1-1-2004

Voluntary environmental initiatives in Canadian manufacturing sector

Maina Levin
Ryerson University

VOLUNTARY ENVIRONMENTAL INITIATIVES IN CANADIAN MANUFACTURING SECTOR

by

Maina Levin
Bachelor of Applied Science,
Ryerson University, Toronto, 1997

A thesis presented to Ryerson University
In partial fulfillment of the requirement for the degree of

Master of Applied Science
In the program of Environmental Science and Management

Toronto, Ontario, Canada, 2004

Your file Votre référence
ISBN: 0-612-94223-6
Our file Notre référence
ISBN: 0-612-94223-6

Abstract

VOLUNTARY ENVIRONMENTAL INITIATIVES IN THE CANADIAN MANUFACTURING SECTOR

Masters of Applied Science June 2004

Maina Levin
School of Environmental Science and Management, Ryerson University

The traditional regulatory approach to controlling pollution is inadequate in supporting sustainability, drawing attention to alternative strategies including self-regulation. However, such efforts rely on voluntary action on behalf of industry. Little research has been conducted to assess the effectiveness of these initiatives in the Canadian context.

Utilizing a combination of telephone and written questionnaires, Canadian manufacturing associations were surveyed to determine the extent to which voluntary environmental initiatives were promoted to their members.

The results indicate that only a small percentage of manufacturing associations promote formal voluntary environmental initiatives, suggesting that this form of self-regulation is not widely accepted by industry. These initiatives placed significant emphasis on legislative compliance and the goal and were deficient in key transparency and credibility indicators, suggesting that reliance on self-regulation alone is inadequate to address sustainable environmental management.

Acknowledgement

I would like to thank Dr. Peter Strahlendorf for his support, encouragement and candour. His knowledge, countless ideas and profound thoughts have made this degree an inspiring journey. I would also like to thank Dr. Ron Pushchak for his encouragement and support. Most important thanks go to my family for being my foundation, source of strength and for your belief in my abilities.

Table of Contents

List of Tables

List of Figures

Chapter 1 Introduction and Purpose of the research

1.1 Study Background

Governments are increasingly realizing that the environment needs to be managed more efficiently in order to ensure sustainability and this has encouraged international calls for action. Worldwide, it is becoming increasingly evident that governments alone cannot effectively achieve the goal of sustainable environmental management. The challenge is to find other means and opportunities to successfully achieve sustainable development. Government policy analysts, researchers and Non-Government Organizations (NGO) have debated the best course of action to enable governments and industry to develop solutions for attaining environmental sustainability. The concept of self-regulation has emerged as one of the most discussed, researched and criticized options. Pursuit of such an alternative has sparked the interest of both government and industry representatives, but has brought severe criticism from environmentalists. Members of the European Union, more specifically the Netherlands, have achieved significant gains by implementing self-regulatory initiatives in cooperation with industry. Canada has limited experience with voluntary initiatives on behalf of industry, but their extent has never been evaluated in detail. Self-regulation initiatives, specifically those promoted by industry associations, provide an opportunity to assess the potential for supplementing the regulatory system in achieving environmental sustainability.

Unlike self-regulation, sustainable development or environmental sustainability is not a novel concept in the realm of public policy discussions. After the publication of the Bruntland Report in 1987, sustainable development became the focus of many discussions and studies. However, the translation of environmental sustainability into specific actions has not been apparent or visible. The real challenge has been in identifying and incorporating sustainability actions into government and industry agendas. Furthermore, the government has to play a key role in driving this process. The formal policy and process on sustainable development is only apparent at the federal level, where each department is expected to include sustainable development

considerations into decision and policy initiatives, which are then audited by the Commissioner of the Environment and Sustainable Development within the office of the Auditor General of Canada (Commissioner of the Environment and Sustainable Development, 2003). On the other hand, international agreements, economic and legislative instruments and self-regulatory actions on behalf of industry, have all been suggested as alternative methods of achieving sustainability. These approaches have the potential to assist the Canadian government in achieving sustainable development.

The pursuit of self-regulation by industry has been propelled due to inefficiencies in our environmental regulatory system. Since the creation in the 1970s of modern Canadian environmental legislation, the primary focus of policy makers has been on pollution control. Maximum limits, permits and severe penalties were designed to treat, control or deter pollution by industry, often after it was generated. This type of traditional "command and control" approach has been successful in reducing overall levels of pollution. However, it is not sufficient on its own to ensure sustainability of our environment and resources. Progress from pollution control to pollution prevention has been slow, taking regulators years to revise legislation, but it is inevitable. Government regulations lag behind innovative organizations and associations in promoting pollution prevention, non-point pollution source reduction, life cycle assessments and product stewardship initiatives. Industry has an important role to play in national efforts to manage the environment and achieve sustainability.

Concepts of environmental management and sustainability are open to interpretation and deliberation. Who has the ultimate responsibility for ensuring sustainable development and who should bear the responsibility for the degradation of nature? Should it be industry for creating pollution and using up resources? Should it be consumers and the general public for excessive consumption and waste? Or, should it be government, for inadequate policy planning and enforcement? There are no simple answers and perhaps everyone is partially to blame. The responsibility for developing and implementing effective solutions involves all parties.

The task of managing the environment in order to achieve sustainability is not easy. According to C.J. Barrows there are numerous challenges:

(1) Ethical dilemmas	e.g. what to conserve
(2) Efficiency dilemmas	e.g. how much environmental damage is acceptable?
(3) Equity dilemmas	e.g. who benefits from environmental management decisions, and who pays?
(4) Liberty dilemmas	e.g. to what degree must people be restricted to protect the environment?
(5) Uncertainty dilemmas	e.g. how to choose a course of action without adequate knowledge or data?
(6) Evaluation dilemmas	e.g. how to compare different effects of various options or actions?

(Barrows, 1999 p. 9)

These dilemmas represent the core of policy issues in the pursuit of regulating for sustainable development, requiring a balance of economic, social and environmental aspects. Long term solutions require multi-faceted approaches, utilizing several policy tools and involving multiple stakeholders. As a policy tool, self-regulation on behalf of industry is not a fix-all solution, but presents a significant potential for moving us closer to sustainability.

> The significance of self-regulatory measures is that they represent a policy shift away from reliance on normative legislation to control environmental impacts to the inclusion of potentially more innovative policy options.
>
> (Hillary, Thorsen, 1998, p. 4)

Canadian industry is comprised of organizations in various sub-sectors covering natural resources, energy, manufacturing, mining, financial and services. It would be too labour intensive and exhaustive effort to evaluate the effectiveness of individual organizations within each sub-sector, in their efforts to manage their environmental impacts. Since the majority of Canadian firms belong to an industry or a trade association, it is worthwhile to evaluate the efforts of these associations in seeking sustainable environmental management. The purpose of this research is to examine the degree to which Canadian manufacturing associations currently promote environmental best practices for their members. As well, it evaluates the potential of this type of approach as a policy alternative in achieving environmental sustainability.

Industry associations have actively provided various instruments to enable their member firms to achieve success in areas of trade, lobbying, education and recognition. Some associations have recognized the need for and championed the development of industry best practices. The Responsible Care® program, developed and promoted by the Canadian Chemical Producers' Association, has been very successful and has been recognized and adopted throughout the world. The Institute for Corporate Environmental Mentoring states that:

> We are seeing a paradigm shift - slowly but surely. Industry is moving from a focus on achieving compliance with environmental regulation to an approach that treats the environment as a strategic asset. ...The motivation for change is clear: pure practicality. High environmental performance drops long-term costs to the company, improves the health and safety of workers, and boosts the reputation of the company and the entire industry.
>
> (Institute for Corporate Environmental Mentoring, 2000, p.1)

Initiatives of this kind provide an opportunity for the Canadian Manufacturers/Producers associations to become the promoters of environmental management best practices and of self-regulation. However, individual activities carried out by one or a handful of associations do not represent the ability or the intent of industry to pursue overall voluntary self-regulation alternatives. Recognition that traditional enforcement strategies are lacking in resources, expertise and knowledge is leading many to express interest in the framework of voluntary environmental initiatives as a policy tool. Signs that environmental regulatory reform is inevitable are evident. If such reform were to take place here in Canada, how prepared would the manufacturing sector be to embrace self-regulation as an alternative to the traditional regulatory system? How can industry associations contribute to regulatory reform and enhance the ability of individual organizations to achieve environmental sustainability?

1.2 Problem Statement and Study Purpose

Governments lack resources, knowledge, expertise and are constrained by the legislative framework to achieve significant changes to ensure efficient environmental management. If significant opportunities are to be gained, industry must be involved in policy reform. If a regulatory approach is proving to be ineffective in achieving sustainability, then self-regulation must have the means of addressing these weaknesses. The successful pursuit of self-regulation by industry assumes that industry associations have strong influence over their members' environmental practices. After all, if voluntary initiatives are to be more effective than regulations, they must have some key characteristics that address core structure and enforcement elements. Some information is available on high profile environmental initiatives in the Canadian natural resource sectors such as forestry and energy, but the quality of information and the scope is limited. Research profiling the Canadian manufacturing sector and self-regulation initiatives has not yet been undertaken.

According to Industry Canada, the manufacturing sector or NAICS 31-33 (North American Industry Classification System) is comprised of establishments primarily engaged in the physical or chemical transformation of materials or substances into new products. The following table shows the industry groups that form the manufacturing sector as defined by Industry Canada.

Table 1 **SIC Codes of Manufacturing Sector**

Contents of Manufacturing Sector
SIC
Code Major Industry Group
10 Food industries
11 Beverage industries
12 Tobacco products industries
15 Rubber products industries
16 Plastic products industries
17 Leather and allied products industries
18 Primary textile industries
19 Textile products industries
24 Clothing industries
25 Wood industries
26 Furniture and fixture industries
27 Paper and allied products industries
28 Printing, publishing and allied industries
29 Primary metal industries
30 Fabricated metal products industries
31 Machinery industries
32 Transportation equipment industries
33 Electrical and electronic products industries
35 Non-metallic mineral products industries
36 Refined petroleum and coal products industries
37 Chemical and chemical products industries
39 Other manufacturing industries

(Industry Canada, Strategis website, 2001)

It is indisputable that all sectors of government and industry impact our environment. A report published by Kerr, Crosbey and Yachnin for the International Institute for Sustainable Development titled "Beyond Regulation", has established a definite link between Voluntary and Non-Regulatory Initiative (VRNIs) and trade. The most predominant influence of VNRIs on trade is predicted in areas of market share, costs and market opportunities. The Canadian economy is heavily dependent on trade, especially in manufacturing sector. Total exports in the manufacturing sector have increased from $117 billion in 1990 to $220 billion in 1995, growing at a compounded annual rate of 11%, far exceeding the growth of the economy. In addition, resource-based products no longer dominate Canada's exports. Within the manufacturing sector, the largest exporter is transportation equipment ($71 billion), followed by electric and electronic equipment exports ($20 billion), and machinery and chemicals (Kerr, Cosbey, Yachnin, 1998, p. 1). More recent statistics indicate that the manufacturing sector contributed $717,562 million dollars to the Canadian economy, comprising 17.8% of Gross Domestic Product (GDP) in 1998 (Industry Canada, 2001, p. 6). Therefore, the manufacturing sector of our economy is a

substantial contributor to an effective sustainable development strategy. Specific manufacturing concerns deal with the following issues: international environmental issues affecting long range transport of pollutants, climate change and depletion of ozone; accidents and catastrophes attracting the negative attention of policy makers, the public and the investors; emissions of toxic and hazardous substances; resource consumption; product pollution (during the manufacturing process); disposal (life cycle analysis implications, hazardous waste) plus other economic and social elements of sustainable development not discussed in this research.

"Debate on industry's role in addressing global environmental issues has shifted over the last decade from a focus on 'greening' to a new vision for more sustainable industrial systems" (Roome, 1998, p. 36*)*. Widespread acceptance and popularity of environmental management systems such as ISO 14001 and EMAS (Eco-Management and Audit Scheme, Europe) has prompted many organizations to seriously consider the benefits of undertaking such initiatives. Some studies suggest a strong link with economic and competitive advantages for organizations participating in these types of initiatives. In addition, R. Gibson suggests that many corporate decision makers view environmental issues as potential risks and liabilities, with requirements demanded by not only regulators, but also bankers, insurers and investors (Gibson, 1999). However, individual efforts on behalf of a few organizations may not be sufficient to make a significant change in managing the environment and ensuring sustainability. Since the majority of individual companies are represented by a collection of industry associations for the purposes of trade, information sharing and lobbying, this presents an opportunity to examine the potential of such initiatives on a larger scale.

The promotion of voluntary environmental initiatives by industry associations is not a new concept. A number of high-profile initiatives exist in several industry sectors. According to Pollution Probe in their report on "Voluntary Initiatives: Policy Framework and Roles" published in 1999, the emphasis on sustainable development is prominent and visible among associations in the natural resources and conservation sectors. However, there is limited information to suggest that efforts are being made in establishing goals of sustainability and sustainable production in the Canadian manufacturing sector. Furthermore, the nature and significance of these types of initiatives has not yet been explored. Literature on the key elements of successful

environmental voluntary initiatives is available, but has never been used to evaluate the performance of specific programs in the manufacturing sector, nor has the use of voluntary environmental initiatives been explored as a viable complement to the traditional regulatory approach.

Traditional or "command and control" approach to regulating the environment will be discussed in the study, preliminary information suggests that this strategy alone, is insufficient in achieving sustainable environmental management. Therefore, alternatives such as voluntary environmental initiatives have been regarded by some associations as effective tools for managing the environment. In fact, there is uncertainty in the types and the extent of such initiatives within the Canadian manufacturing industry. The performance of such initiatives or the claims in significant positive achievements is undetermined.

The purpose of this study is to examine the degree to which voluntary environmental initiatives are promoted by Canadian manufacturing associations. Since voluntary environmental initiatives are an example of self-regulation, how effective are they in achieving sustainable environmental management in the manufacturing sector?

Chapter 2 Research Design

2.1 Research Question and Sub-questions

This study seeks to answer the following key question:

Does the framework of voluntary environmental initiatives currently promoted by Canadian manufacturing associations encourage the achievement of goals for sustainable environmental management?

The purpose of the research is to evaluate the degree to which manufacturing associations promote voluntary environmental initiatives amongst members. It is expected that the majority of associations do not actively promote environmental voluntary initiatives. Of the associations that promote environmental best practices, the degree of complexity of such programs is expected to vary. The literature suggests that only high-risk industry sectors have highly advanced voluntary environmental programs. The hypothesis in this case is that most Canadian manufacturing associations do not adequately participate in the promotion of voluntary environmental initiatives.

In addition to the main question, the following sub-questions will help evaluate the potential of these types of initiatives in achieving environmental sustainability:

1. Is there potential for these initiatives to meet the objectives of environmental management as described in the literature?
2. What is the scope and transparency of these initiatives?
3. How do these voluntary initiatives fit into the framework of regulatory environmental control and what kind of role should regulators play in the design, implementation and effectiveness of such initiatives?
4. What is the outlook for the future and what additional research is needed in this area?

2.2 Research Design

According to the Webster's Dictionary, the definition of research is as follows:

> Careful or diligent search; studious inquiry or examination; *especially;* investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws; the collecting of information about a particular subject.
>
> (Merriam- Webster OnLine, 2002)

In this context, this thesis intends to design and conduct diligent research through the interpretation of collected data. Sustainable development, self-regulation and voluntary initiatives are issues that are philosophical in nature and form a common basis for theoretical debates. It is, therefore, appropriate to use a qualitative approach to data collection and analysis.

The use of voluntary environmental initiatives as a policy tool in achieving sustainability is a relatively new area of research. Much has been published on sustainable development and self regulation. However, the role of associations and voluntary environmental initiatives has not been the object of formal research and there is an evident lack of data. Therefore, the study design is twofold, on one hand examining existing information on regulatory and policy framework and assessing various types of voluntary initiative; on the other hand conducting a survey to answer the main thesis question. Hence, this study method is based on explorative information gathering and can serve as a pilot study.

To answer the question of this thesis, a combination of literature review and gathering of original data was utilized. Since the subjects of the analysis are Canadian manufacturing associations, samples of diverse associations within the manufacturing sector were collected.

Since it is difficult to accurately determine the precise number of manufacturing associations, it is appropriate to utilize a selective sampling approach to data collection.

> Theoretical sampling means selecting groups or categories to study on the basis of their relevance to your research questions, to your theoretical position ...and most importantly the explanation or account which you are developing. Theoretical sampling is concerned with constructing a sample...which is meaningful theoretically, because it builds in certain characteristics or criteria which help to develop and test your theory and explanation.
>
> (Mason, 1996)

Due to resource and time limitations in this research a selective sampling was considered most appropriate. This type of data collection allows for the relevant data to be gathered relatively quickly, enabling generalizations to be made in answering the research question. According to Arber, such sampling has two functions.

> First, it allows you to feel confident about the representativeness of your sample: if the population characteristics are known, the degree of representativeness of sample can be checked. Second, such representativeness allows you to make broader inferences.
>
> (Arber, 1993)

The results of this study represent a combination of qualitative and somewhat modified quantitative approaches in data collection and analysis. A true quantitative approach was not considered adequate, as the total number of Canadian manufacturing associations was unknown, but expected to be too small to perform a meaningful statistical analysis. A purely qualitative analysis was not considered.appropriate since the intent of this study was not to collect individual opinions on the information gathered, but rather to focus on factual information on the activities of the associations.

2.3 Research Design

2.3.1 Identification and Selection of Associations

The sample group of associations for this study was selected using various business directories such as the Canadian Key Business Directory and web-based search engines including Industry Canada Strategis website. The selection was based on the description of the association's members, where those that indicated that they represented organizations manufacturing or producing goods were included in the list. Since the information was accumulated through various sources, it is difficult to confirm the level of completeness of this list. Furthermore, large associations such as the Canadian Manufacturers and Exporters Alliance represent several smaller associations. Many manufacturing firms are also likely to be represented by several associations, although the exact number is unknown and is not expected to significantly influence the results. The sample group was representative of manufacturing associations across several industrial sub-sectors including chemical, automotive, plastics, computer equipment and appliances. Associations representing firms in the natural resources, pulp and paper, energy and mining sectors were considered outside the scope of this study and were not included.

An initial sample group of approximately 40 associations was prepared based on the search criteria described above. The list of associations surveyed in this study is included in Appendix A. Information on the associations' members and activities was researched using business directories and the Internet prior to initial contact. Each association was contacted by telephone to conduct the initial telephone survey and confirm contact information. For associations that promoted voluntary environmental initiatives, further information was gathered to identify the key contact person with additional knowledge. Where available, website content information on the associations' activities, members and environmental initiatives was evaluated.

2.3.2 Data Collection

The main objective of this research was to identify the presence and scope of voluntary environmental initiatives promoted by Canadian manufacturing associations. The primary data collection methods were surveys, primarily telephone interviews and a detailed questionnaire. Telephone interviewing was used as a preliminary technique of gathering relevant information about associations, and was made up of 7 questions. For the purposes of this study, Voluntary Environmental Initiatives were considered to be any programs with the following focus: Environmental Management Systems, Responsible Care, Green Procurement Programs, Recycling Programs, Waste Reduction and Management, Energy Reduction, Packaging, Product Stewardship, Life Cycle Assessment, Sustainable Development, or others as identified by the association. In addition, demographic data on the size of the association in terms of staff, membership and budget was collected to be able to compare the data in the analysis phase. To evaluate the reasons for associations not promoting environmental initiatives, further information was collected. The response rate of these associations is expected to be low, so that these findings may not accurately reflect the reasons of all those that do not promote environmental initiatives.

When the association indicated that it participated in the promotion of voluntary environmental initiatives, further questions were asked about the nature of its actions. Those associations that indicated the presence of a sophisticated Environmental Management System (EMS) or Responsible Care-based programs were asked to complete a detailed questionnaire. The questionnaire was intended to be completed by a person in the organization with direct involvement in the design or the implementation of the voluntary environmental initiative. The questionnaire consists of questions aimed at discovering information about the scope of the initiative, so that further analysis and discussion could be conducted to answer the question posed in this study. A sample of the telephone survey questions is found in Appendix B and the detailed questionnaire is found in Appendix C.

In addition to the detailed questionnaire, a survey of supporting documentation supporting the association's claims was evaluated by reviewing the association's website and/or annual reports where available. The detailed questionnaires were completed by associations' employees responsible for the environmental initiative administration or public relations and are therefore assumed to represent the official position of the association.

Though questionnaires detailed the performance and requirements of each initiative, the results were not used to criticize or provide an opinion on an individual association's efforts. The results were analyzed and conclusions drawn to establish the collective performance of all of the associations participating in this study. The aim of the study was to establish the presence and scope of voluntary environmental initiatives currently promoted by Canadian manufacturing associations. In order to achieve accuracy and validity of the results, each respondent received the questionnaire in the form of an e-mail attachment or a fax. The information for the detailed questionnaire was assembled over a period of approximately 3 months from May 2, 2003 to July 30, 2003.

2.3.3 Data Analysis

One of the major research constraints was the sample size of the population of Canadian Manufacturing Associations. It is difficult to establish the exact number of associations representing the manufacturing sector, as this information is scattered through various sources and is not easily verifiable. It was assumed that the selection of manufacturing associations chosen for this research represents a sufficient sample of the total actual number of associations or (*n*). If data analysis was to be done in true quantitative fashion, statistical significance of the findings would have had to be developed. Since the nature of this research is based on a qualitative approach, a quantitative analysis was not conducted. Another contributing factor in conducting a meaningful data analysis was to recognize that associations predominantly promoting voluntary environmental initiatives were more willing to share their information and respond to both preliminary and detailed questionnaires. As mentioned earlier, accurate representation of the reasons to why voluntary initiatives were not a priority for some associations was not well represented and therefore conclusive observations were limited in the data analysis and discussion. Given these statistical population selection biases, the information provided in the data analysis was not considered a true representative random sample of all associations in the promotion of voluntary environmental initiatives. Thus, the analysis was more appropriately conducted utilizing a qualitative approach.

2.4 Literature Review

A literature review was considered crucial in supporting the thesis question and the interpretation of the survey/questionnaire results. The definition of a literature review is the following:

> The selection of available documents (both published and unpublished) on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfill certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed.
>
> (Hart, 1998)

Therefore, a literature review was considered to be a key activity in the design of this study. Background information was essential in laying out the groundwork of the key concepts (sustainable development, voluntary initiatives and environmental legislative framework) discussed in detail in this study.

For the discussion of the sustainable development section of the thesis, the literature review was primarily focused on the discussion of definition, origins and the importance of the concept. Examining the literature was essential in determining the key factors in evaluating sustainable environmental management, understanding the main concepts of self-regulation and in the development of the detailed questionnaire in relation to voluntary initiatives.

A search of the literature in the area of voluntary environmental initiatives was perhaps the most challenging. Voluntary Initiatives are in fact based on the broader concept of industry self-regulation, thus the literature review included a discussion on a wide variety of concepts linked to this topic. The most popular of these types of initiatives is the ISO 14000 series of standards, which in the past has received ample attention from policy makers and scholars alike. However, the scope of this research was to evaluate the promise for voluntary initiatives promoted by

industry associations to achieve sustainability, a concept that has received limited attention from scholars, limiting the availability of published works. A literature review was essential in establishing a link between self-regulation, more specifically voluntary initiatives and sustainable development. Therefore, the intent of the literature review was to develop an understanding of key characteristics and features common to effective initiatives. These characteristics were incorporated into the design of the survey and detailed questionnaire, as well as in the data analysis and interpretation of the results.

Another major literature component was the review of the Canadian legislative framework to address environmental issues. A literature review was essential in the broader discussion of the role of government versus industry in evaluating the future of the legislative framework to ensure sustainability and environmental management. Literature on the successes and failures of Canadian environmental legislation, enforcement, challenges and criticism was evaluated. In addition, specific legal issues, concerns and criticism related to self-regulation and voluntary initiatives were included.

Chapter 3 Sustainability and Self Regulation

3.1 Sustainable Development and Environmental Management

Industry and government's efforts in seeking environmental improvement are made in the pursuit of sustainable development. Some organizations take a risk-based approach and perceive the environment as an asset, leading to development of strategies for managing the environment. There seem to be a multitude of suggestions on how to manage both sustainability and the environment. But it is evident that in order for industry to achieve sustainability, it must manage the environment first, leading to a new concept of sustainable environmental management. Who is interested in these approaches to sustainability? Regulators, as they seek new ways of setting public policy, amend regulatory regimes and improve regulatory controls. Investors, as they pay closer attention to the green or environmental benchmarks as part of the well rounded performance indicators for an organization. Consumers and the public also express interest in sustainability, as they become much more aware of environmental and sustainability costs associated with products. Poor social, economic and environmental performance of an organization or an industry sector has the potential to influence consumer choices leading to reduction in revenue, or in extreme cases to boycotting of the product.

In order to evaluate the ability of manufacturing industry associations to promote sound environmental practices and promote sustainable environmental management, it is important to first understand what sustainable development is.

> Major, unintended changes are occurring in the atmosphere, in soils, in waters, among plants and animals. Nature is bountiful but it is also fragile and finely balanced. There are thresholds that cannot be crossed without endangering the basic integrity of the system. Today we are close to many of those thresholds.
>
> (World Commission on Environment and Development, 1987, p. 120)

The main elements of sustainable development emerged at the 1972 United Nations Conference on the Human Environment in Stockholm, Sweden. The central themes of the conference were: the interdependence of human beings and the natural environment, the links between economic and social development and environmental protection, and the need for a global vision and common principles. In the last decade, sustainable development was the topic of a number of studies, books and government policies and statements, leading to various interpretations of the concept. However, the most commonly accepted definition of sustainable development was released in 1987 by the World Commission on Environment and Development, also known as the "Brundtland Report" and reads as: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43).

The Commission's interpretation of sustainable development emphasizes the need to consider not only ecological and environmental sustainability, but also includes provisions for economic development and social equity. The Brundtland Commission went further to say that:

> Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs.
>
> (World Commission on Environment and Development, 1987, p. 9)

Some may argue that the concept of sustainable development is not the same as sustainability. For the purposes of this research the terms will be used interchangeably. The definition of sustainable development addresses three key elements - social, economic and environmental. Since the scope of this research is to examine voluntary environmental initiatives among manufacturing associations, the discussion of sustainable development will therefore focus on environmental issues.

The Earth Summit held in Rio de Janeiro in 1992 acknowledged the need for industry and government's involvement to ensure success in achieving sustainability. It recognized that

industrial development and population growth had the potential to deplete natural resources. As a result, the Summit recommended developing a system to manage the environment involving both government and industry.

> Achieving sustainability by promoting clean and efficient production, pollution prevention and commitment to best practices in industry; using investment as an instrument of sustainability promoting technological innovations that enhance sustainability; instituting best practices worldwide; and disseminating these practices to suppliers, communities and small business as well, where one does business.
>
> (World Commission on Environment and Development, 1987, p. 319)

The Earth Summit in Rio and the Agreement on Agenda 21 has resulted in an increased demand for information on measurement indicators for sustainable development to help decision makers appropriately address implementation of solutions at all levels of government (UNCED Agenda 21, 1993). In order to efficiently monitor progress, it was necessary to establish consistent and quantifiable measurement indicators. The United Nations has recommended the use of the following criteria when evaluating sustainable development measures.

Table 2 Criteria for Evaluation of Sustainable Development Measures

Relevant:	the phenomenon measured should have direct relevance to sustainable development:
Understandable:	the measure should be simple clear and unambiguous;
Conceptual:	the measures should be conceptually well-founded;
Limited:	the measures should be limited in number, remaining open-ended and adaptable to future developments;
Data Available:	necessary data should be readily available or available at a reasonable cost-benefit ratio, adequately documented, of known quality and updated at regular intervals.

(Nath and Hens, 1998)

Some of the sustainability measures discussed in the literature included Dutch indicators based on environmental themes and target groups, ecosystem approach, life support and human impact indicators, ecological footprint, climate change, ozone layer depletion, waste and soil degradation (Nath and Hens, 1998). Most of the literature came from EU member countries,

with limited information available from the US and Canada. The Canadian federal government has recognized and adopted the Brundtland Commissions' definition of sustainable development by amending the *Auditor General Act* and creating the position of Commissioner of the Environment and Sustainable Development (Commissioner of the Environment and Sustainable Development, 2003). Canada's commitment to sustainable development is evident at the federal level. All federal departments are required to establish a sustainable development strategy, and are audited by the Auditor General on these commitments and their efforts to protect the environment (Commissioner of the Environment and Sustainable Development, 2003). However, there is no evidence that similar commitments are made at the provincial level.

In recognition of the lack of sustainability measures, the Rio Summit pointed out that industry has a significant role to play in managing the environment and achieving sustainability. The World Business Council for Sustainable Development (WBCSD), the Organization for Economic Cooperation and Development (OECD), and the United Nations Environment Program (UNEP) all recommended that manufacturing industries adopt "eco-efficiency" (E2) practices (Rondinelli, 2001). These practices are intended to not only enhance pollution prevention by reducing or eliminating waste in manufacturing, but also to reduce environmental impacts and conserve resources throughout a business's entire operations, from the acquisition of inputs and raw materials to the final disposal of products by consumers (Rondinelli, 2001). The advantages of this approach to business include the potential to become more competitive, innovative, and environmentally responsible by pursuing both environmental protection and productive commercial activities.

> Sustainability practices ensure that the business preserves the right to operate, reduces the costs and liabilities, increases customer loyalty and market shares, increase revenues and enter new markets.
>
> (Day and Arnold, 1998).

Though the benefits of such initiatives are widely promoted, there is an obvious reluctance on behalf of industry to take on these initiatives, largely due to their complexity, ambiguity and lack of information to support these claims. The lack of environmental information has also posed

challenges to regulators and industry in trying to provide a benchmark for performance and risks. Lack of essential data on economic, social and environmental factors and their ability to be a meaningful measurement index have presented difficulties in developing sustainability measurement indicators. In the emergence of performance-based regulatory reform, the pressure to make available environmental performance information has increased in recent years. The need to have consistently applied and credible methods for addressing these concerns has led to the development of several environmental sustainability reporting initiatives. Among these are the CERES principles and Global Reporting Initiatives (GRI). The Coalition for Environmentally Responsible Economies (CERES) sets forward 10 principles. It reports that currently over 90 corporations, predominantly in the US, subscribe to these principles. In order for organizations to commit to CERES principles, they are required to formalize their dedication to environmental awareness and accountability to the public in exchange for access to experts, investors, energy experts and others. The principles cover the following elements.

Table 3 CERES Principles

- Reporting Requirements Protection Of The Biosphere
- Sustainable Use Of Natural Resources
- Reduction And Disposal Of Waste
- Energy Conservation
- Risk Reduction
- Safe Products And Services
- Environmental Restoration Informing The Public
- Management Commitment
- Audits
- Reports.

(CERES, 2003).

The Global Reporting Initiative (GRI) is intended to assist corporations in setting sustainability reporting guidelines. This long-term, multi-stakeholder, international initiative for environmental reporting was established in 1997 with the intent to develop a common framework for organizational reporting on sustainability efforts notably covering economic,

social and environmental aspects. Their mission is "... to develop and disseminate globally applicable sustainability reporting guidelines for voluntary use by organizations reporting on the economic, environmental and social dimensions of their activities, products and services" (Global Reporting Initiative, 2000, p. 1) These guidelines provide specific instructions on the kind of information that should be included into the report. There is an expectation for the CEO or the most senior management person to include a statement outlining the information presented in Table 4.

Table 4 Global Reporting Initiative CEO Statement Requirements

• Highlights of report content and commitment to targets
• Declaration of commitment to economic, environmental and social goals by the organization's leadership
• Acknowledgement of successes and failures
• Performance against benchmarks, pervious year's performance, targets and industry sector norms
• Major challenges for the organization and its business sector in integrating responsibilities for financial performance with those for economic, environmental and social performance, along with the implications of this on future business strategy.

Both CERES and GRI attempt to set measurement and performance standards, however, the scope is limited to individual corporations' voluntary efforts and not industry sectors. If the end goal is sustainable development, then impacts of water pollution or ozone depletion and other risks should be evaluated on a larger scale. The targeting of these initiatives on individual firms may not provide the significant reduction in risk if they are applied inconsistently.

The Rio Summit acknowledged the need to develop an internationally recognized environmental system as a first step towards sustainable development practices of industry, leading to the development of both ISO 14001 and EMAS (Eco-Management and Audit Scheme). These standards take a risk-based approach to managing environmental impacts associated with the design, production and disposal of products. "Risk is characterized by 'uncertainty'. Success in risk management is defined by practical and useful solutions for dealing with this uncertainty" (McColl S., Hicks, J., Craig L, and Shortreed J., 2000, p. i). The world wide popularity of the ISO 14001 standard stems from internationally recognized and accredited administrative bodies,

third party auditing requirements, and ease of integration into the business management systems. Though their limitations are similar to those of CERES and GRI, industry wide adoption of ISO 14001 by the automotive industry proves that these standards they can be effectively implemented on a larger scale.

Limited research is available to provide concrete evidence that the pursuit of environmental management systems and sustainable development leads to significant economic gains. "Sustainable development holds the potential to create enduring competitive advantage for firms that create solutions to urgent social and environmental problems" (Paton, 2000, p. 329). In today's economic environment, the promise of a competitive edge is motivating some companies to realize the potential for environmental management programs and pollution prevention initiatives. The increased interest in these types of initiatives has prompted several studies in an attempt to evaluate the potential benefits to organizations from adopting Environmental Management System (EMS). Due to the relative novelty of such initiatives, their benefits have largely been 'hypothesized' due to the lack of credible research. Richard Andrews listed two predicted benefits to industry: reduced costs associated with production, and maintaining or expanding markets (Andrews, 1998, p. 190). Table 5 summarized the research done by Jon Plaut identifying benefits to organizations from implementing EMS based initiatives.

Table 5 Benefits of implementing voluntary initiatives

• Improvement Of Environmental Management
• Marketing Of Greener Products
• Meeting Government, Public And Customer Requirements
• Avoidance Of Liability And Extra Costs
• Improving Safety On The Job
• Reducing Waste
• Improvement Of Process Efficiency
• Enhancement Of Product Receptivity
• Better Planning and Assessment, Including Environmental Impacts And Reflecting A Better Image.

(Plaut, 1998, p. 473)

Even though some benefits have been identified, issues relating to environmental risks are usually characterized by uncertainty, partially contributing to the reluctance to act voluntarily by industry. Sustainability is not easily attained and can only be achieved by industry through gradual transformation. In order to achieve sustainability, organizations have to go through three stages - first achieve compliance, then address prevention and only then address sustainability (Veleva and Ellenbecker, 2001, p. 47). The traditional approach to environmental regulation by governments through legislation represents the first stage, where industry is compelled to comply with mostly prohibitive standards. The prevention stage has been dominated by progressive organizations mostly in high risk industries, pursuing pollution prevention strategies. If environmental degradation and lack of sustainability are viewed as potential risks to industry, then implementation of programs and evaluation of progress is possible through risk management tools, such as Environmental Management Systems or industry-driven voluntary initiatives. Until this is done the majority of companies will remain in the first stage, compliance, unable to progress towards sustainability. Both government and industry must take the approach of environmental management in order to achieve long term success.

Government has played an important part in providing incentives to encourage development of such initiatives. It is evident that many industries in Canada are still in the first stage, seeing environmental compliance as means of addressing environmental issues. Few innovative organizations and associations have taken the innovative initiative to promote prevention strategies and address issues associated with pursuing environmental sustainability. "Sustainability requires an expansion of the firm's strategic horizons in both time and organizational dimension" (Erendfeld, 1996).

In discussing environmental aspects of sustainable development,t it is imperative to consider the importance of environmental management. The term "environmental management" is very commonly found in government agend's and industry initiatives with varying scope. C.J. Barrow suggests that there is "no concise universal definition of environmental management" (Barrow, 1999, p. 3). In his examination of various definitions available in the literature he suggested the characteristics set out in table 6 below.

Table 6 Characteristics of Environmental Management

- It is often used as a generic term;
- It supports sustainable development;
- It deals with a world affected by humans;
- It demands a multidisciplinary or interdisciplinary approach;
- It has to integrate different development viewpoints;
- It seeks to integrate science, social science, policy making and planning;
- It recognizes the desirability of meeting, and if possible exceeding basic human needs;
- The timescale involved extends beyond the short term, and concern ranges from local to global;
- It should show opportunities as well as address threats and problems;
- It stresses stewardship, rather than exploitation.

(Barrow, 1999, p. 4)

What these characteristics make clear is the connection of environmental management to sustainable development. Since the intent of this study is to evaluate the environmental component of sustainable development, in order to incorporate the importance of environmental management, a new term of sustainable environmental management will be used. Numerous associations have claimed that their members aim to manage the environment, but none have addressed sustainability. Therefore the objective of this study will focus on evaluating the voluntary environmental initiatives in terms of their ability to ensure sustainable environmental management thereby combining the two key terms.

As mentioned earlier, sustainable development activities had always lacked measurement criteria and instruments. In order to assess the voluntary environmental initiatives promoted by Canadian manufacturing association's activities such as sustainable production, product stewardship and life cycle analysis will be considered indicators of sustainable environmental management. The definition of sustainable production found in literature certainly supports the concept of sustainable development and is defined as:

> To produce less of higher quality and durability with much lower environmental and social impacts at higher levels of employment, while making an acceptable profit or surplus. Otherwise, it is the production that is viewed to be economically, environmentally and socially responsible. (Welford, 1998)

Product stewardship is another key requirement, especially for manufacturers to manage environmental impacts associated with their products and processes. The goal of stewardship initiatives is minimization of pollutants and wastes throughout the manufacturing process, from design to disposal. Sustainable production along with stewardship, life cycle analysis and other concepts, are all means by which manufacturers can work towards sustainable environmental management. These approaches, though they may be regulated in some jurisdictions, for the large part remain voluntary initiatives on behalf of industry.

3.2 Voluntary Initiatives

Voluntarism is a strategy of environmental governance that relies on voluntary behaviour from the private sector.

(Pardy, 2002, p. 1)

In the pursuit of sustainability and improved environmental management, voluntary environmental initiatives have captured the attention of both industry and governments. These types of initiatives, when promoted by either individual organizations or whole industry sectors, appear to be an attractive alternative to traditional legislative control. Voluntary environmental initiatives are part of a broader set of alternatives, known as "self-regulation" and are referred to in literature as: "voluntary initiatives, voluntary codes, environmental charters, voluntary accords, voluntary agreements, co-regulation, covenants, negotiated environmental agreements" (Börkey, Lévêque, 2000, p. 36). Some additional terms for these initiatives include voluntary environmental approaches, private codes, voluntary challenges, voluntary and non-regulatory initiatives and industry environmental initiatives. Regardless of the term used, these initiatives are best described as: "Voluntary commitments of the industry undertaken in order to pursue actions leading to the improvement of the environment" (Börkey, Lévêque, 2000, p. 36).

Self-regulation has been suggested as a complement to a traditional regulatory regime in effectively managing the environment. The push towards self-regulation is obvious on behalf of industry.

Table 7 Reasons for industry preference for self-regulation

- Important recognition that compliance is the responsibility of the regulated company, rather than the regulatory body;
- Regarded as an efficient way of coping with a lack of agency resources
- Avoidance of potentially catastrophic outcome in high risk industries as a result of non-compliance;
- Interest of industry to promote good corporate or industry image in order to avoid stricter government control

(Hutter, 1999, p. 26)

Some industrial sectors stand to benefit from negotiated agreements and self-regulatory initiatives by means of increased flexibility in regulatory compliance. The exchange of verifiable environmental performance for the increased flexibility in meeting the regulatory requirements, present an alluring tradeoff for some industries. Numerous enforcement agencies have undergone drastic reductions in their capacities over the last several years. As a result, self-regulation may appeal to governments as a way for the regulated industry to internalize some of the costs of environmental regulation.

In response to heightened interest in self-regulation, Industry Canada has released a guideline for the development and use of voluntary codes by industry. The guidelines acknowledge the need for inexpensive, effective and flexible market instruments, in order to address the concerns and needs of consumers, workers and citizens, without compromising companies' needs to be more competitive. The guide stipulates that voluntary codes are intended to set standards and establish benchmarks for behaviour in the marketplace. This guide provides the following definition for voluntary codes:

> Voluntary Codes are a set of non-legislatively required commitments that: are agreed to by one or more individuals or corporations, are designed to influence, shape, control or benchmark behaviour, and are applied in a consistent manner and/or reach a consistent outcome by all participants.
>
> (Industry Canada, 2000, p.2)

In addition to Industry Canada, the International Institute for Sustainable Development has recognized the need for consistency in the development of Voluntary and Non-Regulatory Initiatives. It provides a similar definition to that of Industry Canada. "Voluntary and Non-Regulatory Initiatives are commitments not required by legislation, agreed to by one or more organizations and applied in a consistent manner to influence or benchmark behaviour" (International Institute for Sustainable Development, 1998, p.xv). Regardless of the name, there is a recognition that such initiatives must involve commitment, by several organizations and be applied in a consistent manner. The Office of the Environmental Commissioner of Ontario takes it further in suggesting that self-regulation needs to:

> ...include voluntary measures as well as other kinds of initiatives, such as self monitoring, reporting and certification, or the establishment of an industry-based regulatory body with the responsibility for monitoring its members' compliance with laws and policies aimed at protecting the environment. Generally self regulation is intended to influence and shape the action of the self regulated industry without having to rely on the traditional regulatory approach of command and control inspection and enforcement, with its subsequent greater government involvement.
>
> (Environmental Commissioner of Ontario, 1996)

Canadian manufacturing associations recognize the need to develop more flexible tools in responding to new regulatory requirements and legislative burdens, given the rising concerns about competitiveness and industry public image, consequently they have developed self-regulatory measures and voluntary initiatives. The above definition stipulates that if self-regulation is to be pursued, an industry-based authority must be created with a mandate resembling the responsibilities of present regulatory agencies. However, it is unclear whether Canadian industry associations will adopt voluntary initiatives and have the mandate to fulfill the provisions specified by Environmental Commissioner of Ontario.

It is the intent of this study to explore whether voluntary initiatives promoted by manufacturing associations present a viable alternative to traditional regulatory control in achieving sustainable environmental management. In order to evaluate this relationship, it is important to first

understand the various forms of self-regulation. Voluntary initiatives cover a broad spectrum of activities undertaken by organizations or associations. In general, they can be summarized into three categories:

Table 8 Self-Regulation Categories

- Unilateral initiatives or enlightened self-interest
- Customer or supplier requirements (value-chain demands), sometimes associated with third party certification and environmental management systems (ISO, EMAS)
- Private codes or industry guidelines and covenants including voluntary challenges or public-private partnerships and negotiated agreements.

(Pollution Probe 1999, Hutter, 1998)

3.2.1 Self Interest Initiatives

Unilateral or enlightened self-interest commitments consist of environmental self-regulation efforts by individual firms or corporations. Some innovative organizations realized the need to ensure environmental excellence long before the Brundtland Report in 1987. Others have come to realize that pollution prevention pays. The quality movement and the Total Quality Management approach has made organizations recognize that improvements that are made to reduce waste, conserve energy, reduce liability and decrease risk were some of the pollution prevention strategies that improve productivity. "The argument for this form of self-regulation, in sum, is that businesses themselves gain from reducing pollution" (Andrews, 1998, p. 180).

A report published by Stratos in 2000/2001indicates that 57 companies published detailed environmental, social or sustainability reports representing approximately 26% of the top 100 organizations. Most of these reports were in the resource sector, reflecting a high level of government and NGO interest (Stratos, 2001, p. iii). Perhaps this figure is a gross underestimation of the number or the types of initiatives undertaken by organizations. It is possible that numerous organizations have systems in place to address sustainability issues, but do not publish their environmental, social or sustainability reports. Yet, in today's climate it is difficult to give credit to corporations for their efforts without supporting evidence.

> Don't trust me - track me. This slogan of enlightened enterprises, which have understood that in today's world of global and instant news, companies and other institutions no longer enjoy a comfortable credit of trust that their actions are, in principle and de facto, right.
>
> (Steger, 2000, p. 30)

Government agencies, NGOs and citizens alike demand evidence of corporation's efforts and claims of accountability. Therefore corporate and sector reporting is being demanded as proof of their claims by investors and the public.

> Effective corporate reporting can play an important role in attracting investment and protecting markets.... Such reports can demonstrate the company is managing risks and positioning itself to address emerging opportunities.
>
> (Stratos, 2001, p. 1)

Based on the findings of the Stratos report, the leaders of environmental reporting in Canada based on 10 criteria, were the following: Suncor Energy, BC Hydro, Dow, Placer Dome, TransAlta, VanCity Savings Credit Union, Dofasco, Ontario Power Generation, Talisman Energy (Stratos, 2001, p. iii)

However, one must question the effectiveness of this type of self-regulatory approach in achieving sustainability. Regardless of the pressures of market and legislative forces, if only 57 out of hundreds of thousands of Canadian corporations in fact monitor, evaluate and publish their environmental, social and sustainability performance, then what are the rest doing? Perhaps, the lack of interest by the majority of organizations is due to their value of profit over responsibility to the public. Some of the barriers between economic development and environmental responsibilities include: focus on short-term benefits and lack of long term planning; lack of resources and knowledge; the belief that environmental protection is opposed to economic well being, plus a multitude of other reasons (Plaut , 1998, p 470).

Bruce Pardy argues that voluntarism is inconsistent with the principles of corporate governance. In other words, representatives responsible for the financial viability of an organization are not permitted to put environmental protection ahead of the financial interests of the company. "The truth is management acts in the interests of other "stakeholders" such as employees, suppliers, customers and the wider community only when doing so enhances the corporation's financial interests" (Pardy, 2002, p. 5). In addition, planning for sustainability requires setting of long term goals, which neither government nor industry is in the habit of doing.

The intent of these types of environmental initiatives to establish a benchmark and ensure consistency, clearly shows that individual self interest is important, but is insufficient alone in achieving sustainability.

3.2.2 Supplier/Customer Requirements:

This type of voluntary environmental initiative is usually imposed by purchaser firms to ensure that suppliers are in compliance with recognized environmental standards. Both the ISO 14001 or the EMAS (Eco-Management and Auditing Scheme) are examples of environmental specifications that are customer driven. "The trend is dominated by large monopolistic purchasers usually in the automotive industry and, to a lesser degree, by the government" (Andrews, 1998, p. 181). These types of voluntary initiatives are similar to the self-interest initiatives, but require the organization to establish a verifiable environmental management system (EMS).

> "EMS is part of overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving reviewing and maintaining environmental policy." (CSA, ISO 14001, 1996)

The predominant approach to the establishment of EMSs is though a rigid set of standards that form the framework for how it is to be implemented and verified. The main appeal of these types of initiatives is their versatility, giving firms flexibility in applying the standards, allowing for adoption across numerous industrial sectors and sub-sectors. However, even though firms may have some latitude in adopting these standards, in order to obtain certification, a firm's EMS must be audited by a third party in order to verify compliance with the requirements of the standards. These audits are a systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization's environmental management system conforms to the environmental management system audit criteria further described in the Environmental Auditing Standard or ISO 14010 (CSA, ISO 14010, 1996). Both ISO 14000 series of standards and EMAS entail similar requirements for the establishment of an environmental management system. However, the popularity of the ISO 14000 series of standards far exceeds EMAS, especially in the North American market. Some consider the strength of such an approach to be in the transparency of these initiatives. Though, ISO 14000 series of standards was developed by the International Organization for Standardization in

Geneva, the process included numerous international stakeholders. It is perhaps this credibility that contributed to the acceptance and adoption of the ISO 14000 series of standards throughout the world. Statistics indicate that by the end of 2001, at least 36,765 organizations in 112 countries have been awarded certification. In Canada there are approximately 801 ISO 14001 certified firms. It is an increase from 475 in the previous year. The numbers are expected to increase, as ISO 14000 initiatives become widely accepted and expected (IOS, 2002, p. 26). Since international standards are difficult to apply in Canada, the ISO 14000 series of standards has been adopted and endorsed by the Standards Council of Canada since each nation must have an agency that oversees the accreditation of certifying agencies. "The widespread adoption of ISO 14001 environmental management systems (EMS) thus represents at least a philosophical intent to provide a means toward achieving the goal of sustainable development" (Andrews, Darnall, Rigling-Gallagher, 1999, p. 41).

Like other initiatives, proponents claim that adoption of these initiatives provides substantial benefits to firms as described in Table 9.

Table 9 Benefits of implementation of customer driven initiatives

- Harmonizing and simplifying their environmental practices thus reducing the need for multiple registrations, permits, and requirements
- Transparency of the process to help shareholders, government, regulators, financial institutions and the public to assess potential risk reduction
- Reduce the number of environmental incidents and liabilities
- Increase efficiency of operation by removing unnecessary waste
- Increase awareness of environmental impacts of operations
- Establish a strong image of corporate social responsibility

(Rondinelli and Vastag, 2000, p. 501)

A report published by Urlich Steger indicated that companies subscribing to the ISO 14000 series of standards reported more tangible benefits. These included increased compliance with numerous and complicated regulations, higher motivation of employees, more transparent and effective organization, lower risk of liabilities, allocation of responsibility and information flow

for all environmental issues and improvements in health and safety. Urlich has found that environmental self-governance through the use of Environmental Management Systems among individual organizations was feasible and working, with some uncertainty over how well these systems could be maintained in the long run (Steger, 2000, p.32). These types of initiatives claim to create "win-win" opportunities to improve environmental performance and increase shareholder value by enhancing corporate image, improving customer relations, realizing cost-savings and promoting innovation. "On the other hand, EMSs are portrayed as necessary defensive tools to maintain and increase competitiveness, especially in the face of globalization and trade liberalization" (Wood, 2001, p. 66)

Critics are not as accepting of the claims that environmental management systems can move corporations toward sustainable development. Their concerns question the claims made by the proponents of these initiatives and the subscribing firms, more specifically in the following areas

Table 10 Criticism of Customer Driven Initiatives

- The standards do not measure the actual performance of a company
- The standards assume that the EMS in an organization is able to effectively deal with its environmental impacts
- There is no method to ensure that continuous environmental improvements actually occur;
- Development of goals and objectives is based on consensus within an organization and may be sub-optimal and ineffective
- Costs of developing and implementing and certifying an EMS is often discouraging to small and medium organizations
- There is no provision for de-certifying a company that becomes lax in its environmental practices

(Rondinelli and Vastag, 2000, p. 501)

Furthermore, EMS based standards are not specific in prescribing substantive environmental performance, nor do they direct which environmental goals should be given priority. These initiatives do not prescribe the introduction of specific pollution-prevention or sustainability-related practices. Neither do they mandate the rate or the degree of continuous improvement measures, or how quickly an organization must actually achieve compliance with environmental regulations. Furthermore, they do not require organizations to document achievements or, more

significantly, require failures to be made public. NGOs argue that such programs lack transparency and credibility, as they have management decide which goals the organization may obtain, resulting in short sighted goals that are susceptible to market and organizational changes. The main arguments is, in order for these types of voluntary initiatives to be successful, there needs to be a strong legislative and market pressure. "The EMS is essentially a voluntary formalized process for documented assertions, as to how the organization intends to manage its potential impacts on the natural environment" (Andrews, Darnall, Rigling Gallagher, 1999, p. 42).

The return on investment relationship between the implementation of either the ISO 14001 or EMAS, has been the subject of numerous discussion papers which suggest that the exact benefit of implementing such systems and the responses of consumers are unclear. In order to examine the actual performance of organizations and the effectiveness of EMSs the National Database on Environmental Management Systems (NDEMS) was developed in the US. The study focused on five outcomes: environmental performance, regulatory compliance, pollution prevention, engagement with stakeholders, and economic performance. Preliminary results indicated that not all of the program participants have reported economic net benefits (Andrews, Darnall, Ringling- Gallagher, 1999, p. 51).

The framework found in the ISO 14001 series for strict compliance with standards and utilization of third-party auditors to evaluate their conformance, has the potential to significantly influence how environmental legislation is administered. If environmental legislation was to be amended to utilize a combination of prescriptive and performance based-regulations, ISO 14001 and similar management systems would become commonly accepted. These concepts in the framework of legislative requirements will be further discussed in the next chapter. An EMS based approach can be a valuable tool in promoting continuous improvement for industry, andencouraging more sustainable environmental performance.

The short fall of these programs is their focus on efforts of individual organizations in identifying their impacts and therefore, they are insufficient in addressing industry as a whole, limiting their effectiveness in achieving sustainability. Furthermore, there is no clear evidence to

indicate the stability of EMS goals and implementation over time. Firms are susceptible to economic and social changes reflected by their personnel, leadership, financial and market pressures, and even corporate structure and ownership.

> "Environmental management systems are tools to better reconcile corporate and economic goals, but they cannot substitute politically set standards for environmental protection nor more environmentally sensitive consumer behaviour."
>
> (Steger, 2000, p. 32)

These types of initiatives are considered to be more credible than self interest, because of transparent standards for compliance and third party verification requirements. However, the transparency of the process is questionable, as it lies with the discretion of management and to some degree the auditor without allowing public access. Such initiatives are just gaining momentum in Canadian industry. Initiatives on the behalf of automotive industry have led to the requirement for ISO 14001 certification on behalf of the entire industry sub-sector. Perhaps, for now, the end goal of such a scheme is not sustainability, but rather management of one's impacts. However, in the long run, these types of initiatives hold the potential for being adequate in ensuring sustainability, if adopted across numerous industry sectors.

3.2.3 Private Codes, Industry Guidelines, Covenants, Negotiated Agreements

These voluntary initiatives commonly involve industry associations, governments, NGO's and are the primary focus of this research. There are several types of initiatives. They commonly include green procurement, product stewardship, private codes or industry guidelines and industry-government negotiated agreements. Agreements between industry and the public are not common in Canada. The table below demonstrates work done by Pollution Probe in identifying various Canadian environmental initiatives.

Table 11 Inventory of Canadian Voluntary Initiatives

Industry Initiatives	Government Initiatives	Joint Government/Industry Initiatives	Third Party Initiatives
Canadian Chemical Producers Association – Responsible Care	ARET/ARET 2 (Accelerated Reduction/Elimination of Toxics)	Pollution Prevention MOU (Autos;Auto Parts; Metal Finishing; Chemical Producers; Printing and Graphics)	Canadian Standards Association ISO 14000 series of standards/EMAS (Eco-Management and Audit Scheme)
Whitehorse Mining Initiative	Ontario Smog Plan	Dofasco's Environmental Management Agreement	Canadian Standards Association Sustainable Forest Management System
Canadian Polystyrene Recycling Association	R-2000 HOME Programme	Hamilton District Auto body Repair Association Partnership	Pollution Probe's MOU for Mercury Reduction/Elimination in Hospitals (Mercury)
Environmental Commitment and Responsibility Program	Ontario Environmental Farm Plan Programme	Corporation in Support of Recycling and the Ontario Blue Box Programme	Forest Stewardship Council's Certification Programme
Forest Care	Great Lakes Remedial Action Plans	Canadian Industry Programme for Energy Conservation	
	Fraser Basin Management Board	Voluntary Challenge and Registry	
		Alberta Flare Gas Initiative	
		Emery Creek Environmental Association Industrial Community Partnership	

(Pollution Probe, 1999, p. 24)

A survey done by Monsuma and Mazurek in 1998 indicated that EU member countries had over 300 voluntary environmental agreements and that the US EPA administered roughly 40 similar agreements (Monsuma, Mazurek, 1998, p. 370). If the table above is an indicator of Canadian initiatives, it is clear that we are lagging behind. Unlike Canada, EU member countries like the Netherlands went so far as to make negotiated environmental agreements an alternative to traditional regulations. The most significant example is the Dutch National Environmental Policy Plan (NEPP). Adopted in 1989, the intent of the plan was to put industry on the path of sustainability, by restructuring environmental management to target sectors rather than individual media. The European Union has adopted the Integrated Pollution Prevention and Control Directive in 1996. The intent was to integrate air, water, waste and toxic pollution requirements in order for companies to develop and obtain operating permits. The long term goal of this directive was to increase the level of environmental protection and harmonize requirements across member states (Monsuma and Mazurek, 1999, p. 371).

In the discussion of voluntary codes and negotiated agreements, it is important to distinguish between the two. Negotiated agreements are arrived at by negotiation between an industrial sector and government. Industry codes are usually intended to set performance and compliance expectations while negotiated agreements set targets for reductions of toxic chemicals. ARET (Accelerated Reduction/Elimination of Toxics) is an example of negotiated agreement between industry and government (Pollution Probe, 1999). These agreements are not without criticism. "Lack of data collection, analysis and reporting protocols has frequently been identified as a weakness in Canada's ARET program" (Meyer S., 2000, p. 3). ARET2 is the next generation in development and will hopefully address some of the shortfalls of the original agreement by including additional sectors and targeting to reduce emissions of a broader range of susbstances.

In order to achieve sustainable environmental management, Moffet suggests that traditional environmental regulation will only be able to get us approximately 20% of the way there. Therefore, other instruments such as voluntary initiatives similar to those in the table above will have to be the catalyst for the remaining 80%. Furthermore, efforts on behalf of industry

associations would have to be more prominent in advancing innovation-based, beyond business-as-usual environmental performance.

> Associations have long offered services to their members, ranging from providing market data to organizing group purchasing plans. Today, some associations offer some form of environmental-related services to their members. Most of these services are compliance-oriented and are characterized by activities such as new rule notification, compliance guides, training materials, workshops, technology reviews and technical assistance.
>
> (Institute for Corporate Environmental Mentoring, 2000, p. 3)

Canadian industry associations are in fact, key players in achieving an innovation-based drive towards environmental improvement. Participant in voluntary initiative programs have reported the following benefits for their members:

Table 12 Benefits of Code Programs

- Better recognition of environmental efforts;
- Better transfer of best management practices;
- Increased communication between members on environmental issues;
- Reduced insurance premiums for participating firms; and
- Procurement preference by customers

(Institute for Corporate Environmental Mentoring, 2000, p. 6)

Few associations have taken the leadership in promoting and contributing to sustainable environmental management, without compromising interests of their members. However, it is unclear on the larger scale whether others will follow suit. Research done by Matouq, found that industrial associations in Japan played an important role in introducing the ISO 14000 series concept and contributed to their adoption among their member firms (Matouq, 2000). It is possible that few associations combined can influence the environmental practices of thousands of firms. Therefore, these types of self-regulatory activities hold the potential of significantly influencing the achievement of sustainable environmental management by industry.

3.3 Key Elements of Effective Voluntary Initiatives

There is some debate regarding whether voluntary initiatives truly increase the environmental performance of companies. The main criticism revolves around the tendency of these programs to appeal to the lowest common denominator. In other words goals and targets developments are left to the discretion of the industry and such can lead to short term inexpensive and ineffective solutions (Institute for Corporate Environmental Mentoring, 2000, p. 7). Critics of self-regulation argue that without the express threat of regulatory consequences, industry is not capable of advocating best practices for environmental management. If organizations consider prosecution and enforcement of legislation as key driving forces behind acceptance of voluntary initiatives, enforcement agencies play a key role in driving this effort.

Due to relative novelty of these approaches, long term commitments of firms to the requirements of voluntary initiatives are not yet proven to be effective and are generally unknown. Jon Plaut summarizes some of the expressed criticism towards voluntary initiatives in the following table:

Table 13 Pitfalls of voluntary initiatives

- Some environmental NGO's so discourage governments about industry's will and intent to carry out programs as to negate government support, or more important, skew public perception that progress can be made.
- Some industry overreach in promoting an EMS or other voluntary programs as a substitute for regulation. Greedy overreach will greatly harm government and public acceptance of these program and processes, and impede industry's focus on making progress.
- If a complete integration of environmental concerns into the overall business or governmental decision process occurs, the special character of environmental advocacy may be subsumed or lost altogether. Otherwise including environment into every-day decision process for business and government, thus susceptible to being trimmed in a wave of cutbacks or delayed in times of austerity.
- Must have a global acceptance of these good environmental management approaches.
- The instrumentalities of capacity building in industry, in governments, and universities need to tool up to support these good environmental management approaches. Without continued training and professional environmental development, significant progress will not be made.

(Plaut, 1998, p. 474)

Self-regulation holds the potential to effectively address environmental issues, however, an initiative that is poorly designed, inappropriately used or implemented, can cause repercussions for not only the industry, but the public as well. In defining how self regulation can be successfully implemented, it is important to identify key elements of effective environmental voluntary initiatives. This section of the chapter will examine suggested key elements of effective voluntary initiatives.

A widely quoted KPMG poll, referred to by R. Gibson, acknowledges that most organizations are motivated by economic factors and are driven by desire to comply with regulatory obligations (Gibson, 1999). It seems that regulatory pressure is one of the key driving forces behind initiative development by industry groups and associations. In discussion of key voluntary initiative elements it is important to address the importance of such drivers. Gibson suggests the following six drivers as the important motivators for industry:

Table 14 Drivers for effective voluntary initiatives

- Incentives to reduce costs, especially by cutting resource use and waste generation;
- Desires to avoid or at least delay additional regulatory action that would impose undesirable administrative and compliance costs;
- Fear of damage to public image and associated customer and investor confidence, especially where there is mandatory disclosure to government or industry associations;
- Requirements imposed by banks/or insurers that do not wish to inherit environmental liabilities;
- Opportunities for increased sales, especially in meeting demands of suppliers and customers who wish to avoid environmental costs and liabilities;
- Pressure from fellow industry members and from company employees.

(Gibson, 1999, p.260)

In a review of Canadian manufacturing associations and their voluntary environmental initiatives, it would be interesting to see whether some of these drivers are evident in influencing their environmental efforts. On the other hand, these drivers have to take centre stage in the discussion of policy framework and government involvement.

There are several sources of information that indicate the key characteristics of voluntary initiatives. Some are fairly general and others are more complex. Since voluntary initiatives have sparked world wide interest, the United Nations Environmental Programme (UNEP) has suggested that effective code programs have the following 5 characteristics:

Table 15 UNEP 5'C of Effective Code Programs

- Commitment: Success is dependent on the commitment of members to sincerely implement the program
- Content: Code programs should have a focus on proactive approaches, development of management tools, and a vision of social responsibility.
- Collaboration: Code programs should foster information dissemination, education and training guidelines, and peer support and networking.
- Check : Associations need to check industry awareness, implementation, and results of code programs.
- Communicate: Associations must communicate progress to those outside the industry.

(Institute for Corporate Environmental Mentoring, 2000, p. 13)

A Canadian perspective on effectiveness of voluntary codes was published by the Office of Consumer Affairs, Industry Canada. The guide, titled "Voluntary Codes: A Guide for Their Development and Use", provided the following recommendations for common characteristics of good voluntary codes:

Table 16 Industry Canada common characteristics of good voluntary codes

- A "plain language" statement of code objectives
- Clear, concise obligations
- A range of information-oriented provisions governing compliance
- Provisions creating positive inducements for parties to comply (Such as use of logos, rating system, plaques or awards, seminars, training and publications)
- Provisions creating penalties for non-compliance
- Dispute resolution provisions
- Periodic review and amendment
- Financing and commitment of key human resources

(Industry Canada, Office of Consumer Affairs, March 1998, p. 7)

Significant support has been given to the work done by the New Directions Group (NDG) on their work on setting criteria and principles for the use of voluntary initiatives. The NDG represents leaders of business, NGOs and government. The report titled "Critera for the Utilization of Voluntary or Non-Regulatory Initiatives (VNRIs) to Achieve Environmental Policy Objectives" was published in 1997, receiving industry-wide attention. The following table summarizes the recommendations made by the New Directions Group covering both issues of policy and the design for voluntary initiatives.

Table 17 New Directions Group Criteria and Principles for Voluntary Initiatives

Criteria for Utilization of VNRIs to Achieve Environmental Policy Objectives

- VNRI's should be positioned within a supportive public policy framework that includes appropriate legislative and regulatory tools.
- Interested and affected parties should agree that a VNRI is an appropriate, credible and effective method of achieving the desired environmental protection objective.
- There should be a reasonable expectation of sufficient participation in the VNRI over the long term to ensure its success in meeting its environmental protection objective.
- All the participants in the design and implementation of the VNRI must have clearly defined roles and responsibilities.
- Mechanisms should exist to provide all those involved in the development, implementation and monitoring of a VNRI with the capacity to fulfill their respective roles and responsibilities.

Principles Governing the Design of Credible and Effective VNRIs

- are developed and implemented in a participatory manner that enables the interested and affected parties to contribute equitably;
- are transparent in their design and operation;
- are performance-based with specified goals, measurable objectives and milestones;
- clearly specify the rewards for good performance and the consequences of not meeting performance objectives;
- encourage flexibility and innovation in meeting specified goals and objectives;
- have prescribed monitoring and reporting requirements, including timetables;
- include mechanisms for verifying the performance of all participants; and
- encourage continual improvement of both participant and the programs themselves.

(New Directions Group, 1997, p. 2)

Additional work done by Stephanie Meyer of Stratos Inc. on the credibility of voluntary initiatives suggests the importance of the following design mechanisms:

Table 18 Design Mechanisms for credible voluntary initiatives

- Data Collection and reporting protocols
- Environmental Management System in Place
- Self Declaration Statements
- Program Review of reported data
- Public Disclosure of Performance Data
- Verification of Participant Claims
- Program Evaluation

(Meyer, 2000, p.3)

Based on the work done by NDG and further extensive research, Pollution Probe, in it's report "Towards Credible and Effective Voluntary Initiatives", suggests the following characteristics of an 'ideal voluntary initiative':

> The ideal Voluntary Initiative has clearly stated and publicly supported goals, targets and timelines. Progress is measured and reported at regular intervals, with problems addressed openly and expeditiously. The initiative is evaluated and adjusted, as necessary, with the full participation of stakeholders. Independent verification results demonstrate that the goals and targets are achieved in a cost-effective way, and the company or sector is publicly recognized for exemplary environmental performance. The process used and the results of the voluntary initiative are shared with other companies and sectors and serve to stimulate similar approaches and initiatives.
>
> (Pollution Probe, 1999, p. 63)

What is evident from the above suggestions for effective voluntary initiatives, is the emphasis on three key concepts: transparency, openness and credibility.

> Transparency of the voluntary initiative refers to the ability of parties not directly involved with the initiative to observe both the process and the outcome of the policy. Openness refers to the ability of outside parties to participate in the process and influence the outcome.
>
> (Paton, 2000, p. 330)

Associations, when developing these initiatives, must take into consideration the transparency of the process and the importance of external stakeholders. Similarly, credibility is dependent on two related, but distinct factors: accountability among parties for meeting the terms of the program and public trust that claims about satisfying these terms are true (Meyer S. 2000). Until associations can address these issues and address them effectively, critics will continue to challenge the effectiveness of these instruments.

Voluntary environmental initiatives have the potential to effectively address issues of sustainable environmental management, when developed at the industry association level. However, such efforts are not a minor undertaking. They require commitment and buy-in from the members and resources and knowledge for development and administration. Such demands on resources tend to favour large industries and remain prohibitive for small firms and their associations. Some of the more significant criticisms of voluntary environmental initiatives have been their inability to address the needs of small and medium organizations. Gunningham, in his analysis of the Responsible Care Initiative in Australia, has indicated that such schemes tend to favour the interests of large industry players, as they are better able to cope with the weaknesses. He concluded that the complicated nature of this type of voluntary initiative would make it next to impossible to be widely adopted by small and medium sized companies (Gunningham, 1995). Thus, associations with fewer firm members or comprised of small and medium enterprises tend to lack knowledgeable staff or resources, therefore are most reluctant to develop these initiatives. In order to motivate these associations and organizations, the Institute for Corporate Environmental Mentoring suggests that the regulatory agencies provide the following support mechanisms: technical assistance, recognition, acknowledgement in government procurement, priority attention for new registrations and permits, regulatory flexibility and inspection relief (Institute for Corporate Environmental Mentoring, 2000, p.13).

Another alternative to addressing the needs of small and medium organizations may be through environmental mentoring. In the United States, the National Environmental Education and Training Foundation (NEFT) has encouraged the establishment of mentoring programs to assist firms in facilitating superior environmental and economic performance. These efforts led to the creation of the Institute for Corporate Environmental Mentoring (ICEM). A study conducted by NEFT has found that mentoring programs tended to provide a higher degree of value through easy access to personalized low-cost or free information. Mentoring companies and individuals who sponsored and/or participated in mentoring activities also appeared to benefit. Through sharing of information and demonstrating leadership, these initiatives have the potential to raise the performance standards of the entire industry sector (Institute for Corporate Environmental Mentoring, 2000). Industry-focused mentoring programs can easily be promoted with assistance from industry associations. However, a strong policy framework and availability of expertise

needs to be in place and programs require coordination among regulatory agencies and industry participants.

Chapter 4: Environmental Regulatory Framework and Implications for Self-regulation

4.1 Canadian Environmental Regulatory Framework

Regulating the environment has been a formidable task. Challenges range from overlapping jurisdictions, inability of regulators to address multi-source pollution and severe downsizing of enforcement agencies. The literature suggests that the driving force behind self-regulation has been the limitation of regulations in effectively managing the environment. On the other hand, critics of industry's push towards self-regulation insist that success of these initiatives can only be obtained with a strong legislative backdrop. They argue that industry only values profit and therefore the success of these types of initiatives is uncertain. Few successes have been reported through the use of voluntary initiatives alone, making them an unlikely alternative to traditional regulation. If voluntary environmental initiatives are to be pursued to achieve sustainable environmental management, it is imperative to consider how a legislative framework can enhance their effectiveness.

Over the years, statutory law has come to replace common law actions as the primary law used to protect the environment. The Ontario Environmental Protection Act and the predecessor of Canadian Environmental Protection Act came into effect in 1970s, shifting the focus towards providing protection to the natural environment through regulation and enforcement.

> The basis for the regulatory administration of environmental statutes are such measures as laws encompassing orders, permits, licensing, approvals and requirements regarding industrial processes and products.
>
> (Hillary and Thorsen, 1999, p. 2).

The responsibility for environmental regulation is a "shared subject matter" between federal and provincial jurisdictions in Canada. Consequently, this can lead to jurisdictional limitations in the establishment of laws, regulations, permits and authorities of enforcement agencies. With the

exception of the *Ontario Environmental Assessment Act* and similar assessment legislation, the purpose of traditional "anti-pollution" legislation at both federal and provincial levels is to regulate contaminants and actual and potential sources of pollution, otherwise known as the "command and control" approach.

> The traditional method of regulating environmental pollution was a combination of civil and criminal law remedies, administrative measures (licensing), taxation, and to a lesser degree self-regulation.
>
> (Hutter, 1999, p. 20).

The "command" refers to a method for setting minimum standards for performance or prohibiting certain activities from taking place. In Canada, both the *Canadian Environmental Protection Act* and the provincial environmental protection acts can be considered command tools, as they primarily set the minimum standards and prohibitions. The"control" part of this system is generally comprised of inspections, monitoring, enforcement and prosecution activities performed by the environmental administration agencies. Key participants in enforcement are Environment Canada, the provincial environmental ministries and the courts.

> It is the general perception that regulation of industry through legislative framework has been the most prevalent choice by the government, because when properly enforced, it offers a high degree of assurance that the objective will be achieved.
>
> (Long, 1997).

The traditional "command and control" regulatory approach to environment has been criticized for its inability to promote pollution prevention and for not being proactive. Estrin and Swaigen state that in Ontari, our legal system has traditionally lagged behind environmental developments.

> ...environmental protection statues in Ontario have been fundamentally reactive in nature. They have not been designed to anticipate and prevent environmental damage. Rather,

> statutes like the *Environmental Protection Act* have taken development patterns as given and have then sought to mitigate their environmental effects. Furthermore, the implementation of environmental protection statutes in Ontario has tended to be approached on a media- or issue-specific basis. The environmental protection issues have rarely been treated as an integrated whole.
>
> (Estrin and Swaigen, 1993, p. xxx)

However, it is important to recognize that environmental legislation has played a significant part in reducing the levels of pollution since its inception in the early 70s. The original intent was for regulators to set a minimum standard and address clean-up as the priority, with special emphasis on target industries as single-source heavy polluters. The remaining sources of pollution are more dispersed through industry, agriculture, transportation and consumer activities, making the risk associated with pollution less visible. Thus, the limitation of the traditional system is in its focus on the control of individual sources of pollution. The command and control system is ineffective in ensuring sustainability, because it does not address other key elements of environmental protection such as energy and resource conservation, pollution prevention, land-use planning, conservation of natural environment, environmental assessments, regulation of water bodies and water protection, manufacture, transportation, sale and use of toxic chemicals. Some of these elements are covered by a diverse spectrum of other environmental laws and enforcement bodies, not necessarily with the same mandate for policy planning, regulatory administration and enforcement.

> ...it must be recognized that solutions to Canada's major environmental problems require the action of both federal and provincial levels of government, and that fragmentation and ambiguity of jurisdictional responsibility hinder the development of effective responses to these problems.
>
> (Dwivendi, Kyba, Stoett, Tiessen, 2001, p. 78)

Sustainable environmental management is an issue crossing many jurisdictional and administrative boundaries, requiring multi-department, ministry, jurisdictional and international initiatives not expressly limited to provincial ministries of environment or Environment Canada.

Non-compliance with environmental legislation at both federal and provincial levels carries the potential for severe penalties for violators. The primary objective of these penalties is to discourage regulatory violations and to act as a deterrent to non-compliant firms and industry at large. In addition, private lawsuits for damages to property may be brought against polluters based on common law rules. "Regulatory offences may lack the 'glamour' of crimes, but they are the most effective penal option available to address corporate misbehavior in Canada." (Webb K., in Greenbaum, Wellington, Pushchak, 2002, p. 86) The strength of this approach is also its limitation. Prosecution of regulatory offenses may be a more powerful option for dealing with polluters, but certainly not the most effective. The behaviour of organizations is primarily influenced by market forces that affect profits. Prosecutions of organizations have a limited effect in bringing about changes that influence the behaviour of the entire industry sector. Furthermore, governments have struggled to maintain a high level of enforcement and prosecution, in the face of severe cut-backs and reduction in enforcement personnel. According to "Canada's Environmental Enforcement Report Card", the total numbers of inspections, prosecutions, convictions and fines collected at both federal and provincial levels have plummeted over the last decade. In addition, such information has become harder and harder to collect, as many jurisdictions do not publish these records and others don't collect them at all. The report has given the Canadian government a poor grade for enforcement of environmental legislation and failing its citizens (Canada's Environmental Enforcement Report Card, 1999).

The International Institute for Sustainable Development, in its report on "Beyond Regulations, Exporters and Voluntary Environmental Measures", has suggested several reasons as to why a regulatory approach to managing the environment has been inadequate.

> First, the job of environmental protection is tougher than anticipated. Second, there are tasks for which the tools were never designed, such as addressing the need to substantially reduce the resource throughput and thus ensure sustainability. Third, in an era of deficit fighting and government downsizing, the expense and inefficiency of the regulatory approach have become issues. Fourth, an increasing number of companies have discovered that proactive environmental management makes good business sense. Finally,

> the prescriptive nature and lack of flexibility of the regulatory approach have not allowed business adequate opportunity to develop innovative, effective and efficient means to achieve environmental goals.
>
> (Kerr, Cosbey, Yachnin, 1998, p. ix)

Regulations for managing the environment are necessary, but if used alone are not adequate in managing the environment, therefore, need to undergo major changes.

> ...regulatory instruments are not, in and of themselves, sufficient to bring about sustainable development. A wider range of policy instruments are needed to address the complex problem of developing an ecologically conscious society such as that envisioned in the sustainable development concept.
>
> (Estrin, Swaigen, 1993, p. xxx)

Furthermore, the debate for reform has focused on the prescriptive nature of traditional "command and control" legislation. As the complexity of environmental issues increase, traditional legislation would have to increase the number of detailed performance-specifying regulations, making review and harmonization difficult at the same time overburdening courts, enforcement agencies and increasing administrative delegation. This prescriptive approach may be considered a "blunt instrument" in achieving sustainable environmental management.

> The expansion of substantive command and control occurs by (1) legislating increasing number of detailed statutes and at the same time, (2) delegating increasing discretion to administrative agencies. This legal expansion increases the separation of law making from the democratic procedure that contributes to the legitimacy of the system.
>
> (Orts, 1995, p. 1258)

Though Orts' discussion focuses on the reflexive approach to environmental law in disclosure first and enforcement second, the same argument can be used in support of performance-based regulations. Essentially, the support for self-regulation is in a way a support for performance based legislation that would avoid the above mentioned limitations.

Alternative policy tools, such as industry self-regulation, present a challenge for policy makers in balancing the interests of both the public and industry. Of the various self-regulation methods, voluntary environmental initiatives promoted by industry associations provide one of the more promising alternatives to achieving sustainable environmental management. The debate over prescriptive procedure versus performance-based approaches to regulations, specifically voluntary environmental initiatives at the industry level, provides a strong possibility of enhancing regulations by means of setting acceptable industry performance standards.

4.2 Strategies for change

In finding strategies for change, it is important to fully understand the characteristics of both systems. Webb and Morrison discuss the differences between voluntary and regulatory approaches in rule creation. Most significant of the differences noted are the philosophical base for law creation and the premises for self regulation of industry. The following table details the characteristics as they apply to both laws and voluntary codes:

Table 19 Characteristic of Laws and Voluntary Codes

Characteristics	Laws	Voluntary Codes
Rule making institutions	Pre-established, more credibility	May be newly established, less credibility
Visibility of process	High	Lower
Cost	High, but spread across society	Lower, but borne by a smaller group
Development Process	Difficult: highly formal, expensive, democratic, but theoretically open to all	May be easier: less formal, less expensive, but may not be open to all
Ability to make amendments	Difficult	Easier
Sanctions which can be attached	Can include coercive sanctions including imprisonment	Primarily market-based: may be tort and contractual liability implications
Scope of application	Can be imposed on free-riders: system not based on contractual consent	Difficulty with free-riders: system based on contractual consent
Constraints on rule development	Considerable: constitutional and procedural	Few: may apply across national and provincial boundaries
Likelihood of rules ultimately being developed through the process	Political process makes outcomes difficult to predict	Closed, limited process makes outcomes easier to predict
Likelihood of rigorous standards or obligations being developed	High: rules established by outside interests, less chance for bias to affect the development of standards	Low: rules established by parties which will be affected

(Webb and Morrison, 1999, pg 234)

As seen in the above table, each approach has its strengths and weaknesses. The limitations of laws can be applied to both federal and provincial environmental jurisdictions. Supporters of regulatory environmental control indicate that the strengths of such a system are their high visibility, wide and uniform application and highly coercive sanctions. It is evident from the

above table that regulations entail high costs, take a long time to develop and are difficult to amend. Despite its shortfalls and limitations, the regulation of industry through legislation is still perceived by many as an important and necessary regulatory method in providing the traditional carrot and stick approach and motivating industry to do more (Hutter, 1999).

In the issues presented in table 19, there was no discussion of the differences between laws and voluntary codes in addressing risk. As discussed previously, the process of law and regulation development is lengthy and lags behind developments in the environmental field including the identification of new risks. Regulations may also be limited in addressing multi-media risks. It has been suggested that voluntary initiatives are capable of setting standards for addressing new risks or dealing with complex issues far more efficiently than regulations. Secondly, many regulation development processes may be considered static, as they rely on the availability of current information.

> "Command and control" statutes are static. Statutes enacted at a particular time in history are limited by the available knowledge of the time, especially scientific and technical knowledge. Because "command and control" statutes cannot "learn" easily from changing circumstances and developing knowledge, they often fall short of achieving their objectives in a rapidly changing world.
>
> (Orts, 1995, p. 1238)

Faced with years of cutbacks and a lack of resources, many government agencies simply lack sufficient information and scientific review procedures. Rondinelli suggests governments need to have a better system in order to "avoid placing too much emphasis on problems that may be inconsequential while ignoring problems that may have significant impacts on public health and ecology" (Rondinelli, 2001, p. 38).

> Better scientific information can help to reduce uncertainties in environmental decision making, identify emerging problems, deal with unanticipated threats, and develop cost-effective strategies to reduce risks.
>
> (Rondinelli, 2001, p. 38)

One unique attribute of legislative control, is the independence of law makers from the business community. When setting laws, the process is expensive and lengthy, however, the decisions are often neutral. Certainly, government gets lobbied by various groups representing both industry and the public, but the accountability of government lies with the public that has elected them. Thus, laws serve the purpose of protecting the public interest. Supporting arguments for ineffectiveness of laws are well established, siding with either business in its view of overregulation, or with the public in their concerns about inefficiency and under-regulation.

> Conflict theorists believe that regulatory laws and policies do nothing to curb seriously the activities of business and industry, which they believe to be both major players in the shaping of regulatory policies and players who are deemed to be favoured in the implementation process.
>
> (Hutter, 1997)

Rondinelli states that current policies and regulatory regimes do not adequately reward organizations or industries for adopting practices that lead to sound environmental management and sustainability. He presents the following reasons for the inability of current legislative approaches to achieve sustainability:

Table 20 Shortfalls of Traditional Legislative Approach in Achieving Sustainability

- Environmental regulations are numerous, complex and frequently amended, making it costly and difficult for regulated entities to stay abreast of compliance requirements.
- Regulations are punitive rather than incentive driven, creating tensions and sometimes hostility between government and regulated entities rather than positive incentives for change
- The slowness of regulatory and bureaucratic process makes it difficult for government to stay ahead of environmental threats and promote pollution prevention, rather than emission control, which is the focus of environmental policy.
- A command-and-control approach to environmental protection encourages regulated entities to comply with the minimum requirements set in regulatory standards rather than exploring managerial and technological innovations that go beyond compliance.
- Regulations result in a uniform set of standards that are not flexible enough to address variations in industry conditions and local needs for solving environmental problems.
- Media specific environmental regulations are inadequate to deal with the increasingly significant non-point sources of environmental degradation.
- Changes in environmental regulations are often based on administrative or political criteria rather than sound scientific evidence, causing suspicion of, or opposition to seemingly arbitrary changes in standards.
- Regulations for which benefits are not obvious, widespread, or clearly in excess of financial costs undermine compliance and encourage regulated entities to find ways of evading them or complying minimally.
- The command-and-control approach to environmental protection reinforces an adversarial relationship between government and the private sector that subjects regulatory changes to political backlash and legal challenges.

(Rondinelli, 2001, p. 31)

It is important to note that the description of voluntary codes is generalized, as the nature of voluntary codes varies throughout industry. The above table provides a good summary of common criticisms of the traditional legislative approach, however, self-regulation itself is not without criticism. Voluntary environmental initiatives promoted by associations are focused on protecting the interests of members and as a result are limited in protecting the interests of the public and the environment. Self-regulation initiatives are widely criticized due to their limited ability to motivate industry in setting goals that meet sustainability. Furthermore, associations have insufficient ability to deal with "free riders", or firms that exploit positive image and industry reputation without participating in these efforts.

The Canadian Environmental Law Association identifies three specific concerns in association with progress towards self-regulation: lack of equal and consistent decision-making, loss of accountability of the regulated community and loss of due process for the public. Rule of law

applies equally to all of the regulated community, however, the pursuit of self-regulation and negotiated compliance agreements will ensure that the playing field will become uneven, favouring organizations with resources and expertise. Another concern about self-regulation is the potential to result in the decrease of accountability from both the government and the regulated community in areas such as enforcement and disclosure. Traditional legal process has provided the public with a level of notice and allowed opportunities for involvement. Consequently, self-regulation may lead to the removal of these rights that are fundamental in our democratic process (CELA, 1996, p. 10). Finally, opponents of self regulation argue that historically the efficacy of voluntary initiatives has proven to be low and in fact, achieved less than government regulations.

> Despite its limitations and 'bad press', command and control regulation is still regarded by many authors as an important and necessary underpinning of other regulatory methods.
>
> (Hutter, 1999, p. 27)

The basis for the argument against self regulation stems from the motivational forces behind industry that focus on profits and not concerns for the environment. The intent of this research is not to determine whether legislative control or self regulation should prevail. The purpose is to provide a discussion of how self regulation can be successfully used in supplementing regulatory control, in order to achieve environmental sustainability. This discussion is not new. The Executive Resource Group in its report to the Ontario Ministry of Environment has identified strategies for managing the environment. They have indicated that the major challenge for regulators is to move from the traditional regulator role in managing pollution, to a proactive role of managing the environment. The following table demonstrates key strategies in enabling such change.

Table 21 From Traditional Regulator Towards Strategic Environmental Management

From a Traditional Regulator	Towards Strategic Approach to Managing the Environment
1. One ministry having sole responsibility for environmental protection	1. A high-level, government-wide vision and goals with implementation shared across different departments
2. A primary emphasis on ensuring compliance with minimum standards for large stationary facilities	2. A new broader emphasis on strategies to promote continuous improvement in environmental outcomes and accountability across all sources of pollution
3. Traditional program delivery according to municipal or ministry department area or region boundaries	3. A place-based approach with boundaries that make environmental planning sense and facilitate a total cross-media, cumulative approach (such as watershed management)
4. A primary reliance on traditional investigations, enforcement, and abatement tools	4. A more comprehensive, flexible set of regulatory and non-regulatory compliance tools and incentives
5. A reliance on government to do it all	5. An approach based on shared responsibility with the regulated community, NGO's, the public and the scientific/technical community

(Executive Resource Group, 2001, p. 3)

Of particular significance, for the purposes of this research is strategy number four, the need to have an integrated approach to environmental compliance assurance. With the recognition that the traditional enforcement strategies are lacking in resources, expertise and knowledge, there is a growing need to pursue other more flexible approaches, including self-regulation. Compliance assistance can now be found in economic instruments, sector initiatives and cooperative industry agreements. However, in order to make this partnership work, a strong network of support for effective, but tough, inspections, investigations and enforcement must still remain. Strategy number five identifies the need for shared responsibility with the regulated community, in a way that would balance the interests of industries and environment. More specifically, these efforts will allow the regulated community to take part in demonstrating clear accountability and verification requirements through routine monitoring and reporting,

including self-certification and third party audits. Since associations represent the interests of their industry, point number five would imply the need for associations to promote such efforts. If only a small percentage of industry associations participate in promoting such rigorous monitoring and verification levels, it would be difficult for industry to be held accountable without reverting back to the regulatory model.

The current structure of the Canadian regulatory framework is not well organized, adequately staffed or legislatively enabled to actively support voluntary environmental initiatives from industry. Several programs for pollution prevention and industry agreements for toxic pollutant reduction are in place, but have limited scope and impact. Programs such as ARET (Accelerated Reduction of Environmental Toxics) have claimed success, although critics argue that information was not verified for accuracy and therefore may not necessarily represent actual reductions. Both federal and Ontario governments have utilized Memoranda of Understanding (MOUs) as a tool in promoting pollution prevention activities. "Various government representatives believe that such agreements may represent the most effective way to induce companies to adopt pollution prevention techniques" (Pollution Probe, 2000, p. 69). These agreements state that participation in voluntary environmental initiatives or other industry commitments are recognized, however, participants are still required to comply with legislative requirements. MOUs have been predominantly used in setting targets for pollution reduction and in most cases promoting pollution prevention efforts. Pollution Probe indicates that at present, few Canadian MOUs have measurable environmental objectives. Furthermore, a formal policy framework on the use of MOUs is not clear or available from either federal or provincial governments.

Canada is not alone in experimenting with pollution prevention initiatives. The United States has implemented several government-driven incentive programs, but achieved marginal participation and limited success. The traditional regulatory approach has definite flaws, as it is expensive and inefficient. However, relying on self regulation alone may pose a risk in loosening government control or influence on industry accountability to the public. The challenge is in striking a balance between government

involvement and industry self regulation as seen in Europe. "European experience indicates in particular that voluntary policies work quite effectively as complements to such policy instruments as regulations, taxes or tradable permits" (Paton, 2000, p. 336).

Such progress has not been as apparent in Canada. In an attempt to address this issue, Environment Canada has taken steps to identify the following action plan in its Sustainable Development Strategy.

Table 22 Environment Canada Sustainable Development Strategy

Develop partnerships with the private sector and NGOs.

The department will use a broad range of tools to resolve environmental problems and will contribute to the competitiveness of Canadian industry. The department will work with the private sector and NGOs to:

- stimulate innovations by streamlining the regulatory burden;
- encourage industry to adopt sustainable development approaches, in particular, eco-efficiency;
- develop voluntary approaches;
- help industry comply with environmental regulations;
- develop, with other government departments and natural resource industries, clear policy statements related to the greening of energy. It will continue to assess the economic and environmental benefits of renewable energy and conservation and communicate the findings broadly to promote the competitiveness of renewable/green energy; and
- encourage private sector investment and advance the commercialization of a broad range of environmental technologies for both the domestic and international markets through the Technology Partnerships Canada Program. It will help position Canadian companies to take advantage of opportunities in the environmental market through the Canadian Environmental Industry Strategy, and will continue to foster capacity building.
- Specifically, EC will:
    - work with Canadian industry and others to identify the environmental and economic benefits of pollution prevention and related opportunities for job creation;
    - help industry address environmental and human health protection issues through improved science and technology, and improve their capacity to solve domestic problems and enter foreign markets;
    - create a national pollution prevention clearinghouse to give Canadians access to the information and tools necessary to implement pollution prevention; and
    - accelerate the commercialization of Canadian environmental technologies and processes by supporting the Canadian Environmental Technology Advancement Centres, which deliver comprehensive technology transfer services to small- and medium-sized environmental enterprises.

(Environment Canada, Sustainable Development Strategy 1997-2000)

The sustainable development strategy looks promising, however, what it lacks are specific roles, methods and timelines to implement it. Furthermore, the challenge of adopting this strategy is in the consistency of application of voluntary environmental initiatives among different associations, industries or sectors. Besides, such an approach has limitations in effectively addressing the needs of Small and Medium Enterprises (SMEs) that tend to lack participation in such initiatives due to limited resources and expertise. These firms and their respective associations make up a significant portion of the Canadian market and are essential in contributing to successful sustainable environmental management.

Government has a significant role to play in the development of the framework for successful voluntary environmental initiatives. The Guide for the development of Voluntary Codes, published by the Office of Consumer Affairs and Industry Canada, provides several methods for government involvement in developing and implementing voluntary codes.

Table 23 Government Involvement in Voluntary Code Initiation and Development

- Catalyst: where government encourages the parties to explore voluntary approaches;
- Facilitator: where government provides resources, advice and some financial assistance in the early stages of code developments.
- Endorser: where government agencies can explicitly endorse a code or association that satisfies the provisions of a code.
- Provider of framework of rules and regulatory support: the existence of such codes may help to achieve regulatory objectives and could have regulatory implications.

(Office of Consumer Affairs, Industry Canada, 1998, p. 21)

Some government involvement in voluntary initiatives and their development is necessary in ensuring their success. The level of such involvement depends on the extent to which these initiatives help to fulfill the government agenda in environmental protection. Unlike associations, government has the mandate to represent the broader interest of the public and the environment. Therefore, Industry Canada recommends that these actions be open, fair and consistent for all parties, respect competition laws and avoid situations that may inhibit trade. In reviewing the extent of voluntary initiatives in

Canada it is apparent that both levels of government currently play the role of a catalyst. Since facilitator and endorser roles require significant costs and resources that are not available, industry and its associations are simply encouraged to explore voluntary initiatives. The traditional role in the protection of the environment by government has been as a provider of framework of rules and regulatory support. However, it is not clear whether compliance assurance is enough of a motivational factor for industry in driving the improvement in environmental performance and innovation. The intent of legislation is to establish the minimum performance standards and use instruments to deter industry from poor environmental practices. What legislation is not capable of doing is encouraging innovation, excellence and sustainable environmental management. Therefore, legislative reform needs to be supplemented with other instruments that will help achieve sustainable environmental management.

A report titled "Managing the Environment", produced by the Executive Resource Group for the Ontario Ministry of the Environment, has provided suggestions on ways to undertake regulatory reform in Ontario. The primary objective of this report was to provide suggestions for transition from the traditional regulatory role towards a strategic approach to managing the environment. Key recommendations provided in this report included the emphasis on strategies to promote continuous improvement in environmental outcomes, accountability across all sources of pollution, a more comprehensive and flexible set of regulatory and non-regulatory compliance tools and incentives. The most significant was the recommendation to share this responsibility with the regulated community, NGOs, the public and the scientific/technical community. As the Ministry of the Environment continues to restructure and shift the focus towards environmental management, it will undoubtedly bring more attention to the use of voluntary initiatives and negotiated voluntary agreements as a way of sharing that responsibility.

Due to the relative novelty of self-regulation as a viable supplement to legislation, several Canadian studies have been published in evaluating the performance and key components of these initiatives. A report titled "Towards Credible and Effective Environmental

Voluntary Initiatives: Lessons Learned" was published by the Pollution Probe in 1999. This research was a comprehensive policy analysis of both voluntary conservation initiatives and environmental voluntary initiatives on behalf of industry. What is obvious from this report, is that voluntary initiatives, if properly designed, can be effectively used in achieving environmental objectives. In order for voluntary initiatives to be more credible and effective, there needs to be a policy framework to make it happen.

> Policy statements for these elements should be articulated by federal and provincial government and supported by guidelines on voluntary initiatives issued by the Canadian Council of Ministers of the Environment. The policy framework complements and builds upon the criteria and principles for Voluntary Non-Regulatory Incentives developed by the NDG (New Directions Group) in November 1997.
>
> (Pollution Probe, 1999, p. 61)

Pollution Probe went further to say that voluntary initiatives and agreements should not be used to compromise the environmental regulatory system and are most appropriate when used as a tool to go beyond existing regulatory limits. Their recommendations for key characteristics for credible and effective voluntary initiatives were used in evaluating the efforts on behalf of Canadian manufacturing associations in this study.

Additional work done by Paton on effectiveness of voluntary programs in relation to other policy instruments has found inconclusive evidence on the ability of voluntary initiatives to achieve environmental effectiveness. Paton referred to environmental effectiveness as: "the ability of a voluntary approach to achieve its intended results: typically emissions reduction or energy savings" (Paton, 2000, p. 330). As with numerous other studies, the challenge in evaluating the effectiveness of self-regulation tools has been the lack of clear and concise data. Voluntary initiatives evaluated in European countries and the US all indicated faults in the design and the implementation of the program itself. Paton concludes that this does not necessarily reflect in the faultiness of the concept itself, but rather the inadequate design and structure of the

programs evaluated. Paton's findings indicate that government involvement in goal setting, structure and evaluation is necessary in order to ensure effectiveness of these measures.

Can self-regulation be successful? If designed and implemented properly, self-regulation can help governments fulfill their mandate for effective environmental management, as seen in Europe. Netherlands and Germany demonstrate the most significant advances and consider that achievement of pollution reduction and environmental protection is best accomplished through the use of industry voluntary initiatives and agreements. However, their approach is not just grounded in voluntary self regulation, but rather a mix of regulatory and self-regulatory regimes. The government provides a broad framework, while allowing industries to decide how they will achieve the specific requirements of this framework. "European experience indicates in particular that voluntary policies work quite effectively as complements to such policy instruments as regulations, taxes or tradable permits" (Paton, 2000, p. 336). Performance of such instruments has been demonstrated to improve economic efficiency. However, it is important to note that the majority of European self-regulatory initiatives are in fact government-industry negotiated agreements or binding contracts linked to the permit system, closely resembling the regulatory regime. Despite these claims of success, a recent OECD study had identified noticeable weaknesses of such instruments. More specifically, negotiated agreements seemed to perform poorly due to non-enforceable commitments, poor monitoring and lack of transparency, with the exception of few agreements that were able to establish safeguards to prevent these problems. Therefore, if self-regulation is to be successful, the OECD recommends that it be used as a policy mix or as a tool to explore new policy ideas. (OECD, 1999, p. 132)

Performance-based laws and regulations that complement and stimulate market-based environmental approaches, rather than overly prescriptive command and control requirements, afford the best chance of improving the environment.

4.3 Legal implications of voluntary environmental initiatives

Information in the literature regarding the legislative implications surrounding voluntary environmental initiatives is based on the following legal convention: contract law, strict liability regulatory law, and competition law. Due to the diversity of voluntary environmental initiatives promoted by industry associations, the discussion of legal aspects in this chapter is very generalized.

Voluntary initiatives developed by industry associations fall under the area of contractual law.

> In legal terms, a consent-based arrangement is known as contract. A contract is formed when one party makes an offer which is accepted by another party and consideration is exchanged.
>
> (Webb, Morrison, 1999, p. 240).

In exchange for the commitment by member firms to adhere to the association rules and standards, these firms receive access to benefits and services offered by the association. The evaluation of voluntary environmental initiatives among Canadian manufacturing associations includes evaluating the method by which the member firms agree to participate in the initiative. If an association requires a mandatory participation or adherences to the conditions of the environmental initiative, then the relationship is subject to provisions of contract law.

> A failure of a member firm to abide by agreed-upon standards set by the association is actionable in contract by the association, just as failure on the part of the association to provide agreed upon services could result in an action against the association.
>
> (Webb, Morrison, 1999, p. 241)

The contractual provisions are only limited to the member firms who choose to join the association, thus an industry wide requirement for self regulation may not be effectively promoted by the industry associations if they fail to attract a significant number of member firms. On the other hand, negotiated voluntary agreements are a combination of contract law and regulatory regime. The non compliance or breach of contract provisions have not been closely analyzed, but present an interesting potential for the regulatory mix of enforcement of such agreements.

Due diligence, in the discussion of legislative implications of voluntary initiatives, is important in understanding the driving forces and shortfalls of such a system. The landmark ruling of the case of *R. vs. Sault Ste. Marie* has clarified the nature of regulatory offences, thus allowing a defendant, who was charged with a regulatory offence, an opportunity to avoid conviction, by demonstrating to the courts that every reasonable action was taken to prevent the occurrence (Webb, Morrison, 1999). This defense, known as due diligence, is common in environmental regulatory law. Voluntary environmental initiatives promoted by industry have the potential for establishing industry wide standards of care that the courts may consider in legal proceedings. This standard of care may extend to all members of the industry even if they are not members of the association or don't officially participate in the initiative. Therefore, if an organization is charged with an offense under environmental legislation, the courts can potentially establish negligence, if the conduct of the defendant strongly deviated from the industry practice.

> Although the industry standard is not determinative of negligence, proof of devaluation from the industry standard may be difficult burden for a defendant to overcome.
>
> (*Clark v McLennan (1983)*, from Webb, Morrison, 1999, p. 244)

The popularity of EMSs is also partly due to their requirement for addressing legislative compliance for participating firms, thus providing an opportunity to "take reasonable care" and establishing due diligence. Proponents of these systems have claimed

tremendous benefits to members in lowering legislative prosecutions and enhancing legal compliance as a result of adopting such systems. The courts also recognize the importance of such systems in sentencing of offenders. The *Canadian Environmental Protection Act* allows the following provisions for courts to consider when determining fines for offenders, possibly reducing the penalty amount if the organization "...has taken remedial or preventative action or proposed by or on behalf of the offender, including having in place an environmental management system that meets a recognized Canadian or international standard or a pollution prevention plan" (CEPA, 1999, s. 287). Furthermore, courts have ordered violators to implement these systems as seen in the cases of *R. vs. Van Waters & Rogers LTD.* (1998) and *R. vs. City of Calgary* (2000), where the defendants were ordered to seek ISO 14001 registration. Based on these decisions, there remains a possibility that industry voluntary initiatives can be used in a similar matter, though there are no such cases to date. Proponents of self-regulation state that participating firms commonly realize benefits that include decreases in fines and a reduced probability of prosecutions for environmental offences.

The discussion regarding due diligence is not complete without addressing some of the larger weaknesses of the system for enforcement and prosecution for environmental offences. The law is only as good as the enforcement capabilities of the regulatory body. Therefore, if the regulatory enforcement agencies lack resources to ensure that monitoring and enforcement take place, the legislation loses its ability to serve as a deterrent. If the industry association or the industry itself is concerned about the number of prosecutions or fines imposed on its members, it will be more likely to devote resources in developing environmental initiatives or at least legislative support services. However, if enforcement is lacking and there are virtually no prosecutions, organizations will not view legislation as being a significant motivational factor in developing those initiatives.

The use of voluntary codes in determining the standard of care, certainly have the potential to be used in the courts against individual firms. However, in order to prompt a change in behaviour across industry, a large percentage of associations' members need to

be aware of, or participate in, the initiative. Some associations have apprehensions regarding negligently designing or enforcing these standards, though prosecution is not likely in either case. The recommendation on behalf of Industry Canada for any association interested in developing a performance based voluntary initiative, is to obtain legal advice regarding liability of itself or its members.

The last legal implication of voluntary environmental initiatives deals with the provisions of the *Competition Act* (*Competition Act*, 1985, S. 45). It is considered an offence to conspire, combine, agree or arrange to restrain, prevent, limit or lessen competition unduly. Voluntary initiatives may be considered a vehicle to restrict competitiveness among firms not belonging to the association. However, the Act allows for certain activities to be exempt from the applicability and accepts them as a defense. Section 45 (3) indicates that the court shall not convict the accused if the conspiracy, combination, agreement or arrangement related to one or more of the following: (*a*) the exchange of statistics; (*b*) the defining of product standards; (*c*) the exchange of credit information; (*d*) the definition of terminology used in a trade, industry or profession; (*e*) cooperation in research and development; (*f*) the restriction of advertising or promotion, other than a discriminatory restriction directed against a member of the mass media; (*g*) the sizes or shapes of the containers in which an article is packaged; (*h*) the adoption of the metric system of weights and measures; or (*i*) measures to protect the environment. Therefore, if the voluntary environmental initiatives are designed properly, the *Competition Act* should not pose a significant concern. (Webb, Morrison, 1999) To date there have been no successful challenges of any voluntary environmental initiatives promoted by industry associations in relation to the *Competition Act*.

4-4 Concluding Remarks

Voluntary initiatives cannot be effective in achieving sustainable environmental management without well defined legislative backing. Essentially the debate between traditional "command and control" regulation and the "regulatory mix" approach to managing the environment is the debate over prescriptive versus performance-based legislation. In order to support the drive for voluntary environmental initiatives among Canadian industry associations, it is necessary to achieve a balance between rigid regulatory requirements and flexible voluntary initiatives and agreements that can be used to measure performance and set industry standards. This concept is known as "smart regulation", effectively addressing environmental problems without inhibiting economic viability and innovation among industry. Some consider it to be the most effective approach because it provides for utilization of a mix of regulatory and voluntary instruments reinforcing strengths and compensating for weaknesses (Gunningham and Grabosky, 1998). In order to achieve this mix in Canada, it is essential to have federal-provincial coordination in the regulatory regime, aligning federal regulations with provincial licensing regimes.

> Improvement and stabilization will occur as laws, regulation and competitive operation of the marketplace are applied to process efficiency and product acceptability. Laws, regulations and marketplace pressures compel a standard of environmental behaviour. ...Where the law is strictly enforced and public awareness of the environment is high (such as US, Europe and Canada), the outcome of stabilization of the environment is almost assured.
>
> (Plaut, 1998, p. 477)

Rondinelli recommends that government, more specifically the EPA (U.S.), should commit significant budgetary resources to the development of new programs that help private companies adopt voluntary environmental management systems and P2 (pollution

prevention) and E2 (Energy Efficiency) practices (Rondinelli, 1998). However, here in Canada it will be difficult to demand substantial funding for such initiatives when many agencies already face severe cutbacks. Government can play an important role in setting guidelines for the development of voluntary initiatives and supplement them with performance based legislation. Government must also play an active role in fostering relationships with industry associations in order to provide technical assistance, stimulate technology transfer, innovation, establishment of metrics and measurement criteria for determining performance and progress and most importantly, address the issue of free riders through sanctions.

> In order to promote pollution prevention/ eco-efficiency more effectively, environmental protection agencies must place more emphasis on environmental performance than on regulatory compliance.
>
> (Rondinelli, 2001, p. 36)

The second aspect of the weakness of the traditional regulatory approach is the lack of focus on the end product. Numerous problems arise from the fact that environmental regulations focus separately on individual media of pollution (air, land and water) and categories of pollutants (toxic substances, hazardous wastes, pesticides), rather than on overall environmental quality (Rondinelli, 1998). Therefore, a non-traditional approach with the focus on the end product rather than the process associated with production, transportation, use and disposal, would be far more effective in managing the environment. This approach can effectively help industry associations focus on their members' products and concentrate on how these products or services can be provided most profitably and environmentally responsibly.

> Product-focused policies are effective because products are the focal point of many businesses, and addressing products therefore requires a systems perspective that ties environmental issues directly into the core business activities of a company.
>
> (Moffet J., 2000)

This type of an approach allows a linkage between the environment and the economy by internalizing the costs associated with development production and disposal of a product or "cradle to grave" stewardship that ensures sustainability.

Chapter 5 Voluntary Initiatives among Canadian Manufacturing Associations

Self regulation, in the form of voluntary environmental initiatives on behalf of industry, has the potential to achieve the goal of sustainable environmental management. Moreover, these initiatives promise to do it more efficiently and cost-effectively than the traditional regulatory approach. Several industry associations have claimed achievement of tremendous gains for their members, though voluntary initiatives and their performance across the entire industry sector have never been evaluated. If industry associations are meant to represent the interests of their member firms and lobby government in areas of regulatory policy reform, trade and economics, to what degree can they represent the interests of their members in areas of sustainable environmental management? According to Industry Canada, if self regulation is to be effective, it will have to be consistently implemented throughout industry. Therefore, if sustainable environmental management is championed by only a few associations, it is doubtful that self regulation can really work in Canada. Secondly, critics of voluntary environmental initiatives have been skeptical of these instruments' ability to achieve the stated goals without a well defined framework and government involvement.

In conducting this study, telephone surveys and detailed questionnaires were used to gather information and examine the level of participation by manufacturing associations in promoting voluntary initiatives. Recommendations for effective voluntary initiatives published by Pollution Probe, the New Directions Group and the United Nations Environmental Program were used as a baseline to evaluate the ability of these initiatives to achieve sustainable environmental management.

5.1 Telephone Survey

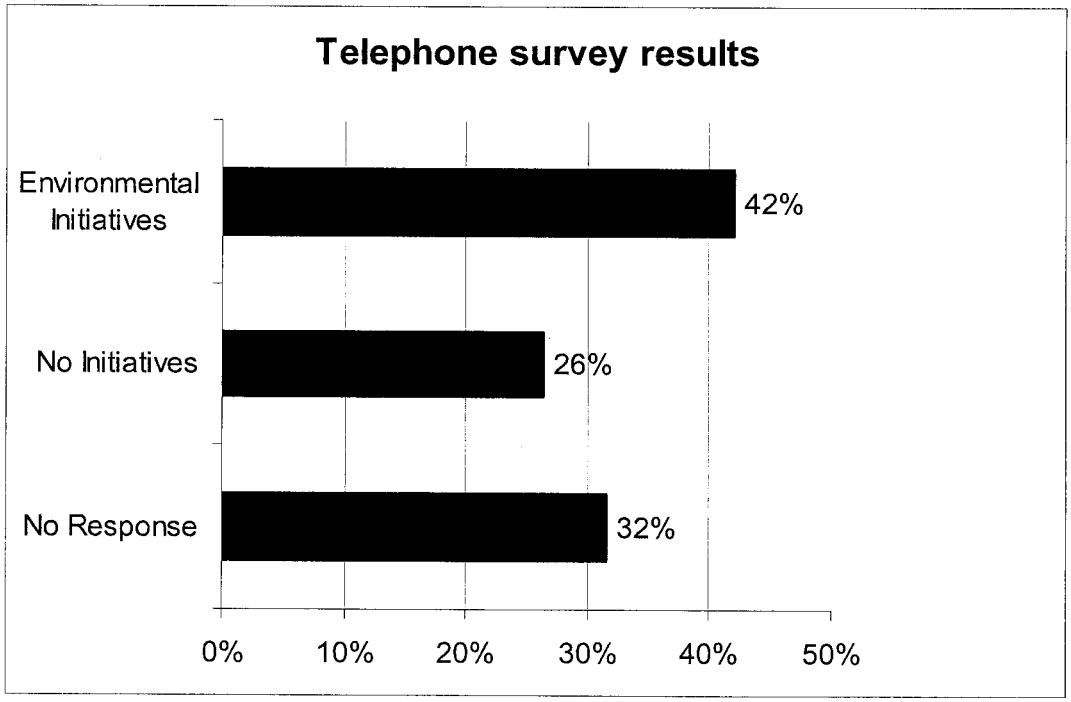
Utilizing the Canadian Key Business Directory (2002) and the Industry Canada website (www.strategis.ic.gc.ca), a list consisting of associations that represented member firms which manufacture or produce goods was compiled. It was determined that several smaller associations belonged to the Canadian Alliance of Manufacturers and Exporters. A total of 38 manufacturer/producer associations, representing approximately 6,546 firms, were contacted in the preliminary telephone survey. The list of associations is attached in Appendix A. Each one of these associations was contacted and asked whether their association had promoted some form of voluntary environmental initiative. For the initial telephone survey, voluntary initiatives were considered to be one of the following:

- Environmental Management Systems,
- Responsible Care®,
- Green Procurement,
- Recycling Initiatives, (including paper, water, products and others)
- Waste Reduction and Management, (3R, and other initiatives)
- Energy Conservation,
- Green Packaging,
- Product Stewardship,
- Life Cycle Assessments,
- Sustainable Development.

See definitions of selective terms in Appendix D.

Figure 1 summarizes the results of preliminary telephone survey.

Figure 1 Telephone Survey Results



Of the Manufacturing Associations surveyed, 16 out of 38 or 42% had indicated that they promoted some form of voluntary environmental initiatives. Ten out of 38, or 26%, did not promote any and 12 out of 38, or 32%, did not respond to the survey.

Of the sixteen associations that promoted some form of voluntary environmental initiatives, nine indicated that they had a formalized EMS/Responsible Care based program, while the remaining seven had initiatives described in Table 24.

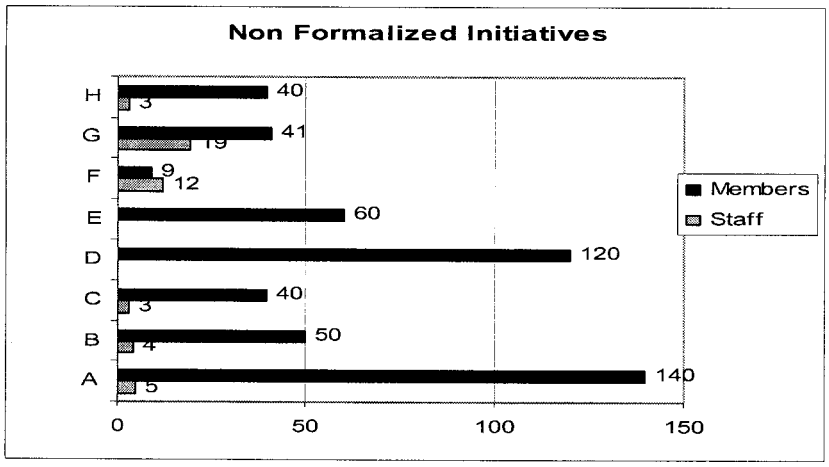
Table 24 Types of Environmental Initiatives promoted by Canadian Manufacturing Associations

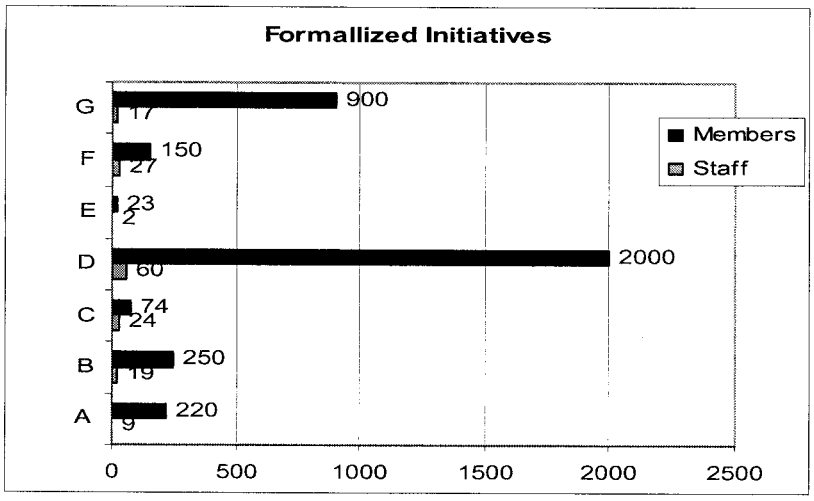
Formalized Environmental Initiatives	Other Environmental Initiatives
• Coatings Care® • Responsible Care® • Environmental Management System Based Initiatives (ISO 14000) • Refrigerant Management Canada	• Recycling/Stewardship Ontario Initiative • Waste Reduction and Management • Energy Efficiency • Green Procurement • Packaging • Environmental Code of Ethics

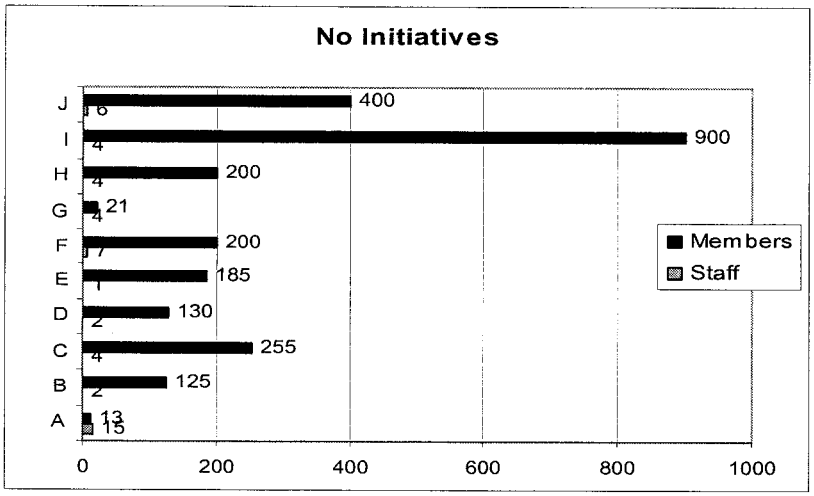
Participants of the survey were also asked whether the association provided information and assistance to their members on environmental legislative compliance. Not surprisingly, fifteen out of a total of sixteen associations indicated that such support was available to their members. Of the associations that did not promote any environmental initiatives, two out of ten indicated that they provided environmental compliance information to their members. This was a surprising finding, because while these associations recognized the importance of dealing with environmental issues, they chose to only address the legislative compliance.

The preliminary survey also asked each association to provide information on the number of staff employed at the association and the number of current members, so that comparisons could be drawn. The results presented in Figure 2 are representative of associations that were determined to have non-formalized initiatives, formalized initiatives and no initiatives.

Figure 2 **Preliminary Survey Staff & Membership Comparison**







It was difficult to generate any statistically significant conclusions from the above data for a meaningful comparison among the three groups evaluated in this study. As a general observation, associations that promoted voluntary environmental initiatives generally had more staff then those that didn't. This finding supports literature suggestions that the pursuit of voluntary environmental initiatives requires substantial resources not available to all associations. In addition, these data were not sufficient enough to isolate the associations that have a large proportion of Small and Medium Enterprises (SMEs), presenting an opportunity for further research into the area of voluntary initiatives, associations and SMEs.

The motivational factors for associations' pursuit of voluntary action have been discussed earlier. In the past, the researchers have generally supported the following perception of individual organizations:

> Companies may feel that their sectors' environmental footprint or impact is limited. The environment is less a popular cause than five years ago, according to public opinion surveys. Organizations may believe that the public values economy and jobs as pre-eminent values, and is willing to sacrifice environmental considerations when they affect traditional economics (Nitkin, Brooks, 1998, p. 1501)

Of the associations surveyed, ten out thirty eight or (26%) did not promote any initiatives. Presenting an opportunity to ask associations for their reasons and compare the findings with those of Nitkin and Brooks. Surveyed associations that did not promote voluntary initiatives were asked to offer some of the factors that influenced their decision. The majority of associations indicated the lack of membership interest, lack of resources and associated costs of developing and implementing such initiatives to be the main reasons. Lack of member interest suggests that the association's members did not consider the environment a priority for their business, supporting the findings of Nitkin and Brooks. The associations did not indicate that legal repercussions or lack of value to customers as reasons for their decisions. In the competitive market, firms are always pressured to come up with ways to remain competitive often sacrificing environmental program and

efforts. Further research is necessary to substantiate these claims in the Canadian context, though research in this area has been done by Bruce Smart and published in his book titled "Beyond Compliance, A New Industry View of the Environment". He states the following:

> The strongest proof that environmental protection does not hamper competitiveness is the economic performance of nations with the strictest laws. Both Germany and Japan have tough regulations. In the US many of the sectors subject to the greatest environmental costs have actually improved their trade performance, among them are chemicals, plastics and paints. (Smart, 1992, p. 252)

The information gathered in this study is not sufficient to suggest that associations that did not promote environmental initiatives were willing to sacrifice environmental considerations for economic pressures and presents an opportunity for further research. The numbers provided in Figure 2 support the notion that these associations lack resources and tend to have less staff, therefore, limiting their ability to endorse environmental initiatives . It was interesting to see the difference in the number of members between the three observed categories of associations. The formalized environmental initiatives group tended to have more members and more staff in the associations than those with non-formalized initiatives.

5.2 Detailed Questionnaire Results

5.2.2 EMS based initiatives and the detailed questionnaire responses:

Of the sixteen associations that promoted voluntary environmental initiatives to their members, nine indicated a formalized or systematic approach. These associations were asked to complete a detailed questionnaire. Seven out of nine questionnaires were received, representing a 78% response rate.

The detailed questionnaire was designed to evaluate the elements of these initiatives and the motivational factors driving the efforts of these associations. Participants were asked to rate the importance of the following factors in the association's decision to develop/implement or participate in environmental initiative. Figure 3 represents the results which are further supplemented by a legend which further specifies the categories used in the detailed questionnaire.

Figure 3 Factors in Associations' Decision to Develop/Implement Voluntary Initiatives

	High	Medium	Low	Not Relevant
1. Need/Interest expressed by members	4	3		
2. Suppliers/customers requirement	1	1	1	4
3. Pressure from public and NGO's	2	1	4	
4. Financial incentives		2	2	3
5. Risk Reduction	2	3	2	
6. Legislative/Regulatory requirement	4	2	1	
7. Value as a market and public relations tool	3	2	2	
8. Pollution Prevention	3	3	1	
9. Sustainable Development	1	3	2	1
10. Overall industry desire to improve environmental performance	3	3	1	
11. Other (please explain)	1			

It was not surprising to see that four out of seven associations indicated a high level of member interest as a driving force behind the development of their initiative, while three indicated a medium level of member interest. These results make sense, as it is the members of an association that commonly drive the self regulatory process. Of the different types of self regulation, the customer driven requirement was identified as "not relevant" by four out of seven associations.

> Self-regulation activities on a voluntary basis on behalf of industry have to be done in consideration of market opportunities, cost reductions, increased competitiveness or other intrinsic advantages (i.e. public image). ... Support for voluntary initiatives and self regulation appears to run in parallel to the push for de-regulation by the business community. (Hillary and Thorsen, 1999, p. 3)

The results of the detailed questionnaire, although draw from a small sample, do not entirely support this statement. Key indicators of market opportunities were believed to be customer requirement, financial incentives and marketing/PR tools. Surprisingly, four out of seven associations ranked customer requirement as not relevant. Perhaps this was because association members may not deal directly with customers, or have customers

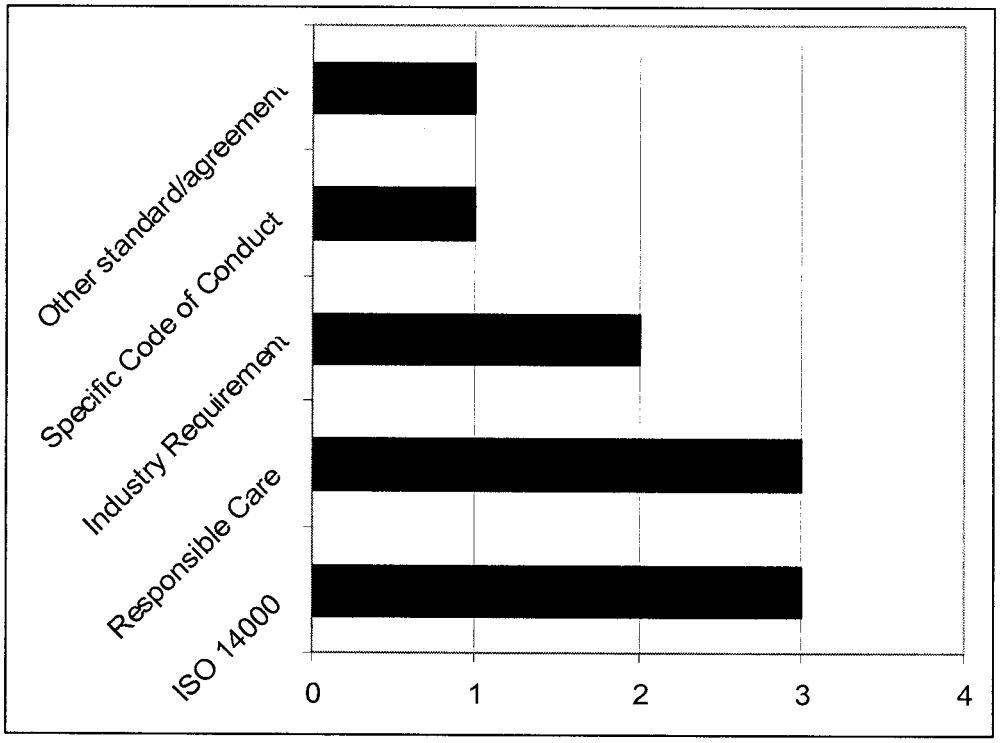
that do not require environmental accountability. None of the associations identified financial incentives as a high consideration for their reasons in pursuing their voluntary initiative. Marketing and public relations tools were ranked as high by three associations whereas four identified these as either medium or low. There is insufficient information to say whether participation in these initiatives has increased competitiveness of the associations' members. But from the results of the questionnaire, it appears not to be the primary intent. Gibson suggested that fear of damage to public image and associated customer and investor confidence was one of the key drivers behind voluntary initiatives. However, results of the detailed questionnaire specifically in the category number three, pressure from the public and NGO's (2 high, 1 medium, 4 low) and category number seven, marketing and PR (3 high, 2 medium, 2 low), did not seem to support these assertions.

Another driver identified by Gibson was the requirement imposed by banks or insurers that do not wish to inherit environmental liabilities. Survey results provided mixed results in this category (number five) on risk reduction (2 high, 3 medium, 2 low), neither strongly supporting Gibson's findings, nor strongly opposing them.

What is apparent from these results is the high importance given to legislative requirements by four associations. It is evident from these results, that the regulatory approach remains a key driving force behind voluntary efforts among the majority of manufacturing associations surveyed.

Since there was no opportunity to examine the detailed information regarding each type of environmental initiative, a question was asked about the basis on which the initiative was designed. This question was intended to evaluate the comprehensiveness of the initiatives, and determine if they had incorporated environmental management principles. The following graph demonstrates the basis on which the associations developed their initiatives.

Figure 4 Basis for Environmental Initiative development

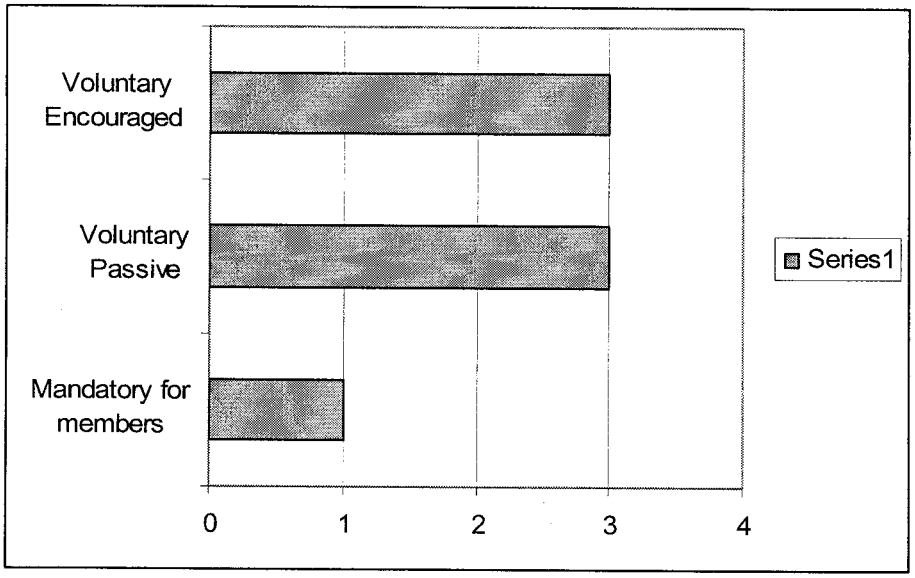


It was not surprising to find that several industry associations had considered both ISO 14000 and Responsible Care programs in the development of their initiatives. These programs are well publicized and are considered to be fairly transparent in their design, leading many associations to take advantage of the benefits already achieved. However, basing a program on Responsible Care or ISO 14001 does not necessarily mean that these programs are administered according to their guidelines. Programs such as EMAS (predominantly a European initiative), CERES principles dealing with sustainable development, and the DNV Environmental Management System were not considered by any of the surveyed associations.

According to the New Directions Group (NDG), every association aiming to achieve sustainable environmental management must have mechanisms to ensure the participation of a significant number of members in meeting their environmental objectives. Some associations face the challenge of recruiting and retaining members. This would discourage the consideration of mandatory participation in fairly complicated and

stringent voluntary initiatives as a possible option. The following figure identifies how member firms were expected to participate in the association's environmental initiative.

Figure 5 Participation in association's voluntary environmental initiative by member firms

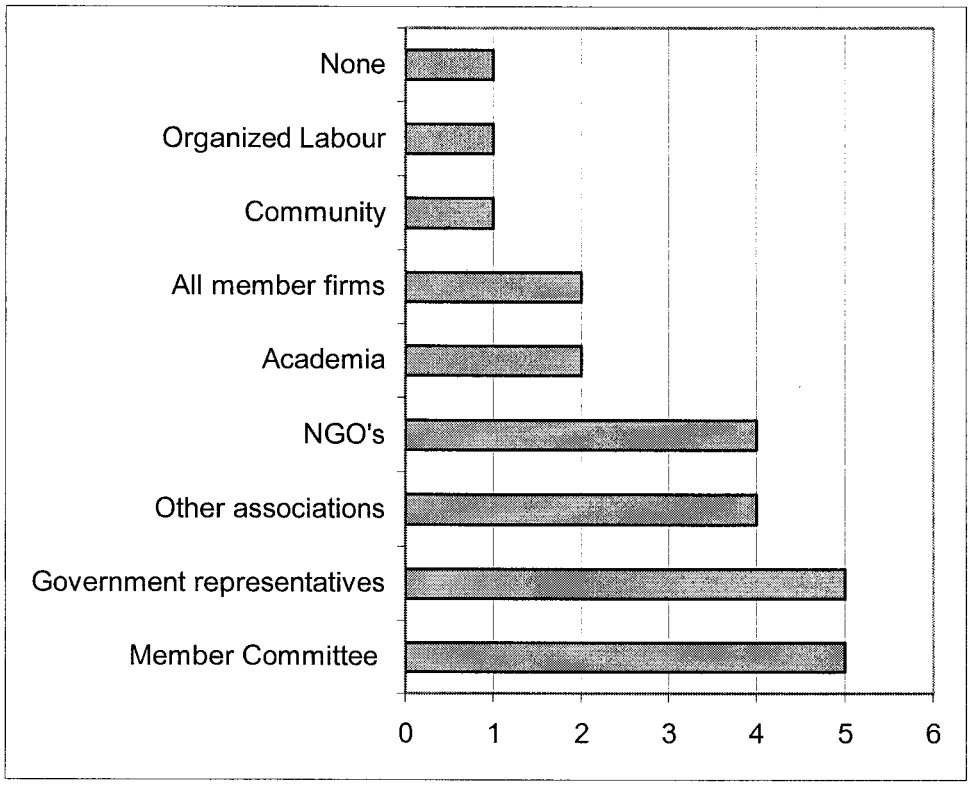


NDG recommended that initiatives must be performance based, with specific goals and measurable objectives. These initiatives must also have methods for rewarding good performance and sanctioning poor performers. Figure 5 above indicates that only one association required mandatory participation from its members. Three associations implemented incentives to encourage member participation, but it seems that the vast majority or six out of seven did not indicate mechanisms existed to sanction firms for non-conformance with initiative's requirements. Lack of sanctioning mechanisms only opens up opportunities for non-participating members to take advantage of industry reputation and engage in "free riding". Lack of mandatory measures to ensure adherence to standards by all members opens up the door for severe criticism on the credibility of the initiative.

Outside parties should be involved in the development of voluntary initiatives, as they contribute to the transparency of the design process. Among the associations surveyed,

the following stakeholders were identified as being part of the development and implementation process.

Figure 6 Involvement of Stakeholders



NDG suggested that in order to ensure success, there needs to be an agreement from interested and affected parties regarding the appropriateness, credibility and effectiveness of the voluntary initiative in meeting the association's environmental objectives. For the purposes of this study the participation of stakeholders in the development and implementation of the voluntary initiative was considered an important factor in demonstrating the association's fulfillment of NDG's recommendation, although stakeholders were not contacted individually to confirm the level of involvement in the development of the association's initiative. The results reported by participating associations have not been verified for accuracy.

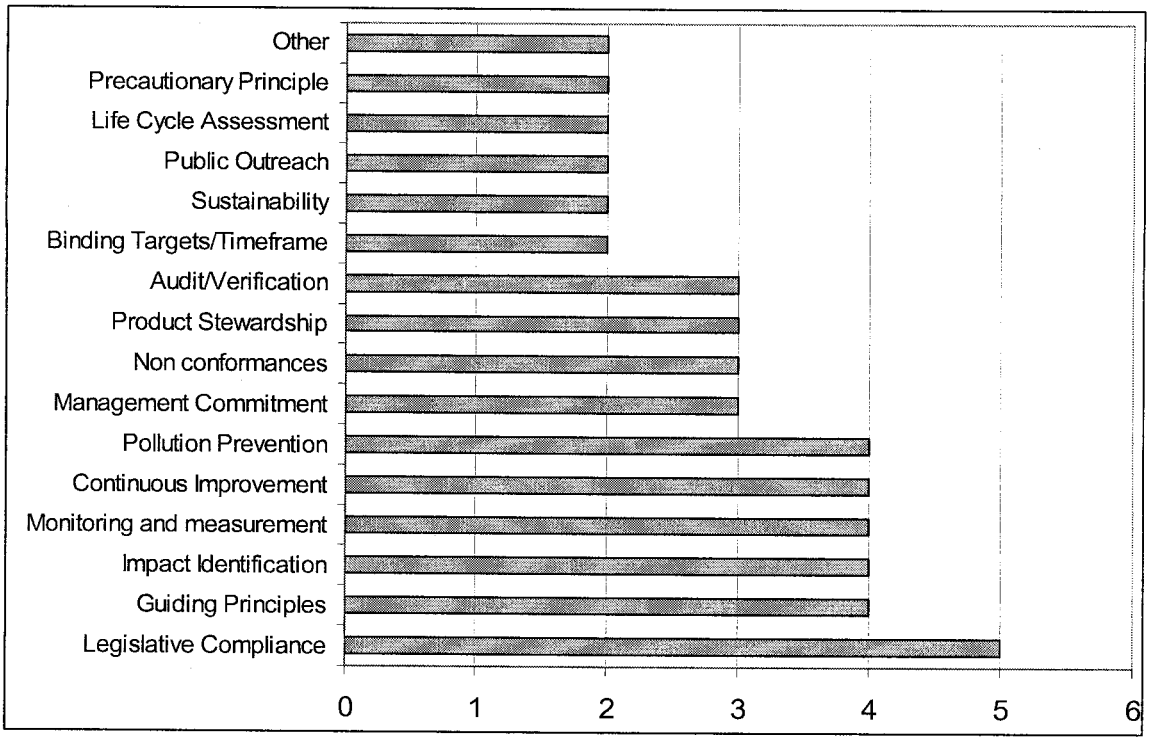
Some associations have utilized special steering committees made up of member firms in the design and implementation of the voluntary initiative, while some associations have opted to use all of their members in the process. Of the various stakeholders, government representation, NGOs and other associations were ranked the highest. Of particular interest was the relatively small involvement of academia suggesting an impartial evaluation of the initiative, only reported by two associations. In an effort to build knowledge and skill and furthering research one would expect a higher level of involvement or participation from stakeholders. One out of seven associations did not report the use of any stakeholders in their voluntary initiative design. The area of stakeholder involvement in the design, implementation and monitoring of voluntary initiatives is an area that requires additional research.

In order to draw a comparison between the key elements of these initiatives, references were made to the widely recognized ISO 14001 standard and the Responsible Care® elements. Since the majority of associations stated that they had based their initiative on either of these two initiatives, this comparison was thought to be useful in determining the level to which the participants had included these key elements. The participants were asked to identify all applicable elements that were used in designing their initiative. Selected definitions are provided in Appendix D.

❑	Guiding Principles Or Environmental Statement	❑	Continuous Improvement
❑	Management Commitment	❑	Pollution Prevention
❑	Binding Targets & Timelines	❑	Sustainability
❑	Legislative Compliance Requirement	❑	Public Outreach
❑	Impact Identification And Assessment Process	❑	Life Cycle Assessment
❑	Monitoring And Measurement Of Emissions	❑	Product Stewardship
❑	Non Conformance And Corrective Action	❑	Precautionary Principle
		❑	Audit/Verification
		❑	Other

The results are summarized in Figure 7 below.

Figure 7 Key Elements of Environmental Initiatives



In this diagram each number under the heading represents an association that indicated it as a key component of their initiative. From the figure it is apparent that legislative compliance was considered as the key element by five out of seven associations. These responses are consistent with recommendations given by the New Directions Group on the elements of credible voluntary initiatives. The significant emphasis on legislative compliance and lack of focus on sustainability is particularly alarming. The intent of voluntary initiatives is to supplement regulations and to enable members to go beyond minimum requirements towards innovation and excellence. What this figure demonstrates is clear emphasis placed on compliance by association's members indicating that these initiatives still have some way to go before they can effectively address sustainable environmental management.

Associations were asked to rate the importance of several factors in the goal setting process for their environmental initiative. Figure 8 summarizes the results.

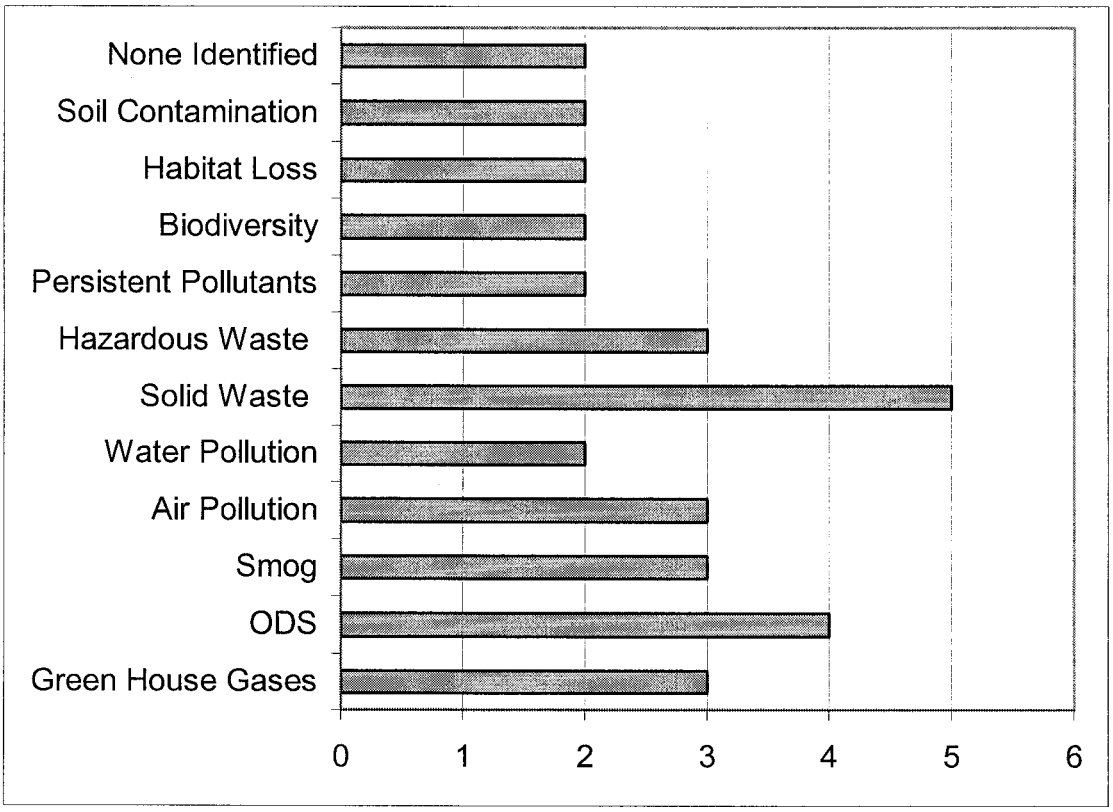
Figure 8 Issues considered in setting goals for environmental initiative

	High	Medium	Low	Not Relevant
Addressing industry specific environmental concerns	5	1	1	
Local and national environmental concerns	5	2		
International environmental concerns	2	2	2	
Risk management	3	2	1	1
Pollution prevention	3	4		
Waste reduction	2	4		1
Legislative compliance	5	2		
Life Cycle Assessments	1	1	2	3
Product Stewardship	2	3	2	
Sustainability (Sustainable Production)	2	3	2	
Community involvement	2	1	3	1
Other (please specify)	1			

This figure demonstrates the importance of legislative requirements when associations develop their goals. As in the previous figure, the importance given to legislative compliance is a concern. Industry has been accused of having a short-sighted view when it comes to environmental protection. The figure above supports these findings by demonstrating the general lack of interest in areas relating to sustainability, long term planning and community involvement. This also demonstrates the importance of legislation in driving the efforts on behalf of industry associations. Goals that are set without consideration for sustainability indicators and long term commitments are ineffective in achieving sustainable environmental management on behalf of industry.

Identifying how industry and its members impact the environment is a key factor in proper goal-setting and is imperative in determining the performance of the environmental initiative. Moreover, impacts are important in setting criteria for monitoring and measurement. Figure 9 below, summarizes the environmental impacts identified by manufacturing associations that participated in the detailed questionnaire.

Figure 9 Industry Specific Environmental Impacts



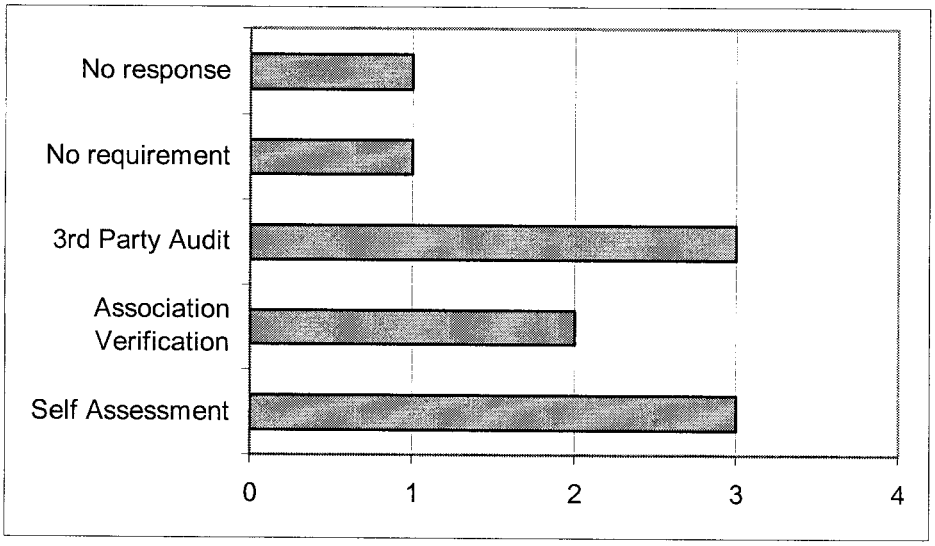
(ODS- Ozone Depleting Substances)

The above figure indicates that the majority of associations have identified environmental impacts associated with their industry. What is also evident from this figure is the degree to which the manufacturing sector impacts the environment and the fact that some of these impacts don't fall under legislative control. In summary, two of the associations identified all of these as impacts associated with their industry. One association identified impacts relating to public health and safety, not directly linked to environment, but nevertheless as important. It was interesting to see that two of the associations surveyed have not identified environmental impacts associated with their industry. If that is in fact the case, how do their voluntary initiatives effectively address environmental concerns, set proper goals or monitor their effectiveness?

Chapter 3 discussed key elements of effective voluntary initiatives, every recommendation implied that enforcement and consistency in administering voluntary environmental initiative are imperative. Mechanisms used by associations to verify the performance of all participants were considered important in ensuring the transparency and in establishing the credibility for the voluntary initiative. The claim of achieving sustainability can only be proven if an appropriate auditing system is in place, regardless of the effort on behalf of individual business or industry associations. Nitkin and Brooks identified several factors that influenced the depth and sophistication of the auditing process: corporate commitment, the degree of public perception of sector-wide environmental issues, exposure to legal liability and the extent of dialogue and transparency associated with the auditing process (Nitkin and Brooks, 1998).

The United Nations Environmental Programme, in its recommendations for effective code programs, emphasized the need for associations to check industry awareness, implementation and results of code programs (Institute for Corporate Environmental Mentoring, 2000). Similarly, the New Directions Group stressed the need to include mechanisms to verify the performance of all participants through monitoring and reporting activities (New Directions Group, 19997). Monitoring of implementation is therefore considered one of the key elements in ensuring the credibility of the initiative. Of the associations surveyed, the respondents provided the following responses.

Figure 10 Monitoring for Implementation of Environmental Initiatives



Four out of seven surveyed associations indicated that they used a combination of several verification methods, including 3rd party auditing. Third party auditing is considered by some to be one of the more credible methods for verifying the results, as the auditors are from an external independent body. Since one of the associations had no response on the kind of method they used for monitoring, the assumption was made that such a method was non existent. Therefore, two associations did not use any methods for verifying performance or the level to which organizations have implemented the requirements of the initiative, presenting a significant concern for the level of credibility or transparency of these initiatives. Both Pollution Probe and NDG have strongly emphasized the importance of monitoring and measurement instruments in ensuring credibility and success of self-regulatory methods.

Research describing positive benefits or the lack of visible results of voluntary initiatives to organizations has been discussed previously. The intent of this study was not to examine these benefits in detail. Relating to the original question of motivational factors behind voluntary initiative development, it was important to see whether member firms actually reported any benefits from implementing their initiatives. The associations surveyed reported the following benefits observed or self-reported by their members.

Table 25 Observed Benefits to Industry from Implementing Voluntary Initiatives

- Improved relations with the public and NGOs (4)
- Risk Reduction (5)
- Financial Benefits (5)
- Legislative Compliance Benefits (3)
- Reduction in Insurance Costs (1)
- Improvement in Quality (1)
- Other (Industry Reputation, pride of employees, decreased regulatory inspections, faster permit granting, input into regulatory development) (1)
- No known benefits (1)

The majority of associations witnessed benefits of their efforts. The benefits in improved relations, risk reduction, financial benefits, legislative compliance were reported to be most visible. These results represent the reported benefits, which have not been verified nor information on dollar value collected. These results support some of the literature findings and present an opportunity for further research. As an interesting side note, when these benefits were compared with key motivational factors that associations identified at the beginning of the survey, the most obvious discrepancy appears in the risk reduction factor.

Process transparency is essential in establishing credibility and ensuring acceptance of voluntary environmental initiatives by the public. Question # 13 asked if associations made public the information regarding their initiative. All of the associations surveyed in this study had some information available on their website, some had printed publications, and one had stated that it used an advisory panel from the community to relay information. Furthermore, each association was asked whether they published an annual environmental report outlining their members' performance. Only 3 associations indicated that they regularly published environmental performance reports. Of these associations, one did not publish a separate report, but included this information in its annual report. Associations indicated that these reports were available to the public through either their website or by contacting them directly. The limitation of these results is the fact that information published by these associations was not confirmed to make known the voluntary initiative's goals, objectives and performance of its members. Of

the seven associations surveyed, four did not produce any reports outlining their voluntary environmental initiative or their members' performance. Communication of progress to those parties outside the industry was considered to be one of the five key characteristics of an effective initiative by the United Nations Environmental Programme. A paper published by Stratos Inc., suggested that public disclosure of performance data was imperative in the design of credible voluntary initiatives (Meyer, 2000).

In conclusion, the associations were asked if they currently participated in any of the government led environmental initiatives. Four associations indicated that they participated in negotiated agreements with either federal, provincial or both governments. These agreements were in the form of MOUs (Memoranda of Understanding), dealing with a variety of standards on energy efficiency, performance standards and reduction targets. As expected, the majority of these associations had actively lobbied government on issues specific to their industry and their member firms dealing with environment, energy, policy issues, labour and trade, confirming the fact that associations play an integral role in self-regulation.

Chapter 6 Conclusions

The intent of this study was to identify key components that make voluntary environmental initiatives effective and determine whether these can be used to ensure sustainable environmental management. This information was applied to the Canadian manufacturing sector by reviewing the activities of industry associations in order to answer the main thesis question. Does the framework of voluntary environmental initiatives currently promoted by Canadian manufacturing associations support the achievement of goals for sustainable environmental management?

In the course of conducting the literature review on sustainable development and environmental management, a new term was coined that combined the key concepts expressed in sustainable development and environmental management. "Sustainable development" embraces three key elements, environment, social and economic sustainability, which may be difficult to achieve at the industry or association level. The term "environmental management" was used quite frequently by government and industry in describing their environmental efforts, but not necessarily addressing strategic long term planning or environmental sustainability issues. There is no doubt that sustainable development considerations encompassing all three elements must become a regular part of business planning and government agenda, but on a more realistic and practicable level, "sustainable environmental management" serves as a first step towards this process.

In the book "Environment on Trial", Estrin and Swaigen suggest that in order to bring sustainability and environment to the forefront, there needs to be a change in how we measure the performance of our economy. More specifically there needs to be a method for accounting for the depletion and deterioration of natural resources in economic indicators and accounting methodologies (Estrin and Swaigen, 1993). If environmental considerations do not become a part of an economic accountability, then the progress towards sustainable development will be slow. Estrin and Swaigen went further to say

that in addition to regulatory and economic instruments there needs to be a change in human behaviour to remove the disincentives and barriers to change.

> There is a need for regulations that constrain activities that are hazardous or unsustainable, and a need for regulations that constrain activities that are hazardous or unsustainable, and a need for an education system that supports and promotes sustainable behaviour. At the same time, policies, financial subsidies, and marketing techniques that encourage unsustainable activities, such as the overconsumption of natural resources and energy must be phased out.
>
> (Estrin, Swaigen, 1993, p. xxix)

Voluntary approaches to managing the environment and achieving sustainable development may be perceived as an attractive approach to policy making and implementation, however additional research is necessary. The traditional "command and control" approach to regulating the environment is limited in its capability to set prescriptive requirements in regulating for sustainable environmental management. In addition, our current system of shrinking government resources has prompted federal and provincial environment agencies to explore voluntary initiatives and agreements as a way to ensure legislative compliance and achieve pollution prevention. Essentially, such an approach would enable the use of performance-based legislation and allow flexibility and innovation to achieve sustainable environmental management objectives.

The literature search suggested that environmental voluntary instruments must ensure that the process for setting clear objectives, in addition to a well defined framework for monitoring and reporting progress is essential, whether it is done by regulatory or self-regulatory process. Voluntary initiatives must set long term goals and demonstrate commitment, involve external stakeholders and encourage technological innovation in order to succeed. This process will only work in an economic and political environment that encourages such measures through policy and market-based approaches. Although these approaches were not explicitly evaluated in this study, they remain important and thus require additional research.

The focus of this study has been on industry associations, as they serve the purpose of allowing their member firms access to services, lobbying and promotional trade activities as well as other benefits that affiliation with the association may bring. Industry associations were considered an effective target for policy reform in driving voluntary initiatives, as they can potentially influence the environmental performance of thousands of firms. Some associations have been aggressive in pursuing process and quality improvement, trade and marketing initiatives, lobbying and educational activities, while others simply provide a networking opportunity for their members.

The results of the preliminary survey indicate that sixteen out of thirty eight manufacturing associations promoted some form of voluntary environmental initiatives. Out of these, only nine indicated presence of a formal program. What is apparent from these numbers is the relative insufficiency of formalized voluntary initiatives among the manufacturing sector due to limited interest of association members, lack of resources and possibly lack of interest in environmental issues. Further research is needed to evaluate motivational factors that could drive the manufacturing sector and its sub-sectors to pursue environmental initiatives, understanding their environmental impacts and encouraging change. What is evident from these results is the leadership and innovation demonstrated by nine associations, but such an effort is simply insufficient to achieve sustainable environmental management on behalf of the entire manufacturing sector. These findings also suggest that government needs to dedicate resources to further develop and utilize the capacity of associations to be able to develop and implement environmental voluntary initiatives in the pursuit of regulatory reform. If amendments to legislation, moving the regulatory system towards performance-based legislation were to take place in the near future, these results indicate that the majority of the Canadian manufacturing associations and their members would simply be unprepared to face such reform.

Further evaluation of the scope and framework of the formal environmental initiatives was done using a detailed questionnaire. Results were mixed indicating that some

associations are in the forefront of using voluntary initiatives to achieve sustainable environmental management, while others are lagging far behind. Closer examination of the framework of these initiatives identified several weaknesses. Literature suggests that sustainable environmental management requires long term planning that addresses issues of risk reduction, pollution prevention and sustainable development. Of the associations surveyed, only one association regarded sustainable development as a factor of high priority in its decision to pursue voluntary initiatives and its goal setting process, while others considered it medium or low priority. The results indicate that the majority of surveyed associations considered legislative compliance/regulatory requirements as most important in their decision to pursue these initiatives and in their goal setting process. The results are disappointing, because environmental legislation sets minimum standards and, as discussed in Chapter 4, is limited in its ability to achieve sustainable environmental management.

The detailed questionnaire indicated that the majority of associations utilized ISO 14001 standard in developing their initiatives, suggesting that these initiatives are on their way to establishing measures to ensure their transparency and credibility. Of some concern was the indication that only one association requires mandatory participation in its environmental initiative, while others left the decision to the discretion of their members. The effective use of such initiatives can only be achieved if they are uniformly applied in the market place, diminishing the "free rider" problem. Until this can be achieved, critics will continue to question the credibility of these programs or their reported achievements.

> Voluntary approaches appear to be particularly appropriate in addressing newly emerging issues for which no policy framework exists yet, and in guiding policy development. Applied that way, they can help define what is feasible and efficient for industry to achieve given the state of their technologies. Considerable uncertainly exists concerning the environmental effectiveness and economic efficiency of voluntary initiatives relative to other policy instruments. Existing

> voluntary approaches suffer in many instances from poorly specified objectives and inadequate performance data.
>
> (Paton, 2000, p. 336)

Based on the results of this study, voluntary environmental initiatives promoted by Canadian manufacturing associations do not adequately support the achievement of goals for sustainable environmental management. The results of this study support the findings of Paton that many voluntary initiatives and self-regulatory instruments suffer from poorly specified objectives and inadequate performance data. For that reason, there needs to be a better government framework to support the development and implementation of such initiatives. Furthermore, there needs to be an increase in government's contribution in helping the industry association to set objectives, establish a supportive policy and regulatory framework, stipulate minimum design requirements, promote participation, track performance, and intervene if necessary (NDG, 1997). Since the budgets of regulatory agencies are not likely going to increase, perhaps there is a need to establish a mentoring program, similar to the National Environmental Education & Training Foundation and the Institute for Corporate Environmental Mentoring in the U.S. Self-regulation can only be effectively used to achieve the goals of sustainable environmental management if it is a part of a regulatory mix of instruments. In Canada, such a mix can be foreseen in performance based environmental legislation and as a result, will need to rely on industry based standards and voluntary initiatives.

> Standards do not operate alone, and should be designed and implemented as part of a system of measures that will improve environmental performance. ... Voluntary environmental standards can be very effective tools, and their use and development should continue to be encouraged.
>
> (Pollution Probe, 2000, p. 3)

Therefore, government enforcement agencies will need to not only participate in establishing guidelines, but also have a good level of understanding of these initiatives. The European example demonstrates that negotiated agreements between government

and industry can be effectively used to reduce pollution. It is only a matter of time before Canada will actively pursue such an approach, giving industry associations' adequate leverage to encourage environmental improvements of their members. According to International Institute for Sustainable Development, Canada is an ideal environment for the success of industry voluntary environmental initiatives (Kerr, Cosbey, Yachnin, 1998). In conclusion, more work and further research into this topic is necessary in order to draw comprehensive conclusions.

6.1 Recommendations for Further Study

As a result of literature review and the analysis of the results, several areas requiring further research were identified and include the following:

- Focus on the SMEs and the most effective method of obtaining sustainability with limited resources.

- Return on investment case studies of the Implementation of voluntary initiatives in the manufacturing sector.

- Focus on other sectors, primarily resource and energy.

- Further examination of the role that science and risk assessment play in the design of voluntary environmental initiatives adopted by industry.

- Reaction of NGOs and the consumers to the firms that are ISO 14001 certified or that participate in environmental voluntary initiatives.

- Links between voluntary environmental initiatives and industry environmental performance.

- Links between voluntary environmental initiatives and economic performance of organizations.

References

Andrews R.N.L. (1998). Environmental Regulation and Business 'Self-Regulation', ***Policy Sciences,*** 31: 177-197

Andrews R.N.L., Darnall N., Rigling Gallagher D. (1999). ***Environmental Management Systems: A Sustainable Strategy for a Sustainable World?*** Presentation at the 8th International Conference of the Greening of Industry Network, Chapel Hill, NC., Retrieved on October 28, 2002 from the World Wide Web: www.eli.org/pdf/gin99.pdf

Arber S. (1993). ***The Research Process***, in Gilbert N. (ed.), ***Researching Social Life***, Sage London.

Barde J. (OECD Environment Directorate) (1999). ***Voluntary Approaches as a Policy Instrument,*** Presented at European Research Network on Voluntary Approaches, CAVA (1999) Workshop Copenhagen.

Barrow C.J. (1999). ***Environmental Management Principles and Practice***, Routledge, New York

Börkey P. Lévêque F. (2000). Voluntary Approaches for Environmental Protection in the European Union- a Survey, ***European Environment***, 10: 35-54

Bryman A. (1988). ***Quantity and Quality in Social Research***, Unwin Hyman, London

Cabugueira M. (2001). Voluntary Agreements as an Environmental Policy Instrument-Evaluation Criteria, ***Journal of Cleaner Production***, 9: 121-133

Canadian Environmental Protection Act, RSC 1999, c-32

Capra F., Pauli G. (1995). ***Steering Business Toward Sustainability***, Untied Nations University Press, Tokyo

Carraro C., Lévêque F. (1999). ***Voluntary Approaches in Environmental Policy***, Kluwer Academic Publishers.

Cavaliere A. (2000), Overcompliance and Voluntary Agreements, ***Environmental Resource Economics***, 17: 195-202

Coalition for Environmentally Responsible Economies (CERES), ***CERES Principles,*** Retrieved on June 23, 2003 from the World Wide Web: www.ceres.org

Commissioner of the Environment and Sustainable Development, ***Comissioner's Mandate***, Retrieved on July 20, 2003 from the World Wide Web: http://www.oag-bvg.gc.ca/domino/cesd_cedd.nsf/html/menu1_e.html

Competition Act, RSC 1985, c-35

Day R., Arnold M. (1998). The Business Case for Sustainable Development, ***Greener management International***, 23 (Autumn): 69-92

De Jongh and Captain S. (1999). ***Our Common Journey, A Pioneering Approach to Cooperative Environmental Management***, Zed Books, London

Dwivendi O.P., Kyba P., Stoett P.J., Tiessen R. (2001). ***Sustainable Development and Canada; National and International Perspectives***, Broadview Press, Peterborough

Ehrenfeld J. (1996). ***Integrated Environmental Management: Strategies for the Sustainable Firm***, Symposium on Adaptive Strategies for the Future-oriented Techno-Industries, Seoul, Korea

Environment Canada (2001). ***Sustainable Development Strategy (1997-2000),*** Retrieved on September 20, 2002 from the World Wide Web: http://www.ec.gc.ca/sd-dd_consult/final/SDG222_E.HTM

Environment Canada (2001). ***A Protocol Guide for an Environmental Management System Audit***, Ottawa, Canada

Environment Canada (1992). ***United Nations Conference on Environment and Development , Brazil June 1992, Canada's National Report***, Ottawa, Canada

Environmental Commissioner of Ontario (1996). ***Discussion Paper for Round Table on Self Regulation, Voluntary Compliance and Environmental Protection***, Discussion Paper, Ontario

Environmental Law Institute (2001). ***Drivers, Designs, and Consequences of Environmental Management Systems***, Research Findings to date from the National Database on Environmental Management Systems, a research compendium, University of North Carolina Chapel Hill, Retrieved on October 28, 2002 from the World Wide Web: www.eli.org/isopilots/NDEMS2000Copmpendium.pdf.

Estrin D., Swaigen J. (1993). ***Environment on Trial: A Guide to Ontario Environmental Law and Policy***, Edmond Montgomery Publications, Toronto, Canada

Executive Resource Group (2001). ***Ontario Ministry of Environment; Managing the Environment a Review of Best Practices***, Retrieved on October 28, 2002 from the World Wide Web: http://www.ene.gov.on.ca/envision/ergreport/

Gibson R. (editor) (1999). ***Voluntary Initiatives: The New Politics of Corporate Greening***, Broadview Press, Peterborough, Ontario

Gilbert M., Gould R. (1998). ***Achieving Environmental Standards***, 2nd Edition, Financial Times Management, London

Global Reporting Initiative (2000). ***Sustainability Reporting Guidelines on Economic, Environmental and Social Performance***, Boston

Gray P., Stern R., Biocca M. (1998). ***Communicating About Risks to Environment and Health in Europe***, Kluwer Academic Publishers, Netherlands

Greenbaum A., Wellington A., Pushchak R.(editors) (2002). ***Environmental Law in Social Context: A Canadian Perspective***, Captus Press, Concord, Ontario

Gunningham N. (1995) Enforcement, Self-Regulation, and the Chemical Industry: Assessing Responsible Care, ***Law and Policy***, 17(1): 57-109

Gunningham N., Grabosky P. (1998). ***Smart Regulation: Designing Environmental Policy***, Oxford University Press

Hagarty, David. (1998). ***A Model for Environmental Management System (EMS) Effectiveness Review in British Columbia,*** (MA Thesis) University of Victoria, Victoria, British Columbia

Harrison K. (1999). ***Voluntarism and Environmental Governance***, University of British Columbia, Retrieved on June 23, 2003 from the World Wide Web: http://www.arts.ubc.ca/cresp/khvolun.pdf

Harrison K., Antweiler W. (2002). ***Incentives for pollution Abatement: Regulation, Regulatory Threats, and Non-Governmental Pressures***, University of British Columbia.

Hart C. (1998). ***Doing a Literature Review: Releasing the Social Science Imagination***, Sage, London

Hillary Ruth, (1999), Regulatory and Self-Regulatory Measures as Routes to Promote Cleaner Production, ***Journal of Cleaner Production***, 7: 1-11

Hillary, R. (1995). Developments in Environmental Auditing. ***Management Auditing Journal,*** 10(8): 34-39.

Hinrichsen D. (1987). ***Our Common Future: The Brundtland Report Explained***, Earthscan Publications, London

Hutter B. (1999). ***A Reader in Environmental Law,*** Oxford University Press, New York

Hutter B. (1997). ***Compliance: Regulation and Environment***, Clarendon Press Oxford, New York

Iannuzzi A. (2000). ***Industry Self-Regulation of Environmental Compliance***, (Ph.D. Thesis), The Union Institute Graduate College,

Ibbotson B., Phyper J. (1996). ***Environmental Management in Canada***, McGraw – Hill Ryerson, Toronto, Canada

Industry Canada (2001). ***Performance of Canada's Manufacturing Sector***. Retrieved on July 28, 2003 from the World Wide Web: http://strategis.ic.gc.ca/pics/at/manu_e.pdf

Industry Canada. (2000). ***An Evaluative Framework for Voluntary Codes***, Office of Consumer Affairs, Ottawa

Industry Canada. (1998). ***Voluntary Codes: A Guide for their Development and Use***, Office of Consumer Affairs, Ottawa

Industry Canada. (1998). ***A Framework for Identifying the Linkage between Marketplace Framework Legislation and Sustainable Development***. Retrieved on June 20, 2002 from the World Wide Web: http://www.strategis.ic.gc.ca/SSG/c100168e.html.

Institute for Corporate Environmental Mentoring (2000). ***Environmental Mentoring: Benefits, Challenges and Opportunities***, The National Environmental Education and Training Foundation, Retrieved on October 20, 2002 from the World Wide Web: www.mentor-center.org

Institute for Corporate Environmental Mentoring (2000). ***The Emerging Role of Associations as Mentors***, The National Environmental Education and Training Foundation, National Forum on Defining Environmental Excellence, Washington DC

International Organization for Standardization (2002).***The ISO Survey of ISO 9000 and ISO 14000 Certificates 11thCycle***, Geneva Switzerland

Karamanos P. (2001), Voluntary Environmental Agreements: Evolution and Definition of a New Environmental Policy Approach, ***Journal of Environmental Planning and Management***, 44(1): 67-84

Kerr R., Cosbey A., Yachnin R. (1998) ***Beyond Regulation; Exporters and Voluntary Environmental Measures***, International Institute for Sustainable Development, Winnipeg Manitoba

Long, B. (1997). Environmental Regulation, ***The OECD Observer***, 206:14-18

Martin J., Edgeley G. (1998). ***Environmental Management Systems, A Guide for Planning Development and Implementation***, Government Institutes, Rockville MD

Mason J. (2002). ***Qualitative Researching 2nd Edition,*** Sage, London

Mason J. (1996). ***Qualitative Researching***, Sage, London

Matouq M. (2000). The ISO 14001 EMS Implementation Process and It's Implications: A Case Study of Central Japan, ***Environmental Management***, 25(4): 177-188

McColl S., Hicks J., Craig L., Shortreed J. (2000). ***Environmental Health Risk Management, A Primer for Canadians***, Report 4, NERAM (Network for Environmental Risk Assessment and Management), University of Waterloo, Ontario.

Merriam- Webster OnLine Dictionary, Retrieved on December 20, 2002 from the World Wide Web: http://www.m-w.com/home.htm

Meyer S. (2000) Enhancing the Credibility of Voluntary Environmental Initiatives, Stratos Inc, Retrieved on October 28, 2002 from the World Wide Web: http://www.stratos-sts.com/sts-files/cvi-aug24.pdf

Mitchell B. (1997). ***Resource and Environmental Management***, Longman, Essex, England

Moffet J. (2000). ***Public Policy for Sustainable Consumption and Production***, Stratos Inc., Retrieved on October 28, 2002 from the World Wide Web: http://www.stratos-sts.com/sts-files/policyjun27.pdf

Monsuma D., Mazurek J. (1999). Stepping Stones, Step Change, and Climate Change: Why Muddling Through is Insufficient, ***Corporate Environmental Strategy***, 6(4): 368-377

Morrison A. (1997). When Voluntary is not Really Voluntary: Contractual Aspects of Voluntary Codes, ***Appeal Review of Current Law and Law Reform***, University of Victoria, 34-41

National Standards of Canada. (1996). ***Environmental Management Systems Specification with Guidance for Use***. Canada: CAN/CSA-ISO 14001-96

Nath B., Hens L., Compton P., Devuyst D. (1998). ***Environmental Management in Practice Volume 1, Instruments for Environmental Management***, Routledge, London

New Directions Group (1997). ***Criteria and Principles for the Use of Voluntary or Non-Regulatory Initiative to Achieve Environmental Policy Objectives***, Retrieved on February 6, 2003 from the World Wide Web: www.newdirectiongroup.org

Nitkin D., Brooks L. (1998). Sustainability Auditing and Reporting: The Canadian Experience, ***Journal of Business Ethics***, 17: 1499-1507

Olson S. (1999). ***International Environmental Standards Handbook***, Lewis Publishers, Boca Raton Florida

Orts E.W. (1995). Reflexive Environmental Law, ***Northwestern University Law Review***, 89: 1227-1340.

Pardy, B. (2002). ***Voluntarism and the Evolution of Environmental Law: A Dubious Path to an Uncertain Destination***, ESAC-CPSA Joint Session, Voluntarism and Environmental Governance: A Round Table Discussion, May 28th, 2002.

Pascal, D. (1997). ***Quality, Safety and Environment: Synergy in the 21st Century***. Wisconsin: ASQC Quality Press.

Paton B. (2001). ***Beyond the Letter of the Law: Harnessing the Potential of Voluntary Environmental Initiatives***, (Ph.D. Thesis), University of California, Santa Cruz California

Paton B. (2000). Voluntary Environmental Initiatives and Sustainable Industry, ***Business Strategy and the Environment,*** 9: 328-338

Plaut, J. (1998). Industry Environmental Processes: Beyond compliance. ***Technology in Society***, 20: 469-479.

Pollution Probe (2001). ***Applying the Precautionary Principle to Standard Setting for Toxic Substances in Canada***

Pollution Probe (2000). ***The Future Role of Environmental Standards***

Pollution Probe. (1999). ***Voluntary Initiatives: Policy Framework and Roles***, Conference Proceedings.

Pollution Probe (1999). ***Towards Credible and Effective Environmental Voluntary Initiatives: Lessons Learned***

Prno P. (1999). ***Applying ISO 14001 Standard to Create a Sustainable Development Path for Small and Medium Size Enterprises***, MA Thesis, Royal Roads University

R. vs. Calgary (City), 2000, Alberta Provincial Court Criminal Division, File No. 91914366P10101

R. v. Van Waters & Rogers Ltd, 1998, Alberta Provincial Court Criminal Division, File No. 61444667P10101

Rechtschaffen C. (1998). Deterrence vs. Cooperation and the Evolving theory of Environmental Enforcement, ***Southern California Law Review,*** September (71): 1181-1283.

Rigling-Gallagher D. (2000). ***Many Shades of Green: Discovering the Types of Environmental Management Systems that Facilities Develop***, 22nd Annual Research

Conference for the Association for Public Policy Analysis and Management, Seattle, Washington, Retrieved on October 28, 2002 from the World Wide Web: www.eli.org

Rigling-Gallagher D., Darnall N., Andrews R. (1999). ***International Standards for Environmental Management Systems: A Future Promise for Environmental Policy?*** Presentation at 21st Annual Research Conference for the Association for Public Policy Analysis, Washington DC, Retrieved on October 28, 2002 from the World Wide Web: www.eli.org/pdf/appam99.pdf

Rondinelli D. A. (2001). Making Eco-Efficiency the Foundation of Environmental Policy Reform. ***Environmental Quality Management***, Winter: 29-44

Rondinelli D. A. & Vastag, G. (2000). Panacea, Common Sense, or Just a Label? The Value of ISO 14001 Environmental Management Systems. ***European Management Journal***, 18(5): 499-510.

Roome N.J. (1998). ***Sustainability Strategies for Industry; The Future of Corporate Practice***, Island: Washington, DC

Royston, M. (1979). ***Pollution Prevention Pays***, Pergamon, :London

Sairinen R. and Teittinen O. (1999), Voluntary Agreements as an Environmental Policy Instruments in Finland, ***European Environment***, 9: 67-74

Schmidheiny S. (1992). ***Changing Course: A Global Perspective on Development and the Environment***, MIT Press, New York

Segerson K., Miceli T. (1998). Voluntary Environmental Agreements: Good or Bad News for Environmental Protection, ***Journal of Environmental Economics and Management***, 36: 109-130

Shrivastava P. (1996). ***Greening Business: Profiting the Corporation and the Environment***, Thompson Executive Press, Cincinnati

Silverman D. (2000). ***Doing Qualitative Research***, Sage, London

Smart B. (1992), ***Beyond Compliance, A New Industry View of the Environment***, World Resources Institute, Washington

Steger, U. (2000), Environmental Management Systems: Empirical Evidence and Further Perspectives. ***European Management Journal***, 18(1): 23-37.

Stratos, Strategies to Sustainability (2001), ***Stepping Forward; Corporate Sustainability Reporting in Canada***, Retrieved on August 20th, 2002 from the World Wide Web: http://www.stratos-sts.com

Swenarchuk M., Muldoon P. (1996). ***Deregulation and Self-Regulation in Administrative Law: A Public Interest Perspective***, Canadian Environmental Law Association Publication No. 285.

United Nations (1993) ***Agenda 21-Report of the United Nations Conference on Environment and Development***, Rio de Janeiro, 3-14 June 1992, Volume 1, New York, United Nations

United States-Asia Environmental Partnership, ***Candid Views of Fortune 500 Companies***, Retrieved on September 4, 2002 from the World Wide Web: www.usaep.org/gem/report.htm

Veleva. V., Ellenbecker M. (2001). Indicators of Sustainable Production: A New Tool for Promoting Business Sustainability, ***New Solutions A Journal of Environmental and Occupational Health Policy***, 11(1): 41-61

Watzold, A., Bultmann, M., Eames, M., Lulofs K., Schucht, S. (2001). EMAS and Regulatory Relief in Europe: Lessons from National Experience. ***European Environment.*** 11: 37-48.

Webb K., Morrison A. (1999). ***Voluntary Approaches, the Environment and the Law: A Canadian Perspective***. In ***Voluntary Approaches in Environmental Policy***, Carraro C., Leveque F. (eds). Kluwer, Dordrecht.

Wehrmeyer W. (1995). ***Measuring Environmental Business Performance, A Comprehensive Guide***, Stanley Thornes, Cheltenham UK

Welford R., Young W., Ytterhus B. (1998). ***Towards Sustainable Production and Consumption: A Conceptual Framework***, Earthscan, London

Wiener J.B. (1999). Global Environmental Regulation : Instrument Choice in Legal Context, ***Yale Law Journal***, January (108): 677-800.

Wood S. (2001). ***Green Revolution or Greenwash? Voluntary Environmental Standards, Public Law and Private Authority in Canada***, Draft of December 19, 2001 in the Forthcoming Law Commission of Canada, New Perspectives on the public-Private Divide.

World Business Council for Sustainable Development (2000). ***Corporate Social Responsibility: Making Good Business Sense***, Retrieved on May 21, 2003 from the World Wide Web: www.wbcsd.ch

World Commission on Environment and Development. (1987). ***Our Common Future***. Oxford: Oxford University Press.

Appendix A List of Associations Surveyed in this study

1. Adhesive and Sealants Manufacturers Association of Canada
2. Aerospace Industries Association of Canada
3. Association of Canadian Biscuit Manufacturers/ Flavour Manufacturers /Edible Oil Manufacturers Association /Canadian Snack Foods Association /Canadian Breakfast Cereal Manufacturers / Confectionery Manufacturers Association of Canada
4. Automotive Industries Association of Canada (AIA Cananda)
5. Automotive Parts Manufacturers Association APMA
6. Canadian Appliance Manufacturers Association /Electrical and Electronic Manufacturing EEMAC
7. Information Technology Association of Canada (ITAC)
8. Canadian Association of Man Made Vitreous Fiber Manufacturers CAMMVFM
9. Canadian Association of Moldmakers
10. Canadian Book Manufacturers Association CBMA
11. Canadian Brush Manufacturers' Association
12. Canadian Chemical Producers Association CCPA
13. Canadian Drug Manufacturers Association CDMA
14. Canadian Flexible Foam Manufacturers Association CFFMA
15. Canadian Hardware and Housewares Manufacturers Association CHHMA
16. Canadian Manufacturers and Exporters
17. Canadian Manufacturers of Chemical Specialty
18. Canadian Paint and Coatings Association
19. Canadian Paper Box Manufacturers Association
20. Canadian Pasta Manufacturers Association
21. Canadian Petroleum Products Institute
22. Canadian Plastics Industry Association CPIA
23. Canadian Process Control Association CPCA
24. Canadian Tooling and Machining Association CTMA
25. Canadian Toy Association
26. Canadian Vehicle Manufacturers Association
27. Canadian Window and Door Manufacturers Association
28. Cellulose Insulation Manufacturers Association of Canada CIMAC
29. Cement Association of Canada
30. Food and Consumer Products Manufacturers Association
31. Heating Refrigeration and Air Conditioning Institute of Canada
32. Insulating Glass Manufacturers' Association
33. Nonprescription Drug Manufacturers' Association of Canada,
34. Packaging Association of Canada
35. Pharmaceutical Manufacturing Association of Canada (PMAC)
36. Portable Appliance Manufacturers Association PAMA
37. Rubber Association of Canada
38. The Canadian Institute of Plumbing & Heating Manufacturers

Appendix B Preliminary Telephone Survey

RYERSON UNIVERSITY
350 Victoria Street, Toronto, Ontario, Canada M5B 2K3

Preliminary review questions (Telephone interview)

Name of Association

1. Does the association promote or participate in any environmental initiatives?
   ❍ Yes ❍ No
   If answered No please proceed to question #. 5

2. Is the environmental initiative based on an Environmental Management System format?
   ❍ Yes ❍ Other Format

3. What is format of the association's environmental initiative, if not based on Environmental Management System?
   You may select more than one:
   - ❍ Environmental Management Systems
   - ❍ Responsible Care
   - ❍ Procurement
   - ❍ Recycling
   - ❍ Waste Reduction and Management
   - ❍ Energy Consumption
   - ❍ Packaging
   - ❍ Product Stewardship
   - ❍ Life Cycle Assessment
   - ❍ Sustainable Development
   - ❍ Other, please specify: _____

4. Who is responsible for administering these initiatives at the association?
   Please provide contact name and information.

Proceed to the detailed questionnaire

If answered <u>No</u> in question # 1 answer the following questions:

5. Does the association provide information and assistance on environmental compliance issues to their members?
   ❍ Yes ❍ No

6. What were the factors of greatest importance in the associations decision not to develop or promote environmental initiatives? More than one may be selected
   - ❍ No membership interest
   - ❍ Lack of resources to develop and implement initiatives
   - ❍ Cost
   - ❍ Legal repercussions to the industry
   - ❍ Provides no value to the members
   - ❍ Other (Please explain) _____

7. What is the size of your association?
   Number of staff _____
   Number of members: _____
   Association's budget: _____

Study conducted by Maina Levin, student in the Graduate Program of Environmental Applied Science and Management
Contact Information: tel. (
Thesis Supervisor Dr. Pete

Appendix C Detailed Questionnaire

350 Victoria Street, Toronto, Ontario, Canada M5B 2K3

Detailed Questionnaire

The following questions are to be answered by associations that indicated presence of environmental initiatives

1. Name of the association: _____ Date Completed: _____

2. Name and contact information of person completing this questionnaire:

3. What is the size of the association?
   Number of staff _____
   Number of members: _____
   Association's budget: _____

4. Rate the importance of the following factors in the association's decision to develop/implement or participate in the environmental initiative

	High	Medium	Low	Not Relevant
1. Need/Interest expressed by members	❑	❑	❑	❑
2. Suppliers/customers requirement	❑	❑	❑	❑
3. Pressure from public and NGO's	❑	❑	❑	❑
4. Financial incentives	❑	❑	❑	❑
5. Risk Reduction	❑	❑	❑	❑
6. Legislative/Regulatory requirement	❑	❑	❑	❑
7. Value as a market and public relations tool	❑	❑	❑	❑
8. Pollution Prevention	❑	❑	❑	❑
9. Sustainable Development	❑	❑	❑	❑
10. Overall industry desire to improve environmental performance	❑	❑	❑	❑
11. Other (please explain)	❑	❑	❑	❑

5. Did the association base its environmental initiative on the following?
   please select all that apply
   - ❑ Based on ISO 14000 series of standards
   - ❑ Based on EMAS
   - ❑ Responsible Care®
   - ❑ CERES Principles
   - ❑ DNV Environmental Management System
   - ❑ Based on industry requirement (please explain)
     _____
   - ❑ Based on other standard/agreement (please explain)
     _____
   - ❑ None

6. How are members expected to participate in the association's environmental initiative *Please select all that apply*
   - ❑ Mandatory for all new members joining the association
   - ❑ Mandatory for members wanting to maintain membership
   - ❑ Voluntary passive (Only if members wish to participate)
   - ❑ Voluntary encouraged (Incentive programs)

Study conducted by Maina Levin, student in the Graduate Program of Environmental Applied Science and Management
Contact Information: tel.
Thesis Supervisor Dr. Pete

7. Have stakeholders been involved during the development or implementation of the Environmental Management System (Responsible Care Initiative)? *Please select all that apply*

- ❑ All of member organizations
- ❑ Use of Committee representing only some members
- ❑ Government Representatives (Federal, Provincial, Municipal representation)
- ❑ Representatives from Academia (College, University)
- ❑ Other Associations
- ❑ NGO's
- ❑ Community Representatives
- ❑ None

8. What are the key elements of the environmental incentive?
Please select all that apply

- ❑ Guiding Principles Or Environmental Statement
- ❑ Management Commitment
- ❑ Binding Targets & Timelines
- ❑ Legislative Compliance Requirement
- ❑ Impact Identification And Assessment Process
- ❑ Monitoring And Measurement Of Emissions
- ❑ Non Conformance And Corrective Action
- ❑ Continuous Improvement
- ❑ Pollution Prevention
- ❑ Sustainability
- ❑ Public Outreach
- ❑ Life Cycle Assessment
- ❑ Product Stewardship
- ❑ Precautionary Principle
- ❑ Audit/Verification
- ❑ Other _____

9. When establishing the goals for the association's environmental initiative, rate the importance of the following factors?

	High	Medium	Low	Not Relevant
Addressing industry specific environmental concerns	❑	❑	❑	❑
Local and national environmental concerns	❑	❑	❑	❑
International environmental concerns	❑	❑	❑	❑
Risk management	❑	❑	❑	❑
Pollution prevention	❑	❑	❑	❑
Waste reduction	❑	❑	❑	❑
Legislative compliance	❑	❑	❑	❑
Life Cycle Assessments	❑	❑	❑	❑
Product Stewardship	❑	❑	❑	❑
Sustainability (Sustainable Production)	❑	❑	❑	❑
Community involvement	❑	❑	❑	❑
Other (please specify)	❑	❑	❑	❑

10. If the association has identified specific environmental impacts of the industry, what are they?

- ❑ Green House Gasses
- ❑ Ozone depleting Substances
- ❑ Smog
- ❑ Air Pollution
- ❑ Public Health and Safety
- ❑ Water Pollution
- ❑ Solid Waste Disposal
- ❑ Hazardous Waste Disposal
- ❑ Persistent Pollutants
- ❑ Biodiversity
- ❑ Habitat Loss
- ❑ Soil Contamination
- ❑ None identified at this time

Study conducted by Maina Levin, student in the Graduate Program of Environmental Applied Science and Management
Contact Information: tel.
Thesis Supervisor Dr. Pete

11. How does the association monitor the implementation and compliance with the requirements of the environmental initiative?
- ❑ Self Assessments by members general guidelines limited reporting to the association
- ❑ Self Assessment with well defined performance matrix, report results to the association
- ❑ Association (or other members) conduct an evaluation or an audit
- ❑ Third party auditing requirement
- ❑ Environmental initiative is a guideline only, no requirement for compliance

12. Have members reported any visible benefits such as the ones indicated below as a result of implementing the Environmental Initiative?
- ❑ Improved relations with public and NGO's
- ❑ Risk Reduction
- ❑ Financial benefits (increase profits, reduction in costs)
- ❑ Legislative Compliance benefits (reduction in prosecutions, reduction in fines)
- ❑ Reduction in insurance costs
- ❑ Improvements in quality
- ❑ Other (please explain)

- ❑ None

13. Has the information on the above elements available to the public by:
- ❑ Printed Publication
- ❑ Website
- ❑ Other _____

- ❑ Not made public at this time

14. Does the association publish an annual environmental report?
- ❑ Yes
- ❑ No

If yes, how can a copy of the report be obtained? _____

15. Does the association participate in negotiated agreements with Federal or Provincial government?
- ❑ Yes
- ❑ No

If yes, please indicate the agreement _____

16. Does the association lobby provincial or federal governments? If so, please indicate the issues?

17. Would you like to receive a copy of the results?
- ❑ No Thanks
- ❑ Results Only
- ❑ Complete Study

Study conducted by Maina Levin, student in the Graduate Program of Environmental Applied Science and Management
Contact Information: tel.
Thesis Supervisor Dr. Pete

Appendix D Relevant Terms and Definitions

Biodiversity	The variability among living organisms from all sources, including land based and aquatic ecosystems, and the ecosystems of which they are part. These include diversity within species, between species, and of ecosystems. Diversity is the key to ensuring the continuance of life on Earth. It is also a fundamental requirement for adaptation and survival and continued evolution of species
CERES	Coalition for Environmentally Responsible Economies
DNV	Det Norske Veritas, has an established environmental assessment protocols
E2/P2	Energy Efficiency/Pollution Prevention
EMS	Environmental Management System
EMAS	Eco-Management and Audit Scheme
Environmental Audit	management tool comprising a systematic, documented, periodic and objective evaluation of how well a project, organization or equipment is performing with the aim of helping to safeguard the environment.
GRI	Global Reporting Initiative
Green Procurement	is the practice of acquiring goods and services that minimize the use of natural resources, the use and

	production of toxic materials, and emissions of greenhouse gas and other air pollutants over a product's lifecycle.
ISO 14000	Refers to a series of standards issued under International Organization for Standardization and includes ISO 14001, ISO 14004, ISO 14010 and others.
Life Cycle Assessment	is a technique to assess the environmental aspects and potential impacts associated with a product, process, or service
ODS	Ozone Depleting Substances
Pollution	undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities
POP	Persistent Organic Pollutants
Precautionary Principle	Concept of taking anticipatory action in the absence of complete proof of harm, particularly when there is scientific uncertainty about causal links (Pollution Probe, 2001, p. 12)
Product Stewardship	is a principle that directs all actors involved in the life cycle of a product to take responsibility for the impacts to human health and the natural environmental that result from the production, use and disposal of the product
SME	Small and Medium Enterprises
VRNI	Voluntary and Non-Regulatory Initiatives