FINAL REPORT

EXAMINING THE CURRENT AND PROPOSED POTENTIAL OF THE *CANADIAN ENVIRONMENTAL PROTECTION ACT* TO INCORPORATE POLLUTION PREVENTION PRINCIPLES AND STRATEGIES

Prepared by

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Analyse des dispositions actuelles et proposées de la *Loi canadienne sur la protection de l'environnement* par rapport à l'intégration possible des principes et des stratégies de prévention de la pollution

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EXECUTIVE SUMMARY

I. INTRODUCTION

At the beginning of the modern environmental movement over two decades ago, the preferred protection strategy was to treat and manage wastes before they entered the environment. In recent years, however, more and more individuals, corporations and governments have come to understand that a great deal of waste can be avoided altogether and that many wastes that can not be avoided entirely can be substantially reduced. Further, the steps involved in avoiding or minimizing waste can lead to more efficient and more profitable production. With the concept of pollution prevention as a starting point, there is a strong and growing awareness that the management of the environment is entering a new era.

The shift in orientation to a pollution prevention strategy has not and will not come about quickly or easily. Among other things, the various parties who have a vested interest in how the environment is managed, including government regulators, industry, financial institutions, and consumer, environmental and labour groups, have different expectations for, and approaches to designing and implementing pollution prevention principles and practices. Nonetheless, a clear consensus is emerging that pollution prevention offers a rational, efficient and effective approach to environmental protection. A growing body of evidence indicates that employing pollution prevention techniques will not only produce real and significant environmental benefits, but will also result in optimizing economic benefits and reducing economic and legal liabilities. Certainly the potential for serving both environmental and economic goals makes the pollution prevention strategy worth of pursuing.

The *Canadian Environmental Protection Act* is a cornerstone of the federal involvement in environmental protection. The purpose of this Report is to analyze the current and proposed potential of CEPA to incorporate pollution prevention principles and strategies.

II. DEFINING POLLUTION PREVENTION

Over the past decade, dozens of new terms have emerged to describe various aspects and interpretations of pollution prevention. Since it first came to prominence in the early 1980s, the definition of pollution prevention has actually shifted from a broad, inclusive meaning to a collection of disparate, fragmented, and at times, mutually exclusive definitions.

Recent U.S. federal legislation characterizes pollution prevention as source reduction. This clearly focuses on the point of generation of pollution rather than on the point of release into the environment. In contrast to the U.S. federal definition, several state legislative initiatives incorporate the theme of toxics use reduction (TUR). This phrase specifically addresses the **use** of toxic substances as a means to impact on the earliest possible point of the generation of pollutants. Source reduction is a component of TUR because it focuses on reducing or eliminating pollution before it is created. TUR, however, goes further than source reduction by encouraging practices that reduce or completely eliminate the use of toxic chemicals in the first place.

The debate concerning the parameters of pollution prevention is not restricted to the point at which intervention should commence. The argument is at least as heated in attempting to define the outer limits of where pollution prevention ends—and, where pollution control begins. As a

generalization, industry stakeholders tend to argue that the definition of pollution prevention should include on-site out-of-loop recycling, reuse, and reclamation as well as off-site recycling, reuse and reclamation. Although a consensus has certainly not emerged, there is a growing acceptance that on-site close-looped recycling falls within the definition of pollution prevention, but recycling activities that occur either away from the facility (off-site) or away from the generating process (out-of-loop) are not included.

There is no Canadian (federal or provincial) legislation that defines the terms “pollution prevention," “toxics use reduction," or “source reduction." Indeed, there is currently no Canadian legislation that comprehensively addresses pollution prevention, in its own right. However, several government agencies have policy statements that articulate definitions for pollution prevention. By and large, the Canadian perspective of pollution prevention seems to be based on the concept of source reduction rather than toxics use reduction.

For the purposes of analyzing CEPA, this Report adopts the following definition:

Pollution prevention means:

> *Any practice that avoids, reduces or eliminates the use of toxic substances, or that avoids, reduces or eliminates the creation of pollution, without creating or shifting new risks to communities, workers, consumers or the environment. This includes, but is not limited to:*
>
> - *equipment modifications,*
> - *process changes,*
> - *materials or feedstock substitution,*
> - *design modifications,*
> - *technological modifications,*
> - *modifications in production activities including housekeeping practices,*
> - *training, and inventory control,*
> - *operating efficiencies,*
> - *product reformulation and redesign.*

Pollution means:

> *Any substance regulated by the Canadian Environmental Protection Act as an unwanted substance, including unwanted toxic substances, fuels or fuel additives or contaminants, nutrients, air contaminants, and other substances as defined by CEPA.*

III. SCOPE AND APPROACH OF POLLUTION PREVENTION LEGISLATION

In recent years, three mechanisms have been identified by environmental policy makers to encourage the adoption of pollution prevention strategies. These are voluntary programs, market-based program incentives and legislated program directives. In analyzing CEPA, this Report will focus on legislated program directives.

To date, many of the pollution control laws enacted by Parliament and the provincial legislatures have **indirectly** promoted pollution prevention by limiting inappropriate waste handling practices, increasing the costs related to generating pollution, banning or severely restricting certain substances or polluting activities, and substantially increasing polluter liabilities. However, with two notable exceptions, there are currently no Canadian (federal and provincial) statutes that deal specifically with pollution prevention concepts, as defined in this Report. The first exception involves legislated environmental impact assessment laws passed by the federal and provincial governments. The second notable exception is CEPA, the subject matter of this Report.

The U.S. Congress began to develop a **deliberate** national policy of industrial pollution prevention when it passed the *Hazardous and Solid Waste Amendments* to the *Resource Conservation and Recovery Act* in 1984. With the passage of the *Pollution Prevention Act of 1990*, the U.S. Congress expanded the scope of its pollution prevention policy to cover pollutants to all mediums. This Act establishes a national policy of hierarchical environmental protection, stating that pollution should be prevented or reduced at source as the first priority. To date over 33 U.S. states have enacted pollution prevention statutes. The vast majority of these laws were enacted in the past three years.

An analysis of U.S. federal and state law and Canadian federal and provincial policies reveals that legislation can promote pollution prevention strategies by establishing programs that encourage voluntary participation by affected industries or by compelling compliance with regulatory initiatives.

Although the numerous laws and policies often appear divergent in their approach to the implementation of pollution prevention strategies, a core set of common pollution prevention activities are beginning to emerge. These include:

- targeting the industrial sector for pollution prevention programs;
- creating an Office of Pollution Prevention;
- providing technology assistance;
- establishing specific pollution reduction goals and targets;
- demanding or encouraging designated facilities to produce pollution prevention plans;
- providing for data collection and access by the public;
- providing public access to pollution prevention plans; and
- implementing regulatory initiatives.

This section of the Report has highlighted these strategies in order to systematically analyze the pollution prevention potential of CEPA.

IV. POLLUTION PREVENTION AND CEPA

Introduction

Supporters of CEPA introduced it in 1988 as a pollution prevention statute. Others have argued that it does not currently accommodate effective pollution prevention strategies, and must be substantially amended in order to do so. In any event, it can be argued that the concepts and strategies of pollution prevention have evolved so rapidly in the past five years, that even if CEPA was seen as a pollution prevention law in 1988, it must be reexamined in light of the current understanding of pollution prevention.

As a preliminary matter, an appreciation of the impact of constitutional law is vital in order to assess the ability of CEPA to accommodate the principles and specific strategies of pollution prevention.

Constitutional jurisdiction over environmental matters in Canada is shrouded by two significant uncertainties: the uncertain character of the scope of power of each level of government and the uncertain character of the relationship between these powers. The federal legislative powers to pass environmental laws may be considerable, but they are definitely not clearly defined. Their parameters are uncertain, and they have all gone through a strained history of judicial interpretation. There is no discernable link between the various heads of federal power that may accommodate environmental laws and the perceived societal needs for environmental management. Indeed, the various federal heads of power may not be relevant to developing a comprehensive national environmental policy. The same can be said for provincial powers.

The uncertainty surrounding the jurisdictional limits for environmental regulation allows for a spectrum of approaches that could be employed when attempting to justify new federal environmental laws and policies. At one extreme, one can push for change of the current limits of federalism and encourage the federal government to exercise broader and bolder responsibility over the environment. At the other extreme, one can allow Canadian federalism to evolve at its own pace, but push for much stronger administrative cooperation between the federal and provincial governments. The recognition of the concept of "cooperative federalism" as the primary means to affect environmental change has been embraced by several constitutional experts, as well as the House of Commons Standing Committee on Environment. In its 1992 Report, *Environment and the Constitution*, the Standing Committee recommended that "the environment be regarded as an area of shared jurisdiction, in which concurrency and partnership are the appropriate and effective basis for governmental action."

Certainly, there are positive and negative aspects associated with either extreme—there is no clear or final answer. Both of these perspectives are discussed, as appropriate, when the present and potential opportunities for incorporating pollution prevention strategies into CEPA are examined.

Analyzing CEPA for its Pollution Prevention Potential

CEPA is divided into nine parts, plus a preliminary section. Part VIII dealing with consequential amendments and Part IX dealing with the coming into force of the Act are not relevant to the subject matter of this paper.

Preliminaries

Neither the declaration nor the preamble contain any direct reference to the principle of pollution prevention. This omission in no way hampers the ability of the Act itself to incorporate pollution prevention strategies. Nevertheless, given the fundamental importance of pollution prevention as a philosophy as well as a strategy and the role of the preamble in articulating fundamental principles, a reference to pollution prevention would be appropriate.

By establishing the administrative duties under CEPA, s. 2 provides an excellent opportunity to emphasize the importance of pollution prevention in protecting the environment. An amendment to s. 2 incorporating this concept might read that the Government of Canada shall:

> *endeavour to incorporate pollution prevention as a priority strategy in protecting the environment.*

If CEPA is amended to expressly accommodate pollution prevention initiatives, then a clear definition for pollution prevention must be included in s. 3. In this event, the definitions provided in this Report should be included.

Given the uncertainty of the scope and limits of federal regulatory power over the environment, the potential for confrontation with the provinces over federally legislated pollution prevention activities is real and significant. Section 6 states that the Minister of the Environment shall, in cooperation with the provinces, establish a Federal-Provincial Advisory Committee (FPAC) to provide advice on, among other things, environmental matters that are of mutual interest to the federal and provincial governments and to which CEPA relates. Section 6 further states that the purpose for establishing such a committee is to avoid conflict between, and duplication in, federal and provincial regulatory activity, to establish a framework for national action and to facilitate cooperative actions in matters affecting the environment. The scope of pollution prevention is such that several initiatives will fall within the purview of provincial jurisdiction, other facets will allow for direct federal involvement, while still other components can legitimately be regulated by both jurisdictions. The reality of the constitutional constraints underscores the value of FPAC working to develop a comprehensive, effective pollution prevention strategy that accommodates the needs of all stakeholders, including regulators and industries who want to avoid costly, duplicative and inconsistent regulation.

Part I: Environmental Quality Objectives, Guidelines and Codes of Practice

Section 7 provides that the Minister of the Environment may collect data, conduct research and establish demonstration projects on the "control and abatement of environmental pollution." The pollution prevention opportunities provided by federal technical assistance programs are considerable. The use of the federal spending power along with the statutory mandate provided by s. 7 provides the Minister with all the authority needed to implement any or all of the technology assistance initiatives listed in section 3.2.4 of this Report. However, for greater

certainty, subsections 7(c), (e) and 7(3) should be amended to include the word "prevention" immediately before the phrase "control and abatement of environmental pollution."

Section 8 of CEPA gives the Minister of the Environment extensive authority to formulate non-regulatory instruments that provide environmental quality guidance to interested parties, including industries and federal and provincial regulators. The non-regulatory nature of the instruments outlined in s. 8 and the wide scope given to the Minister in formulating these instruments ensure that this provision is well-suited to the development of **voluntary** pollution prevention strategies. Individuals and organizations that favour strong federal guidance in developing voluntary pollution prevention strategies rely heavily on s. 8.

The potential for developing pollution prevention codes of practice, objectives and guidelines, using the current s. 8, is therefore significant. Nevertheless, certain amendments could be considered to clarify the pollution prevention opportunities in s. 8, such as the following:

8(1) ...the Minister shall formulate

(a) Environmental quality objectives specifying goals or purposes toward which pollution prevention or environmental control efforts are directed ...

(d) Environmental codes of practice specifying procedures, practices or release limits for pollution prevention or environmental control ...

(e) Pollution prevention guidelines outlining pollution prevention initiatives, including pollution prevention plans relating to works, undertakings and activities during any phase of their development and operation.

(2) The objectives, guidelines and codes of practice referred to in subsection (1) shall relate to

(aa) pollution prevention;...

(3) in carrying the responsibilities conferred by subsection (1), the Minister may

(a) consult with ... any person interested in the quality of the environment or the prevention or control or abatement of environmental pollution.

Part II: Toxic Substances

Under CEPA, the federal government committed to a "life-cycle" management approach to toxic substances. Part II of CEPA is the heart of this national regulatory action plan. It sets out procedures for the identification and assessment of toxic substances and provides for the establishment of regulations and other controls to govern their import, manufacture, transportation, storage, use, sale, export, discharge into the environment and ultimate disposal.

Setting aside jurisdictional questions, there is no doubt that the current scheme established by Part II to regulate existing toxic substances provides ample opportunity for incorporating pollution prevention strategies. Certainly, an argument can be advanced that s. 34(1)(l) is broad enough to incorporate, not only source reduction strategies, but also toxic use reduction strategies by banning or sunsetting the use of certain toxic substances.

Another facet of the pollution prevention principle is the use of a multi-medium approach in regulating toxic substances. In principle, the multi-medium approach attempts to reduce or eliminate the creation of pollutants from a particular company within a particular sector, as well as between sectors. This principle brings to the fore the constitutional constraints that must be addressed by federal and provincial governments. This principle, however, also highlights the opportunities associated with federal-provincial cooperation and the promising role to be played by Control Options Reports (see s.13 of CEPA).

Although the regulation-making powers outlined in s. 34(1), and in particular subsections 34(1)(l) and 34(1)(r) are likely broad enough to justify federal pollution prevention initiatives to reduce the use of toxic substances and to avoid or reduce the creation of pollution, a further provision may be considered to allow the Governor-in-Council to make regulations, as follows:

> *the development and implementation of pollution prevention strategies for these substances, including the development and implementation of pollution prevention plans by industries that generate, process, use or release the substance(s).*

Sections 15 through 18 of CEPA allow the federal government to generate and collect data concerning the production, application and importation of substances. Section 16 is particularly relevant to the generation of information for pollution prevention purposes. Indeed, the National Pollutant Release Inventory Multistakeholder Advisory Committee recommended that s. 16 could be used as the legislative authority for the NPRI. However, s. 16 should be amended to ensure that it can accommodate all of the recommendations of NPRI, as follows:

(1) For the purpose of providing a comprehensive, national database on specified substances, the Minister may, after the federal-provincial advisory committee is given an opportunity to provide its advice under s. 6, develop a National Pollutant Release Inventory.

(2) The Minister may establish an advisory committee under s. 5 to provide recommendations on the National Pollutant Release Inventory.

(3) The Minister may publish in the Canada Gazette a notice requiring any firm generating, producing, using or releasing a substance listed on the Priority Substances List [or, more restrictively "on the List of Toxic Substances"] to provide the Minister with the information detailed in the NPRI.

Sections 19 through 24 of CEPA outline the information disclosure provisions. These sections include the procedures to request that the information supplied to the Minister under Part II be treated as confidential, and also to specify the information that may be disclosed. If pollution prevention plans are mandated under s. 34(1) consideration should be given to amending s. 19(1) as follows:

> *A person who provides information, including a pollution prevention plan and subsequent updates to the Minister ...*

This Report highlights several provisions in CEPA that encourage federal and provincial regulators to cooperate on pollution prevention strategies in order to avoid conflict and duplication of effort. Two further opportunities for cooperation involve the development of equivalency agreements under s. 35(6) of CEPA, and administrative agreements under s. 98. Regulated pollution prevention strategies that have sensitive federal-provincial jurisdictional concerns could possibly be resolved through the use of these provisions.

Part III: Nutrients

Sections 49 to 51 in CEPA define and help to regulate cleaning agents, nutrients and water conditioners. Part III is fairly limited in scope, and does not provide significant opportunities for developing pollution prevention strategies.

Part IV: Controls on Federal Government Organizations

The federal government has a vital role to play in promoting pollution prevention strategies within its own organization. Its leadership potential in helping to mobilize an ethic of pollution prevention both inside and outside government institutions cannot be underestimated.

Section 54(2) allows the Governor-in-Council, on the recommendation of the Minister of the Environment, to make regulations prescribing limits on the release of emissions and effluents and waste handling and disposal practices of federal departments, boards, agencies and corporations (hereafter collectively called "institutions"). The phrase "limits on the release" may be too narrow to support regulations that prescribe reductions in the creation of pollutants or in the use of toxic substances. Therefore, an amendment to s. 54(2) should be considered as follows:

> *Pollution prevention strategies including strategies that avoid, reduce or eliminate the use of toxic substances, or that avoid, reduce or eliminate the creation of pollution by departments, boards, agencies and corporations referred to in paragraph 54(1)(a).*

The federal government has established an Office of Environmental Stewardship to act as a focal point for coordinating and assisting in the adoption of the Code, including the integration of environmental considerations with the government's considerable purchasing policies. The opportunity to build pollution prevention strategies into the Code is considerable.

As currently worded, Sections 54 and 56 would likely allow the Minister to collect National Pollutant Release Inventory data. These sections, however, would likely not allow the Minister to exact pollution prevention plans from federal institutions releasing emissions or effluents or handling and disposing of waste. If amendments to CEPA compel certain private-sector industries to submit pollution prevention plans then the Minister must also be able to mandate such plans

from federal facilities. If the government implemented the suggested amendment to s. 54(2), then a simple addition to s. 56 should provide the Minister with the appropriate authority to require pollution prevention plans, as follows:

56. For the purpose of s. 54 the Minister may require ... such plans, including pollution prevention plans, specifications ... as will enable the Minister to determine the environmental impact that the work, undertaking or activity will have, and strategies for avoiding, reducing or eliminating those impacts.

Several U.S. pollution prevention statutes mandate the creation of a pollution prevention office. Given the current experience of the National Office of Pollution Prevention and the Ontario Pollution Prevention Office, a legislative base for these agencies is not considered essential at this time.

Part V: International Air Pollution

Both federal and provincial governments have a role to play in controlling air pollution. The provinces, however, have historically been primarily responsible for controlling air pollution because most pollution sources were seen to fall within the provincial powers over "property and civil rights" and "local works and undertakings within the province."

The complexity and the sensitivity concerning constitutional jurisdiction over air pollution is such that cooperative federalism should be encouraged as much as possible. Again, CEPA Part V consciously embraces this principle by providing clear consultation mechanisms with provincial governments for any international air pollution regulations and for the establishment of equivalency agreements. This approach, so far, seems to be working and seems to be touching upon pollution prevention strategies.

Part VI: Ocean Dumping

Ocean dumping involves the creation of wastes on land and the intentional placement of those wastes on a vessel for the purpose of discharging them into the ocean. As currently written, the ocean dumping provisions, including the regulations, encourage reactive, pollution control strategies rather than anticipatory, pollution prevention options. The overall intent is to manage wastes that are produced and to limit any potential impacts, rather than attempting to reduce the creation of the wastes in the first place.

The federal government recognizes the limits of Part VI of CEPA as currently written, and intends to implement significant amendments that will incorporate many pollution prevention strategies. In this regard, there is a need to more fully integrate the ocean dumping provisions into the overall pollution prevention policy of CEPA.

Part VII: The General Part

As with other provisions in CEPA, the current and potential opportunity to build pollution prevention strategies into Part VII is considerable. Most obviously, Part VII concerns itself with monitoring compliance, investigating suspected breaches and punishing violations of the substantive regulations developed in the other Parts of CEPA. To the extent that the regulations adopt mandatory pollution prevention strategies, they can be monitored and violators may be prosecuted. Indeed, the severity of the current fines, jail terms and other penalties outlined in ss. 111-137 are such as to not only deter unlawful conduct (reactive, after the fact punishment) but also to encourage anticipatory, preventative approaches in protecting the environment.

To the extent that new pollution prevention strategies are built into CEPA and its regulations, as discussed throughout this Report inspectors will have substantially increased powers to monitor and, in appropriate circumstances, consider enforcement actions for violations of those regulations.

There is also a great deal of scope within the existing framework to use "unofficial" mechanisms to encourage pollution prevention by industry. For example, Environment Canada has created the Office of Enforcement to develop a consistent, national policy for investigations and enforcement actions. Some of the responsibilities of this office include the development of training courses for inspectors and investigators, and the delivery of the annual National Training Program. Several U.S. jurisdictions have specifically integrated pollution prevention courses into their enforcement training programs. Trained government personnel could then offer information and advice that is directly relevant to the particular facility being inspected. Because compliance is not mandatory, the advice need not be restricted to activities or substances regulated under CEPA. Moreover, the factors to be considered before deciding which enforcement action to take might incorporate the U.S. EPA policy that encourages pollution prevention as a means of achieving regulatory compliance and of correcting outstanding violations when negotiating enforcement settlements. In this regard, s. 130(1) should be amended to allow the courts to make an order directing the offender to adopt and maintain pollution prevention strategies, including pollution prevention plans.

V. SOME CONCLUDING OBSERVATIONS

Since the mid-1980s, pollution prevention has rapidly evolved as a pivotal strategy for protecting the environment. A precise definition of the term "pollution prevention" is illusive because the use of the term is new. The search for better and more sophisticated approaches to environmental management is progressing rapidly and there is still a great deal of experimentation and technology development associated with the concept. Nevertheless, consensus on the definition of pollution prevention, as well as strategies that can be employed to accommodate that definition, is beginning to emerge.

Given the complexity and the political sensitivity of the constitutional constraints associated with environmental regulation, the analysis of the legislative potential for pollution prevention in CEPA must be fully appreciative of the limits of federal and provincial authority in this area. Any current or proposed policies, programs, projects or regulatory initiatives that incorporate pollution prevention concepts must be highly sensitive to these constitutional constraints. As an option, serious consideration should be given to the principles of cooperative federalism in pursuing any

such endeavours. Indeed, CEPA incorporates ample opportunity for federal-provincial cooperation as well as providing ample opportunity for private-sector interests to help shape these endeavours.

As currently written, CEPA has a great deal of potential for implementing pollution prevention strategies. Indeed, many such strategies have already been implemented and several others are planned for the near future.

However, given the importance and newness of pollution prevention as a concept, the need for clear, consistent and fair direction for all parties impacted by CEPA, and the need to increase the regulatory authority in certain instances this Report proposes several recommendations to amend CEPA. Adding a new Part to CEPA, dealing exclusively with pollution prevention principles and strategies is not recommended at this time.

Developing a new federal pollution prevention statute has some merit but is not recommended at this time. Time and financial constraints, the likelihood of resistance from some federal departments and the immediate opportunity to amend CEPA mitigate against any effort to design and implement a new federal statute.

I. INTRODUCTION

The 1960s witnessed the birth of the modern environmental movement in Canada and the United States. As people became aware of the actual and potential harm being done to the environment and public health by polluting activities, they demanded that government action be taken to eliminate or minimize this harm. As in the United States, the predominant strategy employed by Canadian regulators (both federal and provincial) was to issue regulatory controls designed to capture pollutants before they escaped into the environment.[1] Typically, pollution control regulations consisted of pre-set legislated standards or general prohibitions against the release of emissions except as authorized pursuant to the terms and conditions of legally authorized documents. Regulators established the terms of these documents (variously referred to as permits, licences, control orders, or certificates of approval) following discussions with the industry being regulated. Then they established an extensive (and expensive) administrative regime to monitor and enforce the regulatory system.

The universal response by regulated industries to pre-set legislated standards and licensing agreements was to incorporate "end-of-pipe" technologies into their existing processes. Invariably, the pre-negotiated pollution standards were set to coincide with current end-of-pipe technology. By definition, this end-of-pipe response ensured that pollutants would have to be managed **after** they had been created.

As different environmental problems were identified, usually because their obvious adverse effects were readily apparent (smog, dying lakes and rivers, endangered species and spaces), regulators passed new laws to address each new problem. The tactics and goals of these different laws were rarely consistent or coordinated, even if the pollutants to be controlled were the same. Moreover, the governmental administrative structures established to develop and implement these laws were generally uncoordinated and reactive. This became known as the "command and control" approach to managing pollution.

Although subject to intensive debate in some quarters,[2] command and control measures have led to very real and quantifiable positive results. One need only compare the situation in Canada with the human health and ecological problems associated with environmental degradation in many regions of the world to see the positive results of these efforts. However, for several reasons, the reactive, end-of-pipe approach to preventing or reducing pollution will not be as successful in the future as it has been in the past. First, the focus of understanding and concern has shifted dramatically from the highly visible and relatively straightforward pollution problems to the infinitely more complex, subtle and potentially more damaging environmental risk activities. Concern over the loss of amenity values associated with black smoke has been replaced by fear of significant human health and environmental impacts caused by small concentrations of certain chemicals, detectable only with the most sophisticated equipment. The localized problem of the factory next door has now become national and international in dimension. Secondly, the costs associated with increased protection of the environment are growing exponentially. Because the most obvious controls have already been applied to deal with the most obvious environmental problems, the aggregate costs of regulating the more complex environmental risks will increase

1 See generally: Estrin, *Environmental Law*; Estrin and Swaigen, *Environment on Trial*; Macdonald, *The Politics of Pollution*; Webb, *Pollution Control in Canada*.

considerably. Even the costs of landfilling non-hazardous solid wastes are rapidly escalating. Thirdly, non-point sources of pollution—for example, from agricultural fertilizer and pesticide use; from automobiles, air conditioners, refrigerators and other consumer products; and from urban storm sewer runoffs—do not lend themselves readily to traditional command and control regulation. Fourthly, there is a growing appreciation that end-of-pipe controls designed to regulate one pollutant in one environmental medium often result in the contamination of another. For example, scrubbers installed to remove air contaminants may generate waste water, which is discharged to surface water, as well as residuals, which may end up in hazardous waste landfills. The problem is not solved—the pollution is merely transferred to another medium. Finally, there is a growing appreciation that attempting to control pollution after it has been created is socially less desirable than preventing the creation of the pollution in the first place.

All of these factors combined ensure that a concerned and educated public is beginning to demand that the environmental regulators develop new approaches to restore, maintain, and even enhance environmental quality.

The concept of **pollution prevention** as a new regulatory approach for managing the environment has gained a tremendous following in the last couple of years. Nowhere is this shift in regulatory policy more evident than in the United States. In October 1990, the American Congress passed the *Pollution Prevention Act of 1990*. This Act contains the following policy statement:

> *The Congress hereby declares it to be the national policy of the United States that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.*

As of June 1993, more than 33 American states had enacted some sort of pollution prevention legislation.

During the past few years, Canadian environmental policy, both at the federal and at the provincial level, has also begun to shift emphasis from pollution control to pollution prevention. At the federal level, several policies and programs currently address various facets of the philosophy and implementation strategies for pollution prevention. This Report, sponsored by the Regulatory Affairs and Program Integration Branch of Environment Canada, is one such effort.

The *Canadian Environmental Protection Act* (hereafter referred to as CEPA or the Act), proclaimed in force in 1988, is a cornerstone of the federal involvement in environmental protection. The purpose of this Report is to analyze the current and proposed potential of CEPA to incorporate pollution prevention principles and strategies.

This Report contains five sections. Section I is this Introduction. Section II examines the concept of pollution prevention as outlined in various academic writings, American federal and state legislation, and in Canadian policies and programs. The broad range of terms and definitions that

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2 See, for example, Commoner, *Making Peace with the Planet*.

are used to describe pollution prevention underscores the intensive search for more effective approaches for protecting the environment. Nevertheless, common elements particular to the concept of pollution prevention can be identified, especially in contrast to pollution control. This is important because legislation that incorporates pollution prevention must strive to do so in clear and unambiguous terms. This Report suggests some parameters for the definition of pollution prevention as the concept applies to CEPA.

Section III describes administrative and legislative tools and procedures that are designed to implement pollution prevention principles and strategies. Heavy reliance is placed on American legislation and writing.

Using Section II and III as a backdrop, Section IV explores the pollution prevention potential of CEPA. As a preliminary matter, constitutional constraints that might limit the scope of the current or proposed potential of CEPA in adopting pollution prevention strategies are discussed. Then, the various provisions of CEPA are examined.

The final section of this Report highlights some observations on the ability of CEPA to accommodate pollution prevention strategies.

II. DEFINING POLLUTION PREVENTION

2.1 CLARIFYING A PRELIMINARY DISTINCTION: POLLUTION PREVENTION AS A GOAL VERSUS POLLUTION PREVENTION AS A STRATEGY

The Introduction has stated that public concern and the goal of government regulators responding to that public concern has been environmental protection. One might as easily have noted that the public concern and the goal of regulators was pollution prevention—that is, the prevention of the creation or the release of pollutants into the environment that could then harm various components of the environment and/or human health. For example, the House of Commons debates introducing the *Environmental Contaminants Act* in 1974 stressed that the intent of the legislation was to move into a preventative phase in the war against pollution, and move away from "cure" to "prevention."[3] The *Arctic Waters Pollution Prevention Act* passed in the early 1970s, the *Ocean Dumping Control Act*, which incorporated the *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter* signed by Canada in 1972, and various pollution prevention regulations enacted in the early 1970s under the *Canada Shipping Act* (the Garbage Pollution Prevention Regulations, the Oil Pollution Prevention Regulations and the Great Lakes Sewage Pollution Prevention Regulations) illustrate that government regulators were focusing on the goal of pollution prevention. Moreover, end-of-pipe technologies were not the only response to the command and control strategy for achieving the goal of pollution prevention. On occasion, command and control strategies were expressed through outright bans on the use of specific substances or the prohibition of polluting activities—a fairly obvious form of pollution prevention. For example, the *Pest Control Products Act*, enacted in 1969, gives the federal Minister of Agriculture the power to ban the use, production or importation of pesticides, if in his opinion, the use of the product would lead to unacceptable risk of harm to public health, plants, animals or the environment. Amendments to the *Fisheries Act* in the mid-1970s (see for example section 33.1) granted the Minister the power to request copies of plans and specifications for any proposed new operations or information on any aspect of an ongoing operation to determine whether the operations would deposit any substance that could be deleterious to fish. If the Minister was of the opinion that fish or fish habitat would be disrupted, modifications to the project could be ordered or, with Cabinet's approval, the Minister could even direct the project to be shut down. These examples illustrate that command and control strategies in the early 1970s provided regulators with the legal authority to ban products or processes as a way to prevent pollution.

Nevertheless, the end-of-pipe technologies used to manage pollution once it has been created remained the predominant strategy employed by governments and industry to control environmental quality.

By the mid-1980s, the strategy for protecting the environment began to shift from pollution control to pollution prevention. As the Governor of Michigan stated in a report issued by the U.S. Office

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3 See, for example comments by Mr. Jack Davis, House of Commons Debates, 24-4-74 p. 1728 re the "Preventative Phase"; and Mr. Marchand re-introducing the Bill for Madame Sauvé, Minister of the Environment, Commons Debates 19-11-74 p. 1476 re "Cure."

of Technology Assessment in 1987, *From Pollution to Prevention: A Progress Report on Waste Reduction*:[4]

> *It is time for a revolution in our thinking about protecting the environment from pollution. The successful state and federal environmental legislation of the 1960s and the 1970s attacked conventional pollutants by regulating their release into the environment. This forced the development of new pollution control technologies, but still permitted some discharge of materials. To meet the emerging challenge of toxic pollutants, we must realize it is far more effective and cheaper to prevent them from ever entering the environment than it is to clean up our mistakes.*

This strategic policy shift from pollution control became known as "pollution prevention." This Report distinguishes between pollution prevention as a goal and pollution prevention as one of several strategies (along with, for example, pollution control and remediation or clean-up activities) that can be adopted by regulators to attain that goal. Since the 1960s, Canadian regulators have attempted to protect the environment primarily by reducing or preventing pollution by employing command and control strategies that incorporate end-of-pipe technologies, and occasionally, by prohibiting certain substances or processes. The pronounced shift that is now emerging embraces pollution prevention over pollution control as the priority **strategy** for reaching the goal of environmental protection. Thus, to minimize any confusion in terminology, this Report uses the term "pollution prevention" as a strategy that can be adopted to attain the goals of environmental protection, and not as the goal itself.

2.2 DEFINING POLLUTION PREVENTION: THE U.S. EXPERIENCE

Over the past decade, dozens of new terms have emerged to describe various aspects and interpretations of pollution prevention.[5] The definition of pollution prevention in one jurisdiction can vary substantially from that in another. Even within the same jurisdiction, the term can take on a markedly different meaning. A voluntary pollution prevention program could adopt an operating definition that is different from a legal definition that has been codified in legislation. Since it first came to prominence in the early 1980s, the definition of pollution prevention has actually shifted from a broad, inclusive meaning to a collection of disparate, fragmented, and at times, mutually exclusive definitions. In a recent article entitled "Defining Pollution Prevention and Related Terms" the author examined 23 state laws and isolated no fewer than 10 discreet terms for pollution prevention. These included hazardous waste reduction, waste reduction, source reduction, pollution prevention, waste minimization, toxic pollution prevention and toxics use reduction.[6]

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4 Quoted in Sandborn and Andrews, *Preventing Toxic Pollution: Toward A British Columbia Strategy*, p. 17.

5 See, for example, Environmental Protection Agency, *Pollution Prevention 1991*, p. 4-8 and 76-81; Foecke, "Defining Pollution Prevention and Related Terms"; Innes, "Scope and Approach of State Pollution Prevention Legislation: An Overview."

6 Foecke, "Defining Pollution Prevention and Related Terms," p. 108-111.

The U.S. Environmental Protection Agency defines pollution prevention as "source reduction". The *Pollution Prevention Act of 1990* states that it is "to be the national policy of the United States that pollution should be prevented or reduced at source..." The Act then defines "source reduction" as any practice that:

(i) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and

(ii) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

The *Pollution Prevention Act of 1990* also states that the term "source reduction" includes "equipment or technology modifications, process or procedure modifications, reformulation or redesigning of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control." Interestingly, the Act further clarifies the definition of source reduction by expressly stating that the term does **not** include the following:[7]

> *Any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service.*

The U.S. federal legislation, then, characterizes pollution prevention as source reduction. This clearly focuses on the point of generation of pollution rather than on the point of release into the environment.[8]

In contrast to the federal definition of pollution prevention, several state legislative initiatives incorporate the theme of toxics use reduction. This phrase specifically addresses the **use** of toxic substances as a means to impact on the earliest possible point of the generation of pollutants. Toxics Use Reduction (TUR) is often used as an umbrella prevention strategy that encompasses, but goes beyond, the "generation-of-waste" orientation of source reduction. Source reduction is definitely a component of TUR because it focuses on reducing or eliminating pollution before it is created. TUR, however, goes further than source reduction by encouraging practices that reduce or completely eliminate the use of toxic chemicals in the first place.

Prior to the passage of the New Jersey *Pollution Prevention Act* in 1991, environmentalists considered the Massachusetts *Toxics Use Reduction Act* and the Oregon *Toxics Use Reduction and Hazardous Waste Reduction Act* the most progressive models for pollution prevention legislation in the United States. The experiences gained from the Massachusetts, Oregon and federal pollution prevention legislation clearly influenced the scope of the definition of pollution prevention in the New Jersey legislation. As outlined in *Charting a Preventative Approach to Environmental Protection: A Comprehensive Perspective of New Jersey's Pollution Prevention Initiative*, the debate shifted from source reduction and recycling to the toxics use reduction and

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7 At least 14 American state laws also include the "is/is not" dynamic to help clarify the definition of pollution prevention. See Foecke, "Defining Pollution Prevention and Related Terms," p. 108.

8 Because of initial confusions surrounding the definition of pollution prevention, the Deputy Administrator of the EPA had to send a memo to all EPA personnel in 1992 to clarify that the definition was indeed the source reduction

source reduction perspective eventually adopted by the legislature.[9] Although the definition of pollution prevention in the New Jersey legislation is lengthy and demands careful reading, it essentially mandates that instead of using post-generation pollution control technologies, pollution prevention involves either changes in how things are produced, changes in the design of products or changes in the use of chemicals. To fulfil the definition of pollution prevention, these changes must result in a reduction in the need for chemicals in the inherent design of the product, a reduction in the up-front input of chemicals or a reduction in the generation of hazardous substances by industrial sources prior to treatment.

Although the methods for achieving TUR and source reduction are similar (including, but not limited to input substitution, product reformulation, process modifications, in-process recycling, and improved housekeeping), TUR is more comprehensive than the waste/pollution emphasis of source reduction because it stresses eliminating the use of the toxic chemical in the first place. To illustrate, a company may use 100 tonnes of a toxic substance, 90 tonnes of which are put into products and 10 of which are wasted. Eliminating or reducing the 100 tonnes of the toxic substance used (TUR) is fundamentally different from eliminating or reducing the 10 tonnes of waste prior to release. This example also illustrates another key distinction between TUR and source reduction. In principle, TUR will minimize the opportunity to shift a pollutant from one environmental medium to another because the focus is on reducing the 100 tonnes. In contrast, product or process changes made to reduce the 10 tonnes of toxic waste (source reduction) may result in that waste being transferred into the consumer product. Once the useful life of the product is spent, the toxic substance will find its way back into the environment (usually through incineration or landfill).[10]

While in some aspects TUR is more comprehensive than source reduction, it is nevertheless seen by some experts as narrower in other aspects. As stated in an article entitled "Techniques in Toxics Use Reduction: From Concept to Action":[11]

> *The difference between pollution prevention and toxics use reduction is the scope of materials and activities covered. Toxics use reduction usually targets a list of "toxic" chemicals. Typically the list of chemicals is based on the list developed as part of [the Toxics Release Inventory legislation]. Pollution prevention, on the other hand, covers all pollutants. Secondly, toxics use reduction only covers manufacturing, whereas pollution prevention covers pollution from all human activities: including mining, agriculture, and transportation.*

The debate concerning the parameters of pollution prevention is not restricted to the point at which intervention should commence. The argument is at least as heated in attempting to define the outer limits of where pollution prevention ends—and, where pollution control begins. As a generalization, industry stakeholders tend to argue that the definition of pollution prevention should include on-site out-of-loop recycling, reuse, and reclamation as well as off-site recycling,

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approach embodied in the *Pollution Prevention Act of 1990*. See "EPA Definition of Pollution Prevention," May 28, 1992.

9 This document is appended to the News Release from the Office of the Governor of New Jersey, entitled "Governor Florio Signs Pollution Prevention Act," dated August 1, 1991. See also, Wise and Gray, "Toxics Use Reduction: New Jersey's Approach to Pollution Prevention," p. 32-36.

10 See Hearne and Aucott, "Source Reduction vs Release Reduction: Why the TRI Cannot Measure Pollution Prevention."

11 Rossi, Ellenbecker and Geiser, "Techniques in Toxics Use Reduction," p. 26.

reuse and reclamation. As stated by the Manager of Environmental Programs for the Aluminum Company of America, in an article entitled "Regulatory Barriers to Pollution Prevention":[12]

> *Out-of-loop and off-site recycling is not recognized in [EPA's pollution prevention] policy statement as pollution prevention, even though, when properly conducted, these methods offer the potential for significant economic benefits and reduced risk. In fact, out-of-loop and off-site recycling, which results in "minimizing the present and future threat to human health and the environment" and is conducted in an environmentally sound and assured manner, falls fully in the realm of pollution prevention.*

This same author argues that on-site and off-site waste treatment and disposal would not be part of a pollution prevention definition.

Although a consensus has certainly not emerged, there is a growing acceptance that on-site close-looped recycling falls within the definition of pollution prevention, but recycling activities that occur either away from the facility (off-site) or away from the generating process (out-of-loop) are not included. Certainly on- or off-site waste treatment and on- or off-site waste disposal would not be considered part of the pollution prevention definition.

2.3 SOME CANADIAN DEFINITIONS FOR POLLUTION PREVENTION

A draft discussion paper prepared for Environment Canada in December 1992, entitled *National Pollution Prevention Strategic Framework*, makes note of the pollution prevention definitions used by three regulatory agencies:

- **British Columbia, Department of Environment, Lands and Parks:**

  The reduction or elimination of pollutants at their source so that waste is not generated. It contrasts with "end-of-pipe," "collect-and-contain," or "release-and-dilute" controls, which are designed to treat or control releases of waste already generated.

- **Industry Science and Technology Canada:**

  Any practice that reduces or prevents pollution at the source through cost-effective changes in the design and operation of production facilities or transportation systems, or the design and use of products.

- **Ontario Ministry of the Environment:**

  Any action that reduces or eliminates the creation of pollutants. It is achieved through activities that promote, encourage or require changes in the basic operational or behavioral patterns of industrial/commercial/institutional or individual generators. It does not include substitution of one toxic substance for another, treatment, out-of-process recycling or incineration or transfer from one medium to another. It is achieved by raw material substitution, product reformulation, process redesign or modification, in-process recycling or improved maintenance and operation.

12 Byers, "Regulatory Barriers to Pollution Prevention," p. 21.

The draft document then proposes its own definition of pollution prevention as "the use of processes, techniques, or materials that avoid or minimize the creation of pollutants or wastes." However, the document also recognizes the perspectives of the industrial sector that "waste outputs that could be profitably used as a feed stock in other production processes (including those recycled outside the company) would legitimately be included under pollution prevention because undesirable outputs have not been created. In this regard, pollution prevention encompasses all three R's: reduction, reuse and recycling."

By and large, the Canadian perspective of pollution prevention seems to be based on the concept of source reduction rather than toxics use reduction. Moreover, there is no Canadian (federal or provincial) legislation that defines the terms "pollution prevention," "toxics use reduction," or "source reduction." Indeed, there is currently no Canadian legislation that comprehensively addresses pollution prevention, in its own right.[13]

2.4 THE SIGNIFICANCE OF A CLEAR DEFINITION

The term pollution prevention can mean different things to different people. A clear definition of pollution prevention that all interested parties can understand (and, ideally, agree with) is important to the overarching goal of environmental protection. The definition of pollution prevention will have a significant impact on the planning, implementation, and ultimately, the effectiveness of government actions. Equally, the definition will influence, in fundamental ways, the response by those affected by governmental actions.

One American study on waste reduction emphasized that the difficulties and differences in the definition for waste reduction constituted one of the principal factors affecting industry's decision about generating hazardous wastes.[14] It is unreasonable to expect that industry can respond consistently and efficiently to pollution prevention programs if the definition means different things to different regulators (within and between departments and governments) and among industry competitors. This is particularly true if, as in several American laws, including the *Pollution Prevention Act of 1990*, regulators are mandated to adopt a pollution management hierarchy. Typically, as with the *Pollution Prevention Act of 1990*, the hierarchy flows from source reduction at the top through recycling, treatment and disposal as the last resort. If pollution prevention is the priority, then it must be defined and implemented in a way that allows for no misunderstanding of its meaning. This is particularly important where certain pollution prevention activities are statutorily mandated with attendant penalties for non-compliance. A clear definition will also help all stakeholders, including members of the general public, understand the social policy goals to be attained by adopting certain pollution prevention strategies.

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13 *Note*: This may be an overstatement, as provincial and the federal governments have enacted environmental impact assessment legislation which, in principle, is preventative in approach. This issue will be discussed in greater detail in Section 4.4.2 of this Report.

14 See U.S. Office of Technology Assessment, *Serious Reduction of Hazardous Waste*, p. 8.

2.5 POLLUTION PREVENTION AND CEPA—A SUGGESTED DEFINITION

2.5.1 Distinguishing Prevention and Control

The fundamental concept underlying the philosophy of pollution prevention is that it is better (more cost-effective, more socially acceptable and, most importantly, more efficient in reducing risk of harm to human health and the environment) not to create pollution than it is to try to manage, treat or dispose of pollution after it has been generated. Pollution prevention encompasses a conscious shift from single medium pollution control to multi-medium pollution prevention.

The medium-specific basis of pollution control often leads to cross-medium transfers. Sometimes called the "shell game" by environmentalists, these cross-medium transfers of pollution are an inadvertent result of regulations that govern the release of an individual medium. Cross-medium transfers simply take the pollution from the medium under regulation and shift it to another medium where that pollutant may not be regulated or where its regulatory cost is less onerous. As a result, the pollution is not prevented it is merely transferred. In a recent report outlining its pollution prevention strategy to the American Congress, the U.S. Environmental Protection Agency states:[15]

> *It is increasingly clear that some treatment technologies, while solving one pollution problem, have created others. Air pollution control devices or industrial wastewater treatment plants prevent wastes from going into the air or water, but the toxic ash and sludge that these systems produce can become hazardous waste problems themselves. Waste disposed of on the land or in deep wells may contaminate groundwater, and evaporation from ponds and lagoons can convert solid or liquid wastes into air pollution problems.*

By definition, pollution prevention minimizes the potential for cross-medium transfer because it aims to reduce the generation of pollutants at source.

In a 1986 report entitled *Serious Reduction of Hazardous Waste*, the U.S. Congress' Office of Technology Assessment highlighted some of the dangers of failing to clearly distinguish between pollution prevention and pollution control:[16]

> *The distinction between preventing waste from being generated and controlling waste after it is generated is blurred when pollution control actions are included in the definition of waste reduction and similar terms. Consequently:*
>
> - *the primacy of pollution prevention is eroded,*
> - *generators are not encouraged to consider pollution preventing activities because pollution control options are given equal standing,*
> - *risks to health and the environment from transport and handling of waste are not explicitly weighed, and*
> - *measurements of reduction of waste generation are obscured by including the results of pollution control.*

15 EPA, *Report to Congress: Pollution Prevention Strategy*, p. 4-5.
16 p. 9.

For these reasons, this Report accepts a definition of pollution prevention that includes any strategies aimed at eliminating or reducing the underlying creation of pollutants, but does not include any strategy that attempts to control or to manage pollutants **after** they have been created. Therefore, for the purposes of this Report out-of-loop and off-site recycling are not be included in the definition.

2.5.2 TUR versus Source Reduction

The rapid evolution of the concept of pollution prevention reflects society's insistence on finding new and more sophisticated approaches to protecting the environment. If, as has been argued, pollution prevention demands a comprehensive, systematic approach to environmental protection, and a new way of thinking about production and consumption habits, then the concept of pollution prevention must incorporate toxic use reduction strategies. Indeed, the evolution of the pollution prevention debate in the United States has witnessed a shift from source reduction and recycling to the current emphasis on both toxics use reduction and source reduction. A ground swell of pollution prevention legislation in the United States in 1989 and 1990 has incorporated the theme of toxic use reduction. These statutes clearly built upon the pollution prevention laws enacted in the mid-1980s that focused on source reduction. The trend in the United States to incorporate toxics use reduction as an umbrella prevention strategy that encompasses but goes beyond the waste orientation of source reduction seems to be continuing. At the federal level, five recent bills containing TUR concepts have been introduced in Congress.[17] For example, the 1991 proposed amendments to the *Resource Conservation and Recovery Act* state that:

> *Congress establishes a toxics use and source reduction and waste management policy that gives priority in the following order:*
>
> 1. *toxics use and source reduction,*
> 2. *recycling,*
> 3. *waste treatment, and*
> 4. *contained disposal and incineration.*

17 The examples are taken from *Survey and Summaries: State Legislation Relating to Pollution Prevention*, p. 72-80.

The proposed amendments then provide the following definitions:

Toxics use and source reduction is:

Any practice, process, or activity that reduces or eliminates the quantity and toxicity of hazardous substances used in a production process or generated as solid or hazardous waste during production activities prior to recycling or treatment and disposal. This includes, but is not limited to:

- *equipment modifications,*
- *process changes,*
- *materials or feedstock substitution,*
- *design modifications,*
- *technological modifications,*
- *modifications in production activities including housekeeping practices,*
- *training, and inventory control,*
- *operating efficiencies,*
- *production reformulation and redesign.*

Toxics use and source reduction is not:

- *hazardous and solid waste management, or*
- *physical, chemical or biological treatment designed to prevent the release of hazardous substances after generation.*

Similarly, the 1991 proposed Hazardous Pollution Prevention Planning Act provides the following definitions:

Source reduction is:

Any practice which reduces the amount of any hazardous substance released to the environment or reduces the hazards to public health as a result of such releases [emphasis added].

Source reduction is not:

Any practice which alters the characteristics of the hazardous substance through a process or activity which itself is not integral to and necessary for the product.

Toxic use reduction is:

> *Any source reduction method that results in a reduction or elimination in the use of toxic chemicals [emphasis added].*

Therefore, in line with the more recent legislative pronouncements, the definition of pollution prevention used in this Report will, unless expressly stated to the contrary, incorporate toxics use reduction and source reduction.

2.5.3 The Scope of Pollution Prevention

The U.S. Environmental Protection Agency defines the terms "pollution" and "pollutants" as "all non-product outputs, irrespective of any recycling or treatment that may prevent or mitigate releases to the environment."[18] This all-encompassing definition would allow pollution prevention strategies to embrace conventional pollutants (such as nutrients and suspended solids) as well as all manner of hazardous wastes and toxic chemicals. For this Report to examine the pollution prevention potential of CEPA, the scope of "pollution prevention" will be restricted to those pollutants regulated by CEPA. Thus, "pollutants" will include unwanted air contaminants, air pollution, products of biotechnology and fuel, as defined by s. 3(1) of CEPA; toxic substances as defined by s. 11; nutrients as defined by s. 49; and substances as defined by s. 66(1). For the purposes of this Report, toxic substances that might otherwise fall within the definition of s. 11 of CEPA but which are regulated by other federal legislation (for example, human and animal pharmaceuticals, explosives, radioactive materials, fertilizers and pesticides) are not included within the scope of pollution prevention.

18 EPA, *Pollution Prevention 1991*, p. 6.

2.5.4 Finally—The Definition

For the purposes of analyzing CEPA,

Pollution prevention means:

Any practice that avoids, reduces or eliminates the use of toxic substances, or that avoids, reduces or eliminates the creation of pollution, without creating or shifting new risks to communities, workers, consumers or the environment. This includes, but is not limited to:

- *equipment modifications,*
- *process changes,*
- *materials or feedstock substitution,*
- *design modifications,*
- *technological modifications,*
- *modifications in production activities including housekeeping practices,*
- *training, and inventory control,*
- *operating efficiencies,*
- *product reformulation and redesign.*

Pollution means:

Any substance regulated by the Canadian Environmental Protection Act *as an unwanted substance, including unwanted toxic substances, fuels or fuel additives or contaminants, nutrients, air contaminants, and other substances as defined by CEPA.*

III. SCOPE AND APPROACH OF POLLUTION PREVENTION LEGISLATION

3.1 INTRODUCTION

In recent years, three mechanisms have been identified by environmental policy makers to encourage the adoption of pollution prevention strategies. These are voluntary programs, market-based program incentives and legislated program directives.[19]

3.1.1 Voluntary Programs

Voluntary pollution prevention programs have been instituted by government and private organizations in the United States and Canada. For example, in 1991, the U.S. EPA launched the Industrial Toxics Program (better known as the 33/50 Program).[20] As of February 1992, 734 U.S. companies had been asked to voluntarily reduce pollution from 17 toxic chemicals by 33 percent by 1992, and 50 percent by 1995. Many large corporations, including Dow Chemical, Amoco, and Dupont, are active participants. In 1991, the Canadian Minister of the Environment established the National Office of Pollution Prevention to work with industry to promote voluntary action to minimize the production and release of pollutants and waste at source.[21] The Office has assumed responsibility for a specific program targeted at accelerating the reduction or elimination of selected toxic substances (the ARET Program).

The Responsible Care Program endorsed by the Chemical Manufacturers' Association provides a good example of a voluntary pollution prevention program initiated by the private sector. All member companies are asked to commit to a comprehensive environmental code of conduct that includes pollution prevention principles.

The Pollution Prevention Pledge Program, initiated by the Pollution Prevention Office of the Ontario Ministry of the Environment and Energy, challenges companies to voluntarily reduce their releases to the environment and the amount of hazardous wastes that they generate at their facilities.[22] The Ontario Ministry of the Environment and Energy, along with Environment Canada, has also initiated a Voluntary Pollution Prevention Planning Partnership with industrial associations. The aim is to develop pollution prevention planning as an environmental management tool and to promote pollution prevention as the preferred means of reducing releases of hazardous wastes.[23] Partnerships have been established with the Motor Vehicle

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19 See generally: Hoffman, "Teaching Old Dogs News Tricks: Creating Incentives For Industry to Adopt Pollution Prevention"; EPA, *Pollution Prevention 1991*; Environment Canada, *National Pollution Prevention Strategic Framework,* Draft Discussion Paper; Bergeson and Campbell, "EPA and Congress Look at Using Incentives in Environmental Regulation."

20 The Industrial Toxics Program is discussed in EPA, *Pollution Prevention 1991*, p. 138-140; EPA, *Report to Congress: Pollution Prevention Strategy*, p. 35-45.

21 Discussions with Ms. Sherry Watson, Director of the National Office of Pollution Prevention; *CEPA Report for Period April 1991 to March 1992*, p. 17. Currently, there is little public information documenting the role and responsibilities of the National Office of Pollution Prevention.

22 See Ontario Pollution Prevention Office, *Pollution Prevention Pledge Program.*

23 Ontario Pollution Prevention Office, "Summary of Mandate and Current Initiatives of the Pollution Prevention Office."

Manufacturers' Association, General Motors and Chrysler and are being developed with the Canadian Chemical Producers' Association.

3.1.2 Market-Based Programs

Economic instruments use market forces to integrate economic and environmental decision making.[24] These instruments attempt to use market signals to influence behaviour in a manner that is consistent with environmental goals; the emphasis is on environmental results rather than methods. Generally, economic instruments give private-sector decision makers a great deal of flexibility in how to achieve environmental objectives. This is seen by industry as an important advantage of market-based economic instruments. Because firms can decide on the methods they use, provided they meet the goals and targets established by government, the market-based approach encourages the development of innovative and cost-effective solutions to reduce or eliminate pollution.

There are two broad categories of economic instruments that may be used for achieving pollution prevention goals. They are non-tax instruments, including tradable permits, user-charges and deposit-refund systems, and tax instruments, including environmental charges, tax incentives, and a combination of environmental charges and tax incentives. Different market instruments are suited to different environmental problems. In addition, these tools differ in their complexity of design and implementation, and in their potential economic and regional impacts. Some instruments must also be evaluated in an international context.

Canada has had little experience in the use of market instruments to achieve environmental objectives. The opportunity for economic instruments to impact positively on pollution prevention, as opposed to pollution control must be carefully examined. An evaluation of the effectiveness of market-based instruments to promote pollution prevention is beyond the scope of this Report. However, Environment Canada has just released a Discussion Paper entitled *Economic Instruments for Environmental Protection*. It will serve as a basis for consultations with Canadians on the practical application of economic instruments to environmental problems, including pollution prevention in Canada.

3.1.3 Legislated Programs

3.1.3.1 The Canadian Experience

Many of the pollution control laws enacted by Parliament and the provincial legislatures have **indirectly** promoted pollution prevention by limiting inappropriate waste handling practices, increasing the costs related to generating pollution, banning or severely restricting certain substances or polluting activities, and substantially increasing polluter liabilities. However, with two notable exceptions, there are currently no Canadian (federal and provincial) statutes that deal specifically with pollution prevention concepts, as defined in Section 2.5.4, of this Report. The first exception involves legislated environmental impact assessment laws passed by the

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24 Specific information on market-based programs is documented in: Environment Canada, *Economic Instruments for Environmental Protection*; Rankin, "Economic Incentives for Environmental Protection: Some Canadian Approaches"; EPA "Report of the Environmental Protection Agency Economic Incentives Taskforce" (June 1990), quoted in Bergeson and Campbell, "EPA and Congress Look at Using Incentives in Environmental Regulations," p. 84-85; Sandborn, Andrews and Wylynko, *Preventing Toxic Pollution*, p. 93-136.

federal and provincial governments. The recently enacted *Canadian Environmental Assessment Act* is illustrative. It provides a systematic method for identifying potential environmental impacts before they occur, and empowers the federal Minister of the Environment to alter plans or proposals so that unwanted impacts can be minimized or eliminated. In some cases, the Minister can force the abandonment of the proposal if negative impacts are unacceptable and cannot be mitigated. The preamble to the Act states that:

> *The Government of Canada is committed to exercising leadership within Canada and internationally in anticipating and preventing the degradation of environmental quality and at the same time ensuring that economic development is compatible with the high value Canadians place on environmental quality.*

The Act covers projects for which the federal government holds decision-making authority—as a proponent, as a land manager, as a provider of funding and as a regulatory authority. While no pollution prevention definition or strategies are articulated in the Act, it is clear that, in principle, pollution prevention strategies must be considered at the earliest possible stages when examining the potential environmental impacts of projects with federal involvement.

The second notable exception is CEPA. The extent to which CEPA currently incorporates pollution prevention principles will be extensively analyzed in Section IV.

3.1.3.2 The American Federal Experience

The American Congress began to develop a **deliberate** national policy of industrial pollution prevention when it passed the *Hazardous and Solid Waste Amendments* to the *Resource Conservation and Recovery Act* in 1984. These amendments set out a national policy that "wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible." The Act specifically directed the EPA to report to Congress on the feasibility and desirability of developing mandatory requirements to compel the adoption of pollution prevention techniques. In its 1986 *Report to Congress*, the EPA analyzed the various approaches to encouraging pollution prevention strategies, but rejected the need for specific mandatory standards, at least in the short term.[25] The Report did stress that the most constructive role of government would be to promote voluntary waste minimization by providing information, technology transfer and assistance to waste generators.

In 1986, Congress responded to public demands for better information on industrial pollution by enacting the *Emergency Planning and Community Right-to-Know Act*.[26] This Act was authorized under Title III of the *Superfund Amendments and Reauthorization Act* (SARA). Section 313 of SARA requires certain manufacturers that meet specific reporting criteria to supply information on routine releases to the air, ground and water; on accidental spills and leaks; and on toxic waste sent to treatment, storage or disposal facilities. The Act requires the EPA to collect this information, compile it into a Toxic Release Inventory (TRI) and make it available to the public through various formats, including a computerized database.

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25 See Stephan and Atcheson "The EPA's Approach to Pollution Prevention."
26 See U.S. General Accounting Office, *Toxic Chemicals: EPA's Toxic Release Inventory Is Useful But Can Be Improved.*

Both federal and state governments have used the TRI reporting procedure as a starting point to enact access to information laws that are specifically designed to reduce pollution. Moreover, many of the state pollution prevention statutes identify manufacturers compelled to report under Section 313 as the principal targets for their pollution prevention activities. The TRI procedures will be discussed in greater detail in Section 3.2.7.

With the passage of the *Pollution Prevention Act of 1990*, the American Congress expanded the scope of its pollution prevention policy to cover pollutants to all mediums. As outlined earlier, this Act establishes a national policy of hierarchical environmental protection, stating that pollution should be prevented or reduced at source as the first priority. Among other provisions, the Act directs the EPA to facilitate the adoption of source reduction techniques by businesses and federal agencies, to establish standard methods of measurement for source reduction, to review regulations to determine their effect on source reduction, and to investigate opportunities to use federal procurement to encourage source reduction. The Act also authorizes an $8 million state grant program to promote source reduction, with a 50 percent state match requirement. The provisions of the Act will be discussed in greater detail in Section 3.2.

In 1990, the *Clean Air Act* was extensively amended to incorporate pollution prevention strategies to tackle some of the most serious air pollution problems in the United States. These include toxic air emissions, acid rain, urban smog, and stratospheric ozone depletion. Unlike earlier versions of the *Clean Air Act*, the 1990 Amendments deliberately addressed pollution prevention in a number of places. The Amendments add a primary goal to the *Clean Air Act* "to encourage or otherwise promote reasonable federal, state and local government actions, consistent with the provisions of this Act, for pollution prevention." The Amendments also require the EPA to conduct research in order to demonstrate non-regulatory strategies and technologies for air pollution prevention.

3.1.3.3 The American State Experience

To date over 33 states have enacted pollution prevention statutes. The vast majority of these laws were enacted in the past three years. The legislation in Oregon, Massachusetts and New Jersey have been highlighted as incorporating the most aggressive pollution prevention regulations.

Oregon's *Toxics Use Reduction and Hazardous Waste Reduction Act*, passed into law in 1989, establishes a state-wide policy of encouraging the reduction in use of toxic substances and the generation of hazardous waste whenever technically and economically practicable. The Act takes a three-pronged approach: technical assistance to toxics users and hazardous waste generators; mandatory planning and development of measurable toxic use reduction performance goals; and state monitoring of the use of toxic substances and the generation of hazardous waste. The controversial enforcement provisions of the Act allow the regulators to conduct a public hearing on pollution prevention plans that do not comply with the regulations. The statute, however, does not directly provide for judicial enforcement or civil penalties.

The State of Massachusetts passed its *Toxics Use Reduction Act* in 1989. One of its specific goals is to achieve, by 1997, through pollution prevention initiatives, a reduction of 50 percent from 1987 quantities of toxic or hazardous waste generated by industry. The largest users of toxic chemicals must annually file inventory reports. Based on these reports, firms conduct comprehensive reviews of their chemical use and hazardous generations, and must develop

plans to reduce their use and waste production. Those industries that do not meet expected goals may be identified as priorities for special attention from the state, including technical assistance and toxics use reduction waivers to allow for innovative approaches to reduction. They may also be required to meet new regulated performance standards. The Act creates a new office of Toxics Use Reduction Assistance and Technology and a new Toxics Use Reduction Institute at the University of Massachusetts, at Lowell. The Institute, in cooperation with other universities, is mandated to engage in long-term research, establish pilot and demonstration projects, train faculty and students in pollution prevention issues, educate workers, businesses and citizens, and serve as a clearing house for all available toxics use reduction information. The law creates a chemical use fee that is expected to raise between $4 million to $5 million each year to be placed in an account reserved exclusively for the administration of the program. The Act also includes provisions to ensure the protection of confidential business information and trade secrets.

In 1991, New Jersey passed the *Pollution Prevention Act*. The focus of the legislation is on toxics use reduction and source reduction. It sets a state-wide public policy goal of reducing the generation of hazardous substances at their source by 50 percent over five years and to significantly reduce industrial uses of hazardous substances. The Act requires industry to develop pollution prevention plans that include an inventory of the facility's overall operation and use of hazardous substances, and an outline of the production process and how pollution reduction will be accomplished. The regulators have the authority to modify or revoke a permit if a facility is not in compliance with its pollution prevention plan. The law creates a new Office of Pollution Prevention, a Pollution Prevention Advisory Board and establishes an educational and outreach program designed to foster widespread public awareness of pollution prevention. The pollution prevention program is funded by increasing the fee paid by employers for each employee who is covered by the state's Right-to-Know legislation. The law empowers the Commissioner of the Department of Environmental Protection and Energy to issue administrative orders, levy monetary penalties, or bring civil actions in order to penalize violations of the Act.

3.2 LEGISLATED POLLUTION PREVENTION STRATEGIES

3.2.1 Introduction

An analysis of American federal and state law reveals that legislation promotes pollution prevention strategies by establishing programs that encourage voluntary participation by affected industries or by compelling compliance with regulatory initiatives.[27]

Legislation that emphasizes voluntary pollution prevention strategies tends to presume that industrial users of toxic substances can be helped to see that planning for pollution prevention is a worthwhile societal goal that has definite economic advantages. This "soft stick" legislation usually provides extensive technical assistance and outreach programs by government regulators to encourage voluntary industry compliance. Legislation that promotes voluntary pollution prevention strategies must not be confused with voluntary programs, such as those discussed in Section 3.1.1, that have **no** legislative foundation.

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27 See generally: EPA, *Pollution Prevention 1991*, p. 69-113; Foecke, "A New Mandate for Pollution Prevention"; Foecke, "State Pollution Prevention Programs: Regulatory Integration"; Innes, "Scope and Approach of State Pollution Prevention Legislation: An Overview."

Legislation that mandates pollution prevention activities tends to assume that companies cannot, or will not, implement pollution prevention without a legal requirement to do so. The nucleus of the "hard stick" legislation invariably involves the production of pollution prevention plans and progress reports, sometimes with targeted dates by which specific chemicals must be eliminated from use. Often, penalties are imposed for non-compliance of compulsory provisions. In many cases, this legislation contains a strong element of technical assistance and voluntary training and outreach programs for affected industries.

Although the numerous American statutes often appear divergent in their approach to the implementation of pollution prevention strategies, a core set of common pollution prevention activities are beginning to emerge. The next section will examine these strategies in order to develop a better understanding of the approaches that could be taken when examining CEPA. Whether or not any, or all, of these legislated strategies should be mandatory or voluntary within the CEPA context, or, more likely, a mix of both, will be discussed in Section IV of this Report. Any particular activity could be either voluntary or compulsory, and numerous examples can be found in American legislation to support either position.

3.2.2 Targeted Industries

In principle, pollution prevention activities can impact on any sector that uses toxic substances or generates any type of pollution. The U.S. Environmental Protection Agency has characterized pollution prevention as including any practices "that reduce the use of hazardous materials, energy, water or other resources, and practices that protect natural resources through conservation or more efficient use."[28] Thus, for example, sectors that could be targeted for pollution prevention activities include agriculture, forestry, energy, transportation, and government. The "public" sector could also be targeted. Individual Canadians collectively dispose of tremendous amounts of hazardous and non-hazardous waste into household garbage and sewage. Nevertheless, the scope of most pollution prevention legislation in the United States has concentrated almost exclusively on the industrial sector, and particularly on the chemical industry and those firms that supply it or use its products. In particular, the legislation encircles those facilities that generate wastes as defined by the *Resource Conservation and Recovery Act* or that must report the release of toxic chemicals in accordance with Section 313 of SARA.

28 See EPA, *Pollution Prevention 1991*, p. 4.

The emphasis on industries that produce or use toxic substances or generate hazardous wastes can be rationalized on the basis of the high priority given to reducing sources of significant risk to human health and the environment associated with the release of these substances. For example, the *Sixth Biennial Report on Great Lakes Water Quality* of the International Joint Commission (IJC) endorses the policy of the *Great Lakes Water Quality Agreement* between the United States and Canada. This policy states that "the discharge of toxic substances in toxic amounts be prohibited and the discharge of any or all persistent toxic substances be virtually eliminated."[29] The IJC Report concludes that "persistent toxic substances are too dangerous to the biosphere and to humans to permit their release in **any** quantity"[30] (emphasis in original). Thus, concentrating on industries that emit these substances is well placed. Moreover, the administrative system that designed, implemented, monitored and enforced pollution control strategies directed their regulatory efforts, more or less, at the same industries that are targeted in pollution prevention legislation. Consequently, the shift from pollution control to pollution prevention should be made easier because of the familiarity of all of the parties involved.

For the purposes of this Report, the scope of pollution prevention is bounded by the sectors, activities and pollutants regulated by CEPA. Even within CEPA, the industries targeted for pollution prevention initiatives must be clarified. Common sense dictates that all parties potentially impacted by these activities must understand their responsibilities and potential liabilities. This is particularly true where the legislation mandates compliance with certain initiatives.

As a starting point, and in line with U.S. legislation, regulators implementing pollution prevention initiatives (whether voluntary or mandatory) should direct their initial efforts to facilities that report to the Canadian National Pollutants Release Inventory (NPRI). The purpose of the NPRI is to "provide comprehensive, national data on releases of specified substances to air, water and land." The scope of pollution prevention activities (the sectors, activities, and the toxic substances and pollutants affected) will be further clarified as each relevant part of CEPA is analyzed, in Section IV.

3.2.3 Creating an Office of Pollution Prevention

Several American statutes create pollution prevention offices. For example, New Jersey's *Pollution Prevention Act* establishes the Office of Pollution Prevention. This office is responsible for the implementation of the law and coordination of all pollution prevention regulatory and enforcement policies within New Jersey's Department of Environmental Protection and Energy. The Massachusetts legislation establishes an Office of Toxics Use Reduction Assistance and Technology to provide toxics users with technical assistance in order to reduce toxics use and to assist them in complying with the law.

In 1988, the EPA created a new Office of Pollution Prevention without statutory directive. However, the *Pollution Prevention Act of 1990* states that the Administrator of the EPA "shall establish in the Agency an office to ... develop and implement a strategy to promote source reduction.".

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29 IJC, *Sixth Biennial Report*, p. 15.
30. IJC, *Sixth Biennial Report*, p. 15.

The functions of the Office are designed to promote source reduction within the EPA, with the industrial sector and with other federal agencies. Among other provisions, the Act directs the Office to:

- establish standard methods of measurement for source reduction;
- review EPA regulations to determine their effect on source reduction;
- investigate opportunities to use federal procurement to encourage source reduction;
- develop improved methods for providing public access to data collected from federal environmental statutes; and
- develop a training program on source reduction opportunities, model source-reduction auditing procedures, a source-reduction clearinghouse, and an annual award program.

The Office also oversees the administration of an $8 million state grant program to promote source reduction by businesses, with a 50 percent state match requirement.

In Canada, several agencies have been established to implement federal and provincial pollution prevention programs, although neither the programs nor the offices are statutorily mandated. For example, Environment Canada established the National Office of Pollution Prevention in 1991 to work with industry to promote voluntary action to minimize the production and release of pollutants at source. Among other things, this Office has coordinated a multi-stakeholder consultation to develop a discussion paper on a proposed national pollution prevention strategic framework.

In 1992, the federal government also established the Great Lakes Pollution Prevention Centre. The Centre's purpose is to develop prevention strategies in the Great Lakes basin, assist industries installing clean technology, and educate people about pollution prevention.[31]

In June 1992, the Ontario Minister of the Environment and Energy created the Pollution Prevention Office. The Office is charged "by the year 2000, to transform the Ministry primarily into a pollution prevention, conserver driven organization, inspired by a multi-medium ecosystem perspective."[32] Directives for the Office include:

- policy development for the Ministry's strategies for preventing pollution;
- coordination of specific pollution prevention initiatives;
- integration of pollution prevention into all Ministry activities; and
- out-reach to encourage individuals and organizations to make pollution prevention the preferred means of achieving their environmental priorities.

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31 See the Environment Canada pamphlet *Great Lakes Pollution Prevention Initiative*.

32 Ontario Pollution Prevention Office, *Pollution Prevention Pledge Program*, p. 3; Ontario Pollution Prevention Office, "Summary of Mandate and Current Initiatives," p. 1.

The Office coordinates the Pollution Prevention Pledge Program, which challenges companies to voluntarily reduce releases to the environment and the amount of hazardous waste generated at their facilities. The Voluntary Pollution Prevention Planning Partnerships initiative, also coordinated by the Office, encourages the development, through industrial associations and member companies, of voluntary pollution prevention planning as an environmental management tool.

One overriding lesson that can be learned from these initiatives is that pollution prevention offices and the programs they administer do not necessarily need a legislative base to be effective.

3.2.4 Technology Assistance

Virtually all of the American legislation stresses outreach and assistance, primarily to businesses and industry, in a collaborative approach to achieving pollution prevention. Again, most of these statutes establish a program office specifically to manage these efforts. The range of technology assistance specified by the legislation includes the following:[33]

- providing pollution prevention educational materials, including training manuals, videos and directories of available expertise;
- establishing a central information clearinghouse. For example, the U.S. EPA has established the Pollution Prevention Information Clearinghouse to transfer technical, policy, program, legislative and financial information on pollution prevention initiatives;
- providing training programs for key personnel in government and in industry, including outreach programs such as seminars, workshops and conferences;
- providing on-site technical assistance and consultation;
- providing incentives for pollution prevention curriculum development. For example, the Massachusetts *Toxics Use Reduction Act* established the Toxics Use Reduction Institute at the University of Lowell as a multi-disciplinary research, education and policy centre to promote reduction in the use of toxic and hazardous chemicals in industry and commerce; and
- developing recognition programs. For example, the *Pollution Prevention Act of 1990* states that the Office of Pollution Prevention shall establish an annual award program to recognize companies "which operate outstanding or innovative source reduction programs."

While the legislation sets up program offices and specifically directs these offices to establish and maintain a broad range of activities, the assistance itself is almost exclusively non-regulatory in nature. That is, there is no legislative requirement that the businesses, industries or manufacturing interests that are being asked to change their approach must avail themselves of this technical assistance. Indeed, the philosophy underlying voluntary technical assistance programs seems to be that the companies are in the best position to determine what is best for them.

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33 See generally: Innes, "Scope and Approach of State Pollution Prevention Legislation: An Overview"; Sandborn, Andrews and Wylynko, *Preventing Toxic Pollution*, p. 71-85; EPA, *Pollution Prevention 1991*, p. 75-105.

3.2.5 Goals/Targets

Several American states have used legislation to establish specific pollution reduction goals.[34] While these numbers are not legally enforceable because they encourage overall state reduction goals and not compulsory private sector targets, they do provide a means for measuring the success of state programs over time. The reduction in the generation of hazardous waste is the most popular target, but others include toxic air emissions, and the use and release of toxic substances. Goals range from 50 percent reductions over 5 years, to more modest reductions of 25 percent over 5 years, adjusted for economic growth, or 50 percent reduction over 10 years. A sampling of some pollution prevention targets follows:

- **Louisiana**

  Facilities are required to reduce toxic emissions into the air by 50 percent by 1994—*Air Toxics Legislation*, 1989;

- **Maine**

  Reduction of 10 percent in the volume of toxic substances used in the state by 1 July 1993, 20 percent reduction by 1 July 1995, and 30 percent reduction by 1 July 1997. The toxics release reduction goals are the same—*Toxics Use and Hazardous Waste Reduction Act,* 1989;

- **Massachusetts**

  To achieve, by 1997, through pollution prevention, a 50 percent reduction from 1987 quantities of toxic or hazardous waste generated by industry—*Toxic Use Reduction Act*, 1989;

- **New Jersey**

  To reduce the generation of hazardous substances at their source by 50 percent over five years following the preparation of pollution prevention plans, and to significantly reduce industrial use of hazardous substances—*Pollution Prevention Act,* 1991; and

- **New York**

  To promote source reduction and reduce hazardous waste generation by 50 percent over the next 10 years—*Hazardous Waste Reduction and RCRA Conformity Act*, 1990.

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34 See generally EPA, *Pollution Prevention 1991*, p. 82-84; Muldoon, "Toward a National Pollution Prevention Strategy," p. 136-139.

Several American states as well as Canadian federal and provincial governments have established pollution prevention targets through means other than legislation. For example, *Canada's Green Plan for a Healthy Environment* contains several specific pollution reduction targets, including,

- virtual elimination of the discharge of persistent toxic substances into the environment;
- a 50 percent reduction in Canada's generation of waste by the year 2000;
- phasing out of CFCs by 1997, and of methyl chloroform and other major ozone-depleting substances by the year 2000;
- a 50 percent reduction in sulphur dioxide emissions in eastern Canada by 1994.

The Ontario Minister of the Environment and Energy has stated that in order to assess the overall success of the Pollution Prevention Pledge Program, the Ministry is targeting average reductions in releases of selected chemicals and wastes at participating facilities of 50 percent by 1995 and 90 percent by the year 2000. For the purposes of the program, participating companies or facilities can use any baseline year, from 1990 on. However, the program information circulars stress that "the targets **in no way** are intended to discourage participation; **any** reduction commitment or reduction achievement will be considered in the program" (emphasis in original).

3.2.6 Pollution Prevention Plans

In mid-1989, Massachusetts and Oregon became the first two states to statutorily require designated facilities to produce comprehensive, ongoing pollution prevention plans. By mid-1992 at least 17 other states had enacted facility planning legislation. Facility plan requirements vary considerably among the states. The rigorous New Jersey law compels hazardous waste generators to develop two-part plans that feature a process-by-process breakdown of use and generation. The advisory Iowa law, on the other hand, lays a framework for plans that hazardous waste generators are "encouraged" to complete.[35]

Planning requirements generally contain four central components:

1) a comprehensive review of all industrial processes that use, generate, or release toxic or hazardous materials;
2) the identification of pollution prevention opportunities in all processes in which toxics or hazardous materials are handled;
3) a ranking for each of the opportunities and a schedule for their implementation; and
4) the implementation of these options, including some measure of their success.

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35 See generally Foecke, "A New Mandate for Pollution Prevention"; Foecke and Style, "An Update on State Facility Planning Legislation and Programs"; Innes, "Scope and Approach of State Pollution Prevention Legislation: An Overview"; Wise and Gray, "Toxics Use Reduction: New Jersey's Approach to Pollution Prevention"; EPA, *Pollution Prevention 1991*, esp. p. 72-75; Sandborn, Andrews and Wylynko, *Preventing Toxic Pollution*, p. 85-91.

Of the 19 states that recognize facility planning in their legislation, 14 make the process compulsory. Accordingly, all 14 go into substantial detail as to what a properly prepared plan should look like. Although requirements vary from state to state, the following is a summary of the common elements required by most states with mandatory facility planning laws:[36]

- a policy statement of management support for pollution prevention, the facility plan, and its implementation;
- a statement of reduction goals, the reasoning behind them, and a schedule for meeting those goals;
- a description of efforts initiated in the past that qualify as pollution prevention and an assessment of those efforts' successes and failures;
- a detailed, numeric description of current processes in which toxic chemicals are used and hazardous wastes generated (usually produced by teams reviewing and assessing those processes);
- identification of pollution prevention options in specified areas, including (at a minimum) changes in a product or its formulation, substitution of raw materials in existing processes and products, equipment modification or modernization, and changes in operating and maintenance procedures;
- detailed financial and technical analysis of identified and practical options in light of current operating conditions;
- detailed criteria or rationale for choosing or discarding identified options for implementation;
- a detailed schedule for implementing selected options and a procedure for measuring and monitoring progress in achieving reductions;
- a description of opportunities for employee involvement and training; and
- certification by responsible corporate officers or facility managers.

Virtually all of the states that mandate pollution prevention planning include facilities that generate hazardous wastes as defined by the *Resource Conservation and Recovery Act* and facilities that are required to report federal Toxics Release Inventory data, in accordance with Section 313 of SARA.

Although there are good examples of voluntary pollution prevention planning programs,[37] many experts insist that compulsory pollution prevention plans are the heart and soul of pollution

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36 See the sources listed in footnote 35, and esp. Foecke and Style; and Innes.

37 See, for example, the Voluntary Pollution Prevention Planning Partnerships initiative established by the Ontario Ministry of the Environment and Energy and Environment Canada in conjunction with industrial associations and member companies to develop pollution prevention planning as an environmental management tool and to promote pollution prevention as the preferred means of achieving reduction of releases and hazardous waste. To date, partnerships have been established with the Motor Vehicle Manufacturers' Association, General Motors and Chrysler, and are under active development with the Canadian Chemical Producers' Association and with

prevention programs.[38] Facility planning has the potential not only to push for changes in the management process, but also to provide new insights into very specific approaches to the process of pollution prevention itself. Many feel that most industrial facilities would never take advantage of pollution prevention opportunities unless forced to conduct pollution prevention planning. Moreover, only an individual facility has the process-specific knowledge needed to make the best pollution prevention decisions for that facility. The process of planning in itself has inherent value as it can reveal opportunities for progressive, beneficial changes. Implementation of the plan also leads to measurable progress in pollution prevention, using the first plan as a baseline. Virtually all states require that plans must be periodically updated. And finally, compulsory plans ensure that all industries required to produce the plans are on equal footing.

Facilities failing to complete an adequate plan may be subject to enforcement actions, including fines or imprisonment, or to negative publicity. However, the realities of limited human and financial resources within regulatory agencies mean that review and supervision is likely to be minimal, at least in the short term. Public access to a facility's pollution prevention plans is one method used by some states to assist in their enforcement efforts. This issue is discussed in the next subsection.

Finally, it is worth noting that national mandatory facility planning in the United States may not be far off. In 1991, a proposed *Hazardous Pollution Prevention Planning Act* was introduced into Congress.[39] The Bill defines pollution prevention as source reduction and toxics use reduction. It requires facilities submitting a toxic chemical release form under Section 313 of SARA (TRI reporters) to prepare a hazardous pollution prevention plan. The plan must include the specific detailed information listed in the Act, similar to the procedures and documentation outlined for state legislation.

3.2.7 Data Collection and Access

Increased concern about the harmful effects of pollution on human health and the environment, including chemical disasters such as Bhopal, the Mississauga train derailment and the Saint-Basile fire, has provoked an unprecedented demand for better information about toxic chemical use and emissions. Policy makers, as well as the public, need comprehensive, accurate information on industrial pollution to determine its potential impact, where the need for action is greatest as well as to measure the results of current policies and programs so that limited resources can be used effectively.

3.2.7.1 The American Experience

In 1986, the American Congress enacted the SARA amendments. This law requires certain manufacturers to report annually to the EPA on routine releases of designated chemicals to the air, ground, and water; on accidental spills and leaks; and on toxic waste sent to treatment, storage or

associations representing the metal finishing industry. Discussions are also under way with other sectors to produce voluntary pollution prevention plans.

38 See, for example: Sandborn and Andrews, *Preventing Toxic Pollution*, p. 85-91; Canadian Labour Congress, "A National Pollution Prevention Strategy"; Foecke and Style, "An Update on State Facility Planning Legislation and Programs."

39 See the summary of this proposed legislation in *Survey and Summaries: State Legislation Relating to Pollution Prevention*, assembled by the Waste Reduction Institute for Training and Applications Research, p. 72-74.

disposal facilities. EPA is required to collect this information, compile it into a Toxic Release Inventory (TRI), and make it available to the public in various formats, including a computerized database.

When the TRI reporting system was enacted by Congress there was a clear expectation that it could be used to monitor and encourage industrial toxics source reduction. The TRI, however, only measures end-of-pipe chemical releases. Therefore, it is not possible to discern if release reductions are due to pollution prevention or to any one of a number of methods of waste management. For example, TRI is unable to distinguish between reduction activities that occur before or after pollution generation and it does not account for variations in production nor does it provide data on chemical use related to source reduction.[40]

Congress recognized the limitations of TRI as a vehicle for measuring the success of pollution prevention activities when it passed the *Pollution Prevention Act of 1990.* Section 13106 of the Act states that each facility required to file an annual report under the TRI legislation "shall include with each such annual filing a toxic chemical source reduction and recycling report." The section lists specific items required in the reduction and recycling report. This information enables the TRI to create a database to monitor pollution prevention. The Act then states that the EPA must make data collected under Section 13106 publicly available in the same manner as the data collected under TRI.

The New Jersey *Pollution Prevention Act*, coupled with its amended *Worker and Community Right to Know Act*, has gone even further than the EPA by significantly expanding the TRI database into a comprehensive materials accounting survey.[41] The compulsory reporting procedures fully track pollution prevention progress at the facility level. Materials accounting is a simplified mass balance of what comes in and what goes out of a plant. It consists of determining the quantity of a specified chemical at key junctures in its progression through a production facility. This requires data on the quantity of each listed chemical brought on-site, produced on-site, consumed in-process, shipped off-site as is, or in a product, and released into the environment.

In 1991, a proposed federal Community Right to Know More Act was presented to Congress. Like the New Jersey legislation, the proposed federal law will compel all facilities that file a TRI report to include materials accounting data.

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40 See Hearne and Avcott, "Source Reduction vs Release Reduction", esp. p. 4-7; U.S. General Accounting Office, *Toxic Chemicals: EPA's Toxic Release Inventory Is Useful But Can Be Improved.*

41 See Hearne and Avcott, "Source Reduction vs Release Reduction," p. 9-16.

3.2.7.2 The Canadian Experience

Canada's *Green Plan* states that:[42]

> *To develop a better understanding of the nature and quantity of toxic substances being released in Canada, the Government will develop a national database for hazardous pollutants being released from industrial and transportation sources. The reporting requirement for industry will be established by 1992, with the first reports scheduled for public release no later than 1994.*

In 1991, Environment Canada set up a multi-stakeholder advisory committee to provide the Minister of the Environment with recommendations on the design of a database for hazardous pollutants. Early in 1993, the Committee presented its *Final Report on a National Pollutant Release Inventory for Canada* (NPRI). Although the Committee carefully examined and borrowed from the American TRI, there was a conscious effort to improve upon it to accommodate Canadian circumstances. The Committee agreed that the NPRI substances list should include substances of concern that are released into the Canadian environment; it should not focus exclusively on toxic substances. The NPRI database should present a complete picture of the release sources of NPRI substances. Any information on releases from non-reporting sources (such as, urban run-off) should be added to the data from reporting sources. Even if the release quantity is unknown, the source should be named.

Information in the NPRI database should be accessible to the public, unless the reporting facility can demonstrate that its data is confidential business information. A major distinction between the TRI and the NPRI is scope. The final report recommends that, to be nationally significant, the NPRI should include the major releases from all Canadian sectors—industrial, transportation, government, commercial and others.

It is expected that the inventory will support a number of pollution prevention initiatives, by:[43]

- helping emitters, society and governments set priority targets for reducing pollution;
- encouraging emitters to be proactive in voluntarily reducing releases;
- tracking progress in reducing releases;
- improving public understanding by allowing cost-effective public access to information on substances released into the environment;
- helping governments to target their regulatory initiatives in the most effective manner.

The Committee recommended that any facility with 10 or more employees that manufactures, processes, or otherwise uses 10 tonnes or more a year of a substance on the NPRI list must report once a year on each of those substances. A preliminary list of 178 substances appended to the final report will serve as the NPRI list for 1993. The Committee based its list on the 1990

42 P. 49.
43 Environment Canada, *Final Report on a National Pollutant Release Inventory for Canada,* p. 6.

U.S. TRI list, but deleted 129 substances or classes of substances that are either not used in Canada or are used in quantities smaller than one tonne per year. The Committee could not agree on whether or not the NPRI should be used as a materials accounting tracking system. Environmental and labour representatives proposed that the inventory should track reductions in the total quantity of NPRI substances used, produced, generated as a by-product, consumed, recycled, or transferred in or out as product. Industry representatives argued that the NPRI should concentrate on establishing a comprehensive Canadian database of substance releases. Some government representatives also argued that making the NPRI into a use inventory went beyond the *Green Plan* commitment, and would significantly add to the cost of maintaining the database. The primary goal was to track substances released into the environment, not to monitor their use.

3.2.8 Public Access to Pollution Prevention Plans

Many of the objections raised by industries subject to facility planning requirements relate to their concern about safeguarding proprietary information. They argue that the information revealed in a pollution prevention plan could provide competitors with valuable data, including confidential business information.[44] Virtually all legislation that mandates pollution prevention planning addresses the delicate and complicated concern of balancing the principles of public access with the need to protect industry from unauthorized access.

The legislation has attempted to reach this balance in a variety of ways. For example, New Jersey law requires designated facilities to submit detailed pollution prevention plans and a plan summary. Only the plan summary is available to the public. Oregon's law allows affected businesses to keep their plans and progress reports at their place of business.[45] The technical information contained in the plan is not considered a matter of public record. Oregon's Department of the Environment, however, may request and review this information in order to monitor the progress of each business in implementing the law. If the plans are found inadequate according to the planning guidelines, and the business fails to correct the deficiencies, then the results of the Department of Environment review will be made public. The Department may also conduct a public hearing and issue an administrative order requiring the company to develop and implement a plan. The threat of making the company's technical information a matter of public record provides an additional incentive to comply with the law. A company's desire to avoid negative publicity should also contribute to compliance.

3.2.9 Implementing Regulatory Initiatives

The Alaska Department of Environmental Conservation provides all of its inspectors with a 14-page checklist highlighting pollution prevention opportunities.[46] During the course of their normal regulatory inspections, government personnel trained in pollution prevention strategies offer information and advice that is directly relevant to the particular facility being inspected. Often the inspector is the only on-site government representative the facility will see. Several other jurisdictions specifically integrate pollution prevention opportunities into their normal regulatory

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44 Foecke and Style, "An Update on State Facility Planning Legislation and Programs," p. 483-485.

45 Wise and Gray, "Toxics Use Reduction: New Jersey's Approach to Pollution Prevention," p. 44-45; Edelman and Rozell, "Oregon's Toxics Use Reduction and Hazardous Waste Reduction Act: The Bellweather for Pollution Prevention Regulation"; Hansen, "Pollution Prevention Planning: New Mandate for Oregon's Environment," p. 33-34.

46 Foecke, "State Pollution Prevention Programs: Regulatory Integration," p. 431.

activities, such as site inspections. Common to all of these programs is an intensive government-sponsored training course for inspectors on industry-specific pollution prevention activities.

There are also opportunities to integrate pollution prevention strategies into regulatory permit activities. The New Jersey legislation expressly authorizes the Department of Environmental Planning and Energy (DEPE) to require implementation or extension of pollution prevention strategies at all stages of the water, air, and hazardous waste permit process.[47] The DEPE may require that a facility's permit, certificate, registration or approval include the pollution prevention strategies, outlined in the pollution prevention plan, that the facility is required to provide. The law also states that before issuance or approval of any condition of a permit, the facility must complete a pollution prevention plan.

Both Massachusetts and New Jersey have initiated pilot projects to issue permits that would consolidate a facility's air, water and hazardous waste permit requirements and its pollution prevention plan into a **single** permit.[48] This approach integrates medium-specific permit requirements as well as pollution prevention. This single permit would initiate integrated inspection and enforcement, and, perhaps as importantly, the interaction of regulatory medium-specific programs.

Some regulatory agencies are incorporating pollution prevention initiatives into their enforcement and compliance policy. The EPA is beginning to recommend to the Courts that companies found guilty of violating pollution control legislation be given a stiff monetary fine, with a series of proposed penalty reductions if the company implements pollution prevention strategies.[49] For example, a company that used acetone in its manufacturing process failed to meet reporting requirements as mandated under the federal *Emergency Planning and Community Right-to-Know Act*. In exchange for a $10,000 reduction in the fine, the company made process changes that virtually eliminated the use of the acetone. In 1991, the EPA issued a policy statement on the inclusion of pollution prevention and recycling provisions in enforcement settlements. The policy states that pollution prevention is to be encouraged "as a means of achieving and maintaining statutory and regulatory compliance and of correcting outstanding violations when negotiating enforcement settlements."[50] Based on their preliminary experiences, the EPA has concluded that building pollution prevention measures into enforcement settlements "marks the beginning the what will be an important new trend in environmental enforcement."[51]

47 Wise and Gray, "Toxics Use Reduction: New Jersey's Approach to Pollution Prevention," p. 45-47.
48 EPA, *Pollution Prevention 1991*, p. 89-90; Wise and Gray, "Toxics Use Reduction: New Jersey's Approach to Pollution Prevention," p. 47; Foecke, "State Pollution Prevention Programs: Regulatory Integration," p. 438.
49 EPA, *Pollution Prevention 1991*, p. 143-144.
50 EPA, *Pollution Prevention 1991*, p. 143.
51 EPA, *Pollution Prevention 1991*, p. 144.

3.3 SUMMARY

While there are differences in the scope and approach of pollution prevention legislation, there are also many common elements. These similarities have been highlighted in this section in order to systematically analyze the pollution prevention potential of CEPA.

IV. POLLUTION PREVENTION AND CEPA

4.1 INTRODUCTION

In September 1985, the federal Ministers of the Environment and Health and Welfare established the *Environmental Contaminants Act* Amendments Consultative Committee to determine where consensus could be reached on proposed amendments to the *Environmental Contaminants Act*. The Committee released its *Final Report* in October 1986. At about the same time, the Task Force on the Management of Chemicals submitted its report to the federal government, entitled *From Cradle to Grave: A Management Approach to Chemicals*. This report established the life-cycle concept as a key analytical tool for managing chemicals in Canada. One of the principal recommendations of the Committee was that chemicals demanded a comprehensive, integrated approach to control the chemical from cradle to grave. That is an approach that controlled the chemical from research and development through manufacture, introduction into the market place, transportation, distribution, and use to final disposal.

These two reports provided the first comprehensive blueprint for the development of the new *Canadian Environmental Protection Act*. In December 1986, the government tabled the draft *Environmental Protection Act* in the House of Commons. Throughout 1987 and early 1988, extensive public consultations were held to debate all facets of the draft bill. The reformulated legislation was passed as the *Canadian Environmental Protection Act* (CEPA) in June 1988.

Among other things, supporters of CEPA introduced it as a pollution prevention statute. Indeed, the final report of the Task Force on the Management of Chemicals, which clearly influenced the evolution of CEPA, stressed pollution prevention as the "new approach to comprehensive chemicals management."[52] The *Final Report from the Environmental Contaminants Act Amendments Consultative Committee* also recognized "that the environmental and health effects of chemicals require more stringent preventative measures ..."[53] Despite the assertion by some that CEPA is a pollution prevention statute, others have argued that it does not currently accommodate effective pollution prevention strategies, and must be substantially amended in order to do so.[54] Moreover, it can be argued that the concepts and strategies of pollution prevention have evolved so rapidly in the past five years, that even if CEPA was seen as a pollution prevention law in 1988, it must be reexamined in light of the current understanding of pollution prevention. This section will conduct that examination.

As a preliminary matter, the constitutional constraints of CEPA as they apply to pollution prevention must be examined. Although a comprehensive legal analysis of the constitutional justification for federal involvement in environmental law is beyond the scope of this paper, a clear understanding of the impact of constitutional law is vital in order to assess the ability of CEPA to accommodate the principles and specific strategies of pollution prevention. Following this discussion, specific sections in CEPA will be analyzed for their present and potential ability to accommodate pollution prevention concepts.

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52 P. 9-10.
53 P. 7.
54 Lindgren, "Toxic Substances in Canada," p. 38-43; Canadian Labour Congress, "A National Pollution Prevention Strategy," p. 13-15; and, see generally, National Wildlife Federation and the Canadian Institute for Environmental Law and Policy, *A Prescription for Healthy Great Lakes*.

4.2 CONSTITUTIONAL CONSTRAINTS

4.2.1 Some General Considerations

Canada was established in 1867 by the *British North America Act* (now the *Constitution Act, 1867*) as a "confederation"—union of individual political communities each of which had its own government prior to the Confederation.[55] While the *Constitution Act, 1867* set up a central or "federal" government, each of the original partners in the Confederation (the provinces) also kept its own government. The constitutional architects then listed the powers that they felt were essential to running a country. After long and hotly-debated negotiations, they divided these powers between the federal Parliament and the provincial legislatures. The resulting powers were then drafted into the *Constitutional Act, 1867*. Thus, this statute determines that Parliament has the power to make laws in certain specified areas, the provinces in other specified areas, and that both have concurrent powers to make laws in yet other areas.

The distribution of statute-making powers between the two governments is set out primarily in sections 91 and 92 of the *Constitutional Act, 1867*. Among other things, s. 91 declares that the **exclusive** legislative authority of the Parliament of Canada includes the regulation of trade and commerce, s. 91(2); navigation and shipping, s. 91(10); the seacoast and inland fisheries, s. 91(12); criminal law, s. 91(27); and all federal works and undertakings, s. 91(29); and exceptions listed in s. 92(10 a to c). Moreover, the opening paragraph of s. 91 provides the federal Parliament with the general or residual power to make laws for the "peace, order and good government of Canada" in relation to all matters not coming within the classes of subjects exclusively assigned to the provinces (hereafter referred to as the POGG power).

Section 92 of the *Constitution Act, 1867* assigns to each of the provincial legislatures the **exclusive** power to make statutes in relation to, among other things, most local works and undertakings, s. 92(10); property and civil rights within the province, s. 92(13); and generally all matters of a merely local or private nature within the province, s. 92(16).

Sections 91 and 92 of the *Constitution Act, 1867* provide an exhaustive distribution of legislative authority between two levels of government, which are to be regarded as autonomous and equivalent. That is, the Constitution elaborates the whole area of self government within Canada as between Parliament and the provincial legislatures, each being supreme within its own sphere of authority. Thus, the powers of each level of government are exclusive and, taken together, are exhaustive with respect to all legislative powers. Moreover, the federal and provincial executive powers symmetrically complement the federal division of legislative powers. Section 52 of the *Constitution Act, 1982*, states that "the Constitution of Canada is the supreme law of the land, and any law that is not consistent with the provisions of the Constitution is, to the extent of the inconsistency, of no force and effect." This provision ensures the supremacy of the Constitution over executive action.

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55 See generally Hatherly, *Constitutional Jurisdiction in Relation to Environmental Law*; Hogg, *Constitutional Law of Canada*; House of Commons, *Environment and the Constitution: Report of the Standing Committee on Environment*.

Since each grant of legislative authority is characterized as "exclusive," legislative action by either level of government that exceeds the boundaries created by the division of powers and encroaches on the authority assigned to the competing legislature is beyond the legitimate scope of the enacting body. A law that is beyond the scope of the enacting body (*ultra vires*) is invalid since "a statute emanating from a legislature not having power to pass it is not law."[56] As a result, the failure of one level of government to legislate to the full extent of its power does not entitle the other level to fill the gap.

Our way of life has changed dramatically since 1867. The constitutional architects could not have foreseen the need to regulate many present-day activities (aeronautics, telecommunications, the environment). Therefore, the categories of powers assigned to the two levels of government sometimes bear no direct relationship to the regulatory needs of society today. For this reason, it is difficult to examine the *Constitution Act, 1867* to determine whether regulating the environment is a responsibility of the federal or the provincial governments.

Historically, the lack of foresight in assigning legislative responsibility for specific subjects was, in and of itself, of no major concern. As the interpreters of the Constitution, the judiciary has traditionally been adept at squeezing a particular statute into one or other of the heads of power listed in the *Constitution Act, 1867*. The Courts have enunciated tests that look at the "true nature and character" of a particular piece of legislation, and then determine whether the subject matter of the legislation falls within the domain of either the federal or provincial heads of power. Having characterized the leading aspect of the statute under examination, the Courts will usually ignore other features of the law, deeming them incidental and, therefore, not relevant for constitutional purposes. A statute is also presumed to be valid (*intra vires*) until declared invalid by the courts.

In certain situations, both levels of government can enact legislation dealing with the same subject matter. This area of common domain is legally described as the field of "concurrent" legislative authority.[57] Concurrency may arise in one of two ways. The *Constitutional Act, 1982* explicitly authorizes legislative concurrency in relation to certain subject matters, including, for example, old age pensions and supplementary benefits and agriculture (see sections 92A and 94). However, the existence of concurrent competence is more often of judicial rather than statutory origin. As early as 1883, the Privy Council stated in *Hodge* v. *The Queen* that a "subject which in one aspect and for one purpose falls within s. 91, may in another aspect and for another purpose fall within s. 92."[58] This "double aspect doctrine" acknowledges that some laws have both a federal and a provincial character and that both Parliament and the provincial legislatures may pass laws dealing with the subject matter.

The existence of common, or shared, fields of legislative competence raises the possibility of a conflict between a valid federal and a valid provincial law. The doctrine of paramountcy provides that in cases of conflict the federal law prevails and the provincial law is rendered inoperative (but not invalid) to the extent of the conflict. A number of complex legal cases have attempted to define the term "conflict." While a simple definition is elusive, it seems that provincial laws may validly

56 Quoted in Hatherly, *Constitutional Jurisdiction in Relation to Environmental Law*, p. 26.
57 Hogg, *Constitutional Law of Canada*, p. 84-85; Hatherly, *Constitutional Jurisdiction in Relation to Environmental Law*, p. 181-185.
58 Quoted in Hogg, *Constitutional Law of Canada*, p. 84.

require stricter standards than federal statutes on the same subject matter and not be held in conflict with the federal legislation.

4.2.2 The Constitutional Framework for Environmental Regulation

In *Friends of the Oldman River Society* v. *Canada (Minister of Transport),* the Supreme Court of Canada ruled that the Constitution has not assigned the matter of the environment to either the provinces or Parliament. Speaking for a unanimous nine-person court (on this particular issue), Mr. Justice La Forest made the following comments:[59]

> *The environment, as understood in its generic sense, encompasses the physical, economic and social environment touching several of the heads of power assigned to the respective levels of government. Professor D. Gibson put it succinctly several years ago [when he wrote] "'environmental management' does not, under the existing situation, constitute a homogeneous constitutional unit. Instead, it cuts across many different areas of constitutional responsibility, some federal and some provincial.'..." When viewed in this manner it will be seen that in exercising their respective legislative powers, both levels of government may affect the environment, either by acting or not acting.... The exercise of legislative power, as it affects concerns relating to the environment, must...be linked to the appropriate head of power, and since the nature of the various heads of power under the* Constitution Act, 1867*, differ, the extent to which the environmental concerns may be taken into account and the exercise of a power may vary from one power to another. For example, a somewhat different environmental role can be played by Parliament in the exercise of its jurisdiction over fisheries than under its powers concerning railways or navigation.... The provinces may similarly act in relation to the environment under any legislative power in s. 92. Legislation in relation to local works or undertakings, for example, will often take into account environmental concerns.*

Clearly, both the federal Parliament and the provincial legislatures each have several heads of power that may be used to justify environmental regulations. An outline of the provincial and federal bases for environmental jurisdiction follows.

4.2.2.1 Provincial Legislative Jurisdiction over the Environment

The bases for provincial legislation are contained in s. 92 of the *Constitution Act, 1867*. Three of the heads of power, s.92(13) "property and civil rights in the province," s. 92(16) "generally all matters of a merely local or private nature in the province," and s. 92(10) "local works and undertakings" are most relevant for regulating the environment. Moreover, by virtue of their ownership of most Crown rights to land and other natural resources within their boundaries (see s. 109 of the Constitution Act, 1867) the provinces can exercise legislative control in order to protect the quality of those resources.

Although the argument by some constitutional experts that the powers of the provinces are wide enough "to cover most problems that might arise in the field of environmental law"[60] might be overstating the case, there is no doubt that provincial powers for regulating the environment are

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59 *Friends of the Oldman River Society* v. *Canada (Minister of Transport)*, (1992) 7 C.E.L.R. (N.S.) 1, at 46-49 (S.C.C.).
60 Franson and Lucas, *Environmental Law Commentary and Case Digests*, p. 253.

extensive. In an article entitled "Constitutional Jurisdiction Over Environmental Management in Canada," Prof. Dale Gibson states:[61]

> *The provinces are certainly capable, without federal participation, of enacting a wide variety of pollution control measures. Their ownership of their natural resources empowers them to employ an almost unlimited range of legal techniques, including the imposition of penal sanctions, to protect the quality of those resources. Their responsibility for municipal institutions and local works and undertakings allows them to supervise such activities as sewage and garbage disposal. Their jurisdiction over civil rights enables them to regulate those portions of private law, such as the law of nuisance, that apply to polluting activities. And several other heads of provincial jurisdiction—the licensing and agricultural powers, for example—could also be used to authorize certain types of control measures.*

In the well known constitutional law case of *Regina* v. *Lake Ontario Cement Ltd.*, the accused were charged with emitting a contaminant likely to impair the environment, contrary to the *Environmental Protection Act* of Ontario. The trial judge held that the legislation was ultra vires the province since pollution was a matter of national and international importance falling within the "peace, order and good government" clause of s. 91 of the (then) *British North America Act, 1867*. This ruling was overturned on appeal. The appeal court held that while pollution was a matter of concern throughout Canada and, indeed, throughout the world, the matters dealt with by the Ontario legislation were property and civil rights in their origin, local and provincial, and fell within provincial competence under heads 13 and 15 of s. 92 of the *British North America Act, 1867*. The Court adopted a quotation from a Supreme Court of Canada ruling in a 1923 decision, as follows:[62]

> *The provincial legislatures have such absolute power over property and civil rights, as given them by s. 92 of the* British North America Act, *item 13 thereof, that so long as they did not in fact encroach upon the powers assigned by the said Act to the Dominion Parliament it would be almost impossible to question any such exercise of power.*

There are four important limitations to provincial jurisdiction over environmental matters.[63] First, the provinces cannot legislate with respect to matters assigned exclusively to the federal Parliament by s. 91. Secondly, the doctrines of concurrency and paramountcy hold that where valid federal and provincial legislation overlap, the provincial legislation is inoperative to the extent that it is in direct conflict with the federal law. (These two limitations were discussed in Section 4.2.1, of this Report.) The third limitation, although not as clear, suggests that provincial legislation may not usually be applied to the federal Crown.

The fourth limitation is particularly important for the purposes of this Report. Provincial jurisdiction can only be applied to matters within a province. The limitations of provincial jurisdiction were delineated by the Supreme Court of Canada in the *Interprovincial Co-operatives* case that held that provinces are constitutionally precluded from statutorily reaching out beyond their boundaries for regulatory purposes. Thus, all rights to interprovincial and transboundary regulation belong to

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61 P. 79.

62 *Regina* v. *Lake Ontario Cement Ltd.* (1973), 11 C.C.C. (2d) 1, at 9.

63 See generally, Franson and Lucas, *Environmental Law Commentary and Case Digests*, at p. 253-255; Fairley, "The Environment, Sustainable Development and the Limits of Constitutional Jurisdiction," p. 56-61.

the federal Parliament. Because environmental threats often assume interprovincial and international dimensions, even if the initiating cause is local, a strong federal regulatory role may be justified in appropriate circumstances. This opportunity will be discussed in greater detail under the federal POGG powers in Section 4.2.2.2.

4.2.2.2 Federal Legislative Jurisdiction over the Environment

Federal legislative initiatives to protect the environment have historically been narrowly defined within non-controversial areas of federal jurisdiction.[64] The traditional justification for federal environmental statutes has included the criminal law power under s. 91(27). This power enables Parliament to prohibit the violation of certain legally protected societal values and to provide for criminal sanctions concerning such violations. Therefore it would be competent for Parliament to directly criminalize certain types of environmentally dangerous conduct. Federal statutes aimed at protecting public health, including the *Food and Drugs Act*, the *Hazardous Products Act* and the *Canada Water Act,* have all been justified, at least in part, by reference to the criminal law power. One constitutional expert has concluded that by focusing on the public health aspect of pollution, the criminal law power may support a variety of different federal anti-pollution laws.[65]

There is some debate as to whether or not the use the federal criminal law must be restricted to control those activities that result in harm and risk to human health.[66] Some writers have argued that Parliament can criminalize directly those acts that endanger the integrity of the environment. Others argue that it is, at best, unclear whether the criminal law power can extend to protecting environmental harm in its own right. Moreover, the Courts have consistently struck down federal attempts to regulate certain activities under the guise of criminal law. In this regard, the Supreme Court of Canada has expressly stated that Parliament cannot invade the proper sphere of the provincial legislature simply by framing its legislation in the form of a prohibition coupled with a penalty.[67]

The federal trade and commerce power, s. 91(2), has been viewed as providing the federal government with an opportunity to regulate environmental matters that have an important economic dimension. However, the use of this head of power by the federal government to regulate commercial activities has been a very restrictive interpretation by the Courts. As a result, the federal trade and commerce power has been confined to interprovincial or international trade and commerce, while intraprovincial trade and commerce has been viewed as a matter coming within provincial power under the heading of "property and civil rights in the province," s. 92(13). Nevertheless, it can be argued that this head of power gives the federal government sufficient authority to restrict the interprovincial and international marketing of dangerous products (i.e.

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64 See generally Fairley, "The Environment, Sustainable Development and the Limits of Constitutional Jurisdiction," p. 58-61; Hatherly, *Constitutional Jurisdiction in Relation to Environmental Law*, p. 97-180; Emond, "The Case for a Greater Federal Role in the Environmental Protection Field."

65 See Emond, "The Case for a Greater Federal Role in the Environmental Protection Field," p. 663. The criminal law power has also been used to support federal laws aimed at the **prevention** of crime. For example, in *Goodyear Tire and Rubber Co.* v. *R.* the Supreme Court of Canada used the criminal law power to uphold a provision in the *Combines Investigation Act* that authorized the Courts to make an order prohibiting future conduct which would constitute an offence under the Act. See Hogg, *Constitutional Law of Canada*, p. 286-287.

66 See Hatherly, *Constitutional Jurisdiction in Relation to Environmental Law*, p. 113-124; Northey, "Federalism and Comprehensive Environmental Reform," p. 137-139.

67 See Hogg, *Constitutional Law of Canada*, p. 278-281.

hazardous wastes). It also justifies regulation concerning the interprovincial transport of dangerous goods.

The residual "peace, order and good government" (POGG) power outlined in the introductory paragraph of s. 91 has had a checkered judicial history. Judicial interpretations of the parameters of the federal legislative power covered by POGG have fluctuated from expansive to restrictive. Nevertheless, the POGG power is currently viewed by many as potentially the best opportunity for justifying extensive federal involvement in environmental regulation. The cause for optimism by those who support a strong federal presence in environmental regulation is the 1988 Supreme Court of Canada ruling in *R.* v. *Crown Zellerbach Ltd.* A narrow majority of the Court (four out of seven judges) upheld a provision in the federal *Ocean Dumping Control Act* (now contained in Part VI of CEPA) that applied to marine pollution in coastal waters within provincial boundaries.

The facts of the case were fairly straightforward. The accused, as part of its logging operation, deposited wood waste into marine waters within provincial territory, without a permit. This was contrary to the federal *Ocean Dumping Control Act*. The accused argued that the Act was *ultra vires* Parliament as it applied to a provincial local work (a logging operation) dumping inert, non-polluting materials into waters within the province of British Columbia. Writing for the slim majority, Mr. Justice Le Dain began his exhaustive analysis by dividing the federal POGG authority into two "branches": an emergency branch; and a branch to deal with any matter causing "national concern." Although it was agreed that Parliament clearly has power to deal with a grave emergency without regard to the ordinary division of legislative power under the Constitution, there was no suggestion that the control of ocean pollution had reached such grave proportions so as to justify federal intervention through the emergency aspect of POGG. Therefore, Mr. Justice Le Dain concentrated on the "national concern" aspect of POGG.

Mr. Justice Le Dain concluded that the national concern doctrine could apply to subject matters that did not exist at confederation and were thus not listed in the division of powers, and to subject matters that were originally of a local or a private nature in a province but which have become matters of national concern.

At least one writer has argued that the national concern dimension of POGG has enormous potential for federal environmental reforms. This writer states:[68]

> *It allows the federal government to legislate in matters clearly within provincial jurisdiction. In particular, this branch of POGG may allow for the federal regulation of economic incentives, pollution compensation schemes, and an environmental bill of rights.*

However, the federal potential to regulate the environment under the national concern doctrine of POGG must be approached with caution for at least two reasons. First, the Court in *Crown Zellerbach* clarified that "for a matter to qualify as a matter of national concern ... it must have a singleness, distinctiveness and indivisibility that clearly distinguishes it from matters of provincial concern and a scale of impact on provincial jurisdiction that is reconcilable with the fundamental distribution of legislative power under the Constitution."[69] The federal government cannot group provincial matters and mascarade them as a new national concern. Moreover, federal involvement

68 See Northey, "Federalism and Comprehensive Environmental Reform," p. 141.

cannot overly prejudice provincial interests. The involvement must be necessary for the interest of Canada as a whole and the measures must be the least intrusive to provincial interests.

Secondly, Mr. Justice La Forest, writing for three judges, presents a strong, well-reasoned dissent. He characterizes the case as an attempt by federal legislation to regulate an activity wholly within a province, taking place within provincially owned marine water, involving a substance that was neither proven deleterious in any way nor had an impact beyond the limits of the province. Justice La Forest confirms that in the *Interprovincial Co-operatives Ltd.* case the federal Parliament had exclusive legislative jurisdiction to deal with a problem that results from the release of a pollutant in one province that has injurious effects in another province. But, he contends that this principle does not apply to the facts of this case. He states:[70]

> *All physical activities have some environmental impact. Possible legislative responses to such activities cover a large number of the enumerated legislative powers, federal and provincial. To allocate the broad subject-matter of environmental control to the federal government under its general power would effectively gut provincial legislative jurisdiction ... [while] sacrificing the principles of federalism enshrined in the Constitution. As Professor William R. Lederman has indicated ... environmental pollution "is no limited subject or theme, [it] is a sweeping subject that is virtually all-pervasive in its legislative implications." If, he adds, it "were to be enfranchised as a new subject of federal power by virtue of the federal general power, then provincial power and autonomy would be on the way out over the whole range of local business, industry and commerce as enshrined to-date under the existing heads of provincial powers."*

Justice La Forest then concludes that the impugned provision in the *Ocean Dumping Control Act* overreaches the federal POGG powers by attempting to regulate local matters having local import taking place on provincially owned property. Matters that fall within the exclusive legislative jurisdiction of the province.

Mr. Justice La Forest returns to this theme in the 1992 Supreme Court of Canada decision in *Friends of the Oldman River Society* v. *Canada (Minister of Transport).* In upholding the constitutional validity of the federal *Environmental Assessment and Review Process Guidelines Order*, Mr. Justice La Forest spoke for the unanimous nine person Court as follows:[71]

> *I earlier referred to the environment as a diffused subject, echoing what I said in* R. *v.* Crown Zellerbach *to the effect that environmental control, as a subject matter, does not have the requisite distinctiveness to meet the test under the "national concern" doctrine.... Although I was writing for the minority in* Crown Zellerbach, *this opinion was not contested by the majority. The majority simply decided that marine pollution was a matter of national concern because it was predominantly extra-provincial and international in character and implication, and possessed sufficiently distinct and separate characteristics as to make it subject to Parliament's residual power.*

69 *R.* v. *Crown Zellerbach* (1989), 3 C.E.L.R. (N.S.) 1, at 32.
70 P. 50-51.
71 *Friends of the Oldman River Society* v. *Canada (Minister of Transport)* (1992) 7 C.E.L.R. (N.S.) 1, at 46.

In summary, the national concern doctrine contained in the federal POGG power can definitely be used as a source of federal legislative authority for regulating many facets of the environment. It is doubtful, however, that environmental management in its entirety could be characterized as a matter of national concern since this field is a complex aggregate of several subjects, some of which form a substantial part of provincial jurisdiction.

In addition to the conceptual powers listed in s. 91, federal jurisdiction over the environment may be justified by reference to several functional powers listed in s. 91.[72] These functional powers give Parliament direct control over certain activities that have clear environmental implications, including the power to regulate the sea coast and inland fisheries, s. 91(12); harbours and rivers and lake improvement, s. 108; navigation and shipping, s. 91(10); and federal works and undertakings, s. 91(29) and s. 92(10). The federal fisheries power in particular supports extensive federal involvement in the field of water quality management because most waters support some form of fishery and because protection of the fishery invariably requires the maintenance of high standards of water quality. Similar arguments can be made for the protection of fish habitat.

Although not specifically enumerated, the federal power over spending of the public purse can exert considerable influence on the direction of environmental regulation.[73] Those supporting an unrestricted federal power to spend public funds argue that since the taxing power of the federal government is unlimited, its power to spend should also be unlimited. By making money available to the provinces on condition that it be used to implement new environmental policies and practices, the federal government could do a great deal to encourage better environmental management. Indeed, a Joint Parliamentary Committee on the Constitution of Canada saw a continuation of the federal spending power as a means of achieving federal-provincial cooperation in environmental matters. Nevertheless, recent trends in federal-provincial relations suggest that conditional grants are in decline.[74] It has been argued that the spending power entrenches an hierarchical image of federal-provincial relations where the federal government ranks supreme and dictates terms to the provinces. Moreover, the extent of this spending power is restricted by the federal power to raise money. Given the current economic climate, suggestions to use federal money to subsidize provincial environmental activities or to influence environmental regulation will be carefully scrutinized.

The federal government has the executive authority to enter into international agreements, including treaties and conventions.[75] Nevertheless, a series of court cases determined that constitutionally Parliament gains no additional domestic jurisdiction simply by virtue of acquiring an international obligation. Therefore, any legislation required to implement the obligations of an international agreement must be passed by whichever level of government has legislative jurisdiction over the subject matter of the treaty. This constitutional arrangement makes for extremely delicate negotiations between the federal and provincial governments especially when

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72 The distinction between conceptual and functional powers is discussed in Hatherly, *Constitutional Jurisdiction in Relation to Environmental Law*, p. 100 and 147; see also Emond, "The Case for a Greater Federal Role in the Environmental Protection Field," p. 656.

73 See generally Hogg, *Constitutional Law of Canada*, p. 68-72; Emond, "The Case for a Greater Federal Role in the Environmental Protection Field," p. 667-668.

74 Northey, "Federalism and Comprehensive Environmental Reform," p. 162-165.

75 See Hogg, *Constitutional Law of Canada*, p. 181-196.

Canada commits to implement and enforce international obligations to protect the environment but the subject matter falls within provincial jurisdiction.

4.2.3 The Problem Restated

The present and the potential opportunity for CEPA to incorporate pollution prevention strategies is, in large part, driven by the constitutional constraints discussed earlier. Constitutional jurisdiction over environmental matters in Canada is shrouded by two significant uncertainties: the uncertain character of the scope of power of each level of government; and the uncertain character of the relationship between these powers. The federal legislative powers to pass environmental laws may be considerable, but they are definitely not clearly defined. Their parameters are uncertain, and they have all gone through a strained history of judicial interpretation. Perhaps most importantly, there is no discernable link between the various heads of federal power that may accommodate environmental laws and the perceived societal needs for environmental management. Indeed, the various federal heads of power may be completely unrelated to developing a comprehensive national environmental policy. The same can be said for provincial powers.

The uncertainty surrounding the jurisdictional limits for environmental regulation allows for a spectrum of approaches that could be employed when attempting to justify new federal environmental laws and policies. At one extreme, one can push for change of the current limits of federalism and encourage the federal government to exercise broader and bolder responsibility over the environment. For example, a discussion paper prepared by the Canadian Labour Congress' Environment Committee, entitled *The Environment and the Canadian Constitution* concludes that environmental jurisdiction must be defined in such a way "as to bring the environment essentially under federal authority."[76] In an address entitled "Toxic Substances in Canada: The Regulatory Role of the Federal Government," legal counsel for the Canadian Environmental Law Association made similar comments:[77]

> *The federal government is still plagued by what I would call conservative legal advice in relation to its constitutional authority to act in environmental matters. We submit that the constitutional constraints invoked by Environment Canada are more perceived than real, and we suggest that a number of heads of federal power can be used to support and justify a strong national toxics program.*

At the other extreme, one can allow Canadian federalism to evolve at its own pace, but push for much stronger administrative cooperation between the federal and provincial governments. The recognition of the concept of "cooperative federalism" as the primary means to affect environmental change has been embraced by several constitutional experts,[78] as well as the House of Commons Standing Committee on Environment. In its 1992 Report, *Environment and the Constitution*, the Standing Committee recommended that "the environment be regarded as an

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76 P. i) Summary.
77 P. 41.
78 See, for example, Franson and Lucas, *Environmental Law Commentary and Case Digests*, p. 277; Northey, "Federalism and Comprehensive Environmental Reform," esp. p. 162-177; Fairley, "The Environmental, Sustainable Development and the Limits of Constitutional Jurisdiction," at p. 66-70.

area of shared jurisdiction, in which concurrency and partnership are the appropriate and effective basis for governmental action." [79]

Certainly, there are positive and negative aspects associated with either extreme—there is no clear or final answer. Both of these perspectives will be discussed, as appropriate, when the present and potential opportunities for incorporating pollution prevention strategies into CEPA are examined in Section 4.3. Nevertheless, a cautionary note for those insisting on a stronger federal presence in regulating the environment, arguing its national and international implications. The dissenting judgement by Justice La Forest in the *Crown Zellerbach* case, where he stated that "to allocate the broad subject-matter of environmental control to the federal government under its general power would effectively gut provincial legislative jurisdiction" was echoed by the **unanimous** Supreme Court of Canada in the *Oldman River* case. Speaking for the full court, Mr. Justice La Forest stated that "the exercise of legislative power, as it effects concerns relating to the environment, must, as with other concerns, be linked to the appropriate head of power, and since the nature of the various heads of power under the *Constitution Act, 1867*, differ, the extent to which environmental concerns may be taken into account in the exercise of the power may vary from one power to another."[80]

This reasoning was adopted in a recent case by the Quebec Superior Court. In *R.* v. *Hydro-Quebec*, the Court declared certain sections of a CEPA Interim Order applying to releases of PCBs into the environment *ultra vires* the federal Parliament. The Court rejected the federal argument that the impugned provisions of the Interim Order could be justified by reference to either the national concern doctrine of the POGG power or the criminal law power. Adopting the reasoning of Mr. Justice La Forest in the *Crown Zellerbach* and the *Oldman River* cases, the Court held that the dumping of PCBs into a river comprised a localized release within the boundaries of a province where it was not proven that such release inevitably spread to one or more other provinces. The Court concluded:[81]

> *There is certainly a clear tendency for environmental matters to be referred to a central authority because of new concerns arising from problems related to the universal deterioration of the environment. However, in Canada, the primacy of the Constitution prevents this from being implemented as is intended by the federal Parliament in this subsection of the Interim Order.*

4.3 ANALYZING CEPA FOR ITS POLLUTION PREVENTION POTENTIAL

CEPA is divided into nine parts, plus a preliminary section that includes its long title, a declaration, the preamble and several preliminary matters contained in sections 1 to 6. Part VIII of CEPA dealing with consequential amendments and repeals (s. 140-148), and Part IX dealing with the coming into force of the Act (s. 149) are not relevant to the subject matter of this paper. The following sections of this Report will analyze CEPA by referencing the relevant Parts of the Act.

79 P. 17.
80 P. 49.
81 P. 16.

4.3.1 Preliminaries

In principle, the long title, the declaration and the preamble are designed to provide an unambiguous statement of the intention of the statute. A carefully drafted preamble is especially useful as a mechanism to educate interested parties, including the lay public and the judiciary about the purpose and goals of the legislation. Often a preamble is used when the legislative response in regulating the subject matter is relatively recent. In such instances, the preamble unequivocally alerts the public and the judiciary to the intrinsic worth and public support for the law, and the need to approach it with the seriousness that it deserves. As a matter of law, a preamble is an integral part of the statute that the courts must use as an interpretive aid. The federal *Interpretation Act* states in s. 12 that "the preamble of an enactment shall be read as a part thereof intended to assist in explaining its purport and object." Unquestionably, the serious tone of CEPA's preliminary provisions underscores the need to protect the environment and human life and health for the well-being of Canada. The preamble especially, alerts the reader to the fact that the Act itself will be comprehensive in scope, wide-ranging in its application and resolute in its implementation and enforcement.

In addition to establishing the overriding principles, the CEPA long title, declaration and preamble also highlight federal arguments to constitutionally justify its role in the subject matter covered by the Act.[82] The focus in the long title on the protection "of human life and health," and in the declaration on the need to protect the environment as "essential to the well-being of Canada" are directly relevant to the federal criminal law power. In the preamble, the statement that the presence of toxic substances in the environment is a matter of "national concern" employs the exact wording of the doctrine applicable to the federal POGG power. Recognition that toxic substances, once introduced into the environment, cannot always be contained within geographic boundaries and that Canada must be able to fulfil its international environmental obligations, support the interprovincial and international dimensions of the federal regulatory power.

Neither the declaration nor the preamble contain any direct reference to the principle of pollution prevention. This omission in no way hampers the ability of the Act itself to incorporate pollution prevention strategies. Nevertheless, given the fundamental importance of pollution prevention as a philosophy as well as a strategy and the role of the preamble in articulating fundamental principles, it may be that a reference to pollution prevention would be appropriate.

While a separate "Whereas" clause in the preamble may be acceptable, the concept can also be introduced by simply adding a phrase to the second Whereas clause as follows:

> *Whereas toxic substances, once introduced into the environment, <u>are difficult to control and</u> cannot always be contained within geographic boundaries;*

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82 In testimony to the Standing Committee on the Environment, a former federal Minister of the Environment stated:

> *When we devised ... the* Canadian Environmental Protection Act, *we were advised by the lawyers seconded to us by the Department of Justice and by our internal legal experts that we would be on very shaky constitutional and legal grounds to the extent that we strayed in weaving our legislation away from, principally, the peace order and good government provisions of the Constitution and the federal criminal law power having to do with health, life and safety.*

See House of Commons, *Environment and the Constitution*, p. 30.

As a statement of fact, this phrase should be acceptable to most parties and should allow a great deal of scope in alerting interested parties to the principles and strategies of pollution prevention.

Section 2(a) of CEPA provides one of the few direct references to pollution prevention. It states that in the administration of CEPA, the Government of Canada shall, having regard to the Constitution, "take both **preventative** and remedial measures in protecting the environment" (emphasis added). Section 2(i) states that in administering the Act, the government must also "endeavour to protect the environment from the **release** of toxic substances" (emphasis added). Although s. 2(i) is likely broad enough to allow the federal government (most obviously Environment Canada) to encourage the use of source reduction strategies as a means to reduce the "release of toxic substances" to protect the environment, it is likely not broad enough to support strategies that encourage the reduction in **use** of toxic substances. Nevertheless, the more general directive in 2(a) that Environment Canada shall take preventative measures in protecting the environment is certainly broad enough to accommodate toxics use reduction strategies, **if** pollution prevention is defined to include toxic use reduction as well as source reduction.

By establishing the administrative duties under CEPA, s. 2 provides an excellent opportunity to emphasize the importance of pollution prevention in protecting the environment. A possible amendment to s. 2 incorporating this concept might read that the Government of Canada shall:

> *s. 2(aa) endeavour to incorporate pollution prevention as a priority strategy in protecting the environment;*

Although there will undoubtedly be some debate as to whether pollution prevention should be "a priority strategy" or "the first priority strategy," the recognition of the use of pollution prevention strategies as an integral part of an overall management plan for protecting the environment is clearly important. Such an amendment will also be sensitive to constitutional constraints given the wording of the introductory sentence in s. 2 that the federal government can only carry out the administrative duties of CEPA "having regard to the Constitution and the laws of Canada."

Section 3 provides definitions for several key words and phrases used throughout CEPA. Currently there is no definition provided for any of the terms normally associated with pollution prevention, including toxics use reduction or source reduction. If CEPA is amended to expressly accommodate pollution prevention initiatives (such as, adding s. 2(aa) as suggested earlier) then a clear definition for pollution prevention must be included in s. 3. In this event, the suggested definitions provided in Section 2.5.4 of this Report should be considered:[83]

> *"Pollution prevention" means any practice that avoids, reduces or eliminates the use of toxic substances or that avoids, reduces or eliminates the creation of pollution, without creating or*

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83 The definition of pollution prevention embraces, at the "front end," the concept of toxics use reduction. It also provides some examples of practices that would be considered pollution prevention initiatives. However, it does not expressly provide a cutoff point by defining the "back end" of pollution prevention. Given that CEPA, in principle, embraces a complete range of regulatory activity, from pollution prevention through pollution control to remediation efforts, it may be that clearly defining the boundaries where pollution prevention ends and pollution control begins is not essential. However, if this is not the case then the discussion will evolve around the role of recycling, particularly out-of-process but in-house recycling as the end point for pollution prevention, or the beginning point for pollution control. The definition of pollution prevention in s. 3 of CEPA would then need a clear statement of activities that would not be considered pollution prevention, in addition to activities that would be considered pollution prevention.

shifting new risks to communities, workers, consumers or the environment. This includes, but is not limited to:

- *equipment modifications,*
- *process changes,*
- *materials or feedstock substitution,*
- *design modifications,*
- *technological modifications,*
- *modifications in production activities including housekeeping practices,*
- *training and inventory control,*
- *operating efficiencies,*
- *product reformulation and redesign.*

Pollution means:

Any substance regulated by the Canadian Environmental Protection Act *as an unwanted substance, including unwanted toxic substances, fuels or fuel additives or contaminants, nutrients, air contaminants, and other substances as defined by CEPA.*

Section 5 allows the Environment Minister or the Health and Welfare Minister, or both, to establish committees to obtain advice for the purpose of carrying out their duties under CEPA. Undoubtedly, an advisory committee could be established to report on any facet of pollution prevention, even without any changes to the current CEPA. The multi-stakeholder advisory committee established to provide recommendations on a national pollutant release inventory for Canada is an excellent example of the opportunities afforded by this provision. Therefore, no changes are recommended to this section.

Given the uncertainty of the scope and limits of federal regulatory power over the environment, the potential for confrontation with the provinces over federally legislated pollution prevention activities is real and significant. If the approach selected by federal regulators leans toward cooperative federalism as opposed to moving forward unilaterally, then s. 6 of CEPA holds tremendous potential. Section 6 states that the Minister of the Environment shall, in cooperation with the provinces, establish a Federal-Provincial Advisory Committee (FPAC) to provide advice on, among other things, environmental matters that are of mutual interest to the federal and provincial governments and to which CEPA relates. Section 6 further states that the purpose for establishing such a committee is to avoid conflict between, and duplication in, federal and provincial regulatory activity, to establish a framework for national action and to facilitate cooperative actions in matters affecting the environment. The scope of pollution prevention is such that several initiatives will fall within the purview of provincial jurisdiction, other facets will allow for direct federal involvement, while still other components can legitimately be regulated by both jurisdictions.

The reality of the constitutional constraints underscores the value of FPAC working to develop a comprehensive, effective pollution prevention strategy that accommodates the needs of all stakeholders, including regulators and industries who want to avoid costly, duplicative and inconsistent regulation. Currently, the FPAC Working Group on Controls Harmonization (Ozone-Depleting Substances) is developing a coordinated national strategy to eliminate ozone-depleting substances in Canada—an effort directly in line with the principles of pollution prevention and cooperative federalism. The broad mandate of the FPAC to advise on "environmental matters that are of mutual interest ... and to which this Act relates" can accommodate pollution prevention concepts and strategies without the need to amend s. 6.

4.3.2 Part I: Environmental Quality Objectives, Guidelines and Codes of Practice

Section 7 provides that the Minister of the Environment may collect data, conduct research and establish demonstration projects on the "control and abatement of environmental pollution." In carrying out these activities, the Minister may sponsor, and may act alone or in cooperation with any government, institution or person in conducting research related to the control or abatement of environmental pollution. The pollution prevention opportunities provided by federal technical assistance programs are considerable. As indicated in Section 3.2.4 of this Report, virtually all of the U.S. legislation relies heavily on voluntary outreach and assistance programs in a collaborative approach to achieving pollution prevention. The use of the federal spending power along with the statutory mandate provided by s. 7 provides the Minister with all the authority needed to implement any or all of the technology assistance initiatives listed in section 3.2.4. However, for greater certainty, it may be appropriate to amend subsections 7(c), (e) and 7(3) to include the word "prevention" immediately before the phrase "control and abatement of environmental pollution." As in the U.S. legislation, technical assistance initiatives would be voluntary in nature. It would be up to individual parties potentially affected by the initiatives to decide whether or not they would like to avail themselves of the proffered opportunities.

Section 8 of CEPA gives the Minister of the Environment extensive authority to formulate non-regulatory instruments that provide environmental quality guidance to interested parties, including industries and federal and provincial regulators. Among other things, s. 8 provides that the Minister shall formulate:

- environmental quality objectives specifying goals or purposes toward which an environmental control effort is directed, including goals or purposes stated in quantitative or qualitative terms;

- release guidelines recommending limits for the release of substances into the environment from works, undertakings or activities; and

- environmental codes of practice specifying procedures, practices or release limits for environmental control relating to works, undertakings and activities during any phase at their development and operation, including the location, design, construction and start-up phases.

Section 8(2) states that the objectives, guidelines and codes of conduct can relate to recycling, reusing, treating, storing or disposing of substances or reducing the release thereof into the environment, or to works, undertakings or activities that may affect the environment. In carrying out the responsibilities conferred by s. 8, the Minister may consult with the government of any province or any person interested in the quality of the environment or the control or abatement of

environmental pollution. The Minister may also organize multi-stakeholder conferences to discuss activities permitted by s. 8.

The non-regulatory nature of the instruments outlined in s. 8 and the wide scope given to the Minister in formulating these instruments ensure that this provision is well-suited to the development of **voluntary** pollution prevention strategies. Indeed, individuals and organizations that favour strong federal guidance in developing voluntary pollution prevention strategies rely heavily on s. 8. For example, s. 8(1)(a), providing for the formulation of environmental quality objectives specifying goals toward which an environmental control effort is directed, could accommodate generic reduction targets (such as, a 50 percent reduction in the release of persistent toxic substances by the year 2000). It could also accommodate specific reduction targets (such as, a phase-out of CFCs by 1997, and of methyl chloroform and other major ozone-depleting substances by the year 2000).[84] Section 8(1)(d), allowing for the formulation of codes of practice specifying procedures or practices for environmental control relating to works, undertakings (including businesses) or activities, perhaps in conjunction with s. 7(1)(e) allowing the Minister to formulate comprehensive plans for the control and abatement of pollution, provides ample authority for developing model pollution prevention plans, including environmental auditing and environmental quality management procedures. These model plans could be generic or specific to particular industries.

Section 8 has already been used effectively to encourage pollution prevention. For example, the Environmental Choice Program is a voluntary, consumer-driven strategy that uses non-regulatory incentives to encourage businesses and consumers to make environmentally sound decisions. An independent Board establishes criteria for products and services to ensure that they are "environmentally preferable."[85] Certification as environmentally preferable by the Board entitles a product or service to use the EcoLogo. By March 1992, the Environmental Choice Program had finalized 19 product guidelines, including guidelines for water-based paint, energy efficient lamps, water-conserving products, ethanol-blended gasoline and zinc-air batteries. More than 650 products from 120 companies are entitled to use the EcoLogo.

Each year, Environment Canada reports on the development of non-regulatory initiatives resulting from the s. 8 directives in CEPA. The January 1993 report identifies dozens of codes of practice, guidelines and objectives that are either completed or under development.[86] Many are directly applicable to pollution prevention initiatives. For example, the "Code of Practice for the Reduction of CFC Emissions from Refrigeration and Air Conditioning Systems" provides of technical advice and guidance on how to reduce CFCs, and to the extent possible, HFCs and HCFCs in residential, commercial and industrial refrigeration units, heat pumps, and air conditioning. The intended audience for this Code includes those involved in the design, manufacture, installation, servicing and final disposal of all commercial, industrial and residential

84 If a quantitative target is developed, great care must be taken to ensure that it is viable. This means, in part, that the reduction number is scientifically sound, can be achieved without imposing unreasonable costs on industry, will not lead to substitutions that are potentially of greater risk to human health or the environment. A clear workplan designed to ensure attainment of the target within a specified timeframe is also necessary. The 1991 (proposed) Amendments to the *Resource Conservation and Recovery Act* instructs the EPA to establish an advisory board of technical experts from industry, government and public interest groups to provide recommendations to the EPA on goals for toxics use and source reduction in industry.

85 See generally, Environment Canada, *Environmental Choice Annual Report, 1990; Environment Canada, Canadian Environmental Protection Act: Report for the Period April 1991 to March 1992*, p. 16-17.

86 Environment Canada, *Report on Codes, Guidelines and Objectives in Conservation and Protection.*

refrigeration and air conditioning systems, including mobile air conditioners. In conjunction with the new code, Environment Canada is developing training programs for technicians who work with refrigeration and air conditioning units. Obviously, the potential for developing pollution prevention codes of practice, objectives and guidelines, using the current s. 8, is significant.

Nevertheless, certain amendments could be considered to clarify the pollution prevention opportunities in s. 8, such as the following:

8(1) ... the Minister shall formulate

(a) Environmental quality objectives specifying goals or purposes toward which pollution prevention or environmental control efforts are directed ...

(d) Environmental codes of practice specifying procedures, practices or release limits for pollution prevention or environmental control ...

(e) Pollution prevention guidelines outlining pollution prevention initiatives, including pollution prevention plans relating to works, undertakings and activities during any phase of their development and operation.

(2) The objectives, guidelines and codes of practice referred to in subsection (1) shall relate to

(aa) pollution prevention;...

(3) in carrying the responsibilities conferred by subsection (1), the Minister may

(a) consult with ... any person interested in the quality of the environment or the prevention or control or abatement of environmental pollution.

4.3.3 Part II: Toxic Substances

4.3.3.1 Introduction

When the Government first introduced CEPA as a draft bill in 1986, a number of its proponents labelled it the most comprehensive piece of environmental legislation in the western hemisphere. Indeed, many viewed CEPA as the cornerstone of Canada's *Green Plan for a Healthy Environment*. Under CEPA, the federal government committed to a "life-cycle" management approach to toxic substances. Part II of CEPA is the heart of this national regulatory action plan. It sets out procedures for the identification and assessment of toxic substances and provides for the establishment of regulations and other controls to govern their import, manufacture, transportation, storage, use, sale, export, discharge into the environment and ultimate disposal. This Report, will discuss the pollution prevention potential of Part II under the following headings: regulating existing chemicals; regulating new substances; information generation and access; federal-provincial partnerships; and prohibitions.

4.3.3.2 Regulating Existing Substances

Section 25 states that the Minister of the Environment shall compile an inventory of substances that are considered to be "in use" in Canada. In 1991, Environment Canada produced the first

Domestic Substances List (DSL). It contained an inventory of more than 21,000 substances manufactured in, or imported into Canada on a commercial scale. Section 12 requires the Ministers of the Environment and Health and Welfare to prepare and publish a Priority Substances List (PSL). This list identifies a limited number of substances in use in Canada that may be harmful to the environment or may constitute a danger to human health. The Ministers must then assess the substances on the PSL to determine whether or not they are "toxic" as defined by s. 11 of CEPA.

Section 13 requires that when a substance on the PSL is assessed, the Ministers shall prepare and make public a report of their assessment, publish a summary of the report in the *Canada Gazette* and indicate their intentions with respect to that substance. If the assessment concludes that a substance is toxic, as defined by s. 11, the Ministers prepare a Control Options Report (sometimes referred to as a Strategic Options Report). This report must include a statement of whether the Ministers intend to recommend that the substance be added to the List of Toxic Substances, as provided in s. 33(1) of the Act, and whether regulations will be made under s. 34 with respect to the substance. Section 33(1) states that the Governor-in-Council (the Cabinet) may, if satisfied that a substance is toxic, on the recommendation of the Ministers, as outlined in the Control Options Report, make an order adding the substance to the List of Toxic Substances in Schedule I to the Act. If the substance is placed on the List of Toxic Substances, then s. 34(1) states that the Governor-in-Council may, on the recommendation of the Ministers, **and after** the FPAC is given an opportunity to provide its advice under s. 6 of the Act, make regulations for the effective control of the substance.

When a substance is believed to be toxic, or when a substance specified on the List of Toxic Substances is not adequately regulated and represents a significant danger to the environment or to human life or health, s. 35 of CEPA gives the Minister of the Environment, with the concurrence of the Minister of Health and Welfare, the authority to take immediate action by issuing an Interim Order. The Interim Order may contain any provision prescribed in a regulation made pursuant to s. 34(1).

The scope of the regulatory power listed in s. 34(1) for substances deemed to be toxic is considerable and provides the framework for their cradle-to-grave regulation. Many of these regulatory powers have the potential to incorporate pollution prevention strategies. Among other things, the Governor-in-Council may make regulations with respect to a Schedule I substance providing for, or imposing requirements respecting:

- the quantity or concentration of the substance that may be released into the environment;
- the commercial, manufacturing or processing activity in the course of which the substance may be released;
- the quantity of the substance that may be manufactured, processed, used, offered for sale or sold in Canada;
- the quantities in which the substance may be used or imported;
- the total, partial or conditional prohibition of the manufacture, use, processing, sale, import or export of the substance [this clause is of particular note for pollution prevention strategies];

- the submission to the Minister, on request or at such times as are prescribed, of information relating to the substance;
- the maintenance of records for the administration of any regulations under the section; and
- the conduct of sampling, analysis, tests, measures or monitoring of the substance and the submission of the results to the Minister.

Setting aside jurisdictional questions, there is no doubt that the current scheme established by Part II to regulate existing toxic substances provides ample opportunity for incorporating pollution prevention strategies.

A fundamental precept of the pollution prevention philosophy is to ban, or phase out within a specified timeframe (sunset), persistent toxic chemicals that cannot be controlled once released into the environment. This principle has been characterized as the concept of "zero discharge." As discussed earlier, the *Great Lakes Water Quality Agreement*, signed by the United States and Canada, obliges each party to "virtually eliminate" the discharge of persistent toxic chemicals. Canada's *Green Plan* also accepts as a national goal the virtual elimination of the discharge of persistent toxic substances into the environment. The current CEPA, without amendment, can provide the legal authority to implement the zero-discharge concept. Following identification, the substances of concern could be placed on the PSL. If warranted, following an assessment and the public release of a Control Options Report, the Governor-in-Council could place the substances on the List of Toxic Substances in Schedule I. Once on Schedule I, the toxic substances could be dealt with pursuant to the regulation-making powers under s. 34. Section 34(1)(l) includes regulatory authority to compel the "total, partial or conditional prohibition of the manufacture, use, processing, [or] sale ... of the substance ..."

Certainly, a strong argument can be advanced that s. 34(1)(l) is broad enough to incorporate, not only source reduction strategies, but also toxic use reduction strategies by banning or sunsetting the use of certain toxic substances. Indeed, several regulations have already been enacted to accomplish this very goal. For example, the Gasoline Regulations, which came into force in 1990, prohibit the use of leaded gas in most vehicles including automobiles. The Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations, which came into effect in May 1992, prohibit the release into the environment of effluent that contains any measurable concentration of dioxins or furans. A number of completed or planned regulations ban, sunset or substantially reduce the use of various toxic substances, including several ozone-depleting chemicals (CFCs, halons, methol chloroform and carbon tetrachloride).

Another facet of the pollution prevention principle is the use of a multi-medium approach in regulating toxic substances. Reference has already been made to the attempts by New Jersey and Massachusetts to implement facility-wide, multi-medium permitting systems to ensure that a reduction in the creation of a pollutant does not result in a transfer and subsequent increase in release of that pollutant in another medium. In principle, the multi-medium approach attempts to reduce or eliminate the creation of pollutants from a particular company within a particular sector (such as pulp and paper mills within the industrial sector) as well as between sectors (municipal incinerators or landfills as well as pulp and paper mills). The intent is to reduce the total load on the environment from all point sources and non-point sources. This principle brings to the fore the constitutional constraints that must be addressed by federal and provincial governments.

However, this principle also highlights the opportunities associated with federal-provincial cooperation and the promising role to be played by Control Options Reports.

The reality of the constitutional constraints is such that the federal government may be able to prohibit, for example, the release of an ozone-depleting substance into the air, but may not be able to prohibit the disposal of that substance into a municipal landfill. However, there is nothing to prevent a Control Options Report from recommending pollution prevention strategies that embrace a multi-medium perspective wherein those aspects of the problem under federal jurisdiction can be regulated and those aspects of the problem under provincial jurisdiction can be dealt with through model guidelines or codes of practice. The Control Options Report is especially well-suited to this approach because of the extensive consultation built into CEPA. This consultation goes beyond the interaction between the federal and provincial governments, as it also involves interested private sector stakeholders. For example, in establishing the PSL, the Ministers appointed an independent multi-stakeholder advisory panel of experts to provide them with recommendations. The assessment report on the status of a PSL substance under s. 13(1) must be made available to the public. Any person may appeal a recommendation made in an assessment to an independent Board of Review. The Governor-in-Council cannot make any regulations until after the FPAC has been given an opportunity to provide its advice on the proposed regulations. And the proposed regulations are themselves subject to specific public comment provisions and regulatory impact analysis before they are finalized.

The use of the Control Options Report to identify pollution prevention opportunities (both federal and provincial) deserves further discussion. In October 1992, the Industrial Programs Branch of Environment Canada released a discussion paper that outlined a proposed process for preparing Strategic (Control) Options Reports for releases of priority substances deemed to be toxic.[87] The goal in developing the strategic options is to fairly, efficiently and quickly discuss, develop and implement various options aimed at reducing releases of toxic substances into the environment. The discussion document recommends that a sectoral multi-stakeholder consultative committee be established to develop strategic options for each targeted sector. In addition to providing a great deal of information about the substance and the sector in question, including the emission profile of the substance, the Committee should consider including in its report the current regulatory and non-regulatory approach being taken to reduce releases by federal, provincial, U.S. government and private-sector agencies. The document also outlines 12 options that the Committee should consider when developing recommendations. These include: [88]

- voluntary action by industry;
- toxic use reduction planning similar the approaches used in Massachusetts;
- the use of economic instruments;
- education and/or public awareness programs;
- the use of CEPA Guidelines and Codes of Practice, and the use of provincial instruments;

87 Environment Canada, *Proposed Process for the Preparation of Strategic Options Report for Releases of Priority Substances Deemed to be Toxic*, prepared for the Industrial Programs Branch, August 1992.

88 Attachrnent I of Enclosure 9, p. 1-2.

- the use of CEPA regulations;
- increased enforcement of existing regulations; and
- targeted research and development programs to develop source reduction technologies.

Finally, the discussion document strongly recommends that multi-stakeholder consultation be encouraged throughout the entire process leading to the preparation and completion of Strategic Options Reports.

Section 34(1), as written, may allow the Governor in Council to make regulations to compel industries that use, produce, generate or release Schedule I substances to prepare a pollution prevention plan, with periodic updates, and summaries. Section 34(1)(r) in particular provides for regulations to give the Minister, on request or at prescribed times, "information relating to the substance." However, given the burden (real or perceived) that would be placed on certain industries compelled to produce these documents and the possible penalties attendant with non-compliance, the regulatory powers regarding compulsory plans should be unequivocal.

Although the provisions outlined in s. 34(1), and in particular subsections 34(1)(l) and 34(1)(r) are likely broad enough to justify federal pollution prevention initiatives to reduce the use of toxic substances and the creation of pollution, a further provision may be considered, as follows:

34(1)(aa)

> *the development and implementation of pollution prevention strategies for these substances, including the development and implementation of pollution prevention plans by industries that generate, process, use or release the substance(s).*

4.3.3.3 Regulating New Substances

Under s. 26 of CEPA, substances that are not on the Domestic Substances List are considered new to Canada. New substances require notification and assessment before they can be manufactured in or imported into Canada. The information required from manufacturers and importers to allow the government to assess the substance will be prescribed in the Regulation respecting notification of substances new to Canada. This Regulation is expected to come into force in 1993.

Section 29(1) states that where the Ministers have assessed the prescribed information and they suspect these substances are toxic, the Minister of the Environment may, among other things, prohibit any person from manufacturing or importing the substance, or may permit any person to manufacture or import the substance, subject to such conditions as the Ministers may specify. The opportunity to prohibit or restrict the manufacture or importation of a substance merely because of a suspicion that the substance is toxic where that substance has not yet been introduced into Canada provides the federal government with a powerful pollution prevention tool. Indeed, this ability may well be considered the ultimate toxic use reduction strategy because, in principle, the substance has never been used in Canada. Clearly, the power to regulate trade and commerce will uphold a federal prohibition to import certain substances. However, the prohibition on the manufacture of these substances is a somewhat more delicate matter. Here again, opportunities for cooperative federal-provincial action should be pursued.

4.3.3.4 Information Generation and Access

The importance of a comprehensive, user-friendly and cost-effective information system in designing, implementing and monitoring pollution prevention strategies has already been discussed in section 3.2.7 of this Report. This discussion included a detailed commentary on the recommendations contained in the *Final Report on a National Pollutant Release Inventory for Canada* by the Multi-Stakeholder Advisory Committee established by the Minister of the Environment to design a database for hazardous pollutants, to be called the National Pollutant Release Inventory (NPRI). In essence, there was consensus on the substances to be included on the NPRI list; the types of facilities that had to report to the NPRI and exempted facilities; the exemption of certain articles and products; the information to be reported, including the quantity of the substance released from a site to air, water and land and offsite transfers of the substance shipped in waste; the reasons for any significant changes in the quantities of NPRI substances released or transferred since the last report; and the release of all non-confidential data in the NPRI to the public. However, the Committee could not agree on whether the NPRI should be used as a material accounting and tracking system (as in New Jersey) or if it should concentrate exclusively on establishing databases for substances released into the environment.

Sections 15 through 18 of CEPA allow the federal government to generate and collect data concerning the production, application and importation of substances. Section 16 is particularly relevant to the generation of information for pollution prevention purposes. Indeed, the NPRI Committee recommended that, in the short term, s. 16 should be used as the legislative authority for the NPRI. In the long term, however, s. 16 should be amended to ensure that it can accommodate all of the recommendations of NPRI.

Certainly, s. 16 as currently written provides a great deal of scope for generating and accessing pollution prevention data. Among other things, s. 16 states that the Minister may publish in the *Canada Gazette* a notice requiring any person described in the notice to provide information on the quantities, uses and composition of a substance, and with plans, specifications, studies and information on procedures with respect to a work, undertaking or activity. The Minister will use this information to assess whether to control and the manner in which to control a substance. Section 16, as written, may not be able to accommodate a mandatory reporting system with an annual reporting cycle. Constitutional constraints might also limit the list of NPRI substances to those chemicals that have direct relevance to a federal head of power.[89] Finally, it is not clear whether s. 16 as currently written could require reporting facilities to provide information based on a materials accounting tracking system. Given the above concerns, a new s. 16.1 should be considered as follows:

16.1(1) For the purpose of providing a comprehensive, national database on specified substances, the Minister may, after the federal-provincial advisory committee is given an opportunity to provide its advice under s. 6, develop a National Pollutant Release Inventory.

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89 The Committee derived the NPRI List of 178 substances to be included in reporting procedures for 1993 from the 1990 U.S. Toxic Release Inventory List, after deleting substances that were either not used in Canada at all, or were used in very small quantities, according to the CEPA domestic substances list. A second candidate list of 78 substances has been recommended for possible inclusion in the NPRI at a later date. This supplemental list was derived from 10 lists of hazardous substances, many of which were developed by provincial or U.S. regulatory agencies.

(2) The Minister may establish an advisory committee under s. 5 to provide recommendations on the National Pollutant Release Inventory.

(3) The Minister may publish in the Canada Gazette a notice requiring any firm generating, producing, using or releasing a substance listed on the Priority Substances List [or, more restrictively "on the List of Toxic Substances"] to provide the Minister with the information detailed in the NPRI.

Sections 19 through 24 of CEPA outline the information disclosure provisions. These sections include the procedures to request that the information supplied to the Minister under Part II be treated as confidential, and also to specify the information that may be disclosed. Any information supplied pursuant to a notice under the current s. 16, or the proposed s. 16.1, would be subject to the confidentiality and disclosure provisions outlined in s. 19 through 25. Currently, if Environment Canada and a reporting facility disagree on the confidentiality of the information, the onus would be on the Minister to demonstrate that the information in question was not confidential. During the NPRI Committee deliberations, environmental and labour representatives argued that a facility might use confidentiality provisions to hide emissions data from the public.[90] Moreover, they felt that the onus for demonstrating confidentiality should rest with the reporting facility, as it does under the U.S. TRI system. On the other hand, industry representatives argued that there are relatively few trade secret claims in the United States. Thus, they do not anticipate that the confidentiality provisions in CEPA will frustrate the intent of NPRI. Given the complexity of the issues involved, the delicate legal considerations that went into drafting the disclosure provisions in CEPA, the difficulty involved in amending these provisions, and the interrelationship between CEPA and the *Access to Information Act* experience will determine whether or not public access objectives are in fact being compromised by the current provisions.[91] However, one caveat should be considered. If pollution prevention plans are mandated under s. 34(1)(aa) consideration should be given to amending s. 19(1) as follows:

A person who provides information, <u>including a pollution prevention plan and subsequent updates</u> to the Minister ...

Section 20(2) should then be amended by including the following:

<u>(aa) Summaries of pollution prevention plans.</u>

4.3.3.5 Federal-Provincial Partnerships

This Report has already highlighted several provisions in CEPA that encourage federal and provincial regulators to cooperate on environmental matters of mutual interest in order to avoid conflict and duplication of effort. Two further opportunities for cooperation involve the

90 Environment Canada, *Final Report on a National Pollutant Release Inventory for Canada*, December 1992, p. 26-27.

91 However, if the information disclosure provisions in CEPA are being amended, for reasons other than those involving pollution prevention concerns, consideration should be given to addressing the issues raised by the NPRI Committee.

development of equivalency agreements under s. 35(6) of CEPA, and administrative agreements under s. 98.[92]

Equivalency agreements represent a "work-limiting" partnership that terminates the applications of a CEPA regulation made under s. 34(1) in recognition of an equivalent provincial or territorial law. The agreement may be viewed as a contract between the federal minister and a provincial/territorial counterpart for the cooperative delivery of a national environmental standard. Thus, prerequisites that underpin the agreements include equivalent regulatory standards, the possibility for citizen involvement, and appropriate enforcement policies and practices, including penalty provisions. Under an equivalency agreement a province or territory is permitted to apply more stringent environmental protection standards than the federal regulations. However, where this occurs, the federal government would be expected to take appropriate steps under Part IV of CEPA to ensure that federal lands and activities within the province are also subject to the more stringent standards. A separate equivalency agreement must be established for each CEPA regulation in each province and territory.

The concept of the equivalency agreement has been criticized in some quarters. For example, one commentator observed that equivalency agreements:[93]

> *... effectively and deliberately undermine the federal government's ability to implement a comprehensive nationwide toxics program. Clearly, extensive use of the equivalency provisions can only result in a patch work of inconsistent regulations and enforcement practices across Canada. Different penalties for essentially the same offenses may be established, and this may result in so-called "pollution havens."*

Undoubtedly, these concerns are real, and the use of equivalency agreements must be carefully monitored to ensure that they serve their purposes. Nevertheless, regulated pollution prevention strategies that have sensitive federal-provincial jurisdictional concerns could possibly be resolved through the use of these provisions.

The same concerns and opportunities exist regarding the use of administrative agreements. These represent a "work-sharing" partnership for the administration of complementary federal and provincial legislation. They cover a wide range of administrative activities from research and monitoring to inspection and enforcement. These agreements reflect the particular circumstances in each province and territory and are subject to change as the needs of the partnership change. A single agreement can be established with each province and territory. Under an administrative agreement, the federal government remains accountable for the results and must report annually to Parliament on the agreement. Administrative agreements could accommodate the implementation of several pollution prevention strategies, including data generation and collection as well as the coordination of inspection, investigation and enforcement activities. Negotiations between the federal and provincial governments on both administrative and equivalency agreements are ongoing. To date neither type of arrangement has been signed.

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92 See generally, Environment Canada, *Report of the Federal-Provincial Working Group on CEPA Partnerships*, October 1991, revised June 1992; Environment Canada, Annual Reports for CEPA, and in particular the *Report for the Period April 1991 to March 1992*, p. 4-5.

93 Lindgren, "Toxic Substances in Canada," p. 41.

4.3.3.6 Prohibitions

Section 40 provides that where there has been a contravention of Part II of the Act or any regulation made under Part II, the Minister may direct any manufacturer, processor, distributor, importer or retailer of the substance to replace the substance or the product with one that does not pose a danger to the environment or to human health. This allows the Minister to replace more harmful substances with less harmful ones—an obvious pollution prevention strategy. However, there must be a contravention of Part II of CEPA with respect to the substance in question before the Minister may act. Although the current s. 34(1)(l) and the suggested s. 34(1)(aa) might accommodate this strategy once a substance is on the List of Toxic Substances, but before a contravention of the Act occurs, possibly a provision similar to s. 40 should be included in s. 34(1) for greater certainty.

Section 41 of CEPA gives the Governor-in-Council, on the recommendation of the Ministers, the power to make an order to stop the importation of any toxic substance that is prohibited for use in Canada by any Act of Parliament. Among other substances, mirex, alachlor and phosphamidon have been placed on the List of Prohibited Substances in Part I of Schedule II to CEPA. In principle, the inability to import prohibited substances, which are banned usually because of unacceptable risks to human health and/or the environment, means that less risky substances will be substituted. Therefore, the use of the List of Prohibited Substances comprises a pollution prevention strategy.

Section 46 prohibits the domestic production or importation of fuels that contain elements or additives exceeding those prescribed by regulation. Although not as clear as it might be, s. 46 and the regulatory provisions outlined in s. 47 allow for the complete prohibition of elements, components or additives in fuel that might otherwise result in a significant contribution to air pollution. The Gasoline Regulations, which came into force in late 1990, provide an example of the pollution prevention potential of these provisions. These regulations prohibit the use of leaded gasoline in most vehicles, including automobiles.

4.3.4 Part III: Nutrients

Sections 49 to 51 in CEPA define and help to regulate cleaning agents, nutrients and water conditioners. Section 50 provides that no person shall manufacture or import into Canada any cleaning agent or water conditioner that contains a prescribed nutrient in a concentration greater than the prescribed maximum. Nutrients and their concentrations are to be prescribed in the regulations, as provided in s. 50(2). So far, only the Phosphorous Concentration Regulations, establishing the maximum phosphate levels in laundry detergents have been prescribed under this section.

The major nutrients contributing to the degradation of water quality (eutrophication) are phosphates and nitrates associated with municipal sewage treatment plants, agricultural run-off and detergents. Part III is fairly limited in scope, and does not provide significant opportunities for developing pollution prevention strategies. While the federal government can likely justify regulating phosphates contained in laundry detergents under its fisheries power, the same argument is more tenuous when used to support the federal regulation of nutrients from municipal sewage plants and agricultural run-off.

4.3.5 Part IV: Controls on Federal Government Organizations

The federal government is the largest single business in Canada, with annual expenditures of $125 billion and over 585,000 employees.[94] As the largest commercial landlord, the federal government owns or leases 25 million square metres of office space. It has more than 50,000 buildings and facilities in its inventory, ranging from office buildings to laboratories, parks and military bases. Government purchases from the private sector total more than $9 billion each year for thousands of categories of consumer, commercial and industrial goods. Moreover, the federal government holds decision-making authority—as a proponent, a land manager, a funding provider and a regulator—over innumerable projects that have the potential to impact on the environment. Clearly, the federal government has a vital role to play in promoting pollution prevention strategies within its own organization. Its leadership potential in helping to mobilize an ethic of pollution prevention both inside and outside government institutions cannot be underestimated.

Part IV of CEPA gives the Minister of the Environment broad authority to assist federal institutions in conducting their activities in an environmentally responsible manner. It provides the legislative framework within which the federal government can, as stated in the *Green Plan*, demonstrate its commitment to the principle of sustainable development, and attain its goal "to ensure that all of its operations and procedures meet or exceed national targets and schedules for sustaining our environment."[95]

Section 54(2) allows the Governor-in-Council, on the recommendation of the Minister of the Environment, to make regulations prescribing limits on the release of emissions and effluents and waste handling and disposal practices of federal departments, boards, agencies and corporations (hereafter collectively referred to in this section of this Report as "institutions"). Given that the regulations will impact only on federal interests, there are no jurisdictional concerns. Neither is there a restriction on the types of substances that can be regulated. On the other hand, the phrase "limits on the release" may be too narrow to support regulations that prescribe reductions in the creation of pollutants or in the use of toxic substances. Therefore, an amendment to s. 54(2) might be considered as follows:

(c) Pollution prevention strategies including strategies that avoid, reduce or eliminate the use of toxic substances, or that avoid, reduce or eliminate the creation of pollution by departments, boards, agencies and corporation referred to in paragraph 54(1)(a).

Section 54(1) provides that the Governor-in-Council may make regulations for the protection of the environment that apply to federal works or undertakings or federal lands if no other Act of Parliament expressly provides for the making of such regulations and with the concurrence of the Minister of the Crown responsible for the administration of those works, undertakings or lands. The administrative difficulties involved in implementing this section suggest that it may be difficult to use in practice. For example, initial attempts by Environment Canada to regulate underground storage tanks proved frustrating; the Department then decided to prepare federal guidelines instead.

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94 See generally, *Canada's Green Plan for a Healthy Environment*, p. 159-164.
95 The *Green Plan*, p. 159.

Section 53 states that the Minister of the Environment may, with the approval of the Governor-in-Council, establish environmental guidelines for use by departments in the exercise of their powers and the carrying out of their duties and functions. Although not legally binding, these guidelines provide an excellent opportunity to incorporate pollution prevention strategies into federal activities. Indeed, the *Green Plan* commits the federal government to adopt a comprehensive Code of Environmental Stewardship covering all areas of federal operations and activities.[96] Federal departments are obligated to develop environmental action plans indicating how they intend to implement the Code and are to report regularly on progress. The federal government has also established a Office of Environmental Stewardship to act as a focal point for coordinating and assisting in the adoption of the Code, including the integration of environmental considerations with the government's considerable purchasing policies. The opportunity to build pollution prevention strategies into the Code is considerable.

Section 56 provides that the Minister may, for the purpose of making regulatory recommendations under s. 54, require from any person who carries on any federal undertaking, or any activity on federal lands, such plans, specifications, procedures, or other information relating to the undertaking or activity, together with infornation relating to the environment that is likely to be affected by the undertaking or activity to allow the Minister to determine the environmental impact that the undertaking or activity will have. As currently worded, Sections 54 and 56 would likely allow the Minister to collect National Pollutant Release Inventory data. However, these sections would likely not allow the Minister to exact pollution prevention plans from federal facilities releasing emissions or effluences or handling and disposing of waste. If amendments to CEPA compel certain private-sector industries to subrnit pollution prevention plans then the Minister must also be able to mandate such plans from federal facilities. While constitutional considerations suggest that the mandatory production of pollution prevention plans by private-sector industries may be limited to certain types of toxic substances (such as, substances on the PSL or on the List of Toxic Substances), no such limitations need apply for Part IV. However, as a practical matter, human and financial resource constraints dictate that the Minister at least in the short term, prioritize the types of federal facilities that would be required to produce such plans. If the government implemented the suggested amendment to s. 54(2), then a simple addition to s. 56 should provide the Minister with the appropriate authority to require pollution prevention plans, as follows:

> *56. For the purpose of s. 54 the Minister may require ... such plans, <u>including pollution prevention plans</u>, specifications ... as will enable the Minister to determine the environmental impact that the work, undertaking or activity will have, <u>and strategies for avoiding, reducing or eliminating those impacts</u>.*

As discussed in section 3.2.3 of this Report, several U.S. pollution prevention statutes mandate the creation of a pollution prevention office. Given the current experience of the National Office of Pollution Prevention and the Ontario Pollution Prevention Office, a legislative base for these agencies is not essential. Nevertheless, statutory codification of such an office, along with a mandate that incorporates some or all of the activities listed in section 3.2.3 provides a clear signal from the federal government concerning the seriousness with which it views pollution prevention. However, statutorily codifying such a body may result in the loss of some flexibility and the restructuring of other offices that have equally important pollution prevention functions (such as,

96 P. 163-164.

the Office of Waste Management, the Office of Environmental Stewardship and, most obviously, the National Office of Pollution Prevention). Undoubtedly, codifying a single agency with primary coordinating responsibility for the pollution prevention initiatives of CEPA, (or, for that matter, the whole federal government using Part IV of CEPA as the justification), will take a considerable amount of time, will stress human and financial resources and will undoubtedly cause some internal disruption. Given these considerations, it is suggested that the status quo be maintained, at least over the next few years.

4.3.6 Part V: International Air Pollution

Historically, the regulation of air pollution has been as complex as its sources.[97] The characterization of the impacts of air pollutants has contributed to the complexity. For example, air pollutants from a variety of point and non-point sources have focused concern on ground-level ozone, stratospheric ozone depletion, toxic precipitation, including acid rain, and global warming resulting from emissions of the so-called "greenhouse gases." The human sources of air pollution include fossil fuel burning from motor vehicles, power plants and furnaces, mining operations, particularly copper and nickel mine-mills, pulp and paper mills, quarrying operations, industrial and municipal incineration, refining processes, particularly petroleum, construction activities, particularly road construction, sand blasting, demolition and gravel crushing, open fires, asphalt paving plants and ferrous foundries.

Both federal and provincial governments have a role to play in controlling air pollution. Historically, the provinces have been primarily responsible for controlling air pollution because most pollution sources were seen to fall within the provincial powers over "property and civil rights" and "local works and undertakings within the province."[98]

The government repealed the federal *Clean Air Act,* and incorporated its provisions into the legislative structure of CEPA. Part IV allows the federal government to regulate air pollution from federally controlled works, undertakings and activities such as nuclear power plants, railways and airlines. The regulation of fuels and fuel additives under the *Clean Air Act* has been transferred to sections 46-48 of CEPA. Part V of CEPA (sections 61-65) governs domestic sources of air pollution that have international implications. Under Section 61, if the Ministers have reason to believe that air contaminants emitted into the air by a source in Canada may reasonably be anticipated to create air pollution in a country other than Canada, or is likely to result in the violation of an international agreement, the Minister of Environment shall recommend that the Governor-in-Council make regulations with respect to the sources for the purpose of controlling or preventing the air pollution or preventing the violation of the international agreement. Given the historical sensitivity toward provincial jurisdiction in this area, s. 61(2) states that the Minister shall not make a recommendation unless the Minister has determined, through consultation with the government of each province in which the source is situated, that the air pollution of concern will not be controlled or prevented by the provinces in question. Thus, the authority to regulate domestic sources of international air pollution can only be exercised if provinces neglect to control them. Note that s. 63(3) provides for the establishment of equivalency agreements with respect to regulations made under s. 61(1).

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97 See generally Webb, *Pollution Control*; Macdonald, *The Politics of Pollution*; and, Estrin and Swaigen, *Environment on Trial*; Environment Canada, *State of the Environment Report for Canada.*

98 Estrin and Swaigen, *Environment on Trial*, p. 88-91.

Section 61(1)(a) is broad enough to allow the Governor-in-Council to impose pollution prevention strategies on sources emitting air contaminants that may reasonably be anticipated to create air pollution in another country. Perhaps more significantly, s. 61(1)(b) may provide the federal government with a constitutional rationale for regulating sources of air contaminants even if the contaminant may not reasonably be anticipated to create air pollution in another country. Indeed, one could also argue that this section provides the rationale for federal jurisdiction even if the air contaminant remains (more or less) within provincial boundaries. Federal environmental initiatives are increasingly the product of multinational commitments premised on the global interdependence of the ecosphere. The air pollution activities of a factory that were considered local or regional concerns 20 years ago have now taken on international and even global dimensions. The global warming threat resulting from the increase in greenhouse gases is a case in point.[99] In global terms, Canada is a very minor contributor to climate change, producing no more than 2 percent of the world's carbon dioxide, 2 percent of nitrous oxide, 1 percent of methane and 2 percent of the CFCs. Nevertheless, the emissions of greenhouse gases from Canadian sources contribute to global warming even if they do not cause air pollution in foreign countries.

The same arguments could be made concerning the release of substances that deplete stratospheric ozone. Given Canada's moral and political responsibility as well as its commitment to help to protect the global environment, a strong case can be made that the national concern doctrine would provide the federal government with the legislative authority to regulate substances that have global implications. While some air contaminants fall neatly into the "toxic substances definition" and are therefore regulated under Part II of CEPA, others may not fit that definition so easily. Greenhouse gases, including carbon dioxide and nitrous oxide, fall into this category. Therefore, a case could be made to allow for the federal regulation to prevent or reduce the release of air contaminants that are the subject of international agreements, even if those contaminants do not cause pollution in other countries or, indeed, in more than one province.

Still, the complexity and the sensitivity of the constitutional jurisdiction over air pollution is such that cooperative federalism should be encouraged as much as possible. Again, CEPA Part V consciously embraces this principle by providing clear consultation mechanisms with provincial governments for any international air pollution regulations and for the establishment of equivalency agreements. This approach, so far, seems to be working and seems to be touching upon pollution prevention strategies. The CEPA Annual Report for the period ending March 1992 outlines several cooperative air pollution agreements between the federal government and the provinces based on international agreements.[100] For example, provincial actions to reduce sulphur dioxide emissions will allow Canada to meet the obligations in the 1985 United Nations Economic Commission for Europe's Sulphur Dioxide Protocol. The *Green Plan* also highlights several federal-provincial cooperative agreements to reduce or eliminate the creation of pollutants.[101] For example, the Canadian Acid Rain Control Program, a federal-provincial-industrial agreement, implemented measures to reduce sulphur dioxide emissions by 1994 to levels that will be 50 percent of the 1980 emission levels. To date, this program has reduced emissions by 40 percent, and the 1994 targets will be achieved. These agreements will be

99 See generally Environment Canada, *Canada and Global Warming: Meeting the Challenge* and the *Green Plan*, p. 97-112.
100 P. 32-33.
101 P. 119-122.

expanded to establish a National Emission Cap at no more than 3.2 million tonnes by the year 2000.

4.3.7 Part VI: Ocean Dumping

Land-based pollution, vessel-source pollution and ocean dumping are generally considered the three most important sources of marine pollution.[102] Land-based sources are considered the most significant in both volume and impact. They include precipitation of air pollutants; sewage outfalls; discharge of agricultural, municipal and industrial wastes; and surface run-off. Vessel-based pollution includes the "normal" discharges of ships, as well as discharges from collisions or other accidental discharges of cargo. Ocean dumping involves the creation of wastes on land and the intentional placement of these wastes on a vessel for the purpose of discharging them into the ocean. Section 66(1) of CEPA defines "dumping" as the deliberate disposal at sea from ships, aircraft, platforms or other anthropogenic structures, including disposal by incineration of any substance. This does not include, however, any disposal that is incidental to the normal operation of those structures.

Approximately 10 percent of the pollutants entering the marine environment are from deliberate dumping. Although this is relatively small quantitatively, ocean dumping is significant because it potentially involves the disposal of hazardous wastes and because it is intentional and therefore comparatively easy to regulate. The spiralling costs of land-based waste disposal and the proximity of major urban centres to marine waters make ocean dumping an attractive option for waste disposal.

The international concern over the deliberate use of the marine environment as a dump site led to the negotiation of the global 1972 *Convention on the Prevention of Marine Pollution by the Dumping of Wastes and Other Matter* (the *London Dumping Convention*). This Convention was signed by Canada in 1972. In 1975, the federal government implemented the Convention by enacting the *Ocean Dumping Control Act*. This Act was repealed and subsumed into Part VI of CEPA.

The ocean dumping provisions adopt the traditional "command and control" reactive approach to protecting the marine environment. Section 67(1) provides that "no person shall dump any substance" in the sea. However this blanket prohibition is immediately qualified by subsection (2) which allows dumping to take place in accordance with the terms and conditions of a permit.[103]

A company applying for a dumping permit must first publish a notice of intent in a newspaper in the vicinity of the proposed operation outlining what is to be discarded and the loading and dumping locations. The notice allows interested parties to express their concerns to Environment Canada before the application is assessed. In determining whether to grant a permit, the Minister must take into account the criteria specified in Part III of Schedule III to the Act. That schedule sets

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102 See generally Versteeg, "The International and National Response to the Problems of Marine Pollution"; Hughes, "Ocean Dumping and Its Regulation in Canada"; McConnell and VanderZwaag, "Sustainable Development and Marine Environmental Protection."

103 Section 68, however, exempts a person from the permit requirements where the dumping is necessary to avert danger to human life at sea or to any structure.

out factors such as toxicity, possible effects on marine life, human health risks, and the practical availability of alternative waste treatment or disposal methods.

Part I of Schedule III (the ocean dumping schedule) contains a list of seven prohibited substances, including mercury, cadmium, persistent plastics, and high-level radio-active wastes. Part II of Schedule III contains a list of 16 restricted substances. However, the significance of the prohibited and restricted lists is not clear because Part VI of CEPA makes no reference to them.[104]

As currently written, the ocean dumping provisions, including the regulations, encourage reactive pollution control strategies rather than anticipatory pollution prevention options. The overall intent of these provisions is to manage wastes that are produced and to limit any potential impacts, rather than attempting to reduce the creation of the wastes in the first place.

The federal government recognizes the limits of Part VI of CEPA as currently written, and intends to implement significant amendments that will incorporate many pollution prevention strategies. These initiatives are listed in the *Green Plan*[105] and in the CEPA Annual Report for the period ending March 1992.[106] Among other things, Canada supports a recent resolution by the parties to the *London Dumping Convention* to ban the ocean disposal of industrial wastes globally by the end of 1995. While the term "industrial waste" does not include inert and uncontaminated organic materials of natural origin, dumping wastes generated by manufacturing or processing operations will be banned. Although s. 66 allows for the disposal of substances by incineration at sea, currently Environment Canada does not grant permits for the incineration of hazardous liquid wastes. Moreover, the federal government supports the *London Dumping Convention* resolution to re-evaluate incineration at sea with a view to terminating this practice by the end of 1994.

In February 1992, Environment Canada began public consultations on amendments to the Ocean Dumping Regulations. Proposed changes include an increase in fees for all applicants, including federal departments, and more information requirements on application forms. Increasing permit fees substantially is an effective mechanism for reducing the creation of pollution.

The ocean dumping provisions in CEPA highlight two concerns. First, efforts to reduce land-based pollution must not be promoted at the expense of increasing marine pollution. Similarly, efforts to reduce ocean dumping must not result in increasing the load on other media used for disposal. In principle, pollution prevention strategies avoid cross-media transfers of pollution. Secondly, concerns over ocean dumping highlight the need to more effectively control land-based sources that generate most of the substances deliberately dumped into the ocean in the first place. In this regard, there is a need to more fully integrate the ocean dumping provisions into the overall pollution prevention policy of CEPA. Certainly, current and proposed efforts to implement pollution prevention strategies in the other Parts of CEPA, particularly Part II, together with the

104 See the commentary by Hughes, "Ocean Dumping and Its Regulation in Canada," p. 166-167.
105 P. 42-42.
106 P. 34-38.

federal commitment to improve Part VI should reduce the need to use the marine environment as a dump.[107]

4.3.8 Part VII: The General Part

As stated in the *Green Plan*, "legislation and regulation are only as good as their enforcement."[108] When the *Canadian Environmental Protection Act* (CEPA) was first introduced into the House of Commons, a great deal of public attention focused on the new "get tough" approach. Sections 99 through 137 comprise the extensive inspection, search and seizure, forfeiture, investigative powers and offenses and punishments for CEPA. In extreme cases, the legislation provides that convicted polluters are liable to fines up to $1 million a day, or more if they have made profits from their polluting activities. Corporate officials can also be fined or imprisoned if they are convicted of authorizing or participating in activities that violate certain provisions of CEPA. Unquestionably, these new penalty provisions are significantly more onerous than those under earlier environmental statutes. They are clearly designed to encourage companies and individuals to comply with the Act and to alert the general public and the judiciary of the resolve of the federal government to protect the environment.

Environment Canada has produced an *Enforcement and Compliance Policy* stating how its officials will enforce CEPA. The document details measures that will be taken to promote compliance with CEPA as well as enforcement activities to investigate compliance, suspected violations and to compel compliance through formal and informal actions.

Measures to promote compliance include the following:[109]

- distribution of education and information materials;
- promotion of technology development and evaluation;
- technology transfer;
- consultation on regulatory development;
- development of environmental codes of practice and guidelines; and
- promotion of environmental audits.

As discussed earlier, virtually all of these measures currently contain, or could with minor modification, several pollution prevention strategies. For example, the section in the *Enforcement and Compliance Policy* on technology transfer states that Environment Canada will continue to

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107 The CEPA Annual Report for the period ending March 1991, p. 28-36, has an excellent summary of ocean dumping activities, including 10-year trends in the numbers and types of permits issued between 1980 and 1990 and types of substances dumped at sea.

108 P. 156.

109 At p. 25-29.

provide to other federal departments, provinces and the private sector technical information on measures to prevent releases of substances into the environment.[110]

Compliance monitoring and enforcement is the essence of sections 99 through 137 of CEPA. Inspectors, appointed under s. 99, verify compliance with CEPA and its regulations. Subject to certain constraints, an inspector can enter a premises and may examine substances or products, books, records or electronic data and may take samples. If evidence suggests a suspected violation of CEPA, the inspection shifts into an investigation. Investigations will normally be carried out by investigation specialists, although inspectors may also be trained to conduct investigations. Whenever a violation is discovered, the enforcement officer has one of several responses available. These responses, and the factors that must be taken into consideration in deciding which response is appropriate, are detailed in the *Enforcement and Compliance Policy*.[111] The responses available include warnings, directions by inspectors, ticketing, orders by the Minister, injunctions and prosecutions. Upon conviction, enforcement officials may request that the courts in determining the sentence include one or more of the orders listed in s. 130. Among other things, the listed orders that the court may consider during sentencing include:

- prohibiting the offender from doing acts that may result in the continuation or repetition of the offence;
- directing the offender to take such action as the court considers appropriate to remedy or avoid any harm to the environment that may result from the act or omission that constituted the offence;
- directing the offender to publish the facts relating to the convictions;
- directing the offender to compensate the Minister for the costs of any preventative action taken by the Minister as a result of the act or omission that constituted the offence; and
- directing the offender to pay an amount for the purposes of conducting research into the ecological use and disposal of the substance in respect of which the violation was committed.

As with other provisions in CEPA, the current and potential opportunities to build pollution prevention strategies into Part VII are considerable. Most obviously, Part VII concerns itself with monitoring compliance, investigating suspected breaches and punishing violations of CEPA regulations. Therefore, mandatory pollution prevention strategies included in the regulations could be monitored and violators prosecuted. Indeed, the severity of the current fines, jail terms and other penalties outlined in sections 111-137 not only deter unlawful conduct (reactive, after-the-fact punishment) but also encourage anticipatory, preventative approaches in protecting the environment. In this regard, care must be taken to ensure that the penalty matches the violation. For example, if the current s. 34(1) was amended to allow the Governor-in-Council to make regulations compelling pollution prevention plans for certain industries, and the current penalty provisions for breaches of section 34(1) were not amended, then the failure to comply with a regulation compelling a pollution prevention plan could render the accused liable, on conviction by way of indictment, to a fine not exceeding $1 million or to imprisonment for a term not exceeding

110 P. 27.
111 P. 43-55.

three years, or to both. Certainly, U.S. state laws compelling pollution prevention plans do not have penalties as severe as these for failure to produce plans or to produce adequate plans. Thus, the penalty provisions associated with the breach of any pollution prevention regulatory amendments to CEPA must all be carefully examined to ensure that they are fair and reasonable under the circumstances.

Currently, principles of the law of criminal procedure and, perhaps, the *Charter of Rights and Freedoms* ensure that enforcement officials restrict their efforts to activities that have the potential to involve breaches of the regulations. For example, an inspector who has reasonable grounds to believe that an industry is not complying with a voluntary National Pollution Release Inventory reporting procedure could not enter a premises to investigate the concern. Indeed, one writer concluded:[112]

> *One limitation to this rule of law approach is that it fails to recognize the current under-regulation of toxic substances. A common complaint by inspectors is that they are consequently precluded from providing preventative or remedial advice in those cases where the environmental threat is associated with substances not yet regulated under federal law.*

There are two possible approaches to dealing with this legitimate concern. First, to the extent that new pollution prevention strategies are built into CEPA and its regulations, as discussed throughout this paper, inspectors will have increased powers to monitor and, in appropriate circumstances, consider enforcement actions for violations of those regulations. For example, if pollution prevention plans are mandated for federal undertakings or for private industries that produce certain types of toxic substances, then all of the attendant inspection and enforcement provisions in Part VII would naturally apply.

Secondly, with one exception, there is a great deal of scope within the existing framework to use "unofficial" mechanisms to encourage pollution prevention by industry.

For example, Environment Canada has created the Office of Enforcement to develop a consistent, national policy for investigations and enforcement actions. Some of the responsibilities of this office include the development of training courses for inspectors and investigators, and the delivery of the annual National Training Program. As outlined in Section 3.2.9 of this Report, several American jurisdictions have specifically integrated pollution prevention courses into their enforcement training programs. During their normal regulatory inspections, these trained government personnel then offer information and advice that is directly relevant to the particular facility being inspected. Because compliance is not mandatory, the advice need not be restricted to activities or substances regulated under CEPA. Even the use of the written warning, the minimum response provided by the *Enforcement and Compliance Policy* where a violation is identified, could incorporate pollution prevention strategies. In this regard, the enforcement responses to violations listed in the *Enforcement and Compliance Policy*, including the contents of written warnings, could be rewritten to build in pollution prevention opportunities. Moreover, the factors to be considered before deciding which enforcement action to take might incorporate the U.S. EPA policy that encourages pollution prevention as a means of achieving regulatory compliance and of correcting outstanding violations when negotiating enforcement settlements. In

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112 Duncan, "The Rule of Law and Sustainable Development," p. 299. See generally, Environment Canada, *CEPA Report for the Period April 1991 to March 1992*, p. 39-44.

this regard, s. 130(1) (the one exception noted earlier) should be amended to allow the courts to make an order directing the offender to adopt and maintain pollution prevention strategies, including pollution prevention plans.

4.4 ALTERNATIVE POLLUTION PREVENTION STRATEGIES

4.4.1 Creating a Separate Part in CEPA

Rather than amending various sections throughout CEPA, it may be appropriate to build an entirely separate Part into CEPA that codifies federal pollution prevention principles and strategies. This new chapter could legally create a pollution prevention office, and assign it various responsibilities to ensure that pollution prevention initiatives are considered for all aspects of CEPA. However, this proposal may prove extremely difficult to draft, particularly where certain pollution prevention strategies are to be mandated for specific substances and/or activities. In essence, all of the regulatory powers contained in all relevant Parts to CEPA, including the general inspection and enforcement provisions, would have to be repeated in this new chapter. Thus, examining each section in CEPA to analyze the present and potential pollution prevention strategies is likely a more comprehensive approach to ensuring that the Act promotes pollution prevention in a comprehensive, systematic and fair manner. Moreover, all of the provisions that could be built into a separate pollution prevention chapter could also be built into the various Parts of CEPA. Integrating pollution prevention into the various sections of CEPA also allows for the spectrum of responses that must be considered in dealing with particular substances and particular activities. CEPA is not solely a pollution prevention statute. Unlike the U.S. *Pollution Prevention Act of 1990*, CEPA provides cradle-to-grave regulation of a variety of substances. If pollution prevention is seen as a mechanism to prevent the creation of pollution in the first place, there is nevertheless a clear recognition in CEPA that toxic substances will still be used in Canada, pollutants will still be created as a "normal" by-product of doing business, and emergencies will still occur that demand quick and effective clean-up. CEPA can do all of this. Divorcing pollution prevention from the rest of the provisions in CEPA might compromise the linkages needed to fully integrate pollution prevention into every aspect of CEPA. This still leaves open the question of whether a separate federal pollution prevention statute should be considered. This issue is discussed in the following section.

4.4.2 A Federal Pollution Prevention Act

Under the best circumstances, the conception, drafting and passage of federal legislation is a lengthy, costly and time-consuming process. The challenge of reaching a political consensus that will allow for the passage of pollution prevention legislation can not be underestimated.

No doubt, developing a new federal pollution prevention statute has many real and perceived benefits. Perhaps most importantly, separate legislation highlights the resolve and the seriousness with which the federal government views the subject matter. This sends a clear signal at home and abroad about the Canadian approach to sustaining ecological integrity and environmental protection (assuming the legislation has substance). The opportunity to coordinate a broad-based, comprehensive and national pollution prevention strategy in a single piece of legislation is also attractive. The "one-stop shop" approach in principle makes for more efficient regulation and greater certainty for those potentially impacted by the new law.

Attempting to draft a single federal pollution prevention statute also has significant drawbacks. In addition to the time, human and financial resource constraints, the complexity of the subject matter and its intrusive potential across a wide range of federal and provincial activities are considerable. Without a doubt, and with some justification, such legislation will be seen by many as an attempt to capture the legitimate mandate of other federal departments, and perhaps, other levels of government. Virtually every federal statute, not to mention the dozens of federal environmental laws, will be impacted by this new law. In itself, this is not necessarily a negative feature. However, if the legislation goes beyond providing administrative support and guidelines for other federal departments and legislation, and attempts to mandate pollution prevention strategies for activities and substances regulated by other federal acts, the results could be chaotic. Concerns from various federal departments of the potential encroachments on their mandates may significantly impede the progress and ultimate success in passing a Pollution Prevention Act.

A single federal statute could address some pollution prevention concerns that could not be addressed with an amended CEPA. For example, within CEPA the scope of pollution prevention is limited by the scope of CEPA. Therefore, several toxic substances, including pesticides, fertilizers, radio-active materials and certain hazardous products would not be governed by the pollution prevention policy in CEPA. However, some suggested solutions may mitigate or alleviate this concern. First, s. 53 of CEPA gives the Minister of the Environment the authority to establish environmental guidelines for use by federal departments in the exercise of their powers and in the carrying out their duties and functions. Although not legally binding on federal departments, there is nothing to prevent the Minister from issuing guidelines advocating pollution prevention strategies for federal departments. Under CEPA these guidelines would be made public. The National Office of Pollution Prevention, whether legislated or not, could be directed to work cooperatively with other federal departments to examine their legislation and their administrative functions in order to develop appropriate strategies. The Code of Environmental Stewardship coordinated by the Office of Environmental Stewardship also provides an excellent opportunity to propel this process.

Secondly, many federal departments are currently building or are intending in the near future to build pollution prevention strategies into their operations and the legislation for which they are responsible. For example, the Department of Defence recently tendered a contract to provide recommendations on how to manage wastes, including the reduction in the creation of wastes for military bases in the Atlantic Provinces. In February 1992, the federal Cabinet approved a report recommending a revised pest management regulatory system for Canada. One of the principle recommendations of the report led to the establishment of the Pest Management Alternatives Office. One of the roles of this office will be to set targets and establish workplans for the reduction in the use of pesticides in all sectors, including the agricultural, forestry, industrial, commercial, lawn and turf, and domestic sectors.

Thirdly, CEPA currently regulates the majority of toxic substances and polluting activities that would almost certainly be the first priority target for a separate pollution prevention statute.

Fourthly, there currently exists a new federal statute that, in principle, embraces the premise of pollution prevention. The preamble to the *Canadian Environmental Assessment Act* states that "the Government of Canada is committed to exercising leadership within Canada and internationally in anticipating and preventing the degradation of environmental quality." This Act covers projects for which the federal government holds decision-making authority---as a

proponent, a land manager, a provider of funding and as a regulatory authority. Consideration may be given to scrutinizing this legislation and its implementation to determine the extent to which pollution prevention principles are incorporated in environmental assessments.

Finally, using the U.S. *Pollution Prevention Act of 1990* as a rationale for developing a Canadian Pollution Prevention Act must be approached with caution. The U.S. legislation, in essence, establishes an administrative structure to coordinate pollution prevention activities within the EPA, and to assist other federal departments and state agencies in developing their own pollution prevention policies and programs. The only coercive power within the *Pollution Prevention Act of 1990* is a requirement that industries reporting under the SARA Section 313 (TRI) regulations include certain additional information in their reports. Certainly, the U.S. Act has a profound influence on American federal laws and policies, particularly as it mandates the hierarchical approach to be adopted in dealing with environmental protection. But, as argued earlier, there is no legal inhibition in adopting this approach using the current National Office of Pollution Prevention and Part IV of CEPA. Moreover, at least a few American federal statutes that regulate specific substances have or will be amended to include pollution prevention provisions. These enactments include the *Clean Air Act*, the *Resource Conservation and Recovery Act*, the *Toxic Substances Control Act*, and the *Solid Waste Disposal Act*. Clearly, the American Congress is not relying exclusively on the *Pollution Prevention Act of 1990* to implement its pollution prevention policy.

While developing a separate federal Pollution Prevention Act has some merit, the constraints would suggest that current efforts be directed toward determining the pollution prevention potential of CEPA. This seems particularly relevant in light of the legislative mandate to review CEPA (see s. 139 of CEPA) commencing 1993. This review must result in the submission of a report to Parliament, within a year, recommending changes to the Act or its administration.

V. SOME CONCLUDING OBSERVATIONS

Since the mid-1980s, pollution prevention has rapidly evolved as a pivotal strategy for protecting the environment. A precise definition of the term "pollution prevention" is illusive because the use of the term is new. The search for better and more sophisticated approaches to environmental management is progressing rapidly and there is still a great deal of experimentation and technology development associated with the concept. Nevertheless, consensus principles on the definition of pollution prevention, as well as strategies that can be employed to accommodate that definition, are emerging. In order to examine the current potential pollution prevention opportunities in CEPA, a clear definition of the term as well as an understanding of the strategies that can be used to implement pollution prevention was necessary. To this end, the paper examined current writings, American federal and state legislation and Canadian initiatives before settling on a definition of pollution prevention. The same source materials were examined to highlight practical strategies that exemplified pollution prevention. This background information was then used to analyze CEPA.

Given the complexity and the political sensitivity of the constitutional constraints associated with environmental regulation, the analysis of the legislative potential for pollution prevention in CEPA was preceded by a discussion of the limits of federal and provincial authority in this area. CEPA was then scrutinized to determine the extent to which it could accommodate pollution prevention principles and strategies, as written, and with proposed amendments. Based on this analysis, the following observations can be made:

- CEPA is limited to the activities and substances it directly regulates. As a generalization, it cannot directly influence substances and activities regulated by other federal legislation, including pesticides, radio-active materials, explosives, hazardous products and human and animal pharmaceuticals. Nevertheless, CEPA is expansive in its scope. Most obviously, it regulates toxic substances where both the term "toxic" and "substance" are given broad definitions. It also regulates nutrients, fuels, domestic sources of air pollution that have physical or legal international implications, and ocean dumping.

- Any current or proposed policies, programs, projects or regulatory initiatives that incorporate pollution prevention concepts must be highly sensitive to the constitutional constraints. As an option, serious consideration should be given to the principles of cooperative federalism in pursuing any such endeavours. Indeed, CEPA incorporates ample opportunity for federal-provincial cooperation as well as providing ample opportunity for private-sector interests to help shape these endeavours.

- As currently written, CEPA has a great deal of potential for implementing pollution prevention strategies. Indeed, many such strategies have already been implemented and several others are planned for the near future.

- However, given the importance and newness of pollution prevention as a concept; the need for clear, consistent and fair direction for all parties impacted by CEPA and the need to increase the regulatory authority in certain instances, this Report proposes several recommendations to amend CEPA.

- Adding a new Part to CEPA, dealing exclusively with pollution prevention principles and strategies is not recommended at this time.

- Developing a new federal pollution prevention statute has some merit but is not recommended **at this time**. Time and financial constraints, the likelihood of resistance from some federal departments and the immediate opportunity to amend CEPA mitigate against an effort to design and implement a new federal statute.

- This paper has focused on the current and proposed opportunities to incorporate pollution prevention strategies into CEPA. Except incidentally, it has not critiqued the political and the administrative resolve in implementing current or proposed opportunities. A good law without political and administrative support is of marginal value.

BIBLIOGRAPHY

AMERICAN SOURCES

Primary Sources

Federal Legislation

Clean Air Act Amendments of 1990, Public Law No. *101-549, vol. 42 U.S.C.A., secs. 7401-71 (West Supp. 1991).*

Pollution Prevention Act of 1990, Public Law No. 101-508, vol. 42 U.S.C.A., secs. 13101-109 (West Supp. 1991).

The Hazardous and Solid Waste Amendments of 1984, modifying sec. 3002 of the *Resource Conservation and Recovery Act*, Vol. 42 U.S.C.A., sec. 6922.

Section III of the *Superfund Amendments and Reauthorization Act of 1986*, also known as the *Emergency Planning and Community Right-to-Know Act*, Public Law No. 99-499, 1986.

See also *Survey and Summaries: State Legislation Relating to Pollution Prevention*, assembled by the Waste Reduction Institute for Training and Applications Research, Inc., April 1992, which provides summaries of the following proposed federal legislation:

- 1991 (proposed) *Community Right-to-Know More Act* (including amendments to the *Solid Waste Disposal Act*);
- 1991 (proposed) *Hazardous Pollution Prevention Planning Act*;
- 1991 (proposed) *Amendments to the Resource Conservation and Recovery Act*;

State Legislation

Massachusetts. *Toxics Use Reduction Act* (1989), M.G.L. c.211.

New Jersey. *Pollution Prevention Act* (1991).

Oregon. *Toxics Use Reduction and Hazardous Waste Reduction Act (1991), Revised Statutes secs. 465.003-.037.*

See also *Survey and Summaries: State Legislation Relating to Pollution Prevention*, assembled by the Waste Reduction Institute for Training and Applications Research, Inc., April 1992, which provides a summary of all state pollution prevention legislation to April 1992.

Secondary Sources

Government Documents (including books, treatises, reports, pamphlets)

New Jersey Office of the Governor. *Governor Florio Signs Pollution Prevention Act*, news release, August 1, 1991.

United States Agency for International Development, "Implementing Pollution Prevention at the U.S. Agency for International Development," draft paper, May 1992.

United States Environmental Protection Agency:

- "EPA Definition of Pollution Prevention." Memo, May 28, 1992.
- *Facility Pollution Prevention Guide*, Office of Solid Waste, EPA 600R-92/088, May 1992.
- *Pollution Prevention 1991: Progress on Reducing Industrial Pollutants*, EPA 21P-3003, October 1991.
- *Pollution Prevention Fact Sheets*, prepared and distributed by the EPA Pollution Prevention Information Clearinghouse on various facets of pollution prevention. A complete list of documents can be obtained from the Office of Pollution Prevention.
- *Reducing Risk: Setting Priorities And Strategies For Environmental Protection*, a Report of the Science Advisory Board, SAB-EC90-021, September 1990.
- *Report on the U.S. Environmental Protection Agency's Pollution Prevention Program*, September 1991.
- *Report To Congress: Pollution Prevention Strategy*, November 1990.
- *Supplier Notification Requirements Under Section 313 of the Emergency Planning and Community Right-to-Know Act,* Office of Pesticides and Toxic Substances, EPA 560/4-91-006, 1991.
- *The Next Environmental Policy: Preventing Pollution*, 21Z-1021, August 1991.

United States General Accounting Office. *Toxic Chemicals: EPA's Toxic Release Inventory Is Useful But Can Be Improved*, Report to the Congress, GAO/RCED-91-121, June 1991.

United States Office of Technology Assessment. *Serious Reduction of Hazardous Waste For Pollution Prevention and Industrial Efficiency*, OTA-ITE-317, September 1986.

Books

Borrelli, Peter, ed. *Crossroads: Environmental Priorities For The Future*. Washington, D.C.: Island Press, 1988.

Commoner, Barry. *Making Peace With The Planet*. New York: Pantheon Books, 1990.

Articles

Bergeson, Lynn arid Campbell, Lisa. "EPA And Congress Look At Using Incentives In Environmental Regulations." *Pollution Prevention Review* (Winter 1990-91):83-89.

Bergeson, Lynn. "Pollution Prevention Act of 1990." *Pollution Prevention Review* (Spring 1991):187.

Bowman, Jeffrey. "The Consequences Of Section 313." *Chemical Engineering Progress* (June 1989):48.

Byers, R. Lee. "Regulatory Barriers To Pollution Prevention." *Pollution Prevention Review* (Winter 1991-92):19.

Edelman, Larry and Rozell, David. "Oregon's Toxics Use Reduction And Hazardous Waste Reduction Act: A Bellweather For Pollution Prevention Regulation." 20 *Environmental Law Reporter:*10093.

Foecke, Terry. "A New Mandate For Pollution Prevention." *Pollution Prevention Review* (Winter 1990-91):91.

Foecke, Terry. "State Pollution Prevention Programs: Regulatory Integration." *Pollution Prevention Review* (Autumn 1991):429.

Foecke, Terry. "Defining Pollution Prevention and Related Terms." *Pollution Prevention Review* (Winter 1991-92):103.

Foecke, Terry and Style, Robert. "An Update On State Facility Planning Legislation and Programs." *Pollution Prevention Review* (Autumn 1992).:479.

Greenwood, Mark. EPA's Director of Pollution Prevention says Government's role should be scorekeeper, not commander. *EI Digest* (August 1992):1.

Hansen, Fred. "Pollution Prevention Planning: A New Mandate For Oregon's Environment." *The Environmental Forum* (September-October 1989):30.

Hearne, Shelley and Aucott, Michael. "Source Reduction vs Release Reduction: Why the TRI Cannot Measure Pollution Prevention." *Pollution Prevention Review* (Winter 1991-92):3.

Hoffman, Andrew. "Teaching Old Dogs New Tricks: Creating Incentives for Industry to Adopt Pollution Prevention." *Pollution Prevention Review* (Winter 1992-93):1.

Innes, Al. "Scope and Approach of State Pollution Prevention Legislation: An Overview." *Pollution Prevention Review* (Autumn 1991):369.

Rossi, Mark; Ellenbecker, Michael; and Geiser, Kenneth. "Techniques in Toxics Use Reduction: From Concept to Action." *New Solutions* (Fall 1991):25.

Speth, James. "EPA Must Help Lead An Environmental Revolution in Technology." 21 *Environmental Law* (1991):1425.

Stephan, David and Atcheson, John. "The EPA's Approach to Pollution Prevention." *Chemical Engineering Progress* (June 1989):53.

Wise, Marion and Gray, Hillel. "Toxics Use Reduction: New Jersey's Approach to Pollution Prevention." *Pollution Prevention Review* (Winter 1991-92):31.

CANADIAN SOURCES

Primary Sources

Federal Legislation

Canadian Environmental Assessment Act, S.C. 1991-92, as passed by the House of Commons on March 19, 1992.

Canadian Environmental Protection Act, S.C. 1988, c. 22 [now R.S.C. 1985 (fourth supp), c. 16].

Constitution Act, 1867 [formerly *British North America Act, 1867*] (U.K.), 30 and 31 Victoria, c. 32.

Case Law

Friends of the Oldman River Society v. *Canada (Minister of Transport)*, (1992) 7 C.E.L.R. (N.S.) 1(S.C.C.).

Interprovincial Co-operatives Ltd. v. *R.*, [1976] 1 S.C.R. 477.

R. v. *Crown Zellerbach Canada Ltd.*, [1988] 1 S.C.R. 401, 3 C.E.L.R. (N.S.) 1 (reference in the text is to the C.E.L.R. cite).

R. v. *Hydro-Quebec and the Attorney General of Quebec*, not yet reported, Judgement rendered August 6, 1992 in the Superior Court (criminal division) of the Province of Quebec, File No. 410-36-000024-914.

R. v. *Lake Ontario Smith Ltd.* (1973), 11 C.C.C. (2D) 1(Ont.).

Secondary Sources

Federal Government Publications

Environment Canada: The following documents were prepared by or for Environment Canada.

- *A National Pollutant Release Inventory for Canada*, the Final Report of the Multi-Stakeholder Advisory Committee, December 1992.
- *Canada's Green Plan for a Healthy Environment*, Minister of Supply and Services Canada, Cat. No. En21-94/1990E, 1990.

- *Canada's National Report: United Nation's Conference on Environment and Development*, Minister of Supply and Services Canada, Cat. No. En21-107/1991E, August 1991.
- *Canada's Strategic Approach to Pollution Prevention and Control*, prepared for the OECD meetings in Paris, October 1992.
- *Canada/United States Air Quality Agreement*, Progress Report, Cat. No. En40-388/1992E, March 1992.
- *Canadian Environmental Protection Act: Enforcement and Compliance Policy*, Minister of Supply and Services, Cat. No. En40-356/1988E, May 1988.
- *Canadian Environmental Protection Act: Report for the Period Ending March 1990*, Minister of Supply and Services, Cat. No. En40-11/22-1990.
- *Canadian Environmental Protection Act: Report for the Period April 1990 to March 1991*, Minister of Supply and Services, Cat. No. En40-11/22-1991E.
- *Canadian Environmental Protection Act: Report for the Period April 1991 to March 1992*, Minister of Supply and Services, Cat. No. En40-11/22/1992E.
- *Canadian Environmental Protection Act: The Role of Federal Organizations*, Information Brochure, October 1988.
- *Canadian Environmental Protection Act: Questions and Answers*, Minister of Supply and Services, Cat. No. En40-354/1988E.
- *Economic Instruments for Environmental Protection: Discussion Paper*, Minister of Supply and Services, Cat. No. En21-119/1992E.
- *Enforcement and Compliance Policy*, Minister of Supply and Services, Cat. No. En40-356/1988E.
- *Environmental Choice Annual Report, 1990.*
- *Final Report of the Environmental Contaminants Act Amendments Consultative Committee*, Minister of Supply and Services, Cat. No. En40-343/1986E.
- *From Cradle to Grave: A Management Approach to Chemicals*, Minister of Supply and Services, Cat. No. En40-342/1986E.
- *Great Lakes Pollution Prevention Initiative*, pamphlet distributed May 1992.
- *National Pollution Prevention Strategic Framework*, First Draft Discussion Paper prepared for the National Office of Pollution Prevention, November 1992. Second Draft March 1993.
- Office of Waste Management, *Report for 1990-1992*, DSS Cat. No. En40-11/28-1992.

- *Pollution Prevention Strategy of Choice*, pamphlet prepared by the National Office of Pollution Prevention (no date).
- *Proposed Process for the Preparation of Strategic Options Report for Releases of Priority Substances Deemed to be Toxic*, document prepared for the Industrial Programs Branch, August 1992.
- *Report of the Federal-Provincial Working Group on CEPA Partnerships*, draft report, presented to the CEPA Federal-Provincial Advisory Committee, October 1991. Revised June 1992.
- *Report on Codes, Guidelines and Objectives in Conservation and Protection*, prepared by the Regulatory Affairs and Program Integration Branch, January 1993.
- *Second Report of Canada Under the 1987 Protocol to the 1978 Great Lakes Water Quality Agreement: Issues Overview*, Minister of Supply and Services, Cat. No. En40-11/23-1990-1E, December 1990.
- *State of the Environment Report for Canada*, Minister of Supply and Services, Cat. No. En21-54/1986E, May 1986; including "Canada's Environment: An Overview."
- *State of the Environment Report for Canada*, Minister of Supply and Services, 1991.

House of Commons, *Report of the Standing Committee on Environment: Environment and the Constitution,* including briefs and transcripts of witnesses appearing in front of the Standing Committee, March 1992.

International Joint Commission, *Sixth Biennial Report on Great Lakes Water Quality*, 1992.

Provincial Government Publications

B.C. Environment. *British Columbia's Environment: Planning for the Future, New Directions in Environmental Protection: Five-year Action Plan (1992-1997).*

B.C. Environment. *Greenhouse Gas Inventory and Management Options: A Summary Report for British Columbia*, May 1992.

Ontario Ministry of the Environment. *Industrial Pollution Prevention Initiative Announced at Technology Transfer Conference*, news release, November 5, 1992.

Ontario Ministry of the Environment. *The Toxic 21: Candidate List of Substances Proposed for Ban or Phase Out*, news release, April 27, 1992.

Ontario Ministry of the Environment. *Candidate Substances List for Bans or Phased-Outs*, report prepared by the Hazardous Contaminants Branch, Queen's Printer for Ontario, April 1992.

Ontario Pollution Prevention Office. "Summary of Mandate and Current Initiatives of the Pollution Prevention Office," undated.

Ontario Pollution Prevention Office. *Pollution Prevention Pledge Program*, November 5, 1992.

Books and Treatises

Canadian Bar Association, Committee on Sustainable Development in Canada, *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association, 1990.

Canadian Bar Association - British Columbia Branch, Sustainable Development Committee, Calvin Sandborn, ed. *Law Reform for Sustainable Development in British Columbia*. Canadian Bar Association, 1990.

Canadian Institute for Environmental Law and Policy, and the Rawson Academy of Aquatic Science. *A Pollution Prevention Centre for the Great Lakes Basin Ecosystem*. November 27, 1990.

Canadian Labour Congress, Environment Bureau. *A Critique of the Ontario Hazard Assessment System*. Ottawa, August 1992.

Canadian Labour Congress, Environment Bureau. *A National Pollution Prevention Strategy*. Ottawa, February 1992.

Canadian Labour Congress, Environment Bureau. *The Environment and the Canadian Constitution*. Discussion paper - draft 3. Ottawa, June 1991.

Duncan, Linda, ed. *Environmental Enforcement: Proceedings of the National Conference on the Enforcement of Environmental Law*. Edmonton: The Alberta Law Foundation, 1985.

Estrin, David. *Environmental Law*. Toronto: The Carswell Company, 1984.

Estrin, David and Swaigen, John. *Environment on Trial*. Toronto: Canadian Environmental Research Foundation, 1978.

Franson, Robert and Lucas, Alastair. "Environmental Law Commentary and Case Digest" in *Canadian Environmental Law*, 2nd Edition, Butterworths, 1992.

Hatherly, Mary. *Constitutional Jurisdiction in Relation to Environmental Law*. Ottawa: Law Reform Commission of Canada 1986.

Hogg, Peter. *Constitutional Law of Canada*. Toronto: The Carswell Company, 1977.

Macdonald, Doug. *The Politics of Pollution*. Toronto: McLelland and Stewart Inc., 1991.

National Roundtable on the Environment and the Economy. *The National Waste Reduction Handbook*. Toronto: The Algier Press, 1991.

National Wildlife Federation and the Canadian Institute for Environmental Law and Policy. *A Prescription for Healthy Great Lakes: Report of the Program for Zero Discharge*. Toronto, 1991.

Sandborn, Calvin, Andrews, William, and Wylynko, Brad. *Preventing Toxic Pollution: Toward a British Columbia Strategy*. Vancouver: West Coast Environmental Law Research Foundation, 1991.

Webb, Kernaghan. *Pollution Control in Canada: The Regulatory Approach in the 1980s*. A paper prepared for the Administrative Law Series. Ottawa: Law Reform Commission of Canada, 1988.

Articles

Andrews, William, et al. "Pollution Prevention in British Columbia." In *Law Reform for Sustainable Development in British Columbia*. Vancouver: the Canadian Bar Association - British Columbia Branch, 1990.

Duncan, Linda. "The Rule of Law and Sustainable Development." In *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association Committee on Sustainable Development in Canada, 1990.

Emond, Paul. "The Case for a Greater Federal Role in the Environmental Protection Field: An Examination of the Pollution Problem and the Constitution." *Osgoode Hall Law Journal* 10 (1972):647.

Fairley, H. Scott. "The Environment, Sustainable Development and the Limits of Constitutional Jurisdiction." In *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association Committee on Sustainable Development in Canada, 1990.

Gibson, Dale. "Constitutional Jurisdiction Over Environmental Management in Canada." *University of Toronto Law Journal* 23 (1973):54.

Gibson, Dale. "Environmental Protection and Enhancement Under a New Canadian Constitution." In *The Institute*, p. 114. (Citation incomplete)

Hughes, Elaine. "Ocean Dumping and Its Regulation in Canada." *The Canadian Yearbook of International Law* (1988):155.

Hunt, Constance. "The Changing Face of Environmental Law and Policy." *UNB Law Journal* 41 (1992):79.

Lindgren, Richard. "Toxic Substances in Canada: The Regulatory Role of the Federal Government." (Citation incomplete)

Lloyd, Gordon. "Legislative Framework Task Force." Memorandum to ARET Task Force, October 29, 1992.

McConnell, Moira and VanderZwaag, David. "Sustainable Development and Marine Environmental Protection." In *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association Committee on Sustainable Development in Canada, 1990.

Muldoon, Paul. "Toward a National Pollution Prevention Strategy: Principles for Reform to Address the Problem of Toxic Contamination in the Canadian Environment." In *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association Committee on Sustainable Development in Canada, 1990.

Northey, Rodney. "Federalism and Comprehensive Environmental Reform: Seeing Beyond the Murky Medium," *Osgoode Hall Law Journal* 29 (1989):127.

Rankin, Murray. "Economic Incentives for Environmental Protection: Some Canadian Approaches." *Journal of Environmental Law and Practice* 1 (1990):241.

Versteeg, Hajo. "Constitutional Powers for the Regulation of Pesticides." Document prepared for the federal Pesticides Registration Review Team, September 1989.

Versteeg, Hajo. "The International and National Response to the Problems of Marine Pollution." *Auckland University Law Review* 3 (1978):209.