sustainability, and been used to push the limits and establish a model for environmental management into the next century.

Holistic Framework

The voluntary codes differ in their scope of integral issues addressed. Qualitative ratings as to if and how well these codes incorporate a holistic framework are listed in Table 7 and described in the sections that follow.

TABLE 7. Analysis of Holistic Framework

Voluntary Code	Holistic Framework
CERES	Fair to Good
ICC Charter	Fair
ISO 14001	Poor
Responsible Care®	Fair

CERES has the most comprehensive scope in terms of addressing issues such as sustainability, worker health and safety, and environmental justice. CERES is the strongest of the four codes in promoting sustainability, followed by the ICC charter. Both CERES and the ICC address the sustainable use of resources, which is notably absent from CMA and ISO standards. More specifically, CERES includes a commitment to protecting open spaces and wilderness, preserving biodiversity, making sustainable use of renewable natural resources and conserving non-renewable resources, and making every effort to use safe and sustainable energy sources. The ICC Charter is not as strong as CERES, requiring firms only to take into consideration the efficient use of energy and materials and the sustainable use of renewable resources. Neither CMA nor ISO 14001 require firms to address their impact in terms of sustainability.

Both CMA and CERES address worker health and safety, while ISO and the ICC are more narrowly focused. The Responsible Care® Guiding Principles commit firms to operating their facilities in a manner that protects the health and safety of employees and the community. In addition, one of their six Codes of Management Practices is specifically focused on Employee Health and Safety, and the other five codes also address issues related to worker health and safety. The commitment in the

CERES Principles is not quite as strong or direct, requiring firms to minimize the health and safety risk to employees and the communities, and to reduce or eliminate products and services that cause health or safety hazards. The CERES Report form; however, contains a section that focuses on worker health and safety and also requires firms to disclose performance data such as injury and illness incidence rates.

Although not explicitly stated in the CERES Principles, the associated report tool indirectly covers the topic of environmental justice. In addition, several environmental justice groups (e.g., Alternatives for Community and Environment, Southwest Organizing Project) are coalition members (CERES home page, Participating Organizations). Neither CMA, ISO 14001, or the ICC address environmental justice, overlooking the important issue of how corporate strategies and decisions can affect certain groups, communities, or organizations (Iles, 1996, par 9).

All of the codes have adopted a multi-media approach in terms of process efficiencies, but none of them require adoptees to conduct life-cycle assessments¹¹ of products or services (Nash & Ehrenfeld, Life-Cycle Management, par 2). More importantly, none of the codes directly commit companies to radically transform their products or services for improved sustainability. CERES, the ICC and CMA indirectly refer to product enhancement, mainly in the context of requiring products to be safe in their intended use and not to have undue environmental impact. ISO 14001 does not specifically address improvements or innovations in the sustainability of the particular product or service provided by the organization. As Krut and Gleckman describe, since it is a management standard and not an environmental code of conduct, "it is possible to

¹¹Another standard in the ISO 14000 series addresses life-cycle assessments (LSAs); however, companies adopting the ISO 14001 specifications are not required to conduct LSAs.

meet ISO requirements and still be out of regulatory compliance, snarled in litigation and embroiled in conflicts with environmentalists" (1998, p. 16).

Other Distinctions

There are further distinctions in the scope, application, and implementation of each of these voluntary codes. For instance, the CMA Responsible Care® provides an industry-specific approach, unlike CERES, ISO 14001, and the ICC charter which are broad codes applicable across many different industries. ISO 14001 normally applies to individual facilities or operating units, not across companies as is the case for the other three codes.¹²

Only ISO requires third-party certification in order for firms to be *registered* or *certified* under ISO 14001. However, the number of accredited firms capable of certifying organizations has raised questions regarding consistency (Tibor & Feldman, 1996, p. 188). Also, since firms can choose from numerous accredited registrars to receive ISO 14001 certification, Krut and Gleckman argue that there is strong motivation to select registrars with the lowest standards, or even those who might be most receptive to bribery (1998, p. 60). The other three codes do not require third-party verification that firms have met or are making demonstrable efforts to meet the established principles. For instance, in the case of CERES, companies are not required to have a third-party audit of the practices or results reported in the annual reports. Although some members of both CERES and Responsible Care® have elected to

¹² Although corporate headquarters can mandate that their facilities adopt the ISO 14001 standard, the certification process typically applies to individual facilities or operating units, not an entire company. There are a few instances where certification has been granted for an entire organization, but this is the exception rather than the norm.

undergo third-party verification, it is done only voluntarily at this point in time (Sun CERES Reports; Nash & Ehrenfeld, Environmental Management Systems, par 8).

None of these codes explicitly focus on empowering the employees of the firms, or encouraging a learning organizational environment. CERES does hold an annual conference where diverse participants have the ability to contribute a broad range of perspectives and expertise. In addition, the report tool asks firms to report on how employees are rewarded for environmental performance or encouraged to submit suggestions for improvement. The other codes mention the need to educate employees or to motivate them to conduct activities in an environmentally responsible manner. However, due to the wealth of opportunities available through empowering employees as active participants and change agents in the transition to more environmentally responsible and sustainable activities, more attention could be focused on this crucial aspect of corporate environmental management.

Finally, there are distinctions in the perceived credibility of the four codes. The credibility of the sponsoring organization(s) and particular code may affect the general public's, regulators', and public interest groups' reception of and trust in the initiative, the types of organizations that participate in the initiative, and the potential benefits for endorsing firms. As outlined in the Theory section, communication of involvement in a voluntary code can have benefits for organizational stakeholders (e.g., shareholders, employees, etc.) through improvements in company image. To have an impact on corporate reputation, not only must there be public announcements of the participation and progress, but the voluntary initiative that the organization is involved with must be perceived as credible. We would expect the public to perceive those codes established by groups with no industry ties as more credible than standards developed by industry

or associated organizations. Of these four environmental codes, CERES is the only one developed by a non-industry affiliated group. In addition, CERES believes that relying on a standardized report format will enhance the public's trust in the data being disclosed, and further contribute to the public's positive perception of the endorsing firms (CERES home page, About CERES:FAQ). Due both to their standardized public disclosures and lack of industry ties, we can expect CERES to experience greater credibility than both Responsible Care and the ICC charter. For instance, due to the large degree of mistrust that historically has existed between the chemical industry and the public, the Responsible Care® Program has not experienced great success in changing public attitudes towards the industry (Gunningham, 1998; Nash & Ehrenfeld, 1994, note 4). Since ISO 14001 certification requires third-party verification, we can assume that this initiative will also be perceived with a certain degree of credibility; however, because this is a management standard and not an environmental code of conduct, the real effects remain to be seen.¹³

Impact on Environmental Programs and Practices

To evaluate whether involvement with and endorsement of CERES impacted the environmental programs and practices of its members companies, each firm's strategies, policies, and initiatives were reviewed for the pre- and post-endorsement periods. This assessment included consideration of other voluntary initiatives that the organization is involved with and their anticipated effect, as well as any relevant changes in personnel or organizational structure. These results are highlighted in the following sections and

¹³ The ISO 14001 standard was not published until October 1996, and has only begun to experience more widespread application in the U.S. within the last few years.

summarized in Table 8. Based on the impact of CERES on the firm's environmental management program, a qualitative rating ranging from *negligible*, *small*, *medium*, to *large* was assigned, as listed in Table 8. This evaluation excluded the benefits of annually preparing and disclosing environmental data, an aspect of CERES that is extremely valuable for numerous stakeholders. Since this is a common benefit that has been a direct result of involvement with and endorsement of CERES for all firms (perhaps with the exception of Polaroid who has been preparing an environmental report since the late 1980s), more attention has been focused on analysis of less obvious effects.

TABLE 8. Analysis of the Impact of CERES Involvement on Environmental Policies and Practices

Organization	Date of Endorsement	Major Post-Endorsement Initiatives	CERES Impact
Arizona Public Service Company	Aug. 1, 1994	Improved environmental performance measures Established EHS Policy Hired a Vice President of EHS Created executive level EHS committee	Small to Medium
Aveda Corporation	Nov. 22, 1989	Developed Ecological Mission Statement Established Purchasing Policy and Guidelines Developed Packaging Mission and Strategy Instituted environmental performance measures	Small
Ben & Jerry's Homemade Inc.	May 19, 1992	Adopted CERES as their environmental goals Hired a Natural Resource Manager Improved environmental performance measures Formalized a materials policy Improved supplier screening program	Small to Medium
Bethlehem Steel Corporation	Sept. 22, 1995	None identified	Negligible
General Motors Corporation	Feb. 3, 1994	Adopted Environmental Principles Increased awareness of the value of building external relationships Formed Supplier Environmental Advisory Team	Small
Green Mountain Power Corporation	Nov. 1996	Appointed a corporate level officer with environmental responsibilities Established environmental policy and standard Incorporated employee recognition for environmental areas into benefits program Identified deficiencies in supplier relationships and product stewardship programs Established Green Team	Medium
H.B. Fuller Company	Sept. 17, 1993	Issued WEHS Principles Instituted performance measurements for water usage, discharges and costs Expanded collection of release data worldwide	Small
Polaroid	Aug. 1, 1994	Developed a Product Stewardship Policy Reinforced environmental priorities with CEO	Small
Sunoco Inc.	Feb. 5, 1993	Built relationships with external stakeholders Developed HES performance standards and best practices Improved performance measures Established Community Advisory Panels Developed HES/CERES Pledge for service station dealers	Medium to Large
Timberland Company	April 15, 1993	Implemented an EHS management system	Negligible to Small

Arizona Public Service Company

Arizona Public Service Company (APS), a subsidiary of Pinnacle West Capital Corporation, is the largest electric power supplier in Arizona. APS operates and is a co-owner of the Palo Verde Nuclear Generating Station, and also operates two coal-fired, five gas/oil, one solar, and two hydroelectric power plants. They are also co-owner of another coal-fired generating station. As utility deregulation nears, the organization believes that "exceptional EHS performance will enable APS to distinguish itself from the competition"(APS 1996 Environmental, Health, and Safety Annual Report, p. 3). APS became the first electric utility to join CERES when it endorsed the principles in July 1994.

Since endorsement of the CERES principles, APS has made significant improvements in its environmental programs, policies, and management systems. In 1995 alone, APS completed a number of noteworthy tasks. First, the Environmental, Health and Safety Policy was published, which outlines the company's philosophies regarding EHS management and their commitment to the CERES Principles. In addition, the company reviewed their existing training programs and identified areas needing emphasis or improvement. During 1995, employees completed 41,025 training sessions on over 65 EHS-related topics. In October of that year, just over a year after the company endorsed the CERES Principles, Mr. Edward Fox, the former Director of the Arizona Department of Environmental Quality, joined APS as the new Vice President of Environmental, Health, Safety and New Technology Ventures.

The Environmental, Health, and Safety Management Plan, completed in 1996 to replace the Environmental Compliance Plan, provides the framework for EHS

performance and establishes EHS responsibilities for officers, leaders, and frontline employees (APS 1996 Environmental, Health, and Safety Annual Report, p. 4). This plan also created the Environmental Advisory Team, which provides cross-functional strategic guidance on company environmental issues. In 1997, an ad hoc EHS executive committee was created and headed by Edward Fox, the new Vice President of Environmental, Health, Safety and New Technology Ventures (APS 1997 Environmental, Health, and Safety Annual Report, p. 3).

Their initial CERES report, for the year ending 1995, was the first time the company prepared an annual environmental report disclosing their performance and progress towards goals. In addition, before CERES endorsement, the only company-wide environmental indicator that APS measured and reported was the public's perception of their environmental leadership. They have since re-organized and shifted their focus to measuring and reporting actual performance across the company. Although business units had established targets for areas such as waste reduction, the first consistent, company-wide environmental goals were established in 1996. Examples of corporate targets for 1997 included a reduction of 10% for reportable environmental incidents, zero complaints or Notices of Violations that result in fines, and 100% participation in the EHS facility self-assessment program, among others. For instance, in their 1997 CERES report, APS reported and tracked their progress in terms of pounds of recycled materials, pounds of air emissions normalized per megawatt hours produced for carbon dioxide, sulfur oxides, nitrogen oxides, and PM-10, tons of hazardous waste generated, the number and volume of oil and chemical spills, and the notices of violation resulting in fines and penalties.

Aveda Corporation

Aveda Corporation creates lifestyle products from plants and flowers, organically grown whenever possible, and also provides wellness services. The organization manufactures and sells hair and skin care products, household cleaners, "purefumes" and essential oil products, and color cosmetics. They also operate the Aveda institute and spas.

Aveda endorsed the CERES Principles on November 22, 1989. Since that time, they have developed a number of formal environmental policy statements. For instance, the Ecological Mission Statement was issued in October 1991, followed by Purchasing Policy and Guidelines in November of the same year, and a Packaging Mission and Strategy in 1992. No quantitative environmental data is available for years prior to 1991. In 1991, however, the organization established targets and began tracking their performance for greenhouse gas emissions, usage of TRI chemicals (even though they're below the reporting threshold), electricity and fuel consumption, and materials reductions (1991, 1992, & 1994 CERES Reports).

After endorsement of the CERES Principles, Aveda developed its first ever annual environmental report covering the year 1991. They submitted reports for both 1991 and 1992, but were unable to meet their commitment for 1993 due to a change in ecological affairs personnel (1994 CERES Report, Executive Summary, p. 2). Although they prepared a report in 1994 stating that they were back on track with CERES reporting, they have not submitted an annual environmental report for 1995, 1996, or 1997.

Although Aveda is a company that makes genuine efforts to reduce their environmental impact, both in terms of the products they sell as well as their manufacturing processes, due to limited organizational resources, they have not maintained a consistent commitment to CERES. To date, CERES has not been able to rejuvenate this relationship.

Ben & Jerry's Homemade, Inc.

Ben & Jerry's Homemade, Inc. manufactures and markets premium ice cream, frozen yogurt, ice cream novelties, and sorbet. The corporation operates four manufacturing plants, three of which are wholly-owned and located in Vermont and one in Israel which manufactures under the Ben & Jerry's license. One of the Vermont plants, located in St. Albans, is a new facility that became operational in 1995.

Ben & Jerry's mission consists of three interrelated parts: product, economic and social. To measure their success in upholding their mission and strategic objectives, Ben & Jerry's has published Social Performance Reports, always prepared by an outside individual or group, since 1988 (1995 Social Performance Report). However, in order to provide a more comprehensive foundation for their environmental programs and a framework for improving external communication on environmental progress and impacts, the corporation endorsed the CERES principles on May 19, 1992.

When the CERES Principle were adopted in 1992, they were Ben & Jerry's only formal environmental policy. Since adoption of the principles, the environmental program has matured and improved significantly through development and implementation of a number of core elements. However, Ben & Jerry's still relies on the CERES principles as their environmental goals. In addition to the impact from upholding

their commitment to CERES, much of the maturation and improvement of their environmental program is due to the hire of a Natural Resource Manager, which occurred shortly after signing onto CERES. According to the Natural Resource Manager, the CERES commitment has been the underlying, guiding force for their environmental program. The biggest impact has been the requirement to complete an annual report, which is not only a valuable tool for them internally, but also a tremendous educational tool for people inquiring about their environmental program (Asch, 1999).

Prior to adoption of the CERES principles and the hire of the Natural Resource Manager, Ben & Jerry's was very active in communities and in supporting environmental causes, but did not have a system in place to establish targets for environmental performance and measure their progress towards achieving those strategic objectives. For instance, 1993 was the first year the company tracked and reported airborne emissions. In 1994, they began using a single unit of measurement to normalize the data, enabling them to meaningfully compare their annual results to baseline data. As they describe in their 1996 CERES report, "The development of this measurement tool has helped the company view trends and set reduction goals for solid waste and dairy by-product. Essentially, this data has helped Ben & Jerry's work toward more efficient production that will result in lower costs and less environmental impact"(1996 CERES Report, p. 4).

Their CERES commitment has been instrumental in improving their environmental programs in a number of ways. For instance, it helped Ben & Jerry's formalize a materials policy. In 1994, they created a list of approved environmentally-friendly cleaning and offices supplies, which is updated regularly. Their involvement with CERES has also had a moderate to significant impact on the development of environmental responsibilities in their Contractor's Handbook, the implementation of a

pre-certification survey and self-assessment survey for suppliers of goods and services, and the more recent initiation of increased environmental screening in their vendor certification program (Asch, 1999).

Bethlehem Steel Corporation

Bethlehem Steel is the second largest steel producer in the U.S., with an annual raw steel production capacity of 10.5 million tons. Their facilities are located in the U.S., except for partial interests in iron ore operations in Canada and Brazil. Bethlehem Steel's vision is to be the premier steel company, and it believes that endorsement of the CERES Principles is consistent with that vision (1995 CERES Report, p. 1). They endorsed the principles on September 22, 1995, becoming the first and so far the only steelmaker to do so.

Bethlehem Steel has had a formal environmental program since 1946. Their environmental policies date back to the 1970s and 1980s. More recently, a document entitled Guidance for the Implementation of Bethlehem's Environmental Policy and Procedure was issued in 1993 and revised in 1995. Their Comprehensive Safety, Health and Environmental Plan, issued in March 1994, announced the formation of an executive level Council on Safety, Health, and Environment, to be chaired by the senior vice president and chief administrative officer and composed of eight corporate officers, one member of the board of directors, and the presidents of all business sectors. A new Safety, Health, and Environment Department was created and placed under the direction of a corporate officer at the vice president level. The Environmental Policy was revised and re-issued in November 21, 1997 to reflect Bethlehem's relationship with CERES, as well as other changes.

Bethlehem published its first annual environmental progress report in August 1996, followed by its first CERES report in December of the same year. Prior to the 1995 CERES Report, the company did not normalize its TRI data in terms of units of production. Currently, they have no plans to routinely normalize the applicable environmental performance by production units, unless specifically request by a external group. Bethlehem Steel's environmental performance is evaluated quantitatively in the final section of this chapter.

Based on the data contained in their CERES reports, so far their endorsement has had little to no impact on their environmental programs and practices, with the exception of the annual reporting and disclosure aspect.

General Motors, Inc.

General Motors is the world's largest full-line vehicle manufacturer. Their vision includes being the world leader in transportation products and services. According to CEO and President, Jack Smith, they recognize that in order to realize this vision they must operate in a manner that is compatible with society's goals, specifically for environmental protection. He believes that achieving the nation's economic goals in an environmentally-sustainable manner will require a collaborative approach with many stakeholders. He describes their CERES agreement as a, "notable accomplishment for identifying common ground and establishing a cooperative dialogue with important stakeholders that is necessary to build a sustainable and prosperous future" (1994 Environmental Report, p. 1).

After three years of proxy filings requesting GM to adopt the CERES Principles, a dialogue process between CERES and the organization began in February 1993. After a

year of discussions, GM and CERES mutually endorsed one another's environmental principles as consistent and complementary in February 1994 (Kreis, 1999). Their Vice President of Environmental and Energy Staff points out that their endorsement of the CERES Principles not only publicly reaffirms their environmental commitment, but also affirms their pledge to be publicly accountable for their environmental performance (1994 Environmental Report, p. 1). When speaking with ECO magazine in 1994, he stated, "I can't prove it, but my guess is a lot of people make vehicle-buying decisions on the basis of safety and environmental considerations. We must be responsive to that" (Muson, 1994, p. 22).

Since GM began receiving pressure to endorse the CERES Principles as far back as 1990, it is difficult to determine what improvements in their environmental programs and practices occurred through efforts to avoid or address shareholder resolutions, and which were the result of pro-active planning and implementation that would have occurred regardless of any proxy filings. For instance, after pressure from CERES and shortly before endorsement of the CERES Principles, GM had already developed a new corporate environmental, health, and safety policy, and expended considerable effort in rolling the strategy out to employees (van Buren, 1994, Shareholders Take Action, par 4). In addition, although GM's audit program dates back to the early 1970s for North American operations, their Corporate Environmental Policy, typically a cornerstone of most environmental programs, was not developed until 1991 (1994 Environmental Report, p. 7), after the first proxy filing. Although GM was asked to respond to questions regarding the impact, if any, of CERES on their programs and practices, it appears that, like most organizations, they prefer to be regarded as a pro-active environmental leader who implemented these practices on their own initiative rather than due to external

influences. In a practical sense, of primary importance is the fact that improvements have occurred. However, the complexity of this situation creates difficulties in conducting an analysis such as this.

Written correspondence from GM's CERES representative, Erin Kreis, indicated their belief that the discussions and working relationship with CERES not only provide benefits due to the diversity of organizations involved, but are also instrumental in "increasing the general level of awareness regarding the many positive actions GM has taken to protect the environment." Kreis states that, "Environmental issues are so complex that it is essential to build relationships with key stakeholders to make improvements rather than fighting one another." Reflecting their increased awareness of the advantages of building relationships, GM has joined a number of other voluntary efforts since their commitment to CERES. For instance, GM joined the EPA Waste Wi\$e Program in 1994, the EPA Green Lights Program in 1995, the World Business Council for Sustainable Development in 1996, and the EPA Energy Star Program in 1997 (Kreis, 1999).

The GM Supplier Environmental Advisory Team was formed in 1997. The team is composed of representatives from suppliers on GM's Supplier Council and GM employees from Supplier Development, Advanced Purchasing, Worldwide Facilities Group, Audit Services, and the Public Policy Center. Its three main objectives are to: "improve mutual understanding of current environmental programs and initiatives, improve the effectiveness of existing GM initiatives, and develop and evaluate new ideas that mutually promote eco-efficiency." (1997 Environmental, Health, and Safety Report, p. 25). According to Kreis (1999), their involvement with CERES *moderately* affected the formation of their Supplier Environmental Advisory Team, based on a five-tiered

rating scale ranging from Not At All, Very Little, Moderately, Significantly to Very Highly.

Using the same rating system, Kreis (1999) also indicated that CERES had *very little* to do with the development of their Environmental Performance Criteria in 1996. These criteria are intended to assist business units in managing EHS risks and “improving the quality of life” where regulatory programs do not clearly address these goals (1997 Environmental, Health, and Safety Report, p. 9).

Green Mountain Power Corporation

Green Mountain Power (GMP) Corporation is an investor-owned, Vermont-based electric utility that owns and operates eleven generating facilities, including one wind plant, eight hydroelectric plants (two of which have associated fossil fuel generation), and two fossil fuel plants. They also have nine service centers located throughout their territory in Vermont. In 1997, GMP decided to sell the energy marketing company, and also sold its propane gas business in early 1998. As of October 1998, the sole remaining subsidiary was Mountain Energy, Inc. The company was undergoing significant restructuring, divestitures, and downsizing at the time of writing, so additional changes to company operations may have occurred since that time.

In view of the upcoming deregulation of their industry and a competitive market, GMP had to evaluate their selling points. They decided that being a strong environmental advocate was an opportunity, not only due to their geographical location in Vermont where there is almost an expectation for a company to be more environmentally sensitive, but also because they believe it is good for the business (Huelsberg, 1999). Since they are a small company, GMP had not developed environmental policies and reporting with the

level of sophistication of many larger organizations, but believes participation in CERES will increase their ability to do so (1996 CERES Report, p. 30). Their affiliation with CERES has already been beneficial in terms of establishing more pronounced management commitment and oversight, improving their environmental programs and strategies, and driving efforts to increase employee involvement.

The organization realized the need to have a corporate level officer with environmental responsibilities, not only to demonstrate management commitment both internally and externally, but also to help ensure that top level officers are aware of and consider environmental issues as part of business decisions. In 1997, the Company delegated oversight responsibility for environmental programs to the Senior Vice President of Corporate Development, who reports directly to the CEO.

Prior to CERES endorsement, when Green Mountain Power adopted the CERES Principles as its "guiding environmental policy" (1997 CERES Report, p. 4), there was no formally approved or implemented policy document. Their involvement with CERES forced the company to finalize an environmental policy that was actually developed years ago (Huelsberg, 1999). Their principles, which essentially duplicate the ten-point CERES Principles in substance while establishing company-specific principles to guide GMP business activities, were issued by the CEO on December 12, 1997. The CEO then requested the Manager of Environmental Programs to develop a CERES-based environmental standard to help improve environmental performance (1997 CERES Report, p. 6).

In addition to improving the organization's environmental management system, participation in CERES has also led to significant improvements in beyond compliance programs. For instance, it made them more aware of the need to recognize the

outstanding environmental performance of operating units. During 1997, the Company began to investigate ways to incorporate employee recognition into its benefits program, and the procedures were initiated in the spring of 1998 (1997 CERES Report, p. 8). In addition, as a result of the CERES assessment process, the company recognized significant opportunities for improvement in both the supplier relationships and product stewardship components of their business (1997 CERES Report, p. 29). In 1998, a Green Team was established. The Green Team, composed of ten to twelve volunteers, reviewed the CERES Principles to try and brainstorm ways to: 1) get more people involved in the environmental program, 2) make environmental value more visible, and 3) get people to recognize and appreciate the ways in which they were already a "green" company (Huelsberg, 1999). In terms of establishing goals and measuring progress, prior to endorsement they did not normalize environmental data by production units; however, they anticipate adding this aspect of data analysis for their 1998 Report (1997 CERES Report).

Overall, one of the most valuable impacts of CERES is that it has forced them to examine their operations according to the CERES ten point code of conduct and the ten areas of reporting, helping to identify any significant deficiencies and the opportunities for improvement (Huelsberg, 1999).

H.B. Fuller Company

H.B. Fuller is a specialty chemical manufacturer, with their largest business in adhesives, sealant, and coatings, although they also produce paints, sanitation chemicals, and specialty waxes. They are located in the U.S. and in over thirty countries around the world. H.B. Fuller endorsed the CERES Principles on September 13, 1993.

Due to their positive environmental reputation, H.B. Fuller was one of the companies that CERES approached in efforts to obtain support for their principles. Prior to CERES endorsement, the organization already had a mature environmental program that included elements such as 1) a Worldwide Environment, Health, and Safety (WEHS) Committee, 2) a Vice President of EHS who reports to the CEO, 3) a WEHS Policy supported by thirty-seven standards and criteria, 4) an auditing and assessment program, and 5) employee training programs on "beyond compliance" topics (e.g., EcoTeams address waste reduction, water and energy efficiency, consumer awareness, etc.). In terms of their product line, H.B. Fuller is moving away from solvent-based products towards solids and other technologies with less environmental, health, and safety impacts (1993 CERES Report, p. 4).

Even for an environmentally-progressive organization such as H.B. Fuller, participation in CERES has still had an impact on their environmental programs and practices. When the company endorsed CERES, they issued a set of WEHS Principles, which represent an adaption of the CERES Principles to their business, to reflect this commitment (1993 CERES Report, p. 6). In 1994, they began to monitor water usage, discharges, and costs to gather baseline data. Since 1995, H.B. Fuller has gathered release data, similar to the U.S. EPA Toxic Release Inventory, from their facilities worldwide. Like almost all other endorsers; however, the most notable impact of their CERES commitment has been the development and public disclosure of annual reports detailing their environmental practices and performance.

Two areas that do not reflect a significant improvement since CERES endorsement are Supplier Relationships and Product Stewardship. For instance, although

their organization addresses many of the elements highlighted in the CERES Report under Supplier Relationships, they still do not have a formal policy in place.

Polaroid

Of all the CERES endorsers, Polaroid is the only one that had already been developing a comprehensive, stand-alone annual environmental report prior to involvement with CERES. Their first environmental report was published in 1988. Due to their proactive environmental practices, Polaroid (like H.B. Fuller) was one of the companies that CERES approached in initial efforts to gain support for their initiative.

Although the organization was already reporting on many of the issues in the CERES report, since endorsement of the principles in 1994 Polaroid expanded and improved on the data being disclosed (Hawes, 1999). In addition, their report is now provided in a format consistent with other CERES endorsers, and will eventually be in a format that is standard for all firms worldwide who use the system being developed through the GRI initiative. In an evaluation of one hundred corporate environmental reports conducted at the request of UNEP, SustainAbility awarded Polaroid's 1995 CERES report a top-10 ranking.

Polaroid believes that the annual self-audit and reporting process provides a good report card of their performance. Their Corporate Environmental Manager feels that the questions in the report serve as a good indicator or metric for their progress. For instance, if there are questions that they have said, "no, they are not doing that" for several years, it serves as a trigger for them to re-evaluate why and to change that position if warranted (Hawes, 1999). One example is their Product Stewardship Policy, developed in 1997, that will be included in their 1998 report.

Polaroid's Corporate Environmental Manager indicates that one of the biggest benefits of their CERES commitment is a motivation to keep beyond compliance programs up and running, even in the face of challenging business times. In spite of the downsizing and budget cuts needed to remain competitive in today's market, there is still a commitment to "spend money on things near and dear to us" (Hawes, 1999).

Their involvement in CERES has also led to opportunities for their highest executive officer to learn more about the details of the organization's environmental programs and practices. Polaroid was a co-sponsor of the annual CERES meeting held in the spring of 1998. To demonstrate their management commitment and leadership to the initiative, their CEO – who had joined the organization in 1995 after Polaroid had already endorsed the CERES Principles – agreed to give a speech. This provided an opportunity for him to learn more about CERES and how Polaroid was upholding their commitment (Hawes, 1999). This experience was valuable not only in demonstrating top level management commitment to the environment both internally and externally, but also in terms of educating the CEO on the details of one more of the many business areas that he has indirect responsibility for. By increasing his awareness and knowledge of these sorts of considerations, hopefully they will play more prominently in his mind when making strategic and tactical decisions in the future.

Sunoco, Inc.¹⁴

Sunoco, Inc. operates five domestic refineries, manufacturing a broad range of petroleum products, and produces metallurgical grade coke for use in the steel industry.

¹⁴ In November 1998, the Sun Company, Inc. changed their name to Sunoco, Inc. (Sunoco home page, What's New). Citations of historical documents reference the company's former name.

The organization also markets Sunoco® gasoline, sells lubricants and petrochemicals, and operates domestic pipelines and terminals.

Sunoco's involvement with CERES began through several shareholder resolutions and resulted in a nine month negotiation process (Banks, 1999a). As a result of input from Sunoco, other endorsers, and prospective endorsers, CERES changed the name from the Valdez Principles to the CERES Principles, to avoid the negative connotation associated with the Exxon Valdez oil spill. In addition, during the negotiation process, CERES assured Sunoco that the language of the principles was not intended to pressure the company out of the fossil fuel business. In February 1993, the organization endorsed the CERES Principles and also issued their own Principles of HES, which are an adaptation of CERES Principles to their business. CERES collaborated in the development of Sunoco's HES Principles and formally acknowledged that they are consistent with the CERES Principles (Banks, 1999a; 1997 HES Review and CERES Report, p. 40).

According to an interview with their Vice President for HES, Communications, & Public Policy, J. Robert Banks, there are four primary reasons Sunoco decided to endorse the principles. First, they support the idea of advancing their EHS performance at a faster rate and believe CERES endorsement puts them on a "path of performing at a higher rate faster." Sunoco also believes that the CERES reporting system and review process is cutting-edge, anticipating future norms or regulatory standards. Third, building on CERES' collaborative approach, they want to capitalize on the opportunity to establish constructive dialogue externally, since their previous discussions had been internally-focused. Finally, Sunoco believes that their CERES commitment will lead to a competitive advantage, not necessarily in the marketplace, but due to the fact that

companies who perform excellently in EHS will derive a business advantage from improved operations and financial performance, since these are inextricably linked with HES performance (Banks, 1999a).

Sunoco's CERES commitment has had a positive impact on their relationship with external stakeholders, environmental reporting and disclosure practices, performance measurement systems, guiding environmental policies and strategies, and "beyond compliance" programs. For instance, one of the most important benefits of their relationship with CERES has been the "ongoing dialogue with CERES board members and other interested external stakeholders" (1993 HES Review and CERES Report, p.1).

Sunoco released its first ever publicly available environmental report during the negotiation process, before the CERES partnership was established. However, Banks acknowledged that the CERES report is more thorough and balanced, and places greater emphasis on communicating not only the positive news, but the overall performance data and progress towards goals (1999a). In fact, their 1997 HES Review and CERES Report was ranked seventh among one hundred reports from international companies reviewed by SustainAbility Ltd., and the United Nations Environment Programme (1997 HES Review and CERES Report, p. 2). Banks believes that CERES is at the cutting-edge in terms of corporate reporting. He thinks that more comprehensive environmental disclosure is going to be required by law, and wants to position Sunoco as part of the groundbreaking effort. In their current report for 1998, they are experimenting with some triple bottom line indicators (environmental, social, financial) being developed and promoted through the GRI Initiative (1999a).

Prior to involvement with CERES, Sunoco measured their environmental performance using three primary indicators: oil spills, toxic emissions, and permit

exceedances. Their current environmental performance measurement system uses the following company-wide indicators, in addition to those used previously: refinery energy consumption, energy use by source, total and routine refinery hazardous waste, greenhouse gas emissions, and ozone-depleting chemicals usage. Through encouragement from CERES, Sunoco has begun to normalize environmental data, where appropriate, to enhance the value of the measurement process. In the 1995 report, energy consumption data was normalized, while the number of workers compensation claims, OSHA Incident Rates, SARA releases and transfers, and major refinery fire losses were added in 1996 and 1997 (1997 HES Review and CERES Report, p. 8).

Based on a content analysis of their annual HES Review and CERES Reports from the time of endorsement through the most recent report issued for 1997, a number of additional key changes in Sunoco's environmental programs and practices were identified. To better define the potential effects of CERES on Sunoco's environmental programs, practices and performance, the Vice President for HES was asked to rate the value and impact of their CERES commitment, using a scale ranging from: *Not at All*, *Very Little*, *Moderately*, *Significantly*, to *Very Highly*. Without hesitation, he responded that CERES has *Very Highly* impacted both their overall environmental programs and their environmental performance. In terms of more specific aspects of Sunoco's environmental management, Banks (1999a) noted that the value and impact of their CERES commitment has been *Significant* for three important improvements: 1) development of HES Performance Standards, 2) establishment of Community Advisory Panels, and 3) initiation of the Service Station Pledge. Of course not all advances can be attributed to their involvement CERES commitment, including the development of a Carrier Safety Review Program (*Very Little*), the conduct of the first company-wide

emergency drill (*Not at All*), and enhancements to the HES Audit & Assessment Program (*Not at All*). Each of those improvements where involvement with CERES played a significant role is described in more detail in the following sections.

Before involvement with CERES, Sunoco's environmental program was based primarily on their first environmental policy, released in 1983, and two additional policies that were adopted in 1990. Since affirming their CERES commitment, Sunoco has made notable improvements in this area. During 1993, Sunoco developed new HES performance standards. They met with CERES, regulatory and labor representatives to review the draft standards, which were then revised, finalized and implemented in 1995 (1994 HES Review and CERES Report, p. 5). These standards were streamlined and re-issued as performance-based HES best practices in 1997, with implementation plans for 1998 (1997 HES Review and CERES Report, p. 7).

Sunoco has made notable progress in other beyond compliance programs. They established Community Advisory Panels (CAPs) at four of their refineries (Banks, 1999b; 1997 HES Review and CERES Report, p. 20). With input from some of the CERES board members, Sunoco developed a voluntary HES/CERES pledge for service station dealers, to assure best practices, emergency preparedness and compliance. Sunoco plans to assess conformance twice a year (1996 HES Review and CERES Report, p. 6).

One important area in which they have not demonstrated improvement since commitment to CERES is establishing a program to maximize the use of renewable energy resources. Currently there are no active renewable energy projects at Sunoco (1997 HES Review and CERES Report, p. 29).

The Timberland Company

The Timberland Company manufactures and markets footwear, and markets apparel and accessories. Their Tennessee and North Carolina manufacturing facilities were closed in 1995, leaving Puerto Rico as the only U.S. production site.

During 1996, Timberland focused on developing a comprehensive EHS management system, designed to be consistent with ISO 14001 in the event that they decide to pursue certification. They believe that this system will “provide effective leadership and make measurable continual progress towards its commitment to the CERES Principles” (1995 CERES Report, p. 1). Since resources were directed towards this effort, their data collection and analysis for the CERES Report was not expanded for this year and only includes the information that was previously being collected.

Prior to CERES endorsement, Timberland did not prepare or publicly disclose an annual environmental report. Like the other endorsers, this is one of the most obvious, yet still significant, improvements. Due to the fact that only three years of data are available on Timberland, and one of those years their efforts focused on developing an environmental management system, other effects of CERES – if any – are difficult to determine at this point in time.

Impact on Performance

As outlined in the Methodology section, a regression analysis was conducted with the independent variable, CERES endorsement, and the three regressor variables: normalized TRI releases for Sun, Amoco, and Shell. The objective of the analysis was to determine whether the adjusted TRI releases for Sunoco significantly decreased during

the post-endorsement period. The regression analysis was conducted using a linear econometric model for the panel data set, which consisted of time series observations for each cross-sectional unit (SAS Inc., 1993, p. 871). Using TRI releases adjusted by production units (to obtain pounds of releases per unit of production) controlled for variations in firm size. Restricting the release and normalization data to petroleum refining (SIC 2911) controlled for divergence of company operations. Since all three firms participated in the voluntary EPA 33/50 Program, this variable did not need to be included in the regression equation. Preliminary results indicate that CERES endorsement may in fact lead to measurable improvements in environmental performance for certain firms. This finding is based on a marginally significant result ($P < 0.10$) obtained from the regression analysis of the adjusted TRI releases for the three firms, with CERES endorsement tested as an explanatory variable for performance. Due to the limited numbers of years of data (from the initiation of the TRI reporting requirements in 1987 through the latest publicly available TRI data for 1996) and the fact that this is based on experience from endorsement of only one firm, it is obvious that additional study is needed to provide more conclusive evidence. However, these initial results show a potentially significant shift in the right direction (i.e., a negative parameter estimate for CERES endorsement, meaning a decrease in release values).

Based on the SAS TSCSREG Procedure and Parks Method Estimation, a statistically significant value ($P = 0.08$) was obtained for the independent variable of CERES endorsement when comparing reportable releases to the environment for Sunoco, Amoco, and Shell. In terms of the variance component, an r^2 value of 0.77 was obtained, which means that over 75% of the variation in the toxic release values is explained by the regression model. This value also indicates a fairly high degree of variation among the

releases, explained by changes in toxic releases over time between the three firms. Table 9 outlines the parameter estimates, standard errors, and significance levels for each of the variables in the regression.

TABLE 9. Regression Results

Variable	Parameter Estimate	Standard Error	Significance Level
CERES Endorsement	-21680	11956	$P < 0.10$
Sun	32026	7954	$P < 0.01$
Amoco	21441	3811	$P < 0.01$
Shell	63139	31811	$P < 0.10$

CHAPTER VI

DISCUSSION

Bearing in mind that the initial mission of CERES was to establish dialogue between diverse stakeholders and to promote corporate environmental accountability through public disclosure of environmental programs and performance, the findings from this study indicate that their efforts have led to significant improvements in both of these areas. Of course, this is not to imply that the hard work and advances of other public interest groups and voluntary initiatives have not also played an important role, but as one source describes, "the changing landscape of corporate environmentalism bears CERES's mark" (Hoffman, 1996, CERES's Characteristics, par 4). CERES has also led to improvements in environmental management programs and practices for endorsing members and provided indirect benefits for various stakeholders, but has had little to no observable impact in facilitating enhancements in the sustainability of corporate products and services.

When it was formed at the end of the 1980s, one of the biggest obstacles that CERES faced was surmounting the traditional adversarial relationship between environmentalists and corporate America. Over the last ten years, CERES has been successful not only in getting different environmental groups to work side by side in this effort, but also in bringing together environmental, labor and other public interest groups

with business organizations in a more collaborative relationship. Some critics make the claim that many environmentalists have been co-opted by their more recent collaborative relationship with industry. For instance, Mark Dowie refers to this cooperative approach as a “relatively fruitless and hopefully brief attempt to find a harmonious (“win-win”) conciliation between conservative environmentalists and corporate polluters” (1995, p. 8). The foundation of CERES - the initial outreach of investment professionals to environmental advocates - was based on the premise that environmental responsibility makes good business sense. Since that assumption by CERES founders back in 1988, the link between these parameters has been established in numerous academic studies and demonstrated through companies’ win-win experiences. In addition, although there are numerous instances of attempted green washing by industry groups, CERES does not fall into this category. This is due not only to the fact that it was founded by socially responsible investors and public interest groups with no ties to industry, but also because it has advanced improvements in corporate environmental management practices that industry groups have not promoted on their own accord. In fact, some of CERES’ objectives were considered somewhat radical when first introduced at the end of the 1980s. Initially, they had difficulty getting companies to endorse the principles, besides those that already had a reputation for being environmentally responsible. Companies were loath to adopt the practices being promoted by CERES, such as annually disclosing environmental data. Due to the efforts of CERES and other organizations with similar missions, companies have been pressured through shareholder resolutions to make changes and, due to relationships with diverse stakeholders, have gained greater awareness of the need to address external interests (e.g., socially responsible investors, communities, etc.). Of course, for some endorsers of the CERES Principles, the main

driver has been for enhanced corporate image. However, even if their initial motives are not entirely altruistic, if this can be leveraged to encourage companies to participate, public interest organizations and other stakeholders are wise to capitalize on this and turn it into an advantage for the affected groups and the environment.

As stated previously, CERES has not had a revolutionary impact or driven radical changes in endorsing members' products and services. For the most part, business continues as usual and firms may improve the processes for developing products and services but do not necessarily make significant innovations in the consumer good itself. For instance, focusing on two CERES endorsers, General Motors continues to be firmly entrenched in the automobile industry and Sunoco is still focused on petroleum products, both of which are significant contributors to the environmental problems we face today. General Motors has invested in electric vehicles, but they still have not positioned themselves as providers of transportation services and invested in less environmentally destructive transportation systems. In fact, in the mid-part of this century, General Motors gained notoriety by their alleged sabotage (e.g., buy-out and subsequent closure) of many public transportation systems in efforts to increase Americans' reliance on the single-family or -person automobile. Sunoco has not re-positioned themselves as an energy company (rather than an oil and gas company) and invested in renewable energy projects, but continues to rely on non-renewable petroleum products. As Day points out, process efficiency alone will not lead to enhanced sustainability (1998). In this respect, CERES has not been entirely successful in driving such a change, which is a crucial limitation. There needs to be greater emphasis on facilitating a transition to more sustainable products, rather than focusing efforts entirely on improving the processes for dead-end technologies. As mentioned in the Results section and in the Limitations of and

Opportunities for CERES section that follows, there are several significant opportunities for improvement of CERES in terms of a holistic framework.

Despite the fact that there is room for improvement in CERES, we must still recognize what they have accomplished in the last ten years. Voluntary codes such as CERES that help companies take steps forward in reducing their environmental impact should be encouraged, regardless of the fact that these efforts alone may not achieve revolutionary changes or innovation in corporate products and services. This does not, by any means, imply that interested stakeholders should allow complacency on behalf of corporations or settle for anything less than continuous improvements in the processes used to develop products and services, as well as in those products and services themselves. However, to promote more sustainable corporate operations, every possible means of driving this behavior should be considered.

The CERES principles provide a framework that corporations can use to identify areas of strength and weakness, and as a model for development of internal environmental policy statements. Combined with the standardized reporting tool, the public disclosure requirement is the most powerful aspect of the code, since disclosure is a necessary precursor for accountability.

Even if the only success that CERES experienced was in convincing endorsing companies to annually prepare and publicly disclose environmental reports, the initiative would still be valuable due to the importance of this practice. As of April 1999, forty-six organizations have endorsed the principles and committed to annual public disclosures. In addition, pressure from CERES shareholder resolutions and the dialogue process has led other organizations (non-endorsers) to publish an environmental report. However, CERES offers unique benefits due to its standardization of reporting and the fact that it

carries the backing of some of the foremost environmental and public interest groups and over \$300 billion in investor assets of institutional investors in the coalition (CERES home page, Environmental Reporting, par 5). As CERES describes, the process of disclosing corporate environmental data leads to significant benefits for numerous stakeholders:

- "It empowers people with the information they need to hold corporations accountable, and invites stakeholders more fully into the process of corporate goal-setting.
- It permits investors to harness the power of the capital markets to promote and ensure environmentally-superior business practices.
- It allows companies and their stakeholders to measure companies' adherence to the standards set forth in their statements of environmental principle, and their various goals and objectives.
- As an internal driver of change, it helps illuminate weaknesses and opportunities and set new goals.
- It will allow society better to understand the full implications of corporate activity thereby to design more sustainable local and global systems" (CERES home page, Environmental Reporting, par 1).

Although there is ample qualitative evidence and anecdotal accounts, the level of impact that CERES has on its endorsing members is difficult to quantify. As the CERES Corporate Programs Associate describes:

"We have received many positive comments from endorsing companies regarding the benefits that endorsement has provided them, and the influence that CERES has had on culture change within the organization, but much of this data is subjective and difficult to quantify" (Watt, 1998).

The effects and benefits created by CERES endorsement depend on a number of factors. For instance, where firms already have a mature environmental program, including a management system and performance measures, and a relatively high degree of interaction with external stakeholders (e.g., Polaroid), the effects of CERES endorsement

are still valuable, but less significant. For smaller organizations with limited environmental personnel resources or other firms with less mature programs, CERES is beneficial due to its ability to provide an enhanced level of sophistication and a framework for beyond compliance standards, best practices for goals and performance indicators, and a tool for annual assessment and reporting (e.g., Green Mountain Power). However, as the organization's environmental program matures and progresses after several years of endorsement, the impact of CERES may decrease, but still remain significant in providing the underlying commitment to and structure for corporate environmental policies and initiatives (e.g., Ben & Jerry's). Some small companies may find it difficult to uphold their commitment (e.g., Aveda) or may not perceive significant benefits from their endorsement. In fact, a number of small companies dropped out several years ago because they did not find value in reporting (or they went out of business). CERES is currently working on a CERES Report for their own performance to enable them to better help small businesses find value from upholding their commitment (Watt, 1999). For the large companies that were not previously regarded as environmentally progressive, the results have been mixed. For Sunoco, the impact of CERES has been very positive and significant, but less so for General Motors. For Bethlehem Steel, the impact to date is non-existent with the exception of the annual disclosure, although since they endorsed the principles fairly recently in 1995, the other effects may not be evident yet due to a lag in creating a cultural change and implementing improvements.

The efforts of CERES have contributed to changes in corporate environmental management practices, not only for endorsing companies but for non-endorsers as well.

Many non-endorsers and even some endorsers may dispute the impact of CERES on their own operations, perhaps preferring to assume the credit internally, but over the last decade, corporate environmental management practices have shifted along the lines that CERES has promoted through its principles and initiatives. This has occurred in the absence of new regulations or industry standards as drivers. For instance, many organizations have appointed environmental advocates to their executive boards, and even more have established board-level environmental, health, and safety committees (Hoffman, 1996, CERES's Characteristics, par 5).

As Muson describes, although companies may not be clamoring to sign the principles, they have come to recognize the value in paying more attention to issues raised by the public and environmentalists (1994, p. 17). Although the shareholder resolutions were not initially very successful in forcing corporations to sign on and endorse the principles, the overall effort has assisted in encouraging non-endorsing companies to initiate internal changes. Cases from Browning Ferris Industries, Waste Management, Amoco, and Chevron provide further evidence.

In response to a proposed shareholder resolution calling for the company to adopt a code of environmental conduct such as CERES, Browning Ferris Industries agreed to issue an environmental report and to hold a public meeting for shareholders, employees, and other interested parties (Zack, 1992, p. 56). The principles have also served as the model for internal environmental policy statements for some companies who chose not to endorse CERES, such as for Waste Management, the nation's largest waste hauler (Zack, p. 58). Partly due to pressure from CERES, through the shareholder resolutions and resulting dialogue, Amoco made three notable changes in its environmental programs and strategy by the end of 1991. The first was to increase public accountability through the

“green span” environmental report. Second, a board level environmental, health, and safety committee was formed. And third, influenced by CERES as well as a growing change in industry in general, they redrafted their environmental policy to reflect a shift from a compliance orientation to pursuit of a more proactive, leadership role (Hoffman, 1996, Amoco’s Response, pars 12 & 14). When CERES sent Chevron a proposal asking them to become founding signatories of the principles, Chevron responded by sending representatives to meet with members of CERES. Although Chevron did not end up endorsing the principles, Chevron’s Manager of Environmental Affairs, William Mulligan, believes the process created a win-win situation where both sides benefited. CERES was provided with insights into what Chevron was doing for their environmental programs, and Chevron was able to take a step back and evaluate their program as they created their first environmental report, engaged in dialogue with shareholders, and “improved trust among the constituencies” (Mulligan, 1991, p. 25).

Limitations of and Opportunities for CERES

This section highlights the primary limitations of CERES and proposes several opportunities for improvement. It should be noted that these opportunities are merely offered as suggestions and have not been fully explored to determine their effectiveness or feasibility.

As a tool for improving corporate environmental performance, the biggest limitation has been their inability to drive radical innovations in the products and services offered to consumers. Although CERES’ mission centers more on improving corporate environmental responsibility and accountability, the network they have established could be used to encourage, support, and pressure corporate endorsers in focusing efforts on

product improvements, not just process efficiencies. As we head into the next century, it is crucial that more emphasis is placed on innovation of products and services, rather than focusing solely on process improvements for dead-end technologies.

Another limitation is based on CERES' inadequate or lack of response to endorsers that have not upheld the basic provisions of their commitment (e.g., annual self-assessment and disclosure) or made good faith efforts to meet the performance standards. As of December 1998, CERES did not have a system for addressing these issues. For instance, there is no formal process to address those endorsers who still do not have a policy in place for energy or material conservation within a reasonable timeframe after endorsement. Such a system could include attempts at rejuvenating the relationship with endorsers who have become estranged (such as Aveda who has not prepared an annual report since 1994), influencing companies to make needed improvements, or even putting them on notice where warranted. Interviews with CERES' Corporate Programs Associate indicated that the organization has created and in December 1998 filled the position for Director of Engagement and Review Programs. One of the responsibilities of this individual will be to address issues where companies do not meet the basic provisions of their commitment, such as completion of annual reports (Watt, 1998).

CERES may be able to improve the effectiveness of the public disclosure aspect and the ability to promote corporate accountability by periodically publishing a review of the progress that companies have made since endorsing the principles, combined with a list of needed improvements (e.g., which of the endorsers still have not adopted a program for energy conservation, product stewardship, etc.). To avoid any resulting tension in CERES' relations and dialogue with endorsing firms, the review could be conducted by an objective third-party. Publishing the results of this review, perhaps in

more mainstream media, would spotlight and pressure those companies that are not demonstrating significant progress and recognize those that have made notable improvements. In addition, this would reinforce the disclosure and accountability aspect by letting the general public know about the initiative, the availability of annual reports, and the means for contacting the organization's CERES representative, a CERES coalition member (i.e., appropriate public interest group), or the CERES Review Committee.

Finally, there are some disadvantages to the use of a narrative format for the CERES report. Companies have the option of meeting the annual reporting and disclosure commitment by using the question-and-answer format provided in the CERES report form, or by preparing a narrative style report. All reports in the narrative style are reviewed by a CERES committee to ensure clarity and conformity; however, based on experience from those companies reviewed for this study (e.g., General Motors), these types of reports are not as effective in communicating negative or neutral information to the general user. It becomes more difficult to determine those areas that the organization has not developed a policy, program, or set specific goals. In comparison, the question and answer format more readily highlights those areas where a firm answers "no" in response to questions concerning whether a strategy or program has been established. Perhaps one solution would be to require companies using a narrative style to at least list the questions being addressed at the beginning of each section, building and improving on the format used by Sunoco. In this manner, users of the report may be able to more readily identify areas of deficiency and opportunities for improvement in a firm's environmental programs and performance.

It may not be feasible for CERES to capitalize on some of these opportunities due to limited organizational resources and the fact that they are somewhat locked into the principles as currently written. Although the principles were modified once in the early 1990s based on feedback from members, CERES is hesitant to initiate additional changes in the wording of the principles due to the difficulties that may be created in having members who have endorsed different versions and criteria. For the suggested enhancements that make sense to the organization and coalition members, it may be possible to address them through the report form, which is revised and upgraded annually based on feedback from coalition and corporate members, or other means (e.g., dialogue with endorsers, agenda items for the annual conference, etc.)

Study Limitations

One of the primary limitations of this study was the inability to effectively capitalize on the majority of quantitative data reported by CERES endorsers. This resulted from three primary reasons. First, there is a notable lack of publicly available environmental performance data for non-endorsers to use for comparison. Although this was a severe hindrance for this study, it provides further reinforcement for the value of CERES and their mission in attempting to make consistent, meaningful, and comparable information on corporate environmental management practices and performance publicly available. Second, since the latest available CERES report is for the year ending 1997 combined with the fact that many of the member companies did not endorse the principles until the mid-1990s, it was difficult to generate enough data points for statistical significance. Finally due to limited resources, no attempts were made to obtain

performance data on non-endorsers other than searching publicly available EPA databases, Securities and Exchange Commission filings, and company internet sites.

Another significant weakness was using TRI data as a measure of environmental performance. The TRI system was not relied on because of its appropriateness as an indicator of environmental performance, but rather because it is currently the best source of publicly accessible environmental data that can be used as a proxy for performance. In fact, there are many limitations resulting from the use of TRI data, yet it continues to be used for studies of this kind because it is the only practical alternative due to the lack of publicly available data. Of course, with additional resources, individual companies or facilities could be contacted in attempts to obtain the type of data that is disclosed in CERES reports. However, most companies currently do not track data for all of the CERES performance indicators, and of those that do, many are unwilling to release it for use in a study, unless they have some control over its use or are convinced their names would not be released, making the study impossible for another researcher to reproduce.

Finally, this study focused on medium (more than two hundred and fifty employees) and large manufacturing companies. Generalizations of the benefits resulting from CERES endorsement may not be applicable to smaller firms or service organizations. An additional limitation is discussed in the section below, within the context of a recommendation for future study.

Opportunities for Future Studies

Additional research is needed to develop an improved framework for evaluating environmental performance-based on publicly available information. The reliance on TRI data is not the best measure, not only because it is limited only to a very narrow snapshot

of a firm's overall performance, but also because it really provides a historical perspective due to the time lag in available reports. For instance, for this study completed in 1999, the most recent publicly available TRI data was for 1996. Future research should focus on developing better indicators for assessing corporate environmental practices and performance. For instance, specific to the oil and gas industry, a more meaningful measure would be to evaluate if and how the company has made a transition to identifying themselves as an *energy* company and their investments in and positions on renewables and other alternative energy sources. These measures should incorporate consideration of both the manufacturing and delivery processes, as well as the impact of the product or service itself. Although the organizations participating in the GRI initiative are making significant efforts in developing triple bottom line indicators (environmental, social, financial), until enough companies have adopted this or similar approaches, studies will be compromised by a lack of meaningful and accurate quantitative measures for environmental performance.

In addition, since this study was small-scale and did not have the necessary resources for a comprehensive and in-depth analysis of all variables or current initiatives, more studies are needed to better evaluate the effectiveness and benefits of voluntary efforts at environmental protection. For instance, with additional resources and the cooperation of non-endorsing firms, an evaluation of the environmental management practices of endorsers of voluntary codes compared to those for similar but non-endorsing organizations in the same industry could be conducted. Further, a more in-depth study is needed to identify effects (e.g., culture change, specific environmental improvements) that have occurred at the facility level, instead of relying on data from the corporate level where participation in voluntary standards is typically initiated.

Conclusion

The Coalition for Environmentally Responsible Economies (CERES) provides benefits to multiple stakeholders through pioneering advances in U.S. corporate environmental management practices. CERES stands apart from the other voluntary standards and codes based on its diversity of stakeholders, its requirement for companies to make the data generated through annual self-audits publicly available and its leadership role in standardizing international corporate environmental reporting. The two most notable improvements (standardized public disclosures and enhanced external dialogue with diverse stakeholders) resulting from the efforts of CERES over the past ten years have occurred in the absence of regulatory requirements, industry standards, or widely accepted norms, demonstrating that CERES has been a driver for such change. However, endorsement of CERES has not led to significant improvements in the environmental impact and sustainability of organizations' products and services. As discussed under the Theory section on Holistic Framework, greater attention needs to be focused on product innovations, not just process efficiencies.

CERES' lack of emphasis on improved sustainability of products and services is a serious shortcoming, but the improvements that have occurred in environmental management programs and practices provide benefits to communities and public interest groups, socially responsible investors, and organizational stakeholders. For communities, CERES provides benefits through the provision of annual environmental data on endorsing firms operating in their locale, and the ability to act on this information by contacting the company CERES representative or coalition members to raise issues of concern. Endorsement of the CERES Principles has even been followed by the

establishment of Community Advisory Panels, such as for the Sunoco case. By publicly affirming their commitment to meet the CERES Principles and publishing performance data, companies provide citizens with the opportunity to make better informed decisions on consumer products and investment choices. Similarly, the standardized corporate CERES reports provide socially responsible investors with a number of indicators to gauge environmental performance of firms, facilitating their ability to make investment decisions on standard measures of social performance. Although the standardized reporting is currently limited to CERES endorsers, roll-out of the Global Reporting Initiative will hopefully expand the number to include many more institutions from around the world. For public stakeholders like the environmental, labor, and other special interest groups, CERES has provided an unprecedented opportunity to work together in promoting greater responsibility and accountability among corporations. Such a diverse group of participants allows a more democratic approach to environmental protection than past efforts, which excluded certain groups (e.g., labor, grassroots, and environmental justice groups) that are now provided a voice due to the broad representation of CERES. Without CERES, businesses would find it very difficult, or at best a significant investment in labor and time, to have a relationship with and be able to address such diverse interests. Finally, CERES provides benefits to the endorsing organizations through improvements in corporate environmental management practices (e.g., annual self-assessment and disclosure, increased number of performance indicators being measured) and other indirect business advantages.

APPENDIX A

DATA TABLES FOR QUANTITATIVE ANALYSIS

TABLE 10. U.S. Refinery Input to Crude Units in Thousands of Barrels Daily (TBD)

Year	Sun	Amoco	Shell
1996	721	954	940
1995	700	926	821
1994	591	959	850
1993	502	958	854
1992	537	936	900
1991	531	908	949
1990	554	903	904
1989	595	896	927
1988	590	882	939
1987	453	850	955

Sources: Amoco Corporation, 1990 and 1997 10-K Reports; Shell Oil Company, 1990, 1995, and 1998 Annual Reports to Shareholders; and Sun Company, Inc., 1989 and 1996 Annual Reports to Shareholders and 1997 10-K Report.

TABLE 11. Toxic Release Inventory Data: Aggregate Releases to the Environment in Pounds (lbs)

Year	Sun	Amoco	Shell
1996	1186386	10002489	6256455
1995	1959387	5301105	6943091
1994	2936512	4587684	5909871
1993	3946913	15158363	6017336
1992	4423572	19290256	7374512
1991	4622856	12580744	6645527
1990	5211962	15616086	10046298
1989	5391853	14516800	12365070
1988	8569501	42990621	169316046
1987	8178016	50610904	220429016

Source: U.S. EPA Toxic Release Inventory System

TABLE 12. Normalized Aggregate Releases to the Environment
(lbs/TBD)

Year	Sun	Amoco	Shell
1996	1645.5	10484.8	6655.8
1995	2797.5	5724.7	8456.9
1994	4972.1	4783.8	6952.8
1993	7860.8	15822.9	7046.1
1992	8240.6	20609.2	8193.9
1991	8704.3	13855.4	7002.7
1990	9402.8	17293.6	11113.2
1989	9061.9	16201.8	13338.8
1988	14524.6	48742.2	180315.3
1987	18053.0	59542.2	230815.7

Sources: Calculated from Tables 10 and 11, which are based on Amoco Corporation, 1990 and 1997 10-K Reports; Shell Oil Company, 1990, 1995, and 1998 Annual Reports to Shareholders; and Sun Company Inc., 1989 and 1996 Annual Reports to Shareholders and 1997 10-K Report, and the U.S. EPA Toxic Release Inventory System.

APPENDIX B

THE CERES PRINCIPLES

By adopting these Principles, we publicly affirm our belief that corporations have a responsibility for the environment, and must conduct all aspects of their business as responsible stewards of the environment by operating in a manner that protects the Earth.

We believe that corporations must not compromise the ability of future generations to sustain themselves.

We will update our practices constantly in light of advances in technology and new understandings in health and environmental science. In collaboration with CERES, we will promote a dynamic process to ensure that the Principles are interpreted in a way that accommodates changing technologies and environmental realities. We intend to make consistent, measurable progress in implementing these Principles and to apply them to all aspects of our operations throughout the world.

Protection of the Biosphere

We will reduce and make continual progress toward eliminating the release of any substance that may cause environmental damage to the air, water, or the earth or its

inhabitants. We will safeguard all habitats affected by our operations and will protect open spaces and wilderness, while preserving biodiversity.

Sustainable Use of Natural Resources

We will make sustainable use of renewable natural resources, such as water, soils and forests. We will conserve non-renewable natural resources through efficient use and careful planning.

Reduction and Disposal of Wastes

We will reduce and where possible eliminate waste through source reduction and recycling. All waste will be handled and disposed of through safe and responsible methods.

Energy Conservation

We will conserve energy and improve the energy efficiency of our internal operations and of the goods and services we sell. We will make every effort to use environmentally safe and sustainable energy sources.

Risk Reduction

We will strive to minimize the environmental, health and safety risks to our employees and the communities in which we operate through safe technologies, facilities and operating procedures, and by being prepared for emergencies.

Safe Products and Services

We will reduce and where possible eliminate the use, manufacture or sale of products and services that cause environmental damage or health or safety hazards. We will inform our customers of the environmental impacts of our products or services and try to correct unsafe use.

Environmental Restoration

We will promptly and responsibly correct conditions we have caused that endanger health, safety or the environment. To the extent feasible, we will redress injuries we have caused to persons or damage we have caused to the environment and will restore the environment.

Informing the Public

We will inform in a timely manner everyone who may be affected by conditions caused by our company that might endanger health, safety or the environment. We will regularly seek advice and counsel through dialogue with persons in communities near our facilities. We will not take any action against employees for reporting dangerous incidents or conditions to management or to appropriate authorities.

Management Commitment

We will implement these Principles and sustain a process that ensures that the Board of Directors and Chief Executive Officer are fully informed about pertinent environmental issues and are fully responsible for environmental policy. In selecting our Board of Directors, we will consider demonstrated environmental commitment as a factor.

Audits and Reports

We will conduct an annual self-evaluation of our progress in implementing these Principles. We will support the timely creation of generally accepted environmental audit procedures. We will annually complete the CERES Report, which will be made available to the public.

These Principles establish an environmental ethic with criteria by which investors and others can assess the environmental performance of companies. Companies that endorse these Principles pledge to go voluntarily beyond the requirements of the law. The terms may and might in Principles one and eight are not meant to encompass every imaginable consequence, no matter how remote. Rather, these Principles obligate endorsers to behave as prudent persons who are not governed by conflicting interests and who possess a strong commitment to environmental excellence and to human health and safety. These Principles are not intended to create new legal liabilities, expand existing rights or obligations, waive legal defenses, or otherwise affect the legal position of any endorsing company, and are not intended to be used against an endorser in any legal proceeding for any purpose.

(CERES 1997 Annual Environmental Report Form)

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