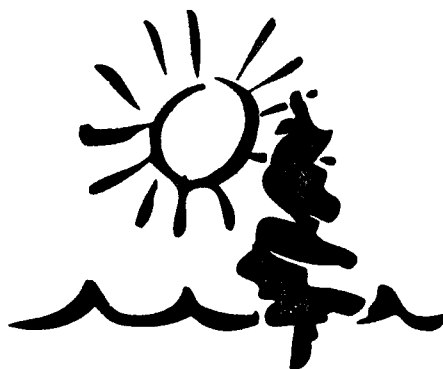




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**EVALUATION OF THE
CANADIAN ENVIRONMENTAL PROTECTION ACT
(CEPA)**

FINAL REPORT

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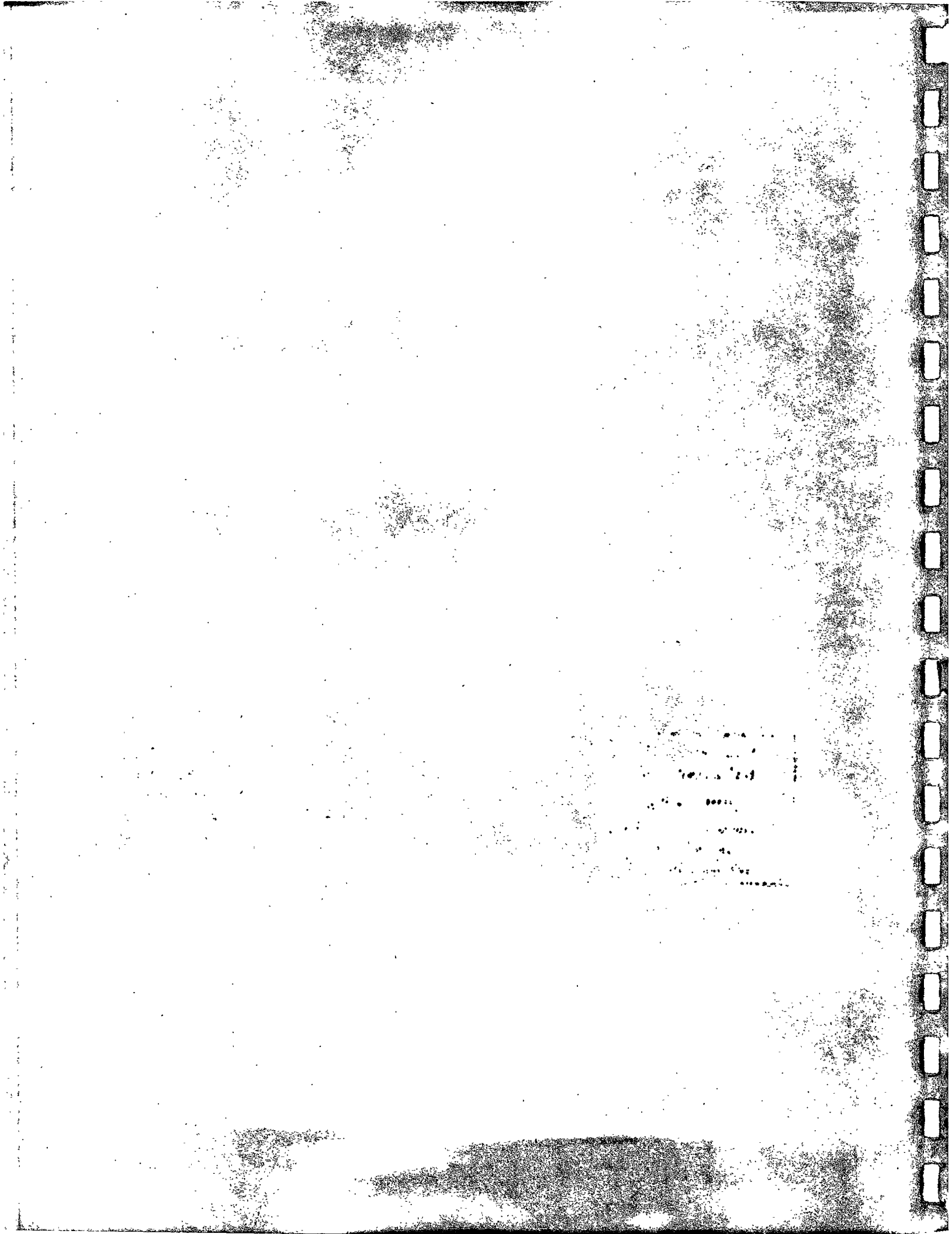
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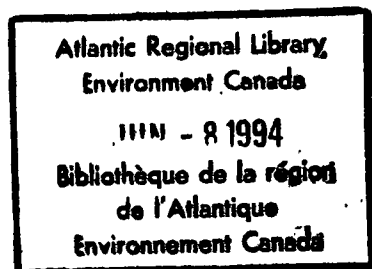
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(CEPA)**

Final Report



December 1993

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**Resource Futures International
Ottawa, Canada**

in association with the:

ARA Consulting Group

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Management Response to CEPA Evaluation

This evaluation study was commissioned to Resource Futures International by the Evaluation Branch of Environment Canada. The report was tabled at the Departmental Audit and Evaluation Committee of December 17, 1993 and at Environment Canada's Management Board of January 25-26, 1994.

Environment Canada accepts the consultants' report as an independent review of the Act. The report has been extensively reviewed by Departmental officials. The Department acknowledges that the evaluation report makes an important contribution to our understanding of many central aspects of the administration of the Act since it was promulgated over five years ago.

The evaluation report also proposes a comprehensive set of recommendations. Recommendations requiring legislative changes will be assessed in the broader context of the CEPA Parliamentary process which will involve consultations with key partners and shareholders. The Department will benefit from the advice and direction provided throughout Parliamentary Committee deliberations.

Recommendations not requiring legislative change will undergo more intensive analysis in terms of their policy, organizational and resource implications as the Department prepares a detailed Action Plan on CEPA over the next (6) six months. Furthermore, recommendations and ensuing actions will also need to be assessed in light of the new government's agenda for environmental protection and sustainable development.

Until such an Action Plan has been prepared, the results, opinions and positions contained herein are those of the authors (Resource Futures International) and do not necessarily represent the views or the intentions of Environment Canada.

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ACKNOWLEDGEMENTS

A report of this scope and complexity inevitably involves the cooperation of many parties. RFI would like to extend special thanks to: Raymond D'Aoust, Evaluation Branch, Environment Canada, for his enthusiastic advice and support throughout the project; the members of the Evaluation Advisory Committee, chaired by Mireille d'Auray-Spattz, who oversaw the project and guided our research; Keith Marshall and Karen Lloyd of the National Wildlife Research Centre, whose advice greatly increased our understanding of the risk assessment process under CEPA; all the individuals who generously gave us their time in interviews and patiently fielded questions in follow-up meetings and discussions; Environment Canada and Health Canada staff and others who reviewed an earlier draft of this report, corrected inaccuracies, and forced us to sharpen our arguments.

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- B Evaluation Steering Committee and Evaluation Team
- C The Status of the Implementation of CEPA
- D Evaluation Methods
- E CEPA's Goals and Objectives
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J Case Example

K Obligations Given in Draft CEPA Action Plan

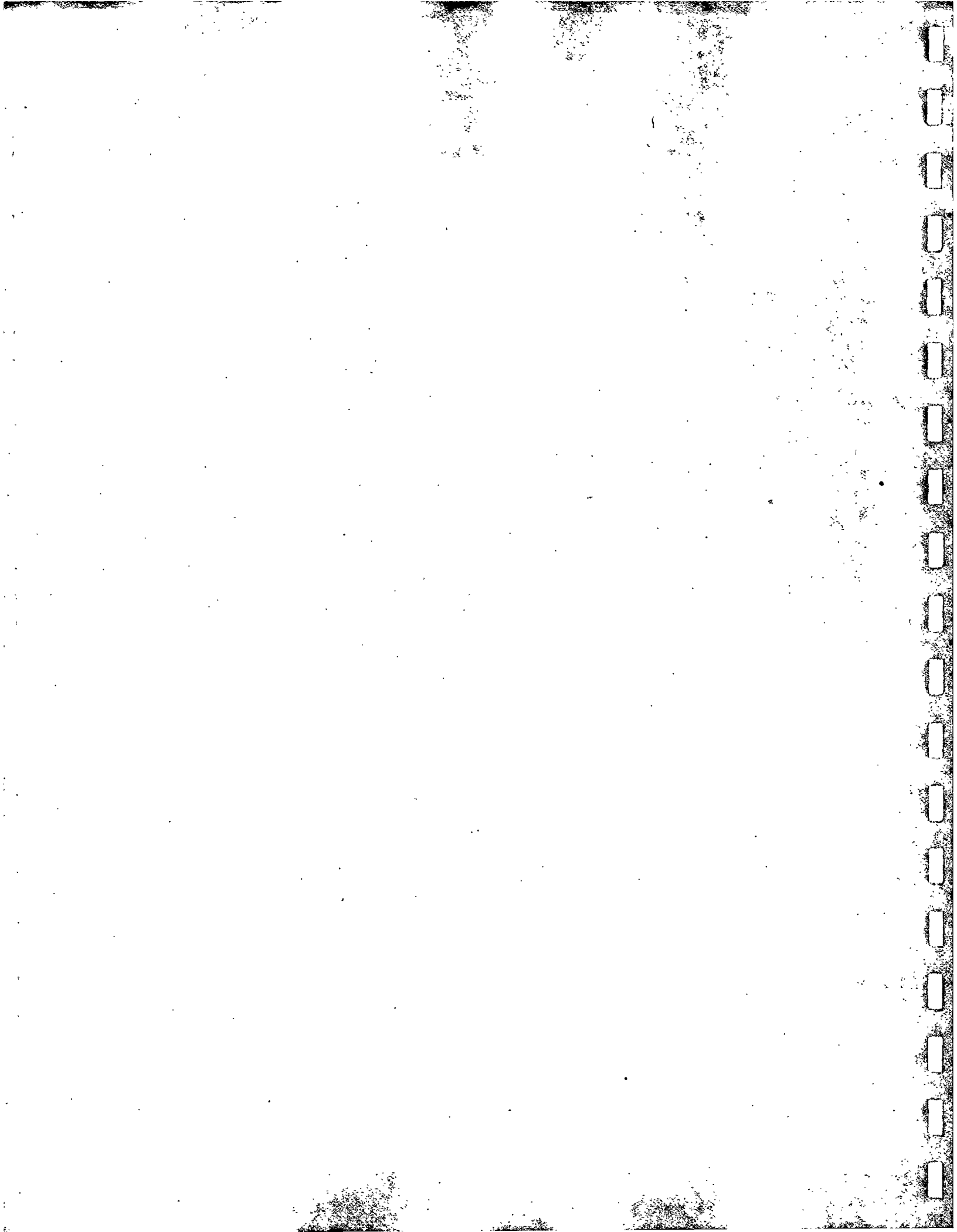
L Interview Guide

M Issue Priorities

N CEPA's Contribution to Other Acts and Programs

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- 1.1 Evaluation Outline**
- 2.1 The Elements of CEPA**
- 2.2 Summary of CEPA's Original Goals and Objectives**
- 4.2 Total Cost of CEPA**
- 5.1 Possible Scope of CEPA Impacts**
- 5.2 Present Scope of CEPA Impacts**



ACRONYMS

ACEP	Advisory Committee on Environmental Protection
AG	Auditor General
AES	Atmospheric Environment Service
ARET	Accelerated Reduction and Elimination of Toxic Substances
C&P	Conservation and Protection
CCME	Canadian Council of Ministers of the Environment
CCPA	Canadian Chemical Producers' Association
CCB	Commercial Chemicals Branch
CEAC	Canadian Environmental Advisory Council
CEPA	Canadian Environmental Protection Act
CEPAMAC	CEPA Management Committee
CFCs	Chlorofluorocarbons
DFO	Department of Fisheries and Oceans
DSL	Domestic Substances List
DIAND	Department of Indian Affairs and Northern Development
EARP	Environmental Assessment and Review Process
EC	Environment Canada
ECA	Environmental Contaminants Act
EEC	European Economic Community
EEM	Environmental Effects Monitoring
ENGOS	Environmental Non-government Organizations
FPAC	Federal Provincial Advisory Committee
GLWQA	Great Lakes Water Quality Agreement
HC	Health Canada
IRC	Internal Review Committee
IPB	Industrial Programs Branch
ISC	Industry and Science Canada
MISA	Ontario Municipal/Industrial Strategy for Abatement
MOU	Memorandum of Understanding
NHRI	National Hydrological Research Institute
NIP	National Inspection Plan
NGOs	Non-Government Organizations
NWRI	National Water Research Institute
OAG	Office of the Auditor General
ODS	Ozone Depleting Substances
OECD	Organization for Economic Cooperation and Development
OPF	Operational Planning Framework
PCB	Polychlorinated Biphenyls
PCOJ	Privy Council Office, Justice
PSL	Priority Substances List
PY	Person Years
RAPI	Regulatory Affairs and Program Integration Branch
RCMP	Royal Canadian Mounted Police
RIAS	Regulatory Impact Analysis Statement
RODAC	Regional Ocean Dumping Action Committee

RRETc	River Road Environmental Technology Centre
SOE Report	State of the Environment Report
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Program
US EPA	United States Environmental Protection Agency
WTC	Waste-Water Technology Centre

SUMMARY

1. BACKGROUND

The *Canadian Environmental Protection Act* (CEPA) was proclaimed in 1988 to achieve several objectives: to remedy deficiencies in the existing legislation on toxic substances; to introduce the life-cycle concept as the key analytical tool for managing chemicals; to consolidate existing federal environmental legislation and ensure greater consistency in enforcement and penalties; to improve the federal government's own environmental performance; and to enable Canada to fulfill its international obligations.

CEPA is complex legislation. Administered by two departments, it prescribes a framework for the control of toxic substances, consolidates existing legislation, enables the federal government to issue guidelines, provides for intergovernmental agreements, stipulates federal-provincial consultation, creates the legal umbrella for several programs and establishes new mechanisms for public participation. Section 139 of the Act stipulates that Parliament review CEPA's administration five years after its enactment.

2. METHODOLOGY

This evaluation was overseen by a Steering Committee composed of officials from Environment Canada, Health Canada and the Office of the Comptroller General. The Evaluation Branch of Environment Canada chaired the Steering Committee and directed the evaluation.

The study began with an investigation of the status of the implementation of the Act. This investigation identified the issues for evaluation. The bulk of the report consists of an examination of the effectiveness of specific mechanisms and management arrangements developed to implement CEPA. The final sections of the study synthesize the impacts of the Act, assess the degree to which CEPA's objectives have been achieved and evaluate the implications of the findings with regard to alternatives.

The information on which this report is based was gathered through multiple lines of inquiry, including (i) over 100 interviews, (ii) file reviews, (iii) a case study, (iv) a workshop, and (v) a review of the relevant literature.

3. FINDINGS

Scientific Approach

The connection between science and policy has strengthened under CEPA. In particular, the Priority Substances List (PSL) and new-substance provisions ensure that there is considerable scientific evidence to justify regulation. The implementation of these provisions has forced Environment Canada and Health Canada to focus some of their

scientific efforts in a systematic manner. The science-policy link has also improved as a result of the increased funding for CEPA.

Nonetheless, there have been a number of problems in connecting science to policy. There is little coordination between the related science efforts across government, between the federal and provincial governments and with the private sector. This can result in duplication of effort when expertise outside of Environment Canada or Health Canada is not used. More fundamentally, the division of responsibilities makes it extremely difficult for Environment Canada to exert leadership in developing a comprehensive environmental protection strategy.

The assessment work that is currently being conducted in accordance with CEPA has also been impeded by problems in information management. Increased effort is required to link internal governmental information systems, State of the Environment reporting and environmental effects monitoring systems to the various priority-setting, assessment, and policy design and implementation efforts mandated by CEPA.

The CEPA Part II provisions are predicated on a substance-by-substance approach. To be effective, these provisions should be interpreted as widely as possible to permit a focus on complex mixtures, such as industrial wastes and effluents and commercial products. Other mechanisms should also be developed to supplement these provisions. To ensure that all priorities are identified, research is required that focuses on "ecosystem responses." Continued work on the ecosystem approach to environmental regulation is required to compensate for the inability of the substance-by-substance assessment to identify such problems as cumulative impacts from complex mixtures or from multiple sources of similar contaminants. Although there are ecosystem research efforts under way within Environment Canada, this type of research should also be mandated under CEPA. Priorities for the different types of research could be explicitly set if CEPA provided a mechanism for designating geographical areas and environmental responses of concern for priority research.

Cradle-to-Grave Management of Toxic Substances

Many of the problems with CEPA's provisions for the assessment and control of toxic substances can be attributed to the considerable learning process that implementation of the provisions required. Many problems have been resolved or at least addressed, and a number of important benefits have resulted from the application of the provisions. Nonetheless, a number of problems remain with respect to priority setting, risk assessment and risk management.

Priority setting

The PSL and new-substance provisions represent important attempts to identify the priorities for assessment. The new-substance provisions require assessment of almost all new substances. The key issues affecting this objective are the adequacy of resources and the efficiency of the process for determining what control measures are required. Because the New Substances Notification Regulations are not yet proclaimed, we have been unable to evaluate the operational effectiveness of these provisions.

The PSL will not include all issues that should be a priority for assessment. Concern about the lack of scientific protocols and procedures for assessing the risks of complex mixtures meant that PSL1 included primarily single substances or classes of clearly related compounds. The criteria that have been proposed for the selection of PSL2 similarly focus on single substances and related classes. Given that many important problems result from complex mixtures, such as commercial products and industrial effluents and wastes, either the criteria for selection of the PSL should be amended or a separate research process should be established to focus on such complex mixtures.

Assessment

Considerable effort has been devoted to implementing the PSL assessment process and to preparing for the new-substances assessment provisions. Notwithstanding these efforts, the risk assessment process should be amended. The following changes are required: (i) the end point of a risk assessment should be clearly defined to focus on whether the substance poses a scientifically significant (i.e., nontrivial) risk; (ii) the Schedule 1 List of Toxic Substances should represent a list of substances that the government has determined pose an unacceptable risk and which it therefore intends to control in some manner; and (iii) the process and criteria for determining that a substance poses an unacceptable risk (and therefore must be controlled) should be clarified. These changes should be guided by a desire to make the process more transparent, with enhanced accountability and with more focused opportunities for public participation.

Appropriate use of instruments

A poor operational connection between the risk assessment and the risk management phases has impeded risk management under CEPA. The effective implementation of control mechanisms has also been undermined by the fact that there are insufficient monitoring mechanisms to help evaluate the effectiveness of existing controls. There is no formal mechanism to establish priorities for the development of controls for each of the various substances that have been and might be determined to pose an unacceptable risk.

In 1988, the federal government favoured a strong regulatory approach to pollution control, as did many other jurisdictions. Five years later, the emphasis is shifting as the limits and costs of a purely regulatory approach are becoming increasingly evident. The control mechanisms that have been developed under CEPA have not responded to this trend and continue to rely on traditional command and control regulations. Industry has voiced strong criticisms about Environment Canada's failure to account for the economic costs and benefits of regulations developed under CEPA. Many of these problems relate to the fact that until recently Environment Canada has not placed a high priority on integrating socio-economic considerations into its decision making.

Administration of Consolidated Legislation

CEPA consolidates provisions concerning related issues such as international air pollution, the use of phosphorous in detergents, the import and export of hazardous wastes and ocean dumping. Nonetheless, CEPA is not a truly comprehensive pollution

control law. Several other federal and provincial acts regulate pollution and the use of toxic substances. Although CEPA has helped harmonize the regulatory approach among specific initiatives, there are still coordination problems between federal departments and also between the federal and provincial governments. In many cases, such as the ocean-dumping program, this lack of coordination undermines the effectiveness of individual regulatory initiatives, which require a more comprehensive framework to be most effective.

Enforcement and Compliance

The recent emphasis on compliance promotion in Environment Canada's practice and policy statements appears to represent a change in emphasis from the strict policy articulated in the CEPA Enforcement and Compliance Policy. The resulting ambiguity has created tension within the Department concerning the appropriate enforcement strategy to practise. In turn this has produced inconsistencies between regions, regulations, and governmental and private-sector activities.

To a certain extent, these problems are the inevitable result of the dual roles required of Environment Canada: the Department must promote and assist industries in adopting environmentally safer practice, but must also enforce violations of the Act. This tension has been exacerbated by a number of factors, including uncertainty concerning the degree to which the *Charter of Rights and Freedoms* restricts enforcement activities under CEPA; the institutional and attitudinal legacy of Environment Canada's historic emphasis on advice over strict enforcement; and administrative arrangements that have made it difficult to adequately separate enforcement and promotion activities. Enforcement efforts have also been undermined by scarce resources and by poorly coordinated and inadequate informational systems, two problems now being addressed in part.

Many of the problems experienced with enforcement under CEPA relate to the fact that CEPA regulations are enforced as criminal law. Accordingly, some problems could be ameliorated by the introduction of a system of administrative penalties for the majority of CEPA offences and by expansion of the use of self-reporting provisions and compliance agreements, leaving only the most egregious violations as criminal offences. Enforcement would also be improved by a clearer separation of enforcement and promotional activities, which could be achieved by centralizing the responsibility for enforcement activity.

The provisions under the NAFTA Environmental Agreement concerning the enforcement of environmental regulations, together with the emerging jurisprudence concerning the potential liability of the Crown for failure to enforce regulatory standards, represent additional important reasons to review Environment Canada's enforcement practice.

Public Participation and Intervention

CEPA contains a number of provisions designed both to enhance public awareness and knowledge about environmental issues and to authorize public participation in the regulatory development and enforcement process.

The regulatory process has benefited from increased public participation under CEPA. Industry and environmental groups emphasize, however, that their resources are stretched by the increased consultation occurring at all governmental levels.

Stakeholders agree that participation should be more focused on important issues, should occur at an earlier stage in the planning process and should be better coordinated among issues than at present.

Public participation in the enforcement process has been low. This may be due in part to the complexity of the regulations under CEPA, in part to lack of awareness of participatory rights under CEPA, and in part to the limited scope of coverage of CEPA regulations relative to other federal and provincial statutes, many of which command more attention from both industry and the environmental groups.

Federal-Provincial Harmonization

CEPA establishes three mechanisms to harmonize federal and provincial environmental protection responsibilities. Two of these, administrative and equivalency agreements, are not yet in place, although drafts are ready, or almost ready, for signing with some provinces. There is no evidence, therefore, on which to evaluate how effective these mechanisms are likely to be in meeting CEPA's objectives. The numerous difficulties experienced in negotiating equivalency agreements suggest, however, that this mechanism is ineffective as currently defined. The third harmonizing mechanism, the Federal-Provincial Advisory Committee, is operating and seems to be working well.

Environmental Management within the Federal Government

As Canada's "largest enterprise" the federal government exerts a significant impact on the environment. The cost of its environmental liabilities is unknown but likely far in excess of \$1 billion. In addition, the federal government has an important symbolic role to play in "leading by example." CEPA provides part of the regulatory framework necessary to control the environmental impact of federal government operations. However, low priority has been accorded to implementing these provisions of CEPA, and little concrete progress has been made. As a result, federal operations sometimes meet lower standards than the private sector.

Fulfilment of International Environmental Obligations

The federal government's ability to implement international environmental agreements is constrained by the constitution. Nonetheless, CEPA contains provisions designed to ensure compliance with the London Dumping Convention, 1972, and with the Basel Convention on the import and export of hazardous wastes. The ocean dumping provisions also address some of the requirements of the United Nations Convention on the Law of the Sea. Environment Canada is in the process of improving these provisions. The changes will make the ocean dumping regime more effective but will not address some coastal management problems, many of which lie outside the scope of CEPA.

The assessment provisions in Part II of CEPA are designed to comply with an agreement by the Organization for Economic Cooperation and Development (OECD) concerning the assessment of toxic substances. The regulation of ozone depleting substances

pursuant to the Montreal Protocol indicates that these provisions can be applied to a wide range of substances that might be the subject of international agreements. The provisions cannot, however, be applied to issues such as biodiversity, which can be expected to be the subject of international agreements in the future.

Management Arrangements

The federal government has established new management and coordination structures to implement CEPA, has recruited staff, released 10 assessments of substances on the PSL (and completed the scientific work on most of the remaining 34), has refined the assessment process, developed 12 new regulations, improved its compliance and enforcement capacity, liaised extensively with the provinces, launched the Environmental Choice program and made important changes in the application of the ocean dumping provisions.

While an extended learning process has occurred and many actions have been taken to resolve difficulties, some administrative problems persist and exacerbate structural problems with the Act. The most important management issue is the manner in which priorities are set and results are defined. The fundamental problem with the Act at present is the absence of a clear set of objectives. Other management issues relate to the need for more objective-driven performance measurement, consistent enforcement, improved federal environmental performance and better use of State of the Environment reporting information.

The main structural problems include:

- the fact that CEPA does not cover all toxic issues under federal jurisdiction but exists within a patchwork of regulations and enforcement schemes;
- the failure of the Act to separate effectively risk assessment from risk management;
- the inherent limitations of the substance-by-substance approach;
- the overly strict criteria for equivalency agreements;
- the absence of an administrative penalty scheme; and
- inadequate powers under Part IV to regulate federal activities.

Implementation Resources

The implementation of CEPA currently costs in the order of \$72 million annually. Several factors threaten resource adequacy and flexibility in the future—particularly the potential curtailment of Green Plan funding. This is of concern given that the pace of substance assessment and regulation development is expected to increase over the next few years as the new-substances provisions are implemented. Environment Canada should describe more precisely the costs of administering the major elements of CEPA, and resource allocation decisions must be coupled to a clearer definition of priorities. Means for reducing the cost to government of administering elements of CEPA (e.g., PSL assessments and enforcement) also need to be explored.

Impacts on the Environment and Human Health

The ultimate objective of CEPA is to contribute to the protection of environmental and human health. This evaluation reaches three general conclusions. First, because CEPA does not cover all environmental protection problems, its impact is necessarily limited. Second, the government has not yet addressed all the environmental problems within the scope of the Act because of the short period of time that has elapsed, the learning required and management decisions made about priorities. Third, it is too early to attribute direct environmental and human health benefits to CEPA initiatives, except in limited cases.

The evaluation of CEPA's results is complicated by the fact that some of the information needed to assess its impact is either not being collected or is not being reported in a way to allow cause and effect relationships to be established. Nevertheless, some evidence of direct health and environmental impacts can be discerned and includes reductions in emissions of ozone-depleting substances, lead in gasoline, phosphorous in detergents, and dioxin and furan levels in fish downstream of pulp mills in British Columbia. CEPA has also affected institutional arrangements within Environment Canada, public awareness and industry concern over the use of toxic chemicals. Over time, these changes may indirectly lead to positive health and environmental impacts.

Impacts on Industry

The increased emphasis on consultation has improved industry's satisfaction with the overall priorities and direction of federal environmental control. With the exception of the pulp and paper sector and the New Substance Notification regulation, most industries have not, as yet, been directly affected by CEPA initiatives. Nonetheless, industry remains concerned about the overall effect of regulations on competitiveness and in particular about the slow progress being made in harmonizing federal and provincial regulatory approaches and eliminating duplication.

4. CONCLUSIONS AND RECOMMENDATIONS

CEPA should help the federal government assert national leadership with respect to the control of toxic substances in particular, and the environment in general. For this to take place, the following elements are required:

- a statement of ecosystem quality and human health objectives;
- moral leadership by, among other things, a high standard in federal government activities;
- the ability to meet international obligations with respect to toxic substances;
- excellent science;
- mechanisms and processes that permit the efficient and effective identification, assessment and control of high-priority toxic substances;
- a consistent, clear, and nonduplicative control regime; and
- fair and consistent enforcement.

This evaluation makes 58 recommendations designed to improve CEPA's effectiveness.

Most of the recommendations relate to improving operational matters. In addition, the following four main recommendations relate to federal environmental protection policy:

1. Ecosystem quality and human health objectives should be developed for federal environmental responsibilities. These objectives should be designed to help set priorities; to guide the selection, implementation and enforcement of control mechanisms; and to provide useful measures of effectiveness.
2. Mechanisms are required to help establish priorities for risk assessment and for the development of control measures. Relative-risk ranking methods should be developed and used in conjunction with State of the Environment reporting and a clear overall set of objectives. Relative-risk assessment should encompass ecosystem-response problems, candidates and PSL substances, PSL and new substances found to be toxic but not yet controlled, and substances already under control.
3. In light of the experience in implementing CEPA to date, the federal government should review what roles—science, standard-setting, compliance and enforcement, moral leadership, resolution of interjurisdictional issues—it can most usefully play in protecting the Canadian environment. This review should lead to negotiations with the provinces concerning the allocation of the responsibility for controlling toxic substances in Canada.
4. The federal government should exert a much stronger leadership position through the authority vested in it by Part IV of CEPA to minimize the environmental impacts of its operations.

1. INTRODUCTION

1.1 SCOPE OF THE EVALUATION

This evaluation of the *Canadian Environmental Protection Act* (CEPA) was commissioned by the Evaluation Branch of Environment Canada in preparation for a Parliamentary review called for by the Act. As well, the evaluation supports a more comprehensive review and analysis of federal environmental protection policy,¹ led by Environment Canada, that has three main components:

- program evaluation and suggested modifications to current practices;
- relationship to broader policy themes including pollution prevention, sustainability and competitiveness; and
- alternative approaches to environmental protection.

Environment Canada is also examining each of the CEPA regulations in connection with a government-wide review of all federal regulations. This will all contribute to developing a consolidated discussion paper for submission to the Parliamentary review committee.

This evaluation constitutes the first component of the overall review. It is based on an assessment of the administration of CEPA against the goals and objectives originally set for the Act. In addition, we investigate, as far as possible, the extent to which CEPA has reached its goal of providing Canadians with a healthy environment. We have also considered the implications of continuing changes in context and expectations for the administration of the Act and CEPA's ability to meet the needs of Canadians.

1.2 OUTLINE OF THE REPORT

The report consists of six sections. The remainder of this section outlines the study methodology. Section 2 presents the basis upon which the evaluation was conducted by reviewing CEPA's objectives and the context within which CEPA was developed and has been administered.

Section 3 presents the core of the evaluation; that is, the degree to which the objectives of the Act have been achieved. A "status report," presenting information on accomplishments, expenditures and other available data concerning the range of activities that have been pursued under the authority of CEPA, is presented in Appendix C as background to the evaluation.

¹ Please refer to Appendix A.

Section 4 examines the administrative aspects of CEPA's implementation including organizational and management issues and resources. Section 5 then deals with the challenge of providing an overall assessment of CEPA by considering the evaluation findings reported in sections 3 and 4 in terms of CEPA's impact on three fronts: environmental quality, human health and industrial activity. In the final section of the report we draw together our conclusions and consider the significance to CEPA's future of the various contextual factors described in section 2. Section 6 also contains our recommendations for changes to the structure and administration of CEPA.

1.3 METHODOLOGY

This evaluation was overseen by a Steering Committee composed of officials from Environment Canada, Health Canada and the Office of the Comptroller General.

The Committee reviewed the Terms of Reference for the evaluation, selected the contractor and provided overall guidance for the work including approval of the issues to be addressed, the interview guide and the list of interviewees (see Appendix D). The Evaluation Branch of Environment Canada chaired the Steering Committee and directed the evaluation.

This study began with an investigation of the status of the Act and delivery of activities; followed by an examination of the effectiveness of specific mechanisms and management arrangements developed to implement CEPA; and ended with a synthesis of the broad impacts, the achievement of CEPA's objectives and the implications of the findings in regard to alternatives.

The information upon which this report is based was gathered through multiple lines of inquiry including (i) interviews, (ii) reviews of files and reference documents, (iii) a focus group session with the Steering Committee, (iv) a workshop, and (v) a review of the relevant literature. The general approach and methods used are outlined below. A more detailed description of the methodology is provided in Appendix D.

EXHIBIT 1-1: EVALUATION OUTLINE

Aspect of CEPA	What was Studied	How It was Studied
Activities (e.g., development of regulations, guidelines, public participation)	Status—What activities have happened	File and document reviews Interviews with EC staff and stakeholders
Implementation mechanisms and management arrangements	Efficiency of delivery Effectiveness	File, literature and document reviews Interviews with EC, NGOs, industry, provinces and other departments Case examples Focus group session with the Steering Committee
Policy goals and objectives	Achievement of objectives Broad impacts on health, ecosystem and industry	Clarification of goals and objectives Definition of evaluation criteria Interviews Case studies Synthesis of findings
Alternatives	Suitability of CEPA to achieve current EC objectives and compatibility with emerging themes Implications of evaluation findings for alternatives to CEPA	Analysis of current objectives and evaluation criteria Interviews Synthesis of findings workshop

2. BASIS FOR THE EVALUATION

This evaluation assesses the performance of CEPA against issues identified at the start of the study and approved by the Steering Committee. We also investigate the impact CEPA has had on environmental quality, human health and industry. Throughout the report, we consider the implications that changes in context have had for the administration of the Act to date and will have for its future application. The evaluation also takes into account the constraints imposed on CEPA's design and implementation by the constitutional division of powers.

After a brief review of the background, evolution and contents of CEPA, we identify the statute's goals and objectives. These, together with the evolving context in which CEPA has been administered, provide the backdrop against which the remaining sections of the report are presented.

2.1 THE DEVELOPMENT OF CEPA

2.1.1 BACKGROUND

CEPA's origins stem from the early 1980s. At that time it was becoming clear that the *Environmental Contaminants Act* (ECA), the federal government's primary piece of legislation to protect the environment from contamination by chemical substances, was inadequate to deal with the multiplicity of problems associated with toxic chemicals.²

Two task forces were convened in 1985 by Environment Canada and Health and Welfare Canada to review the situation. One task force focused on difficulties with the *Environmental Contaminants Act*:³

- The scope of ECA was restricted to commercial chemicals; scientific and municipal operations were exempt.
- Environmental protection efforts for hazardous chemicals within and between the federal and provincial governments were piecemeal and scattered. This approach resulted in gaps, duplication, and varying levels of protection across the country. Consequently industry had difficulty complying, and government had difficulty managing pollution and environmental quality.
- A mechanism was required to comply with a recent Organization for Economic Cooperation and Development (OECD) agreement to assess and control new substances before their introduction on a commercial scale.

2 For a concise review of the background to CEPA and an explanation of its development emphasizing "cradle-to-grave" regulation and constitutional considerations, see Northey, 1991.

3 Environmental Contaminants Act Amendments Consultations Committee.

- The notification and information-gathering requirements of ECA made it impossible to screen new chemicals systematically before they were introduced in Canada or to get sufficient information from industries to assess chemicals properly, and therefore determine what, if any, controls were required.

CEPA was thus intended to fill in the many gaps that existed at that time in the management of toxic chemicals.

The second task force focused on toxic chemicals management. In its report,⁴ this task force recommended that chemicals be managed from cradle-to-grave and proposed the life-cycle concept as the key analytical tool for managing chemicals. It noted that many chemical substances and important stages in the chemical life cycle were not covered by the existing legislation. Some controls existed for some types of chemicals (e.g., pesticides under the *Pest Control Products Act*) and for some stages in the life cycle (e.g., transportation, under the *Transportation of Dangerous Goods Act*), but there were gaps both in coverage of the range of chemicals and of the entire life cycle from beginning to end. This report also recommended that toxic chemicals be controlled by specific regulations, standards or guidelines. Finally, the task force recommended a system of widespread and regular consultations with stakeholders. This management approach to toxic chemicals was accepted by the Minister of the Environment as a solution that would minimize the risk to human health and the environment while supporting industrial productivity and competitiveness.⁵

2.1.2 THE EVOLUTION OF THE LEGISLATION⁶

The preliminary legislative draft of CEPA, produced in the fall of 1986, was designed to address the recommendations of these two task forces. Public opinion was also considered during the drafting process. CEPA was intended to respond to the strong public support for more stringent environmental protection legislation, strong and effective enforcement of compliance, stiffer penalties, good environmental management, and more openness and public participation in environmental decision making.

Once the legislative draft was completed, the then Minister Tom McMillan tabled it as a discussion bill in Parliament in December 1986. The tabling was followed by approximately six months of consultation, public meetings and analysis of written briefs from over 300 organizations and individuals.⁷

⁴ *From Cradle to Grave: A Management Approach to Chemicals*, September 1986 Environment Canada.

⁵ McMillan, T., Minister of the Environment, undated (late 1987). *The Right to a Healthy Environment, An Overview of the Proposed Environmental Protection Act*.

⁶ Appendix E provides a more detailed description of the background to CEPA, including our reasoning concerning the definition of CEPA's original goals and objectives.

⁷ The key concerns and conclusions expressed by stakeholders during the consultation process are presented in Appendix F. Not all accounts of the consultations are positive. See, for example, Tingley, 1991: 140-145.

Subsequent to the initial consultations, it was decided that the new Act should consolidate most of the environmental protection authorities vested in the Minister of the Environment: the *Environmental Contaminants Act*, the *Clean Air Act*, the *Ocean Dumping Control Act*, the nutrient provisions of the *Canada Water Act* and section 6(2) of the *Department of the Environment Act*, which dealt with federal lands, works and undertakings. According to ministerial and departmental statements made at the time, this consolidation was intended to ensure a multi-media focus, to eliminate inconsistencies among the old pieces of legislation and to streamline reporting requirements. Other modifications to the original discussion draft included provisions for alternative approaches to environmental protection, such as the formulation of guidelines and codes of practice.

Bill C-74, the *Canadian Environmental Protection Act* was tabled on June 26, 1987, along with a draft Enforcement and Compliance Policy. The tabled version of the Act contained over 100 changes made as a result of the consultations. These changes included the incorporation of the Acts enumerated earlier, control of the products of biotechnology, expanded information and monitoring functions, a third party arbitration process for dealing with confidential business information and a redrafted process for assessing new substances.

Bill C-74 passed second reading on October 23, 1987. Third reading was completed on May 5, 1988, after "extensive amending by the House of Commons Legislative Committee."⁸ These amendments included the addition of a clause requiring that a Parliamentary committee review the administration of the Act within five years and report to Parliament any suggested changes to the Act or its administration.

2.1.3 OVERVIEW OF CEPA

CEPA contains 149 sections divided into an introduction and nine parts. The substantive elements of the legislation are contained in the first seven parts. Part VIII deals with consequential changes to other acts caused by CEPA (e.g., repealing the *Environmental Contaminants Act*, etc.), and Part IX deals with proclamation of CEPA. The key topics covered in the introduction and sections I-VII are shown in Exhibit 2.1.

2.2 CEPA'S GOALS AND OBJECTIVES

The ultimate goal of CEPA is clear: to help provide Canadians with a healthy environment. The achievement of this goal is examined in section 5 of this report. The specific objectives held for CEPA at the time of its introduction are less clear. A range of objectives for CEPA appear in ministerial documents of the time. Exhibit 2.2 presents our distillation of the main goals and objectives of CEPA derived from these documents as well as our discussions with government officials familiar with the development of the Act.⁹

⁸ Legislative Summary: Bill C-74 Library of Parliament, May 1988.

⁹ Appendix E contains a more thorough review of the sources relied on for the conclusions presented here.

From the beginning, CEPA was seen as being transitional legislation, and not as being a comprehensive environmental protection act. In May 1986, Cabinet decided to develop new legislation immediately rather than a comprehensive environmental policy first and legislation later. Furthermore, CEPA was presented by the government as a transitional policy at both the National Consultation Workshops and the Legislative Committee on CEPA.¹⁰ Participants in the national consultation meetings suggested that the transitional nature of CEPA should be clarified by stating in the preamble that CEPA provided a framework for the development of a "real" environmental protection act.

Nonetheless, CEPA was described by ministerial and departmental speeches as providing at least a comprehensive regulatory scheme for toxic chemicals in Canada. The scope of substances and processes covered by the Act would encompass all chemical substances throughout their life cycle as well as the products and processes of biotechnology. It was thought that the new Act would result in nationally consistent regulations, standards and guidelines. The accompanying Enforcement and Compliance Policy was intended to ensure increased compliance with those standards. CEPA was also intended to put the federal government's house in order regarding the environment. Effluents, emissions and waste management practices of all federal departments would be improved to acceptable standards. CEPA was expected to assist Canada in fulfilling its international obligations with regard to environmental matters. Finally, by incorporating several existing statutes, CEPA was intended to improve the federal government's ability to continue to address the problems of nutrients, ocean dumping and international air pollution.

CEPA not only embodied a wide range of substantive environmental objectives, it also affirmed the importance of a variety of processes. In this regard, cooperation with the provinces was accorded a high degree of importance. In addition, the statute adopted public participation, the dissemination of information, the application of science and technology and even expedience in the assessment of potential toxics that a marginal note to section 2 of the Act describes as "duties of the Government of Canada."

In addition to evaluating the degree to which these objectives have been achieved, we also comment on the manner in which priorities have been established among the many activities contemplated by CEPA. Finally, throughout the report, we comment on the degree to which the structure and wording of the Act itself may have constrained strategic decision making.

A further discussion of CEPA's goals and objectives is presented in Appendix E.

¹⁰ *Development of the Environmental Protection Act, Background Paper, National Consultations Meeting, March 1987. McMillan, T. 1988. Notes for Minister's Speech to the Consultative Committee on Bill C-74. Feb. 3.*

EXHIBIT 2.1 THE ELEMENTS OF CEPA

Introduction	The main focus of the Act is defined as being the control of toxic substance pollution. The federal government's overall approach to managing this environmental problem is outlined. It consists of prevention, taking a national leadership role in establishing environmental quality standards, getting its house in order, cooperating with the provinces, encouraging public involvement and applying scientific and technical solutions to problems.
Part I	Includes provisions requiring public access to environmental information; authorizing ongoing research; and providing for the promulgation of guidelines, codes of practice and objectives for desirable levels of environmental quality. These nonmandatory guidelines are to be set in cooperation with all interest groups in Canada, and they represent acceptable levels of environmental control.
Part II	Addresses toxic substances and includes: • authority to control the introduction of new chemicals into Canada; • authority to obtain information and require testing on both new substances and existing substances; and • provisions allowing control of all aspects of the life cycle of toxic chemicals, including development, manufacture or importation, transport, distribution, storage and use, release to the environment at various phases of the life cycle, and ultimate disposal as waste.
Part III	Contains provisions for the control of nutrients, such as phosphates, that occur in water conditioners or cleaning products and that can interfere with the use of waters by humans, animals, fish or plants.
Part IV	Contains provisions for regulations governing federal works and federal lands and waters, where existing legislation administered by federal departments or agencies does not provide for making regulations to protect the environment.
Part V	Contains provisions to control sources of air pollution in Canada, where a violation of an international agreement would result or where the air pollution affects another country.
Part VI	Contains provisions to issue permits to control dumping at sea from ships, barges, aircraft and manufactured structures.
Part VII	Contains general application provisions related to such matters as inspectors' powers, boards of review and penalties.

EXHIBIT 2.2 SUMMARY OF CEPA'S ORIGINAL GOALS AND OBJECTIVES

Ultimate Goal

To Protect the Health and Environment of Canadians

- Protection of the quality of the environment
- Establishment of nationally consistent levels of environmental quality

Objectives Related to Improvement of Toxic Substances Legislation

1. *Comprehensive Regulatory Scheme*

- cradle-to-grave management of toxic substances, i.e., full coverage of life cycle and of toxic substances (no more holes)
- assess and control new toxic chemicals before they are introduced¹

2. *Stronger Regulations and Enforcement and Compliance*

- increased level of penalties¹
- increased level of compliance¹

3. *National Leadership*

- increased role of the federal government in regulation and enforcement⁴
- establishment of federal guidelines and environmental quality objectives^{1, 3}

4. *Harmonization and Coordination of Regulatory Authorities*

- improved efficiency through consolidation of several Environment Canada Acts (streamlining reporting requirements and reducing regulatory burden)¹
- increased cooperation in administration of regulations between federal and provincial governments³
- increased inter-departmental coordination within the federal government for toxic substances³

5. *Federal Government Environmental House in Order*

- expand the powers of Environment Canada to establish environmental objectives and guidelines for federal government
- require that federal establishments follow emission and effluent standards and waste handling and disposal practices similar to those of the provinces^{2, 4}
- require that federal departments follow federal regulations and guidelines for toxic substances

- demonstrate (i.e., federal government) exemplary environmental conduct in order to be a credible national leader

6. *Fulfilment of International Obligations Related to Protecting the Environment*

- meet obligations with UNEP and OECD regarding toxic substances

Objectives Related to New Environmental Protection Approaches

7. *Public Participation*

- increased involvement in development of regulations^{1, 3}
- increased public involvement in enforcement^{1, 3}
- increased public information and reporting^{1, 3}

8. *Scientific Approach*

- scientific knowledge and methods used to determine toxicity^{1, 2}
- increased applied research needed for assessments of ecosystem impacts from toxic substances^{1, 3}
- increased monitoring of environmental quality^{1, 3}
- toxicity determined on the basis of health and ecosystem scientific evidence^{1, 3}

9. *Ecosystem Approach*

- environmental toxicity assessments done in terms of ecosystem rather than individual components of the ecosystem^{1, 3, 4}
- establishment of ecosystem monitoring for toxic substances^{2, 3}

10. *Other Approaches²*

- anticipation and prevention
- partnership
- environment considered in decision-making

Sources

1. Tom McMillan, *The Right to a Healthy Environment, An Overview of the Proposed Environmental Protection Act* (no date).
2. *Canadian Environmental Protection Act*.
3. Environmental Protection Act National Consultation Meeting, Background papers, Ottawa Congress Centre, March 1987.
4. Personal interviews with senior Environment Canada officials.

2.3 THE CHANGING CONTEXT FOR CEPA

The context within which CEPA was developed and the way in which this context has since changed have had a profound bearing on the planned and actual implementation of the Act, as well as on its continued viability.

The design and implementation of CEPA were shaped by several not entirely consistent developments. On the one hand, advocates of stricter enforcement of environmental protection measures, and even of the criminalization of environmental offences, were exerting considerable influence.¹¹ On the other hand, many observers were pointing out the limits of command and control approaches to environmental protection and the economic advantages of relying to a greater extent on economic incentives. Again, even as recognition of the environmental rights of citizens was being more forcefully advocated, litigation relating to the *Charter of Rights and Freedoms* was circumscribing the authority of legislation and government officials to proceed against suspected environmental wrong-doing. There was also a new sense that effective solutions would come only from treating the environment as a complex and inter-related ecosystem, rather than attacking parts of it randomly. But if this thinking suggested a more prominent role for scientific expertise in environmental decision making, continuing uncertainties preserved the importance of consensus-oriented procedures.

The most important contextual matters are summarized briefly below, and are considered throughout the report.

2.3.1 APPROACHES TO ENVIRONMENTAL PROTECTION

By 1988, the thinking related to environmental protection had shifted from reacting to and curing the causes of environmental degradation to anticipating and preventing them. The designers of CEPA attempted to reflect this shift in the new Act. CEPA contains a number of provisions authorizing prevention related activities such as public education and technology transfers. The cradle-to-grave approach to the management of toxic chemicals represented a particularly important policy change.

Since the introduction of CEPA, there has been increased interest in using alternatives to traditional command and control regulations in order to protect environmental quality in a more timely and cost-effective manner. This focus on alternatives has been driven by concerns about the cost to government of developing and administering regulations, the cost to industry of compliance, and the limited scope of protection afforded by some regulations.

In addition, as a result of concerns about both interprovincial and international competitiveness, the relationship between environmental and economic policies is

¹¹ Indications of these trends include debate aroused by scholarly analysis and conference proceedings such as Rankin and Finkle, 1983 and Duncan, 1985. Ontario substantially strengthened its environmental enforcement capability in 1985 while the Law Reform Commission of Canada released a Working Paper on Crimes Against the Environment (Law Reform Commission of Canada, 1985). See section 3.4 of this report for a more thorough review of this debate.

receiving greater scrutiny. In particular, the economic efficiency of achieving environmental quality objectives through market-based incentives instead of regulatory measures has become the subject of much debate. These concerns have been enhanced by the recent recession.

Many of these considerations are reflected in the shift in focus from environmental protection to sustainable development, a concept first popularized in the Brundtland Report and which is increasingly framing the debate on environmental and development issues, particularly at the international level. In Canada, all jurisdictions established round tables on environment and economy in response to the recommendation of the 1988 National Task Force on Environment and Economy. Several of these round tables have begun to prepare sustainable development strategies.

The federal government's *Green Plan for a Healthy Environment* is a further example of the influence of the concept of sustainable development. The Green Plan established a comprehensive framework for federal environmental policy involving the responsibilities of a wide range of departments and agencies. The Green Plan emphasized the need to improve decision making and for the federal government to strike partnerships to achieve national environmental goals. The Green Plan established an agenda that stressed environment-economy integration, consideration of the ecosystem in program planning, and management approaches that are cross-sectoral and multi-disciplinary.

2.3.2 PUBLIC PARTICIPATION AND PUBLIC OPINION

CEPA was developed during a period of increasing public concern about environmental quality.¹² Public concern was underpinned and reinforced by scientific research that suggested that the scale of past damage had been underestimated, that the natural resilience of many ecosystems had been seriously undermined and, in addition, that adverse impacts on human health should be anticipated.

Public opinion polls for the three years between 1984, when the Conservative government came to power, and 1987-88, when CEPA was drafted, consistently indicated that the majority of Canadians were dissatisfied with the environmental performance of the federal government. Moreover, at the time CEPA was drafted, the public wanted more regulation in the environmental field. A September 24, 1987 Decima Survey found that 84% of respondents wanted controls for toxic chemicals that pollute water supplies; 82% wanted controls for toxic chemicals polluting the air; and 70% wanted protection for the stratospheric ozone layer.

Consultations by the government with Canadians were becoming accepted practice. In particular, the federal government, in keeping with the March 1986 Citizens Code of Regulatory Fairness, was starting to consult on all major regulatory initiatives.

¹² For a survey and analysis of Canadian public opinion on the environment, see Bakvis and Nevitte, 1992.

Although opinion poll evidence indicates lessened public concern for the environment relative to current economic conditions, a recent Synergistics survey indicates that the percentage of Canadians concerned about the environment has actually increased over the past eight years (Synergistics, 1993). In addition, awareness of severe human health risks resulting from environmental problems, such as ozone depletion for example, has become widespread.

While scientists had recognized the global scale of several environmental problems prior to the passage of CEPA, the importance attached by both scientists and the public to these problems has increased since 1988. The depletion of the ozone layer is proceeding at a faster pace than initially predicted. A scientific consensus has emerged on the likely scope, if not the effects, of global warming over the next 50 years; estimates of the loss in biodiversity have been adjusted upward.

Public expectations have also changed. In particular, the public is demanding increased federal leadership, reduced regulatory duplication, increased use of economic incentives and increased accountability for environmental policy decisions (Synergistics, 1993). Public interest environmental litigation has achieved several notable successes in bringing environmental issues to the fore. The public has also become more effective in defining needs and bringing them to the attention of elected officials. As a result, mechanisms for public participation in environmental matters, including recognition of environmental rights, funding provisions, and round tables, have been strengthened in several jurisdictions. This pressure for increased public participation is an important feature of current criticisms of CEPA.

2.3.3 SCIENCE

At the time CEPA was being developed, scientists were arguing that the environment should no longer be viewed and regulated in terms of single elements (e.g., air, freshwater, land, wildlife) contained within geopolitical boundaries (e.g., nations, provinces). Rather, it was recognized that the environment is better seen as a nested series of ecosystems composed of all chemical, biological and physical elements and typically organized within ecological boundaries (e.g., watersheds).¹³

The science for predicting ecosystem effects from toxic chemicals was also evolving. For health effects, individual toxic end points were relatively well-defined and understood. And the effects of toxic substances on wildlife and, in particular, on human health, were becoming more obvious. There was far less consensus on the significance of ecotoxicological test results. Predicting ecosystem effects from laboratory tests was inaccurate and much more difficult than predicting health effects from laboratory tests. For this reason, estimates of ecological effects involved greater scientific uncertainty and suggested that more reliance would need to be placed on expert opinion and judgment.

¹³ Some ecosystems do not have geographic boundaries, but are defined on the basis of other criteria.

2.3.4 INTERNATIONAL ISSUES

OECD members, as part of an overall effort to harmonize industrial chemical standards, had agreed to follow the principle of placing the onus on industry to prove that the chemicals they use are safe. The "new substance" provisions in CEPA were designed, in part, to comply with this principle.¹⁴

Subsequently, pressures for the harmonization of environmental standards have rapidly emerged. The reduction of international trade barriers (e.g., the Free Trade Agreement between Canada and the United States), together with the recent recession, have increased the pressure on government to ensure that Canadian companies are not subject to regulatory requirements that undermine their international competitiveness. These pressures are not all in the same direction. In the case of new substances, for example, the US government assumes more of the cost of assessing new substances than do most other OECD countries. A number of industries, therefore, argue that in following the OECD guidelines, the Canadian provisions disadvantage Canadian importers relative to their American counterparts. Concern about global competitiveness has also served as a rationale to question the cost effectiveness of regulations in general. And in particular, these pressures call into question the continued reliance on the command and control regulatory approach emphasized under CEPA to date.

On the other hand, there is also an increased awareness that there may be a "competitive advantage" to strict regulations if they are designed to induce innovative methods for minimizing environmental impacts (the so-called Porter hypothesis). As is typical of such structural issues, this debate is split between those concerned with the short-term costs of adjustments and those who advocate the long-term benefits of such change.

In addition, the increasing recognition of the global dimensions of environmental issues has reinforced the need to have the legal authority in Canada adopt and implement international agreements, such as those related to global warming and biodiversity.

2.3.5 ORGANIZATION OF ENVIRONMENT CANADA¹⁵

Since CEPA was developed, Environment Canada has attempted to integrate all the departmental goals, objectives and programs. The proposed One Program Operational Plan Framework (December 1992) recast all the departmental goals and activities into a single set of goals, objectives, activities and program outcomes. Despite this change, we observe in this report that the absence of clear environmental quality objectives for the various parts of CEPA undermines the effectiveness of the Act.

¹⁴ The US does not subscribe to this principle and has kept the onus on government.

¹⁵ Appendix G presents further information on this issue.

2.3.6 INTERDEPARTMENTAL RELATIONS

In the mid-1980s, environmental protection efforts by the two levels of government as well as within different federal government agencies were uncoordinated and piecemeal. Although the need to harmonize federal regulations and efforts was recognized when CEPA was developed, the final design of CEPA reflects the fact that departments have traditionally been unwilling to relinquish control or authority. Compounding this problem, the absence of political will to establish a cross-departmental policy framework for environmental protection has continued to undermine the effectiveness of individual initiatives in CEPA and in other federal and provincial legislation. As this report points out, this fragmented approach continues to pose problems for effective federal environmental management.

2.3.7 THE CONSTITUTIONAL DIVISION OF POWERS AND THE ENVIRONMENT¹⁶

The toxic substances control provisions in CEPA are premised, to a considerable degree, on an assertion by the federal government that it has authority to regulate toxics since they constitute a national concern and are therefore under the general federal peace order and good government authority. Federal-provincial jurisdiction over environmental control has, however, always been unclear and potentially controversial. Responsibility for environmental protection is shared between the provinces and the federal government. The division is not explicit in the constitution and remains divided between the federal and provincial governments on the basis of other heads of power.¹⁷ Because of this system of divided responsibility, the federal government is not free to regulate pollution in any way it deems appropriate. In some cases it has a clear constitutional mandate. For example, a wide range of powers are provided in the *Fisheries Act* because of the specific federal authority over fishing. On the other hand, federal authority is much more circumscribed concerning pollution not falling under a specific federal head of power. Thus, CEPA currently regulates toxics, but not all pollutants.

Opinion about the appropriate division of power over the environment remains unsettled. At the time of its introduction, a number of commentators argued that CEPA unnecessarily limited federal authority, which should be expanded to ensure true national environmental standards.¹⁸ At the same time, the new Act was opposed by a number of the provinces as unwarranted federal intrusion into an area of provincial authority. As we describe in section 3.5, this resistance persists today in the reluctance of most of the provinces to sign equivalency agreements under CEPA. And Quebec has recently challenged the constitutionality of Part II of CEPA.¹⁹

16 Appendix H contains a more thorough review of this issue, including a brief review of recent case law.

17 For a useful recent summary see Rankin, 1993.

18 Duncan and Swanson, 1987; and Lindgren, 1989.

19 In its ruling of August 7, 1992, the Quebec Superior Court upheld the decision of the Cour du Quebec declaring section 34 of CEPA and the Interim PCB Storage Order *ultra vires* Parliament. The federal government has appealed this ruling to the Quebec Court of Appeal.

Although a growing number of members of the legal community are now prepared to recognize an "environmental imperative" or "the imperatives of nature itself,"²⁰ the persistence of divided jurisdiction and constitutional constraints on both levels of government causes most observers to insist upon the importance of intergovernmental mechanisms in getting the job done. Under the auspices of Canadian Council of Ministers of the Environment (CCME), significant developments have occurred in terms of coordinating intergovernmental efforts to respond to particular environmental concerns. The degree to which CEPA has facilitated effective environmental management in this difficult interjurisdictional context, however, is an important consideration in this evaluation.

which has not yet decided the case. R.C. Hydro-Québec [1991] R.J.Q. 2736 (C.Q.); Canada (Procureur Général) c. Hydro-Québec [1992] R.J.Q. 2159 (C.S.).

²⁰ Northey, 1991 and Rankin, 1993: 48.

3. THE ADMINISTRATION OF CEPA

This part of the report presents the findings of the evaluation under the following headings:

- Cradle-to-Grave Management of Toxic Substances
- Administration of Consolidated Legislation
- Enforcement and Compliance
- Public Participation and Intervention
- Federal-Provincial Harmonization
- Environmental Management Within the Federal Government
- Fulfilment of International Obligations

These topics are obviously related, and many cross-references are made in each of the following sections. The overall conclusions and recommendations are presented in section 6 of the report.

3.1 CRADLE-TO-GRAVE MANAGEMENT OF TOXIC SUBSTANCES

3.1.1 ANALYSIS

This section addresses the following issues related to the overall effectiveness of the toxic substance assessment and control provisions in CEPA:

Section 3.1.1.1—Is the Government Choosing the Right Substances to Assess Under CEPA? This identifies the potential gaps in the Priority Substances List (PSL) and the new-substance assessment provisions in CEPA.

Section 3.1.1.2—The Effectiveness and Efficiency of CEPA Risk Assessments. This includes a number of sub-issues, such as operational problems, the appropriate end point of risk assessments, information management, the information link between risk assessment and risk management, and public participation.

Section 3.1.1.3—Risk Management Under CEPA. This focuses on two issues:

- a) Are there effective mechanisms to determine which substances should be the priorities for control?
- b) Are there effective mechanisms to determine how most efficiently to control those substances?

Subsections 3.1.1.4, 5 and 6 review subjects that relate to each of these issues. Subsection 3.1.1.4 comments on the link between science and policy under CEPA; subsection 3.1.1.5 reviews information management; finally, subsection 3.1.1.6 describes the need for an overall strategic management process for toxic substances.

3.1.1.1 Is The Government Choosing the Right Substances to Assess Under CEPA?

CEPA provides the federal government with a wide range of mechanisms to assess and control toxic substances. Part I of CEPA authorizes the establishment of research and monitoring programs. Part I also mandates the promulgation of environmental quality objectives, environmental quality guidelines, release guidelines and environmental codes of practice for any issue related to the duties of the ministers of Health and of the Environment. Part II of CEPA establishes schemes for the assessment and regulation of new and existing toxic substances. These assessment schemes form the core of CEPA as it has been implemented to date and are described below.

Section 34 authorizes regulations to control any substance that is on the Schedule 1 List of Toxic Substances. A substance may be scheduled if the ministers of Health and of the Environment are "satisfied" that the substance is "toxic" as defined by section 11. Section 3 defines "substance" as "any distinguishable kind of organic or inorganic matter, whether animate or inanimate, and includes . . . any mixture . . . [and] any complex of mixtures . . . in effluents, emissions or wastes that result from any work, undertaking or activity." This definition is broad enough to cover virtually any conceivable environmental or human health stressor.²¹

Given the thousands of substances in use or otherwise released in Canada, the hundreds that may be introduced each year (according to the US experience) and the limited resources available to assess and control them, the first priority-setting issue is how to determine which substances should be assessed for toxicity under CEPA.

A recent evaluation of American environmental protection efforts observed that priority setting in government is typically complicated by two factors: (i) the organization of agencies, which often reflects a patchwork of regulatory provisions and historical assignment of responsibilities; and (ii) pressure for issue-specific, short-term action from the public, industries and politicians (Carnegie Commission on Science and Technology, 1993). Both the new-substance and the PSL provisions in CEPA represent an explicit attempt to avoid these pressures for ad hoc priority setting. These provisions and the priority-setting issues that remain to be addressed are described below.

Priority-setting issues: new substances

Section 28 in Part II of CEPA requires that almost all substances not currently in use be assessed before they are introduced into Canada on a commercial scale. Thus, CEPA makes the assessment of most new substances a priority. In practice, the ability of the government to meet this objective will be determined by resource allocations within Environment Canada, Health Canada and their partners. Since the regulation enacting

²¹ A number of proposals have been made for expanding the scope of CEPA. For example, both the Canadian Environmental Advisory Council (CEAC) (1988) report and the Report of the Minister's Priority Substance Panel (1988) recommended that CEPA should be expanded to cover physical agents, such as noise, ultraviolet light radiation and electromagnetic radiation.

the new-substances provisions is not yet in effect, it is too early to tell whether the resources currently allocated to implement these provisions are adequate. To ensure that the new-substance provisions are implemented effectively, the adequacy of the resources allocated to them should be monitored over time.

Priority-setting issues: existing substances

Part II is less comprehensive in its requirement for the assessment of existing substances. Section 12 requires the establishment of a PSL, specifying substances to which priority should be given in an assessment of "whether they are toxic or are capable of becoming toxic." Section 14 effectively imposes a five-year deadline for PSL assessments by permitting the public to request a Board of Review if any PSL substance is not assessed within five years.

The assessment of a PSL substance is not the only means to determine that an existing substance is toxic under CEPA. Section 33 permits the Governor-in-Council to add a substance to the List of Toxic Substances "if *satisfied* that the substance is toxic." This implies that sources other than the PSL and new-substance assessments can be relied on to satisfy the government that a substance is toxic. The ozone-depleting substances (ODS) were deemed toxic on the basis of the Montreal Protocol, indicating that international agreements can be one such additional source. In addition, the information-gathering provisions in sections 15 to 18 apply to other substances as well as to those on the PSL.

The PSL is an important mechanism to determine priorities for the assessment of existing substances. The key is to select the right substances. There are two reasons to question whether the PSL will include all the existing substances that should be priorities for assessment. First, concerns about scientific methodology, information availability, and time and resources may limit the types of substances that are selected for the PSL². Second, there are inherent limitations to the substance-by-substance approach on which the PSL is predicated.

- **The composition of the PSL is critical**

Not all the substances on the first PSL were true priorities. Indeed, there are some, like a number of the aromatic amines, that are not even used in Canada; others, such as some of the chloralkyl ethers, have only microsecond half-lives. These problems can be traced to the selection process for the PSL¹. In early 1988, the ministers established a multi-stakeholder Priority Substances Advisory Panel, chaired by Professor Ross Hall. The Panel recommended 50 substances for inclusion on the PSL¹. There were two main problems with this selection process. First, the Panel was given insufficient resources and time to handle the task. The PSL¹ was assembled rapidly by a committee with wide-ranging expertise and interests. Second, and perhaps more important, the selection criteria were relatively crude. Science was used in the development of the PSL¹, but it did not form the principal basis for screening criteria. In fact, according to Professor Hall,

no strict criteria were used to establish what should or should not be included in the PSL1.²² As a number of the participants in the Priority Substances Advisory Panel observed, members came with their own particular concerns and argued strongly to ensure that they were placed on the list.

Considerable effort over the past two years has been devoted to improving the selection process for the PSL. Environment Canada has released for public input a consultation document entitled *Preparing the Second Priority Substances List*. Many stakeholders emphasized that their involvement in the process at an early stage is an important and constructive step. The discussions involving the PSL2 selection process are ongoing and the conclusions we make below are based on the consultation document. These conclusions are intended to help improve the process and should not be interpreted to indicate that any final decisions have been made about the PSL2 selection process.

The consultation document proposes that the PSL2 be selected by an expert advisory panel. The document also proposes criteria for the composition of the panel (representatives of stakeholders with scientific expertise), procedures for nominating candidates for the panel and scientific criteria for selecting substances for the PSL2. The proposed selection criteria include:

- presence in the Canadian environment,²³ and
- toxicity, or
- persistence in the environment or bioaccumulation.²⁴

These criteria have been criticized for a number of reasons. First, they must be clarified with respect to naturally occurring substances, many of which occur in different species with different toxicity. Thus, for example, the mining industry argues that total element definitions are of little value for naturally occurring substances (such as metals), and that chemical speciation into compounds or groups of compounds is required. When these substances are selected, guidance should therefore be provided regarding the cause of concern (industrial sector or process) and the species of concern.

A number of the criticisms of the proposed criteria suggest that their application could result in potential priorities being overlooked. Consider, for example, the possible consequence of the fact that one of the proposed criteria for PSL2 inclusion is the availability of information. This could mean that harmful substances about which little is known would not be addressed.

²² According to the Report of the Ministers' Priority Substance Advisory Panel (1988), the following general criteria were followed:

- production, importation and use in Canada;
- presence and distribution of contaminants and by-products in emissions and effluents
- toxic properties; and
- environmental fate and persistence.

²³ "Presence" is defined as being at multiple locations or imported into or manufactured in Canada in quantities greater than 1000 tonnes per year.

²⁴ Critical values for bioaccumulation (freshwater fish) are x100, and surface-water persistence (half-life) should exceed 50 days.

The criteria are also criticized because they will probably not lead to the selection of complex mixtures, such as industrial effluents, wastes and commercial products. Almost two thirds of the substances on the PSL1 were single chemicals. The criteria that have been proposed for the PSL2 similarly emphasize single chemicals or simple mixtures. It has become apparent to those involved in developing mechanisms to control the PSL1 substances, however, that in a significant number of cases, controls must be designed around a larger complex of substances than the individual PSL substance.²⁵ For example, although a PSL assessment might conclude that an individual substance is toxic, it may not be possible to control that substance without addressing the more complex mixture in which it is typically used. Indeed, the Industrial Programs Branch is increasingly focusing on the need to control whole wastes, effluents and commercial products.

Reflecting this concern, a number of scientists (mainly from outside government) suggest that the selection criteria should emphasize that the PSL2 include wastes, effluents and emissions. Under CEPA a substance may be a specific compound, a group of compounds or an effluent stream. The first PSL largely consists of compound-specific substances for which reasonably solid proof of cause and effect can be established. This is in contrast to groups of compounds, or effluent streams, for which it may not be possible to establish compound-specific effects except on a site-specific basis. Despite such problems, many of the scientists we interviewed agreed that as long as consistent measurements of effect are possible, bulk characteristics can be considered. The application of BOD5 (Biological Oxygen Demand) was cited as an example of how bulk characteristics can be linked to specific indicator compounds, when necessary.

The selection of the PSL could thus try to reflect the nature of the problem that has prompted consideration of the substance. For example, if it is likely that an individual chemical or substance can be controlled in its own right, then it may be appropriate to include it on the PSL as a single substance. It is more likely, however, that control of an individual substance will require the control of a more complex mixture—such as an industrial effluent, waste or a commercial product—and then it may be more appropriate to focus the assessment work on the larger substance.

There may be practical limitations to this option. In particular, current scientific methodologies and resource constraints may limit the ability of Environment Canada and Health Canada to complete the assessment of a large number of complex substances in five years. An alternative approach would therefore be to decide that the PSL will not focus on complex mixtures, and to establish a separate process (or processes) to ensure that there is adequate research to help understand and control complex mixtures, such as industrial effluents, wastes and commercial products. In either case, a policy should be developed that recognizes that all substances put on the PSL (or on the separate track for complex substances) need to be assessed by both Health Canada and Environment Canada. This would allow the addition to the PSL of anthropogenic environmental stressors other than chemicals (e.g., plastic products that affect the wildlife ingesting them).

²⁵ See the draft Conservation and Protection document dated July 1993, "The Preparation of Strategic Options Reports to Reduce the Discharge of 'Toxic' Substances and Other Substances of Concern."

In our opinion, the final problem with respect to the proposed selection criteria for the PSL2 is that their application may result in a very large number of substances that can only be reduced to manageable numbers with the help of further guidelines. No such additional guidelines are included in the proposed process for selecting substances for the PSL2.

- Some priorities can best be identified by an "ecosystem response" approach

Regardless of the selection criteria adopted, there is an additional reason why the PSL2 may not include all priorities for the assessment of existing substances. The PSL provisions in CEPA require assessment of a specified group of substances. This substance-by-substance approach works when potentially harmful substances can be identified (usually as a specific chemical or class of chemicals). In many cases, that is possible: enough is known about many existing substances to indicate whether an assessment is required to classify the substance as toxic and which, if any, control mechanisms are appropriate. In some cases, however, all that is known is that there is an undesirable ecosystem response, and the first priority is to identify which stressor (or combination of stressors) is responsible for the problem.

CEPA provides for the regulation of any substance that the government believes to be toxic. In theory such a substance could be identified as a result of research prompted by an observed ecosystem response. The regulation of ODS is an example of this process. British research initially identified an atmospheric problem, and subsequent research has identified a number of the substances at least partially responsible for the observed ozone depletion. Although this "ecosystem-response approach" has never been well defined, it has become more salient in recent years. The ecosystem approach was emphasized in the *Green Plan for a Healthy Environment*, and Environment Canada has recently instituted some major research efforts focused on ecosystem responses. For example, Environment Canada has designated the Great Lakes, the St. Lawrence River and the Fraser River as ecosystems that should be priorities for intensive study and clean-up. While this approach is not new, it is not formally mandated in a national priority-setting scheme. CEPA only mandates—and therefore implicitly gives priority to—the substance-by-substance approach. The concern is that by focusing priority only on established or suspected causal agents or stressors through the substance-by-substance approach, the government might miss substances that are causing problems of particular importance to Canada and that currently might only be identifiable as undesirable ecosystem responses.

There are considerable differences of opinion within government as to the utility of this approach. Some argue that in general the substance-by-substance approach has the potential to identify and address most problems, and that ecosystem research is only needed in extraordinary circumstances. Nonetheless, a large number of the people we interviewed argued that the ecosystem response approach potentially represents an important additional source of information that could and should be used to supplement the substance-by-substance assessments currently required by CEPA. Some argue that this research should be governed by a list, similar to the PSL, which would identify the damaged areas and other environmental responses of concern that should be the priorities for this type of assessment. The creation of such a list would allow the

application of the information-gathering powers in CEPA to such research. Alternatively, the information-gathering provisions (sections 16-18) could be amended to apply to this type of research. In any event, what is most needed is a mechanism to recognize the importance of the approach and to establish priorities for all assessment work under CEPA.

Any such effort to incorporate the ecosystem response approach into CEPA must also take account of the fact that some ecosystem problems may be contained within provincial boundaries, and this will limit how far the federal government can rely on an ecosystem approach as the basis for regulatory intervention. Given the boundary-crossing nature of many ecosystems and the widespread nature of most of the problems with toxic substances, it is unclear whether this consideration is a real problem. In addition, there is disagreement within government about whether a problem must transcend a provincial boundary before it can be the subject of a federal scientific assessment. (The issue of federal jurisdiction over scientific assessment is further considered below.)

3.1.1.2 The Effectiveness and Efficiency of CEPA Risk Assessments

Scientific limitations of the substance-by-substance approach

As noted above, the risk assessment provisions under CEPA are predicated on a substance-by-substance approach. There are important limitations to how far this approach can account for the full impact of a toxic substance. For the most part, people and the environment are exposed to mixtures of substances, rather than to individual substances. Although current evidence indicates that many of the effects of exposure to mixtures are additive, they can also be synergistic or antagonistic. There are also concerns about the cumulative effects of multiple sources of similar contaminants, the spatial overlap of fields of effect, and the potential for far-field effects even though near-field effects may be reduced to an acceptable level. Substance-by-substance assessment can thus miss important effects and can confuse covariant effects (CEAC, 1988).²⁶ This problem is illustrated by recent scientific work within Environment Canada, which indicates that possible deleterious effects from some industrial processes might not be identified by a focus on individual substances.

Critics also point to the American experience and argue that regulating on the basis of ambient standards for individual substances typically results in the establishment of acceptable threshold levels based on short-term, acute impacts, and not on the long-term, chronic impacts that are often associated with persistent toxic chemicals but that are very hard to measure (Gaba, 1984; Wyche, 1988; Muldoon, 1990). Most CEPA regulations do not define the quality of the receiving environment that must be maintained. In the opinion of many environmental scientists, the potential for environmental impacts due to sublethal effects remains a concern. Risk analysis applied to noncarcinogenic effects is often of uncertain value.

²⁶ In 1988, CEAC argued that toxic control should not be based solely on single chemical lists, but must also involve bioassessment (CEAC, 1988). CEAC argued that chemical-by-chemical listing can help "anticipate and prevent," but that bioassessment is required for "react and cure efforts."

These observations do not suggest, however, that the substance-by-substance approach should be abandoned. It is the international norm with respect to the assessment of commercial chemicals.²⁷ In some cases, regulating a single substance (e.g., leaded gasoline) will address an important problem. There are also considerable scientific limitations to the adoption of a more explicit ecosystem based approach for assessment. It is widely agreed that ecosystem research is complex and typically requires considerably more information and resources than the substance-by-substance approach. The latter can provide scientific justification for control of a substance by identifying some of its undesirable properties, without an understanding of all the ecosystem interactions. Current methodologies for assessing the effect of multiple chemicals on human health are relatively crude. Most important, ecosystem research should be understood and developed as a complement and not as a substitute for substance-by-substance research and control efforts.

Operational problems have impeded effective risk assessment under CEPA

The assessment of substances and the development of regulations under CEPA have been slower than was originally intended. The 1990 CEPA Annual Report predicted that 43 regulations would have been promulgated under CEPA by mid-1993. Instead, 13 regulations had been rolled over from previous legislation, and 12 new regulations had been promulgated under CEPA by July 1993. Part II provides for the creation and subsequent amendment of a PSL, identifying substances to be assessed as to their toxicity or potential to become toxic. The original PSL contains 44 substances. Environment Canada and Health Canada staff are confident that all 44 assessments will be completed by the end of 1993. By the end of September 1993, however, 10 assessments had been publicly released, and five substances had been declared toxic. Regulations had been promulgated for three of those substances, and were being developed for the other two.

Four ODS regulations have also been developed. The ODS were not subjected to a complete assessment but were regulated on the basis of the Montreal Protocol. Three other regulations cover PCBs, which were assessed under the *Environmental Contaminants Act* and then placed on the List of Toxic Substances when CEPA was introduced.

Part II also provides for regulations to phase out the use of leaded fuel and to govern the import and export of hazardous wastes. Regulations have been promulgated under each of these provisions. Two import and export regulations and a leaded gasoline regulation have been developed. Promulgation of the import and export regulations in 1992 ensured that Canada complied with the Basel Convention on the Transboundary Movement of Hazardous Wastes.

Part II also provides for a New Substances Program. The New Substances Notification Regulations were published in Part I of the Canada Gazette on May 1, 1993. These regulations do not cover biotechnology products, which will be the subject of a separate regulation that is in development.

²⁷ For a comparative international survey of chemical regulation, see Brickman, Jasanoff and Ilgen, 1985.

In our opinion, a certain amount of delay was inevitable given the need for administrative reorganization and interdepartmental cooperation, the complexity and novelty of the required research and the commitment to a consultative approach. However, there is general agreement among the government personnel interviewed for this evaluation that management underestimated the time and effort that would be required to implement Part II of CEPA. The past five years have been an important learning period for all parties involved. The implementation of CEPA imposed new responsibilities on Environment Canada, Health Canada, Industry Canada and the Department of Justice. CEPA also required new management systems, both to take advantage of existing information, skills and activities, and to generate new ones. Many of the required changes have occurred, and many of the original problems have now been addressed. However, some operational problems have not been entirely resolved. These issues are discussed below and are reiterated in section 4 of this report, which deals with resource and management issues.

- **Resources**

Both Health Canada and Environment Canada experienced considerable start-up problems with respect to the implementation of the PSL and new-substances assessment provisions. Senior managers in the departments attribute the slow start in part to an initial shortage of trained personnel and money. Although managers in both departments agree that staffing is now adequate, they emphasize that almost half the assessment personnel in both departments are currently paid under Green Plan funding. They argue that if this money is not renewed or added to the A-base after completion of the initial Green Plan funding in 1997, neither department will be able to meet its obligations under either the PSL2 or the new-substances provisions.

According to staff involved in the initial implementation of CEPA, the risk assessment process mandated by CEPA did not require Health Canada to develop new skills, since health risk assessment was relatively well established prior to CEPA. Health Canada staff acknowledge, however, that CEPA did prompt the development of additional experience and the addition of new skills and knowledge within Health Canada.

By contrast, the CEPA risk assessment provisions forced Environment Canada to develop new analytical skills and, as a result, to implement new systems as well as hire new staff. From the outset, Environment Canada has encountered difficulty recruiting qualified personnel. This remains an important problem. For example, according to senior managers involved with the assessment process, in many cases Environment Canada has been forced to hire underexperienced staff, who then had to be trained.

- **Interdepartmental coordination**

The implementation of Part II of CEPA requires considerable interdepartmental coordination: the PSL and the new-substance assessments must be completed by both Environment Canada and Health Canada; input from Department of Justice lawyers is required both for regulation drafting and for enforcement decisions; the Federal-Provincial Advisory Committee (FPAC) must review all proposed regulations; affected provinces must be given an opportunity to comment on interim orders within

24 hours; and the government-wide focus on consultation has led Environment Canada to alter its working relationship with Industry and Science Canada.

There was considerable friction between Environment Canada and Health Canada during the first years of the assessment process. According to staff in both departments, one of the main problems was that while health risk assessment was a well developed methodology and a system was in place at Health Canada, Environment Canada had to develop a system to conduct environmental risk assessments. This required the recruitment of new personnel, internal reorganization, and demands made on many of the disparate components of the Department.

In our opinion, much of the initial friction between Environment Canada and Health Canada has been resolved. Nonetheless, there are some fundamental coordination issues that need to be addressed in order to enhance efficiency and minimize the burden on government and industry of the assessment and regulation development process. In Health Canada, CEPA science is undertaken entirely within the Environmental Health Directorate of the Health Protection Branch. Matrix management is used to direct the science program with formalized priorities. Science and research resources are more diffuse and widely spread across Environment Canada, which disbanded its Toxic Substances Management Committee three years ago.

Although a full team approach for every assessment may be impossible, given the different scope of effort that may be required for the assessment of any given substance, senior managers in both departments acknowledge that it is inefficient to have independent health and environmental assessments when in many cases both assessments rely on identical information, or at least access the same information sources.

Many of those involved emphasize that CEPA-related contacts between Environment Canada, Health Canada, Agriculture Canada, Energy Mines and Resources, the National Research Council and other federal agencies have slowly increased. In the opinion of a number of officials, this change is at least as much the result of the focus on government-wide responsibility for environmental issues at the time the Green Plan was developed as of CEPA. Fisheries and Oceans, and Environment Canada are renegotiating a Memorandum of Understanding (MOU) to which will be annexed the modalities for interdepartmental consultation and cooperation on a range of specific issues, including CEPA implementation. Fisheries and Oceans officials informed us that they would like to be involved more systematically and rigorously both in the assessment of toxic substances and in the evaluation of control options. Some Fisheries and Oceans staff also think that the department should become a member of the Federal-Provincial Advisory Committee (FPAC).

The focus on consultation that is explicitly articulated in CEPA and that is now emphasized government-wide has forced Industry and Science Canada to collaborate more than in the past with Environment Canada (and vice versa). An MOU was signed between the two departments in May of 1990. In January of 1992 the MOU was amended to focus on sustainable development. This MOU emphasized that Environment Canada should consider nonregulatory pollution control options. It is acknowledged by senior officials in Environment Canada that this development did not occur easily.

Nonetheless, senior personnel in both departments believe that the closer collaboration has improved Environment Canada's ability to respond to and take into account the interests of industry. With the qualifications noted in subsections 3.4 (Public Participation) and 5.2 (Impacts on Industry) of this report, that opinion is echoed by many industry representatives.

- **Options for the administration of CEPA assessments**

There are two alternatives to the current arrangement for the management of CEPA assessments:

1. *Contracting out:* In theory, contracting out more of the assessment work than at present might free government scientists to pursue other work. In our opinion it would be inappropriate to contract out the assessment of new substances. A report prepared under contract to Health Canada concluded that assessments of new substances should not be contracted out both because they must be completed within 90 days and because of the high administrative costs that would be required. Health Canada officials also observe that the new-substances regulations contemplate the use of confidential information, the disclosure of which is prohibited by section 20 of CEPA.

The issue of whether or not it is feasible to expand the use of contracting out for PSL assessments is less clear. Some of the government scientists we interviewed offered four arguments against the use of private-sector contractors: (i) the assessment process requires the use of confidential information; (ii) there is a shortage of expertise in Canada; (iii) the use of contractors means that government does not learn over time; and (iv) the use of contractors for specific assessments undermines attempts to develop consistency across the regulatory program.

A number of outside commentators reject these arguments, observing that although analytical capabilities outside government may not have been sufficient to meet the needs of CEPA when the legislation was first passed, this is no longer the case. In their opinion, analytical, interpretive and assessment skills that equal or exceed those of government agencies can be found across Canada.²⁸ There are also increasing numbers of facilities in which more modern equipment is found in laboratories outside government. Finally, these critics argue that it is possible to arrange contractual relationships such that the government benefits along with the consultant from the learning process.

2. *Reverse onus:* Some government officials argue that industry should be required to conduct or at least pay for the actual risk assessments. For example, the process could be modelled on the provisions for assessing new medical drugs under the *Food and Drug Act* or on the *Pest Control Products Act*, in which industry conducts the assessments and government prescribes the nature of the

²⁸ These comments apply to contaminant identification, cause-and-effect analysis and assessment, in relation to both human and environmental health.

assessment, verifies the accuracy of its conclusions and decides what control measures are appropriate.

There are obvious variations on this model. For example, industry could pay government to conduct the assessment. Currently, the government has a wide range of powers to compel industry to provide information to help it to assess substances. However, the full powers of section 18, in particular, have rarely been used. On the other hand, in the case of new substances, the government can require industry to conduct research if the desired information is not available. The current process is based on the model of the Organization for Economic Cooperation and Development (OECD) for risk assessments of commercial substances. However, because the American model for new substances places a greater obligation on government, Canadian industries complain that the new-substances provisions are unfair and will prove to be a competitive disadvantage for Canada (see subsection 5.3 "Impacts on Industry"). This reverse onus model is therefore likely to be met with considerable opposition.

These options need to be considered further. They may offer the government increased flexibility. We did not canvass all the interested parties in our review of this issue, however, nor did we evaluate thoroughly the potential costs and benefits of each option. That analysis was beyond the scope of this evaluation.

The meaning of "toxic"—What is the appropriate end point of a CEPA risk assessment?

- **Risk assessment and risk management in theory**

Ideally, risk assessment and risk management are distinct processes. Risk assessment is the process of deciding whether a substance poses a risk and, if so, how great the risk is; risk management is the process of deciding how to deal with an assessed risk or group of risks. Risk assessment involves a sequential, four-step process:²⁹

- hazard identification—qualitative determination of what types of adverse health or ecological effects a substance can have;
- exposure assessment—determination of the amounts of a substance to which a critical target (such as a hypothetical person, population, community or ecosystem) is exposed;
- dose-response assessment—estimation of the probability or extent of impact at the exposure levels determined above;
- risk characterization—integration of the above steps to describe the nature of the adverse effects and the strength of the evidence (the certainty level).

²⁹ This description is based on the recent Carnegie Commission on Science and Technology report, *Risk and the Environment: Improving Regulatory Decision Making*. Washington, D.C.: Island Press 1993.

Risk management, in turn, involves two steps: (i) determination of whether the risk identified in the risk assessment is unacceptable and (ii) determination of how to reduce and/or control the risk. Both steps explicitly involve a wide range of legal, economic, political and sociological considerations in addition to scientific information. Although the lines between risk assessment and risk management are fuzzy, there is a wide consensus in the literature, in existing practice in other jurisdictions and on the part of the participants in the CEPA process that the core, scientific risk assessment functions should be distinct from the more political risk management process.

- **The risk assessment process in CEPA**

The process mandated in CEPA diverges from the ideal model described. The PSL and new-substance provisions require that substances be assessed to determine whether they are toxic under CEPA. For PSL substances, section 13 then requires that when an assessment is completed, the ministers of Environment and Health publish a summary of the assessment, including a statement of whether they intend to recommend that the substance be regulated. For new substances the process is somewhat different. Initial assessments are based on an OECD Minimum Pre-Market Data Set. Additional information requirements or conditions can then be imposed if there is a "suspicion" that a substance is toxic.

The key to these provisions is the meaning of the word "toxic" in CEPA. Section 11 defines a substance as "toxic" if it is entering or may enter the environment in a quantity or concentration or under conditions

- a) having or that may have an immediate or long-term harmful effect on the environment;
- b) constituting or that may constitute a danger to the environment on which human health depends; or
- c) constituting or that may constitute a danger in Canada to human life or health.

This definition has caused a number of problems. For example, both Health Canada and Environment Canada have spent considerable time developing operational guidelines about how to determine harmful effects and threats to the environment, and about how to judge the significance of these impacts and their consequences. Indeed, according to Environment Canada managers, for the first couple of years after CEPA was promulgated, scientists in Environment Canada just collected information but did not know how to apply it to the assessment standard specified in the Act.³⁰

- **The meaning of "toxic"**

Whether the assessment of a substance as toxic crosses the border into risk management depends on whether, under CEPA, "toxic" means that the substance poses a "significant" (i.e., nontrivial) risk from a scientific perspective or an unacceptable risk for society. If

³⁰ For a description of the background to this issue, see the report of the 1991 Workshop involving Environment Canada and Health Canada scientists (RFI, 1991).

designation as toxic means that a substance poses an unacceptable risk then the CEPA assessment process crosses the boundary between risk assessment and risk management, since the question of what is an unacceptable risk is necessarily a policy decision. On the other hand, if toxic does not mean unacceptable risk, then it is inappropriate for section 13 to require the ministers to indicate concurrently with release of the assessment whether they intend to regulate the substance; the decision about whether to control a substance must be predicated on a determination that the substance poses or may pose a socially unacceptable risk.

The US Environmental Protection Agency's landmark 1987 report, *Unfinished Business*, demonstrated that public perceptions of risk do not necessarily correspond with expert assessments. That report concluded that in order to reach a social consensus with respect to risk priority setting, considerable effort is required to facilitate communication between government and the public. Accordingly, the risk assessment process should be as transparent and as comprehensible as possible. The uncertainty about the meaning of a designation as toxic exacerbates this problem. The term "toxic" is a culturally loaded term. As such, it is potentially misleading to the public, creating political pressure to act whenever a substance is assessed as "toxic," when such an assessment under CEPA does not necessarily mean that the substance poses an unacceptable risk and needs to be regulated or otherwise controlled. Industry representatives have expressed concern that because of the increasing international pressure to eliminate persistent toxic substances, the designation of a substance as "toxic" under CEPA creates a pressure for action that may not always be warranted.

- **The significance of Schedule 1**

There is also uncertainty about the appropriate use of Schedule 1. The fact that Schedule 1 is called the "List of Toxic Substances" implies that any substance assessed as toxic under CEPA should be scheduled. However, CEPA was amended in 1991 to remove any automatic requirement to schedule all substances assessed as toxic. Instead, Schedule 1 now serves as the list of all substances for which regulations can be developed. Does it therefore represent a list of substances that pose an unacceptable risk and that should be controlled? If so, should the Act specify the criteria or process by which the determination is made that a substance poses an unacceptable risk? And should CEPA be amended so that Schedule 1 could serve as the basis for nonregulatory as well as regulatory intervention?

- **Options to resolve these problems**

There is wide agreement that risk assessment should be separate from risk management. To the greatest degree possible, the risk assessment phase should be based on objective science. This means that the determination of whether a given risk is unacceptable should occur in the risk management phase. On the other hand, it would be a meaningless exercise to assess a substance as toxic if it poses only a trivial risk.³¹ Thus,

³¹ Although this interpretation is consistent with a literal interpretation of the section 11 definition of "toxic," it is not currently applied, except in the case of nonthreshold toxic substances. (Such substances are designated as "toxic" by Health Canada primarily in order to avoid making an inevitably value-laden judgment about what constitutes a *de minimus*

the end point of a risk assessment under CEPA should be a determination of whether the substance poses a "significant"—meaning scientifically nontrivial—risk.

Most observers and participants agree that effective separation of the risk assessment and risk management phases under CEPA requires, at a minimum, removal of the section 13(1)(c)(i) and (ii) requirements to declare concurrently with the publication of a PSL assessment report the government's intentions concerning regulation. Many also suggest that the term "toxic" should be changed to some other, more appropriate term, such as "poses or may pose a significant risk to human health or the environment."³² In our opinion, both of these changes should be made.

We believe that CEPA should also be amended to specify that the Schedule 1 List of Toxic Substances represents a list of substances that the government has determined pose an unacceptable risk and that it therefore intends to control. Thus, all substances on Schedule 1 would have to be controlled in some way and could be controlled by regulation, if desired.

Most participants also agree that some mechanism is required to ensure accountability for the risk management phase. This could be accomplished by (i) requiring that the ministers state, within a given time after a substance has been added to Schedule 1, what control measure will be used; and/or (ii) requiring that the ministers provide an annual public report on the progress made in controlling Schedule 1 substances. Again, in our opinion, both of these changes should be made.

Beyond these changes, there is considerable disagreement about whether the Act should delineate criteria or additional procedural steps for determining that a risk is unacceptable. Most participants support the current process, which entails the evaluation of each risk case by case. A number of participants also point to the emergence of criteria for particular categories of toxic substances. For example, as a result of the Montreal Protocol, any substance assessed as an ODS will now be deemed to pose an unacceptable risk and will be controlled in some manner. Similarly, a consensus is developing that all persistent and bioaccumulative toxic substances should be eliminated. The argument is that as scientific understanding increases and as social norms evolve, other "triggers" will probably continue to emerge, but that it would be premature to spend time and resources trying to develop a comprehensive set of objectives at this time.

By contrast, a number of the people we interviewed advocate a more explicit focus on the process of determining unacceptable risk. Two options could be considered:

1. Develop general ecosystem quality objectives for different categories of substances. These could be developed as general criteria or (in some cases) as

risk, which is considered to be more appropriate to the risk management phase.) Health Canada's position on nonthreshold toxic substances is described on pp. 12-13 of the unpublished draft document from the Bureau of Chemical Hazards, Health and Welfare Canada, "Determination of 'Toxic' under Paragraph 11(c) of the CEPA," 1st. Edition, Nov. 20, 1992.

³² This change is recommended by Dr. K. Davies in her draft evaluation of the risk assessment provisions under CEPA, for example.

environmental quality guidelines under section 8. They could then serve to guide the determination of whether the risk identified in a PSL or new-substance assessment is unacceptable.

2. Require that after a substance has been assessed, the ministers articulate an "acceptable" risk level for the substance.

A number of initiatives recently taken within Environment Canada indicate the feasibility of developing environmental quality objectives in some cases. For example, the Great Lakes Water Quality Agreement (GLWQA) provides well-defined objectives for "swimmable," "fishable" and "drinkable" water, and these have been translated into meaningful water quality standards. Depending on water use, the objectives may differ.³³ Nevertheless, the GLWQA demonstrates that it is possible to establish general criteria for the ambient environment into which toxic substances are introduced.

Another example is the National Framework for Developing Indicators for Ecosystem Health, currently being developed for the Canadian Council of Ministers of the Environment (CCME). The Framework is based on the work of the Lake Ontario Ecosystems Objectives Working Group, and advocates a four-step process: (i) develop a common knowledge base; (ii) develop ecosystem goals and objectives; (iii) develop ecosystem indicators and associated targets; and (iv) conduct directed research and target monitoring.

A similar approach underlies the four regional action plans: the Fraser River Action Plan, the Atlantic Coast Action Plan, the Great Lakes Pollution Prevention Initiative and the Northern River Basins Study. The goal of each of these initiatives is to develop comprehensive basin-wide (ecosystem) strategies. The first step in each is to develop environmental objectives,³⁴ and to then evaluate alternative means to achieve those objectives.

On the basis of this experience, a number of the scientists we interviewed, as well as some representatives from industry and environmental non-government organizations (ENGO), argued that regulations would be more effective if developed in the context of national or ecosystem-based environmental and health quality guidelines. This would ensure consistency between provincial standards, facilitate the consideration of cumulative effects and assist in evaluating impacts and determining priorities.

³³ For example, water quality standards for irrigation may not be so demanding as those for potable supplies. In addition, natural water quality may differ in terms of climatic control; e.g., it is unreasonable to expect that the highly pulsed hydrologies of Prairie surface waters would be characterized by the same nutrient levels as the cool-temperate waters of the Great Lakes.

³⁴ The first step in the development of the comprehensive environmental management plans for the 13 harbours and coastal regions under the Atlantic Coastal Plan is the preparation by multi-stakeholder groups of a "vision" statement. The Saint Lawrence Action Plan has been supported by the development of two indices of pollution that help to focus and to establish priorities for pollution reduction efforts. Similarly, the planning component of the Fraser River Action Plan includes the development of a "Blueprint for Sustainability" that is based, *inter alia*, on water quality objectives.

The most obvious practical problem with this proposal is that it would be very difficult to articulate criteria for unacceptable risk that could apply nation-wide, and that would be broad enough to apply to all substances assessed under CEPA and that would be meaningful. There are some specific problems related to the use of environmental and health quality guidelines as a mechanism to articulate acceptable risk levels. For example, it is difficult to articulate environmental and health quality guidelines for substances with no threshold for effects, such as carcinogens, and for biotechnology products. In some cases it might also be difficult to develop meaningful quantitative national guidelines because of the need to account for regional variations in ecosystem tolerances.³⁵

These problems are legitimate, but do not undermine the critical point that a policy objective need not—indeed should not—depend entirely on science. Consider, for example, the current objective of a 50% reduction in domestic garbage. In our opinion both of the options outlined above should be adopted. A multi-stakeholder process could be initiated to determine the long-term objectives for the management of toxic substances under CEPA. Clear environmental and health quality objectives would help the government make the difficult trade-offs that are inherent in the risk management process. Because the judgment required to make these trade-offs is necessarily value laden, it should be guided by a normative statement of environmental quality objectives that can provide a balance to the economic objectives that underlie investment decisions. Measurable environmental quality objectives would also minimize the risk from unforeseen cumulative impacts of individual decisions made on the basis of substance-by-substance assessments.

Further consideration should also be given to requiring the articulation of acceptable risk levels in the form of environmental quality guidelines for each substance assessed as “toxic.” As is the case with the water, soil and air quality guidelines that have already been developed, these guidelines could be based on information generated in the assessment process. The difference from the current practice is that they should consist of multi-media objectives, which could be modified to suit local circumstances.

An alternative would be to require the provinces to develop and submit provincial (or, ideally, regional ecosystem-based) environmental quality guidelines. These guidelines could then be consolidated and serve as a benchmark for assessments under CEPA. In any event, some such set of changes are required for three reasons. First, they would ensure that the risk assessment and management processes under CEPA are consistent and meaningful. Second, they would provide a focus for public input. Third, they would help guide the selection of control mechanisms for those substances that pose a socially unacceptable risk.

- **The use of the word “may” in the definition of “toxic”**

Section 11 defines a substance as “toxic” if it poses or “may” pose a “danger to the environment” or a “harmful effect to human health.” While the word “may” is important for the assessment of new substances not yet in use, which therefore do not

³⁵ This problem would be avoided if the guidelines were based only on human health tolerance, which (with the exception of some native populations) presumably does not vary by region.

yet pose any threat, some participants in the PSL1 assessment process argue that "may" complicates assessments for PSL substances already in use. Notwithstanding these concerns, however, everyone we spoke with about this issue agreed that the word "may" is an important component of the definition of "toxic" and should not be removed. For example, in the context of existing substances, the word "may" allows for the scientific extrapolation of findings of harm in one or more proven circumstances to other likely but unproved circumstances. Elimination of "may" or restriction of its use to new substances could have the undesirable effect of prolonging the assessment of an existing substance while hard scientific evidence of each risk is generated.

- **Constitutional issues**

Constitutional considerations further exacerbate the uncertainty about the meaning of toxic under CEPA. Outside the explicit areas of federal jurisdiction, such as fisheries and pesticides, the federal government can only regulate a substance on the grounds that it poses a "national concern." There is disagreement within the government about whether a substance can therefore only be declared "toxic" under CEPA if it is capable of being controlled by federal legislation. The prevailing view is that the substance must represent a danger in more than one province in order to be considered toxic by CEPA. Others argue that this factor should not be taken into account at the scientific assessment stage because to do so unnecessarily limits the scope of federal science and would be a disservice to the residents of the particular province. Some also observe that it is counter-intuitive to declare a substance not toxic under CEPA simply because it cannot be subjected to federal controls, regardless of the nature of the risk it represents. Legal services should clarify this issue.

What is the appropriate operational connection between risk assessment and risk management?

The final issue related to the meaning of toxic and the appropriate end point of a CEPA risk assessment involves the nature of the information provided by the risk assessment to the risk management phase. To select an appropriate control option, considerable information is required about the nature of the substance, its sources, its pathways of exposure, the "sinks" it resides in and its effects. Some of the Environment Canada staff responsible for the development of control options maintain that the assessments that have been produced under PSL1 have provided very little information that is helpful in the development of control options.

Risk assessment and risk management should remain distinct. However, it is not always necessary for the risk management exercise to be delayed until after the risk assessment has been completed. In many cases the probable outcome of the risk assessment will be obvious before the process is formally complete. Operational linkages between the risk assessment and risk management personnel should be developed so that the second stage can start as soon as possible. Early preparation will ensure that when the formal risk assessment result is announced, the government is ready to involve the public in a risk management exercise with a well-prepared set of options. This arrangement would require mechanisms to ensure good communication between risk assessment personnel and those responsible for risk management. The requirements are spelled out in more detail in the draft Environmental Protection Directorate document, *The Preparation of Strategic Options Reports* (July 1993).

Efforts should also be made to ensure that, whenever possible, risk assessments provide as much useful information as possible to the risk management exercise, although it is unrealistic to expect them to provide all the required information. Risk assessment does not involve a consideration of the wide range of detailed social, economic and even scientific information needed to develop control mechanisms. Officials involved in the PSL assessments recognize, however, that assessments could provide more information about the life cycle of each substance. Such information would be useful in helping to identify which sources are associated with significant risks and would help guide the risk management exercise. This information was minimized in the PSL1 assessments because of both resource limitations and administrative instructions from senior management, who were concerned to ensure that the risk assessment phase did not appear to cross the border into risk management.

More resources will be required if the risk assessments are to provide more information than they do currently, but changes should only be made in so far as they save more resources during risk management than they add to risk assessment.

Certainty: how much information is required for a CEPA assessment?

A number of critics within the ENGO community argue that the PSL assessments have been slow because they have relied on an unnecessarily high degree of scientific rigour; that is, too much information is required before an assessment is completed. There is a consensus within government that this assertion is unwarranted. Current procedures are consistent with prevailing scientific practice and with international standards. The most important rationale for the current procedures is that an assessment of a substance as toxic under CEPA might lead to regulation, violations of which would be criminal offences. The premise of this point is that the degree of scientific certainty relied on under PSL assessments should reflect the nature of the most stringent control mechanism that might be used to control toxic substances. In section 3.4 (Enforcement) we recommend that many of the criminal law provisions in CEPA be replaced by a system of administrative penalties. Nonetheless, it is unlikely that industry would tolerate regulatory control of any sort without a very high degree of scientific justification. Accordingly, we do not think it would be appropriate to reduce the current level of scientific rigour relied on for CEPA risk assessments.

Nevertheless, it is important to observe that there is disagreement within government and between government and ENGOs about the degree of certainty required to deal with persistent and bio-accumulative toxic substances. There is widespread agreement with the conclusion of the Great Lakes Water Quality Agreement that these substances require virtual elimination. Opinions diverge, however, on the level of information required to classify something as a persistent and bio-accumulative toxic substance. Some government scientists agree with the ENGOs, which assert that if a substance is persistent and or bioaccumulative and is inherently toxic, regardless of the nature of the use of and exposure to the substance, then the only issue is how it should be eliminated. On the other hand, Environmental Protection's current position is that a substance must be persistent and bioaccumulative and be assessed as toxic under CEPA. In other words, some argue that a risk assessment is required, and others argue that a decision can be made about this class of substance solely on the basis of inherent chemical properties.

The disagreement illustrates that the issue of certainty has not been completely resolved to the satisfaction of even all government participants.

This disagreement turns on questions involving the limits of science and the appropriate basis for government intervention. Toxic assessments under CEPA must focus on both the toxicological characteristics of the substance and on the likelihood of exposure sufficient to cause an environmental effect. Considerable effort has therefore been devoted to estimating the extent and likelihood of exposure. Toxic effect models have tended to address either acute lethality or carcinogenicity. Scientists involved in the PSL process emphasize that while these have been difficult enough to address for human populations they have been much more difficult to address in other species of concern in the receiving environment (typically top predator or near-top predator organisms in the food web). Scientists also emphasize that while it is possible to prove that toxic contaminants can have a negative effect on exposed populations, it is virtually impossible to demonstrate that there is no effect. The problem is even more complicated with respect to substances with no threshold for toxicity as well as for those whose persistence is such that science cannot reasonably predict their ultimate fate. The decision about how to deal with these substances necessarily entails a value decision.

In the opinion of many environmental scientists, there is thus a spectrum of effort that may be required to provide adequate scientific justification for control. In some cases, it may be appropriate to require considerable scientific justification before control measures are imposed. The mounting scientific concern with the increasing number and amount of potentially toxic substances points to the need to emphasize the precautionary principle. Scientists and policy advocates sharing this perspective argue that such scientific concern supports the concept of virtual elimination or zero discharge for toxic substances that are persistent or induce sublethal effects.

This debate emphasizes that there are important limits to the use of science to assist in establishing environmental quality standards. In turn, that insight reinforces our recommendation that a public process be initiated to determine the overall objectives of risk assessment and the control of toxic substances under CEPA.

Public participation in CEPA risk assessments³⁶

In our opinion, much of the dissatisfaction that has been expressed concerning the PSL process relates to the confused nature of the risk assessment—risk management process outlined above. Therefore, clarification of the process along the lines recommended above should allay many of these concerns. With respect to the risk assessment process itself, there are five ways in which public participation could be structured:

1. The entire exercise could be collaborative.

In our opinion this option is undesirable. In principle, risk assessment is an objective exercise, relying on the experience and scientific judgment of the evaluator. Any

³⁶ Section 3.4 reviews the opinions of stakeholders about their experience with public participation under CEPA in general.

provision for public participation should be designed specifically to enhance the scientific quality of the exercise.

2. The public could be given an opportunity for input at the outset: "We are going to assess x; tell us all your opinion."

This option essentially represents the status quo. Currently, when a substance is added to the PSL, the public is notified through the *Canada Gazette*. In addition, when Environment Canada and Health Canada commence an assessment they request information from the relevant industries. The only advantage of a broader consultation exercise is that it might provide an opportunity to gauge the level of concern of both ENGOs and industry about the substance being assessed. On the other hand, a formal requirement for consultation would probably delay and confuse the risk assessment process. Accordingly, we do not recommend changing the status quo.

3. Scientific peer review could be increased.

Although some of the early PSL assessments were completed with minimal outside input, both Environment Canada and Health Canada have recently increased the use of scientific peer review. In our opinion, scientific peer review is a valuable exercise, and its use should be continued.

4. Formal advisory panels could be developed.

Three recent American publications argue that government risk assessment processes benefit from external advisory panels.³⁷ These reports maintain that the use of formal advisory panels can enhance consistency and improve the scientific quality of assessment work. In his study, Ted Greenwood of the Massachusetts Institute of Technology argues that advisory committees are best used as external reviewers, not as partners in information collection. As a source of external review a committee can create an incentive for high-quality work, and can add to an already good product. Greenwood also argues that advisory committees should be assembled solely on the basis of skill.

There is considerable scepticism within government about the value of formal advisory panels, however. A number of the government scientists we interviewed observed that advisory panels are costly, can slow down an already cumbersome process and can become too involved in the management of the process. Accordingly, this issue needs to be considered further.

5. The public could be provided with an opportunity to comment on a draft version of an assessment before it is finalized.

In our opinion, a procedure allowing for the release of draft assessments would provide for valuable input in a less confrontational manner than inevitably occurs once an

³⁷ Carnegie Commission, 1993; T. Greenwood, 1988. *Knowledge and Risk Assessment in Government Regulation*. New York: Praeger; Bruce L. R. Smith, 1992. *The Advisors: Scientists in the Policy Process*. Washington, D.C.: The Brookings Institute.

assessment has been finalized. Before implementing this change, however, the departments should consider whether it will impede their ability to complete all risk assessments before the five-year deadline.

3.1.1.3 Risk Management Under CEPA

Priority setting

It is important to be able to establish priorities for the development of control mechanisms for each of the PSL, new and other substances that have been assessed as "toxic." The requirement in section 13 for the ministers to announce their intention regarding regulation concurrently with the publication of the risk assessment complicates the Departments' ability to conduct such a priority setting exercise. Once a substance is assessed as toxic there is considerable pressure to regulate it as soon as possible. We have recommended in section 3.1.1.2, that section 13 be amended to resolve this problem.

Because most of the PSL1 assessments will be published at approximately the same time within the next few months, it might be possible to convene a public hearing to help assign priorities to these substances. In general, however, priority setting should be an ongoing activity and may therefore not be amenable to such an exercise. A preferable alternative might involve the development of relative-risk ranking criteria. The concept of relative-risk ranking has been explored extensively in recent years in the United States,³⁸ has been developed for health risk assessments at Health Canada, and is being considered by the current priority-setting exercise within Conservation and Protection.³⁹ In our opinion, the application of these methods to establish priorities for risk assessment and to develop regulations should encompass ecosystem response problems, substances that are candidates for inclusion on the PSL, PSL substances, PSL and new substances found to be toxic under CEPA but not yet controlled, and substances already under control.

An important impediment to setting priorities effectively is that there are insufficient environmental monitoring mechanisms for evaluating the effectiveness of existing control mechanisms. An early article (Davies, 1988) describing CEPA emphasized the importance of monitoring information:

State of the Environment reports will tell us exactly where we are in terms of environmental protection, what we have accomplished, what we have failed to achieve and what we have yet to do. The reports will help measure the success of CEPA and enable the public to judge governments on their ability to protect human health and the environment.

³⁸ For example, see the two US Environmental Protection Agency (EPA) studies, *Unfinished Business: A Comparative Assessment of Environmental Problems*, 1987, and *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, 1990. See also the recent Carnegie Commission on Science and Technology report, *Risk and the Environment: Improving Regulatory Decision Making*. Washington, D.C.: Island Press 1993.

³⁹ Environmental Priorities Working Group, August 1993. Environmental Priority Setting Methodology.

To date, however, very few environmental monitoring mechanisms have been directly linked to indicate the performance of CEPA control mechanisms. One strategy that has been developed to address this problem is the environmental effects monitoring (EEM) for the pulp and paper regulations. As we recommend in section 3.1.1.4 (information management) further use of EEM should be considered. Consideration should also be given to developing a policy requiring assessment reports to specify the parameters to be measured in determining the effectiveness of any control measures that ultimately might be developed.

Choice of control mechanisms

In a recent study, Resources for the Future (1992), it was observed that toxic substances have three characteristics that complicate the choice of control mechanism:

- the potential risks at many stages in a toxic substance's life cycle mean that intervention may be necessary at more than one stage and may have to take different forms;
- the marked variation in the distribution of risk of harmful exposure across heterogeneous products and uses means that intervention may have to be highly product or use specific to safeguard against risk without unduly restricting relatively harmless applications of toxic substances; and
- the wide scope of substitute products or production processes means that care must be taken in the design of control measures to ensure that one deleterious substance is not substituted for another.

The Environmental Protection Directorate recently published a draft document entitled "The Preparation of Strategic Options Reports to Reduce Discharges of Toxic Substances and Other Substances of Concern" (Environmental Protection Directorate, July 1993). This document also emphasizes that a wide range of control mechanisms should be considered.

In practice, however, Environment Canada has a long history of relying on traditional command and control regulations. This tendency has been observed in a number of recent reviews of the Department (e.g., Doern, 1993; House of Commons Standing Committee on Finance, 1992) and in several departmental publications (e.g., Environment Canada, Pollution Prevention and Control Group, 1992 and Environment Canada, Draft July 16, 1993).

The federal *Regulatory Policy* (Office of Privatization and Regulatory Affairs, 1986) requires, among other conditions, that all regulatory proposals demonstrate that: (i) a problem exists and government intervention is justified; (ii) the public has been consulted and given the chance to participate in the development of the proposed regulatory measures; (iii) the total benefits of the proposed regulatory measure exceed all associated costs; and (iv) the proposed measure is more cost effective than any alternative. Ideally, compliance with this process would ensure that all possible control options are reviewed in each case and the most efficient one chosen.

In theory, Environment Canada's regulatory development process permits compliance with the federal *Regulatory Policy*. As described in more detail in Appendix I, Environment Canada's process nominally has four phases: (i) problem assessment (PSL assessment, international agreement, or some other source); (ii) preparation of a control options report, which evaluates alternative means of addressing the problem; (iii) implementation; and (iv) evaluation. Public input is provided for at each stage.

In practice, the regulatory development process under CEPA has been uneven in terms of compliance with both the federal *Regulatory Policy* and with the Department's own policy. As section 3.5 (Public Participation) discusses in greater detail, although public participation has increased and become more effective over the past five years, stakeholders continue to complain that they should be involved earlier in the process and in an integrated rather than an ad hoc manner.

In addition, as the case study we conducted on the development of the pulp and paper mill regulations indicates, the Department has not always considered alternatives in the rigorous, systematic manner contemplated in the federal *Regulatory Policy* and the Department's own policy (see Appendix J).

This criticism of the Department's inconsistent treatment of alternatives is supported by our review of each of the Regulatory Impact Analysis Statements (RIAS) prepared for the regulations developed under CEPA to date. The RIAS should play a central role in the implementation of the *Regulatory Policy* in that it provides the framework within which the potential costs and benefits of the proposed regulation should be identified and evaluated. According to the Treasury Board Secretariat document, *RIAS Writer's Guide* (p. 26), a thorough comparison of alternatives is supposed to be a key component of each RIAS. As part of the government's regulatory process requirements, a RIAS is required for any new regulation or significant amendment to an existing regulation.

In a few of the CEPA RIAS, alternatives to regulation are not presented on the grounds that the government was constrained by the relevant enabling legislation or by related international agreements to consider only regulations (e.g., the Import and Export of Hazardous Waste Regulations). In other cases, however, the analyses justifying the implementation of a regulation instead of an alternative are rudimentary, and do not comply with the detailed analysis called for by the *Regulatory Policy* and by the Environment Canada guidelines for control options reports.

A number of factors may explain these inadequacies. A previous study observed that Conservation and Protection historically has emphasized the implementation of either regulations or guidelines over the broader range of nonregulatory instruments also available to it (Sypher: Mueller International Inc., 1991: 7). Officials within the Department acknowledge that this emphasis persists, and they observe that it will take time for the new focus on a broader range of control options to become a defining characteristic of the regulatory process.⁴⁰

⁴⁰ It is interesting to observe that a study performed for the US EPA in 1980 (Holdren, et al, 1980) concluded that the US EPA routinely failed to use integrated assessments of the full

The inadequacies in the RIAS analyses of alternatives also reflect the fact that until recently little guidance has been provided to Environment Canada policy analysts and managers concerning the use of and the relative merits of regulatory alternatives. According to Treasury Board staff, this is a problem government wide. As a result, the Treasury Board has produced a guideline for assessing regulatory alternatives (Treasury Board, 1993). There has also been recognition within Environment Canada of the need to enhance the Department's ability to incorporate socio-economic factors into its decision making. A workshop held in December 1989, Making the Environment-Economy Partnership Work for Water Management, explored a more integrated approach to decision making regarding water. In 1992, Conservation and Protection's Socio-Economics Group hosted a workshop focused on ways to improve the Branch's socio-economic skills. And in May 1993, the same group hosted a workshop on valuing the benefits of environmental policies. In addition, the Industrial Programs Branch is currently refining a document entitled "The Preparation of Strategic Options Reports to Reduce Discharges of Toxic Substances and Other Substances of Concern" (Environmental Protection Directorate, July 1993).

Our review of the RIAS documents indicates that there are also considerable problems with the estimates of the costs and benefits of the specific regulatory option chosen. In our opinion the cost analyses were generally defensible. The majority of the assessed implications of compliance costs for competitiveness and the financial viability of industry were well documented. The methodological requirements for cost-benefit analysis were not adhered to, however, in all cases. In some analyses, for example, it was not clear whether the costs were calculated on the basis of opportunity costs; in some it was not clear whether the estimates represented the costs that were incremental to the regulation under analysis. This was particularly true for regulations applying to sectors of the economy in which provincial regulations were also proposed or in force. Finally, taxes are not always treated properly; in some cases tax waivers that reduce the direct costs to industry are not treated as an additional cost to government.

For the most part, the assessments of benefits are inadequate. With the exception of the ODS regulations, little effort is made to quantify benefits. The *Regulatory Policy* requires extensive qualitative analysis when quantitative estimates are not available. Although in most cases the expected benefits were well described, little effort was made to analyse them.

The Treasury Board staff and industry associations interviewed for this study were also critical of Environment Canada's analysis of the benefits of its proposed regulations. These conclusions are echoed in a recent report by the Parliamentary Committee on

range of control issues for energy-related problems for many of the same reasons that Environment Canada has failed to do so, including:

- shortcomings in the state of the art;
 - lack of awareness of the full range of analytical tools and data that exist;
 - lack of experience with and/or confidence in these tools or data;
 - lack of time, staff and money;
 - agency structures that discourage or frustrate integration; and
 - the influence of political pressures from constituencies with vested interests.
-

Finance (PCF, 1993). The Committee observed that many departments, including Environment Canada, do not appear to have sufficient staff with the skills necessary to do cost-benefit analyses. A number of factors underlie the inadequacies in the cost-benefit analyses presented in the RIAS. In general, benefit valuation is difficult (Hahn and Hird, 1991), particularly because many environmental values are either unknown or cannot be quantified. Thus, environmental risk analysis needs to be explicitly incorporated into standard economic cost-benefit valuations. In addition, as staff in the Regulatory Affairs and Program Integration Branch emphasize, the more formal cost-benefit and cost-effectiveness methodologies that underlie both the actual cost and benefit assessments and the strategic options reports are a relatively recent innovation, and not one with which Environment Canada staff have much experience or expertise.

Some critics at Industry and Science Canada and at the Treasury Board argue that Environment Canada's RIAS process is flawed in an additional, more fundamental manner. For example, the House of Commons Finance Committee observed that since a RIAS is usually prepared after a number of choices have been made concerning the course of action government should take, the RIAS often does not provide an opportunity to assist in these choices or even to modify the proposed regulation. In many cases, then, the RIAS becomes "an exercise in ex-post-facto rationalization for decisions taken on other grounds" (PCF, 1993: 51). For example, the RIAS for the Pulp and Paper Effluent Regulations estimates their cost at \$4.1 billion in present value terms but does not present any quantitative estimate of benefits. The Parliamentary Committee concluded that "the commitment of \$4.1 billion in resources with no apparent sense of what the magnitude of the benefits might be provides no sense of what the net impact of the regulation is" (PCF, 1993: 31).

The same complaint is made by a number of Environment Canada's own staff members, who argued in the 1992 workshop referred to above that they are typically brought in too late in the process to be able to look at benefits or alternatives, and are constrained to a quick assessment of costs. These staff members also observe that a number of basic issues concerning the evaluation of regulations have not yet been resolved, including how the value of a life is to be quantified and how much the government is willing to spend on a good cost-benefit analysis.

Legal resources

Regulatory development has also been impeded by the fact that regulation drafting is a very time-consuming and resource-intensive process. In addition to input from departmental personnel, all regulations require input from Department of Justice lawyers. Once drafted, all regulations must be vetted by Privy Council Office Justice (PCOJ) lawyers. The PCOJ office is relatively small, and considerable delays have been experienced by all federal departments waiting for PCOJ approval. In recognition of the expected high volume of regulations to come from Environment Canada, in 1991 a group of PCOJ lawyers was seconded to and is now funded by Environment Canada. Staff in the Office of Regulatory Affairs and Program Integration report that this arrangement has helped speed the regulation development process, both because these lawyers work only on Environment Canada issues and because they can become involved earlier in the drafting process than is ordinarily the case for the PCOJ, thereby helping to anticipate problems.

Increasingly stringent standards for regulation

The federal government is now requiring that proposed regulations meet increasingly stringent standards. The delaying effect of these requirements on Environment Canada's ability to promulgate regulations and other control mechanisms under CEPA is exemplified by the proposed regulations governing hazardous waste on federal facilities. According to staff in the Office of Waste Management, these regulations were developed soon after CEPA was proclaimed and were ready for introduction in 1990. They were never promulgated, however, because of a change in personnel. The Office of Waste Management is now attempting to address this issue. However, an assessment of alternatives to regulation, as required by the Treasury Board, must be prepared, which will further delay the introduction of these regulations. According to the Office of Regulatory and Economic Affairs, similar requirements will apply to all Environment Canada regulations in the future.⁴¹

Federal-Provincial relations

According to many of the people interviewed for this study, a final but particularly important factor affecting the selection of control mechanisms is a concern on the part of senior managers and politicians within the federal government not to "step on provincial toes." Although this possibility is hard to evaluate, it is supported to a certain extent by the pattern of use of regulations and codes of practice.

When CEPA was being developed and on its introduction, the Minister and senior officials repeatedly claimed that it would combine a cradle-to-grave approach with strong regulations.⁴² In practice, however, a number of the regulations that have been promulgated have stopped short of providing full cradle-to-grave control. The PCB, ODS, leaded gasoline and phosphate regulations focus at the front end by banning the use of specified substances. However, according to a senior manager within Environment Canada, concerns about federal-provincial relations often mean that issues involving specific "inside the factory" controls are addressed at the federal level by codes of practice and left to the provinces to regulate.

Codes of practice have both advantages and disadvantages over regulations. They are perceived as less threatening to industry. Typically, they are developed with the assistance of multi-stakeholder advisory groups. As well, they pose less of a threat to provincial jurisdiction. Many of the codes of practice developed under CEPA have ultimately been promulgated as CCME codes of practice. Nonetheless, they are nonmandatory, and in many cases do not therefore represent the strong "cradle-to-grave regulation" predicted for CEPA five years ago.⁴³

⁴¹ A full cost-benefit analysis will be required whenever compliance costs to industry are expected to exceed \$100 million.

⁴² See section 2 and Appendix E for a review of the manner in which CEPA was "sold" to the public.

⁴³ In this study we do not comment on the effectiveness of the various codes of practice that have been implemented. An evaluation of the effectiveness of codes of practice was outside the agreed on terms of reference for this study.

New substances and biotechnology control issues

Section 26 of CEPA requires that Environment Canada be notified about all substances proposed for import or manufacture in Canada that are not on the Domestic Substances List and not specifically exempted by section 26(3). The notification information is then to be jointly assessed by Environment Canada and Health Canada to determine if the substance is *suspected* of being toxic under CEPA. An assessment can conclude that:

- the substance is not suspected of being toxic;
- the substance is toxic, in which case it can be added to Schedule 1 and regulated; or
- the substance is suspected of being toxic, in which case a variety of controls can be imposed on the import and manufacture of the substance or can require the submission and assessment of additional information (section 29).

The draft regulations regarding the notification requirements for new chemicals and polymers were published in the *Canada Gazette Part 1* on May 1, 1993. Publication in Part 2 is expected in the near future, and the regulations are expected to be in force by January 1, 1994. The biotechnology regulation is currently being prepared.

Implementation of the new-substances provisions will not be easy. For example, it is to be expected that the short time frame (90 days) for new-substance assessments, together with the absence of exposure and use data, will complicate the assessment of new substances. In addition, it may be even more difficult to specify conditions for the use of new substances than of existing substances, again because of the absence of exposure and use data. Despite these concerns, most officials involved in preparing for the implementation of these provisions are confident.

On the other hand, there are two problems with respect to biotechnology products that need to be resolved.

- **Scope of the regulations for biotechnology products**

The new-substances provisions of CEPA allow for exemption of new substances if they are regulated under other Acts that provide for notification and assessment equivalent to an assessment of whether the substance is CEPA toxic. Presumably this exemption was designed to minimize duplication of effort or resources on the part of either government or industry in achieving an appropriate level of notification and environmental risk assessment for new substances, while ensuring that products regulated under other Acts would have an appropriate level of environmental risk assessment. In practice, the structuring and wording requires Environment Canada and Health Canada to determine whether Acts administered by other departments provide for an assessment equivalent to an assessment of whether the substance is CEPA toxic. If the other legislation does not, the product will fall under CEPA for the environmental risk assessment.

It is expected that few other Acts will meet the exemption criteria under section 26(3), if they are strictly applied. If the affected departments do not change their legislation and procedures, products falling under those Acts will then have to be evaluated under CEPA. In the opinion of some officials responsible for the implementation of these provisions, it is not clear that there are sufficient resources for the task. On the other hand, if departments wish to modify their legislation to meet the CEPA criteria, Environment Canada and Health Canada may be asked to be advisors. There will then be an issue concerning the extent of authority of Environment Canada and Health Canada on decisions concerning products under those acts.

Although the issue is being addressed, some officials responsible for the implementation of the provisions urged that these jurisdictional and resource issues indicate that a policy decision is needed to either re-affirm the current process of dealing with other Acts or to develop other provisions.

- **Quantity triggers**

Quantity triggers are used in CEPA to require that specific action be taken if the amount of a substance imported into or manufactured in Canada exceeds a specified quantity. The basic rationale for using a quantity trigger is to focus attention on those substances that are used in Canada on a commercial scale and in such quantities that regulatory attention may be merited. Officials responsible for the implementation of the new-substances and biotechnology provisions agree that such quantity triggers are not appropriate for certain biotechnology products that are alive and self-replicating.

Alternative triggers for biotechnology products should be developed to replace the following quantity triggers:

- i) the provisions stipulating when a new substance must be added to the Domestic Substances List (DSL);
- ii) the section 26(3) exemptions to the section 26(1) and 26(2) restrictions concerning the use of new substances not specified on the DSL; and
- iii) the notification groups under the New Substances Notification Regulations.

3.1.1.4 The Connection of Science to Policy under CEPA

The PSL and new-substance assessment processes place a lot of weight on science. It is important to understand that there are significant limitations to the use of science in the development of public policy; science cannot provide all the answers required for a policy decision. These limitations relate both to the nature of the scientific process⁴⁴ and to the difficulty of managing science within a bureaucracy. Numerous studies emphasize that discretion must supplement knowledge in virtually every type of public

⁴⁴ According to a major school of the philosophy of science, scientific evidence cannot "prove" anything but can only establish the probability that something is likely to be true: a proposition can be disproved, but can never be confirmed. See, for example, Popper, 1959.

policy question, including those involving scientific or engineering issues (Lee-Davis, 1985; Cortner and Schweitzer, 1983; Greenwood, 1990).

The insight that science cannot be relied on to provide all the answers is critical to the operation of CEPA in two respects. First, it is important to understand precisely what the limitations of science are to achieving the objectives of CEPA. And second, it is equally important to understand the way in which discretion is exercised in connection with the science practised under CEPA.

As we observe above, the implementation of CEPA has required an extended learning process for both managers and scientists. According to a number of government scientists, delays, changes or inconsistencies in style, format, requirements and even intent have resulted in frustrations within the science community as it has sought to provide recommendations and guidance for the officials preparing regulations.

Responsibility for environmental issues within the federal government is shared by a large number of departments. The wide authority created by the cradle-to-grave approach incorporated in CEPA therefore creates the potential for considerable overlap between Environment Canada and other federal departments. This is a particular concern with respect to Agriculture Canada (which regulates pesticides), Fisheries and Oceans (which shares the responsibility for administering the *Fisheries Act* with Environment Canada), and each department with jurisdiction over biotechnology products that will soon be covered by a CEPA regulation.

To date, however, direct involvement of other federal agencies in CEPA-related science has been limited. Most of the scientists we interviewed agreed that the most successful joint scientific activities have been related to studies on pulp and paper effluent. Substantial collaboration occurred at the research level and between individual scientists at Environment Canada and Fisheries and Oceans. On the other hand, a number of people argued that in most other cases the coordination between departments and the use of available expertise across government has been much less satisfactory. For example, in a number of cases nondepartmental experts with directly relevant knowledge were apparently used only to review completed work rather than to assist from the outset.

More fundamentally, many scientists observe that there has been little integration of science priorities among the many government research programs relevant to environmental quality or even among those related to toxic substances. Thus, many of those we interviewed argue that the scientific efforts of, for example, Fisheries and Oceans, Agriculture Canada (Pesticides), Workplace Health and Safety (Health Canada) and Human Health (Health Canada) remain on separate tracks.

Two problems result from inadequate integration. First, some scientists argue that the link between human and environmental health is still not very strong. Second, critics observe that this fragmented, media-specific approach inhibits Environment Canada's ability to formulate a consistent and comprehensive approach to environmental quality and can result in the following problems:⁴⁵

⁴⁵ Muldoon, 1990; Versteeg, 1993: 17; US EPA, 1992: 4-5.

- the transfer of pollutants from one medium to another, so that only the rate or place of entry is affected (a potential consequence of the proposed restriction to the ocean dumping of industrial wastes may be increased land dumping);
- errors in estimating the impacts of toxic chemicals on receptors; and
- lack of interdepartmental coordination, which can lead to the issue of discharge permits for different media or different purposes, resulting in higher than desired overall emissions.

In the opinion of many scientists within government, one of the biggest problems concerning the government use of science is the failure to consult scientists adequately in the preparation of control options and, in particular, in the drafting of regulations. This conclusion was emphasized by the participants at the Science Forum, held in 1992 by the Office of the Science Advisor at Environment Canada (Science Forum, 1992). The point was also made with respect to CEPA in particular by many of the scientists interviewed for this evaluation.

The complaint illustrates the difficulty of connecting science to policy. In the opinion of many participants and observers, science has typically been well used under CEPA when it could be focused on clearly defined issues, with clearly defined questions. Again, for example, the ad hoc working group on pulp and paper effluent has made effective use of scientific resources across government and industry. Many scientists argue, however, that science has not provided useful input when data are lacking or when no process has been put in place to obtain specific information.

In a recent study of the use of scientific knowledge by the US EPA and the Occupational Health and Safety Agency (OHSA), Ted Greenwood of MIT emphasizes the difficulties in managing science for specific public policy objectives (Greenwood, 1990). In addition to the obvious importance of skilled personnel, he concludes that three factors are of particular significance in determining scientific competence at the time that action is initiated: the use of advisory committees, the efficacy of internal procedures for collecting, analyzing and reviewing scientific information, and the organizational separation of risk assessment and regulatory activities. The previous sections in this report contain recommendations concerning each of these factors. It is also interesting to note, however, that Greenwood was unable to draw a firm conclusion about the appropriate relationship of research to regulatory programs. The closer research and regulatory programs are, the more responsive the research is likely to be to the needs and wishes of the regulators and therefore to the program. Nevertheless, closeness and responsiveness exacerbate the problem of achieving stability, flexibility and quality in the research program, and result in policy bias or the perception of policy bias in the research outputs. Greenwood observed a wide range of arrangements within EPA and OHSA but was unable to conclude that any one version was superior in resolving this tension. As we noted above, there is a similar variety of arrangements between Health Canada and Environment Canada, and even within Environment Canada.

3.1.1.5 Cradle-to-Grave Information

CEPA enhanced the government's authority to control environmental and health-related information. Sections 7 and 8 permit the Minister of the Environment to establish monitoring stations, conduct environmental research and share information with the provinces. To control toxic substances, the Minister may gather information, conduct investigations (section 15(a)), and request information held by private parties regarding any substance, its uses and its composition (subsection 16 and 18). In addition, section 17 imposes a positive duty on any importer, manufacturer, processor or distributor of a toxic substance to forward immediately any information relevant to toxicity.

Information is required for five main functions under CEPA:

- to select substances for assessment;
- to help determine environmental protection priorities;
- to help assess;
- to help manage individual substances; and
- to evaluate the effectiveness of the control mechanisms that are adopted.

Each of these processes imposes complex and distinct demands for information. For example, the degree to which the substances selected for assessment reflect priorities depends in large part on the quality of the information available about problem substances. The issue of the research required to provide this information is described in section 3.1.1.1.

The adequacy of the information for the PSL and new-substance assessments and for the development of control options is one of the most important challenges for the implementation of Part II of CEPA. PSL assessments rely primarily on existing information. Thus the efficiency of the assessment process depends largely on the efficiency with which existing information can be accessed. This requires arrangements to collect the disparate information throughout the federal government, from other governments, from academia and from the private sector. Such a requirement is an ongoing challenge. For example, with respect to the PSL assessment process, the Priority Substances Science Forum held in 1989 concluded that:

- the science challenge posed by CEPA is largely organizational;
- the management responsibility shared between Environment Canada and Health Canada required new mechanisms at the science and management levels;
- because the science challenge had not been appreciated prior to CEPA's promulgation no new mechanisms had been developed to fund and direct the science-related components of CEPA assessment, regulation, monitoring, inspection and enforcement; and
- the science community outside of government represents a large resource that was largely untapped because the community is fragmented, unfocused and lacks both funding and national leadership.

The Forum recommended the creation of a separate five-year science program to coordinate all the scientific activity under CEPA. This proposal was explored in two subsequent papers prepared by the National Water Research Institute (Lawrence, 1990). These papers outlined the scope of the scientific information requirements and the possible mandate of a science coordinating body. They also emphasized that the information needs under CEPA go beyond the short-term requirements for the PSL assessments, and include monitoring and evaluation information related to the postassessment regulatory enforcement and control activities.

Despite these early warnings, a number of the PSL1 assessments will conclude that there is insufficient information to complete the required assessment.⁴⁶ In a memorandum to selected members of the Canadian scientific community dated March 12, 1993 the Director General, Eco-Sciences and Evaluation Directorate, and the acting Director General, Environmental Protection, wrote the following:

In assessing the entry, exposure and effects of priority substances on the environment and human health in Canada, a number of data gaps were encountered. . . . In some cases, the lack of adequate reliable scientific information on the environmental concentrations, bioavailability, and effects of exposure in Canada . . . made it impossible to evaluate the ecological significance of the substance in the Canadian environment and to make an assessment of toxicity under CEPA.

In other cases, there will be sufficient information to determine that a substance is toxic on the basis of harm to the environment but insufficient information to conclude whether the substance also poses a danger to human health, or vice versa. Additional information must then be generated to provide a comprehensive risk assessment. This will require resources and additional coordination of efforts among the people and programs involved in research.

In most cases, additional information will be required to determine how best to control a substance declared toxic. The degree to which the risk assessment process should be required to provide useful information for the risk management stage is considered further below. At a minimum, socio-economic information is required at this stage to supplement the scientific information provided by the risk assessment. The problem may be even more serious with respect to PSL2. PSL1 consists of relatively well-understood substances. Although one of the proposed criteria for PSL2 is the availability of information to permit an assessment, most of the scientists whom we consulted argue that the new list will inevitably include some substances for which very little information exists.

Accessing information from government and from academia

According to senior managers responsible for the PSL assessment process, there was initially insufficient utilization of all departmental resources. Over the past year and a

⁴⁶ According to senior managers in the Commercial Chemicals Branch, when PSL1 is complete, the additional information required will be consolidated and Environment Canada will decide how best to obtain it.

half, an effort has been made to develop a team approach, bringing together people from different parts of the departments of Health and Environment. Nonetheless, this effort is impeded by the fact that Environment Canada has no centralized databases. Nor are there standard tools or protocols. As a result, all systems are independent. The degree of compatibility among information systems therefore depends on the effort of the individual systems analyst and on chance.

Environment Canada contracts out a wide range of services including data compilation, assessment and special expertise. Similarly, Health Canada has made use of contract services. The CEPA science program has benefited from the industrial support programs of Industry and Science Canada (where there has been a program match). There has also been extensive information sharing with provincial agencies. On the other hand, there have been no formal ties with the granting programs of Tri-Council members. Although both departments have staff who act as reviewers for the National Science and Engineering Research Council and for the Medical Research Council, both councils have declined requests for support on the grounds that the assessment work is not sufficiently "cutting edge."

Staff in both ministries rely on and participate in a wide range of international collaborative exercises.⁴⁷ These are conducted on a bilateral basis and with international organizations such as the OECD and the United Nations Environment Program (UNEP). These initiatives include shared assessment efforts; information exchange agreements (e.g., the International Program for Chemical Safety); joint development of test guidelines (e.g., biochemicals); and international regulatory agreements, such as the Montreal Protocol (ODS) and the London Guidelines (export of banned goods). Notwithstanding these initiatives, one prominent academic who has considerable experience working with both Environment Canada and the US EPA suggested to us that considerably more progress could be made by building on existing cooperative arrangements with the US government.

The most important information-related problem is that the government has had difficulty stimulating the generation of new information to support either the PSL assessment process or other policy initiatives. The 1988 Science Forum was in part an attempt by Environment Canada and Health Canada to try to influence research agendas. According to participants, the response from the academic community was that for the most part the information required for the PSL1 assessment process involved routine methodologies and was therefore not attractive enough to stimulate academic interest, absent funding. Although the original NWRI proposal to set up a CEPA science net was not supported, Green Plan funding was ultimately provided for a Canadian Toxicology Network. According to government scientists, however, this program is developing slowly. In addition, no initiatives have been advanced to set up federal-provincial or academic work-sharing agreements that might tap special abilities or resources as a component of partnership agreements.

⁴⁷ Some critics of CEPA argue that there should be a streamlined process for substances that are "generally accepted" as toxic by other standards. Within the parameters of the Act, this would not be appropriate. CEPA defines toxicity as a function of inherent toxicity and exposure. Thus, while it is appropriate to rely on international assessments of toxicity, exposure assessments must be completed for Canada.

Accessing information held by industry

At the time of the development and introduction of the new Act, one of the major concerns of the business community was the possibility that confidential business information would be disclosed under the broad information-gathering provisions given to the government.⁴⁸ Despite the fact that the confidentiality provisions in CEPA are extremely complex and subject to very vague and broadly worded exceptions,⁴⁹ our evaluation did not encounter any serious concerns about the way that confidential business information has been handled under the Act.

Nonetheless, there is wide agreement that the information-gathering powers of government that are provided in sections 15 to 18 of CEPA need to be clarified. In particular, the following statutory changes should be made:

- Section 18 should be amended so that the government can require industry to provide information to both help assess a substance and determine how the substance should be controlled. In the opinion of Department of Justice lawyers, section 18 can be used to do this only for substances suspected of being toxic under CEPA, but cannot be used once a substance has been determined to be toxic. Thus, once a substance has been assessed under CEPA as toxic on the basis that it is a danger to human health, the government cannot use section 18 to request additional information to determine whether the substance also poses a harm to the environment. Similarly, section 18 cannot be used to obtain information about how best to control a substance assessed as toxic.
- A "significant new use" provision is required. CEPA does not provide an adequate mechanism to handle issues that arise when a substance already assessed is used in either a different quantity or in a new manner. These changes could increase the risk associated with the substance and could mean either that a substance originally assessed as not toxic should now be considered toxic and controlled as such, or that additional controls are required for a substance already assessed as toxic. Currently, section 17 requires that users notify the government when they obtain information that "reasonably supports the conclusion that the substance is toxic." Although guidelines are being prepared to clarify the scope of section 17, they will not provide adequate protection against all significant new uses; a separate provision is therefore required.
- A "stop-clock" provision should be added to section 14. Currently, each PSL assessment must be completed within five years of the substance being added to the PSL. When the government has insufficient information to assess a substance, it should be able to use sections 16 and 18 to obtain information from

⁴⁸ Confidentiality was raised during the CEPA consultations. See, for example, "Development of the Canadian Environmental Protection Act," undated Conservation and Protection document. Concerns over confidential information were also expressed by a number of lawyers representing private sector clients. See, for example, Searle, 1989 and Lederer, 1989.

⁴⁹ See Searle (1989) for a discussion of the ambiguous and complex nature of the treatment of confidential business information in CEPA.

industry and to "stop the clock," at least until an effort is made in good faith to provide the required information.

- Cost-sharing provisions would be helpful. In some cases, numerous industries use the substance that is being assessed, and some mechanism is required to allocate fairly the costs of providing the information requested by government. For PSL1 these arrangements were developed on an ad hoc basis and have created a number of problems.

3.1.1.6 Strategic Management of Toxic Substances

There are several ways in which Environment Canada can address toxic pollution. In addition to the substance-by-substance approach mandated by the PSL process, other initiatives currently being undertaken by the Department include the work within the Industrial Programs Branch focusing on sectors as a whole; the development of pollution-prevention strategies; technology transfer and other education-related programs; information-based approaches such as the National Pollution Reduction Inventory (NPRI); and voluntary programs such as the Accelerated Reduction and Elimination of Toxic Substances (ARET). Obviously no single approach will solve all problems. The strategic management issue is how to ensure that the appropriate combination is pursued. Over the past five years, however, a significant focus under CEPA has been the substance-by-substance assessment provisions in Part II of the Act. While these provisions represent an important element of the government's effort to control toxic substances, the important challenge now is to ensure that an overall strategy is developed that links these provisions with the many other approaches that should be part of an overall strategy.

3.1.2 CONCLUSIONS AND RECOMMENDATIONS

Many of the problems associated with CEPA's provisions for the assessment and control of toxic substances over the last five years can be attributed to the considerable learning process that Environment Canada and Health Canada have gone through. Many problems have been resolved or at least addressed, and a number of important benefits have resulted from the application of these provisions. Certain regulations have been effective in reducing the use of specific substances. The consultation process (in particular concerning the New Substances Information Regulations), together with the general publicity given to CEPA at its introduction, have helped to raise concern by the public and industry about the use of toxic substances. Both Environment Canada and Health Canada now have improved expertise concerning the health and ecological impacts of toxic substances in Canada. The assessment process has improved the link between governmental scientific resources and the policy development process. The assessment and regulatory development process under CEPA has also led to improved interdepartmental collaboration as well as to improved consultation procedures between government and the public.

Notwithstanding these benefits and improvements, a number of important problems remain. For example, although increased funding has alleviated some of the start-up problems, unless Green Plan funding is renewed or entered into the A-base, money will again become a problem. The effective implementation of CEPA also requires coordination between Environment Canada and a large number of other departments,

including the PCOJ, Health Canada, Industry and Science Canada, and Fisheries and Oceans. Again, although coordination has improved considerably, a number of problems persist, particularly with respect to the lack of coordination of the many related or potentially related scientific efforts across the government.

The risk assessment process under CEPA needs to be clarified. Any changes should be guided by the objectives of ensuring that the process is transparent and that there is accountability throughout and of focusing public participation. In principle, risk assessment should be kept distinct from risk management. In practice, this distinction is undermined by the section 13 requirement that with the release of the risk assessment report the ministers declare their intention as to whether regulations will be developed. The use of the word "toxic" in section 11 has created further uncertainty about the end point of a risk assessment under CEPA. The following changes are therefore recommended:

- a) clarify the end point of the risk assessment phase by replacing the term "toxic" with some other, less provocative term, such as "poses or may pose a risk";
- b) amend section 13;
- c) clarify the process for determining that a substance poses an unacceptable risk;
- d) make the Schedule 1 List of Toxic Substances the list of substances the government has determined pose an unacceptable risk and which it intends to control in some manner; and
- e) impose accountability for controlling substances on Schedule 1 by (i) requiring that the ministers state within a given period of time what control mechanisms will be adopted; and/or (ii) requiring an annual public report on progress made in controlling substances on Schedule 1.

In our opinion, a general set of objectives should be developed to guide the risk assessment and risk management processes under CEPA. We acknowledge that there are considerable practical difficulties with respect to the development of meaningful nationally applicable objectives. Nonetheless, we believe that the process should be more objective-driven, and we propose a number of changes to encourage the refinement of objectives throughout the risk assessment/risk management process.

There are also problems with the risk management process under CEPA. This process has been impeded in part by the limited operational connections between the risk assessment and the risk management phases. While the two processes should remain distinct, a number of changes could be made to increase the relevance of the risk assessment product. For example, a preliminary public scoping session could help identify general concerns and research needs for each substance. Improved communication would allow the risk management exercise to anticipate the result of a risk assessment and provide some direction about the type of information that might be useful in the control of the substance. In particular, risk assessments could provide more information about the life cycle of substances.

The risk management or control options phase has been undermined by the fact that there are insufficient environmental monitoring mechanisms to help evaluate the effectiveness of existing control mechanisms. There is no formal mechanism to

establish priorities for the development of controls for each of the various substances that have been or might be determined to pose an unacceptable risk.

The federal government has established strict standards for the development of regulations, requiring public consultation and thorough evaluation of the costs and benefits of all alternative approaches. Although in theory Environment Canada's "control options" process complies with these requirements, the department has not consistently followed them in practice. Alternatives to regulation have not been considered adequately in a number of cases, and many of the RIAs prepared for CEPA regulations contain inadequate cost-benefit analyses. These difficult problems are being addressed, and the department has considerably expanded its use of public consultation.

Neither is it clear whether Environment Canada can continue to fulfil the CEPA requirements for assessment and regulation development. Implementation of the new-substances assessment provisions can be expected to be difficult. The lack of data on use and exposure will compound the tight time frame provided to the government. According to Department officials, it is expected that an average of about 100 new substances will have to be assessed each year (as many as 300 to 400 for the first year or two). It can also be expected that it will become increasingly difficult to obtain the required information as the assessment process turns to less well-known substances. And even if only a small percentage of the substances assessed under PSL1, PSL2 and the new-substance provisions require regulations in the next five years, this may require a large increase in Environment Canada's regulation development (and enforcement) capacity.

At a time of dwindling resources, the federal government will have to learn to regulate and otherwise manage its responsibilities differently and more efficiently. The government and the public are demanding that prospective regulations meet increasingly stringent standards. Moreover, even if environmental issues increase in importance relative to other areas of government intervention, it is possible that the total resources available for the development of regulations will decline.

The issue of the adequacy of information for the PSL and new-substance assessments and for the development of control options is one of the most important challenges for the implementation of CEPA. There are considerable ongoing problems with respect to accessing the immense amount of information required to complete the PSL assessments.

The connection of science to policy is also an important factor, and one that has improved under CEPA. CEPA was explicitly designed as a science-based act. In particular, the PSL and new-substance assessment provisions ensure that there is considerable scientific evidence to justify regulatory or other control measures. The implementation of these provisions has forced Environment Canada and Health Canada managers to focus at least some of their departments' scientific efforts in a systematic manner. The science-policy link has also improved as a result of the increased funding that has been provided to help implement CEPA.

Notwithstanding these developments, there appear to have been a number of important problems in connecting science to policy. There is little coordination between the related science efforts across government, between the federal and provincial governments and with the private sector. This can result in the inefficient use of resources when expertise outside Environment Canada or Health Canada is not adequately utilized. More fundamentally, the division of responsibilities makes it extremely difficult for Environment Canada to exert leadership in developing a comprehensive environmental protection strategy.

The CEPA Part II provisions are predicated on a substance-by-substance approach. To be effective, these provisions should be interpreted as widely as possible to permit a focus on complex mixtures, such as industrial wastes and effluents and commercial products. In any event, however, the effective management of toxic substances will require that other mechanisms be developed to supplement these provisions. In order to ensure that all priorities are identified, research is required that also focuses on "ecosystem responses." Continued work on the ecosystem approach to environmental regulation is required to compensate for the inability of the substance-by-substance assessment to identify such problems as cumulative impacts from complex mixtures or from multiple sources of similar contaminants.

It is critical for the CEPA assessment processes to be coordinated with an overall strategy for the control of toxic substances in Canada. Ideally, such a strategy would link desired ambient environmental quality standards, specific toxic substance control measures, and other more general elements of the policy framework affecting environmental quality. Development of such a strategy will require improved coordination of scientific effort within the federal government, improved federal-provincial relations and, above all, public input to a process designed to help determine the particular role that CEPA should play.

On the basis of these observations, we make the following recommendations:

Strategic Management

1. Ecosystem quality and human health objectives should be developed for CEPA. These objectives should be designed to help priority setting, to guide the selection, implementation and enforcement of control mechanisms, and to provide useful measures of effectiveness.
2. Mechanisms are required to help establish priorities for risk assessment and for the development of control measures. Because most of the PSL1 assessments will be published at approximately the same time, it might be possible to convene a public hearing to help assign priorities to these substances. In general, however, a mechanism is required to permit these choices to be made on an ongoing basis. One solution is to develop relative-risk ranking methods, to be used in conjunction with State of the Environment (SOE) reporting and a clear overall set of objectives. Relative-risk assessment methods should encompass ecosystem-response problems, substances that are candidates for inclusion on the PSL, PSL substances, PSL and new substances found to be toxic but not yet controlled, and substances already under control.

Resources

3. Unless changes are made that reduce the responsibility currently imposed by CEPA on Environment Canada and Health Canada, steps should be taken to ensure that Green Plan funding is extended or rolled over to the departments' A-bases.

Selection of substances to assess

4. When naturally occurring chemicals are nominated to the PSL2, guidance should be provided regarding the cause of concern (industrial sector or process) and the speciation of concern that should be assessed.
5. Given the need in many cases to control complex mixtures, such as industrial effluents, wastes or commercial products, either:
 - a) the criteria for selecting substances for the PSL2 should also include the selection of complex mixtures such as wastes, effluents and commercial chemicals; or
 - b) a policy should be developed that recognizes that all substances put on the PSL are not intended to be evaluated by both departments, and mechanisms should be established to ensure that research resources are also focused on more complex mixtures such as industrial effluents, wastes and commercial products.
6. Given that in some cases the effects of toxic substances will be first observed as "ecosystem responses":
 - a) more support should be provided to ecosystem response research; and
 - b) consideration should be given to amending CEPA to provide a mechanism to designate geographical areas and environmental responses of concern for priority assessment.

The risk assessment process

7. To increase the efficiency of the risk assessment process under CEPA, the government should consider the merits of:
 - a) contracting out more of the PSL assessment process; and
 - b) a reverse onus provision, requiring industry to perform the risk assessments to government standards.
8. The issue of whether a substance can only be declared toxic under CEPA if it is capable of being controlled by federal legislation should be clarified.
9. Risk assessment should be more separate from risk management, and the determination of whether the risk is unacceptable should occur in the risk management phase.

To accomplish this, the following changes to CEPA should be considered:

- a) the word "toxic" should be changed to some other, less provocative term, such as "poses or is likely to pose a risk to the environment or health";
 - b) the section 13(1)(c)(i) and (ii) requirements to declare the government's intentions concerning regulation concurrently with the publication of a PSL assessment report should be removed;
 - c) the Schedule 1 List of Toxic Substances should be a list of substances that the government has decided pose unacceptable risk and that it intends to control in some manner; and
 - d) accountability should be imposed for controlling substances assessed as toxic by (i) requiring that the ministers state within a given period of time whether a control mechanism will be developed and, if so, which mechanisms will be relied on; and/or (ii) requiring that the ministers provide an annual public report on the progress made in controlling substances assessed as toxic.
- 10. The process for determining that a substance poses an unacceptable risk and therefore should be controlled ought to be clarified. In particular, further consideration should be given to requiring the articulation of acceptable risk levels in the form of ecosystem health guidelines under section 8 for each substance added to Schedule 1.
 - 11. Environment Canada should make increased use of scientific peer review for PSL assessments.
 - 12. The option of establishing one or more formal advisory panels for the CEPA PSL and new-substances assessment processes should be considered.
 - 13. Draft PSL assessments should be released for public comment before the Minister formally releases the assessment under section 13.

Risk management

- 14. The risk assessment process should be better integrated with the risk management process by:
 - a) when possible the risk management should anticipate the outcome of the risk assessment and begin before a substance is formally assessed as "toxic";
 - b) the risk management personnel should inform the risk assessment personnel about their information needs; and
 - c) an administrative policy should be developed requiring that assessment reports contain information useful for the evaluation of how to manage the risk. In particular, future PSL assessments should contain more information related to the life cycle of substances. This will require more resources and should only be implemented to the extent that the extra effort is more than offset by a time and resource saving in the risk management phase.

15. Risk management should be improved by
 - a) considering alternatives to regulation at the earliest possible stages of the risk management phase; and
 - b) improving the capacity of Environment Canada and Health Canada to take into account socio-economic factors when evaluating control options.

Information

16. There are currently insufficient monitoring mechanisms to evaluate the effectiveness of existing control mechanisms. To remedy this, three changes should be considered:
 - a) increased use of environmental effects monitoring;
 - b) a policy requiring that PSL assessment reports specify the parameters to be measured in determining the effectiveness of any control measures that might ultimately be developed; and
 - c) SOE reporting to be linked to departmental monitoring of toxic substances.
17. Environment Canada should link its scientific databases.
18. Section 18 should be amended so that it enables the government to require industry to provide information more than once for the same substance—i.e., to help both assess the substance and determine how it should be controlled.
19. A “significant new use” provision is required to compel industry to inform the government when a substance already assessed is used in either a different quantity or a new manner.
20. A “stop-clock” provision should be added to section 14. Currently, each PSL assessment must be completed within five years of the substance being added to the PSL. When the government has insufficient information to assess a substance, it should be able to use sections 16 and 18 to require information from industry and to “stop the clock,” at least until an effort is made in good faith to provide the required information.
21. Cost-sharing provisions are required to allocate the costs of providing information requested under CEPA fairly among all affected industries.

Biotechnology Substances

22. Environment Canada and Health Canada should ensure that they have sufficient resources to comply with the requirement that all biotechnology substances be assessed under CEPA—even if they are to be regulated under other federal legislation—unless another federal act mandates an assessment of whether the substance is toxic under CEPA .
23. CEPA should be amended to include different, nonquantitative triggers for biotechnology products.

3.2 ADMINISTRATION OF CONSOLIDATED LEGISLATION

3.2.1 BACKGROUND

Although there was a significant tendency in the period preceding the implementation of CEPA to equate the legislation with the management of toxic substances, it is clear from the brief description of the development of the statute in section 2 that CEPA's scope is considerably broader than this.

This section surveys the additional CEPA provisions (other than those of Part IV, which are dealt with in section 3.7). Reviewed here are the provisions of Part I (nonregulatory programs and research), Part II (fuels and import and export of hazardous waste), Part III (nutrients), Part V (international air pollution) and Part VI (ocean dumping). The extent of the evaluation of each of these varies considerably, depending on the activity that has taken place, the nature of the problems that have arisen and whether there are other evaluations of the provisions under way.

3.2.2 ANALYSIS

3.2.2.1 Nonregulatory Programs and Research

Sections 7 and 8 of CEPA authorize the ministers of Environment and Health to conduct research and monitoring activities and to make use of a wide range of nonregulatory instruments. In addition to the activities described in this section of the report, for which there are specific authorizing sections, several other initiatives are attributed in the Annual Reports to these provisions: the Environmental Choice Program, the Advisory Committee on Environmental Protection, the National Office of Pollution Prevention and SOE reporting.

Although it is true that CEPA authorizes the actions taken by Environment Canada in these areas, it is legitimate to ask to what extent CEPA is actually responsible for the existence of any such initiative. For example, the first SOE Report predates the passage of CEPA, and direction for the Office of SOE Reporting has come from a number of sources, both within and outside the federal government. Similarly, the ARET program run by the National Office of Pollution Prevention had its origins in the work of the New Directions Group, a multi-stakeholder group with representatives from industry and the environmental groups. In both cases it is likely that the initiative would have functioned in much the same way with or without CEPA.

A separate evaluation is being conducted of the Environmental Choice Program.⁵⁰ A multi-stakeholder review of the potential role of pollution prevention under CEPA has also commenced. It was therefore decided not to examine these initiatives in this report.

3.2.2.2 Export and Import of Wastes and Recyclable Materials

Prior to CEPA there was no adequate authority to regulate the international shipment of hazardous wastes. International shipments were covered by the *Transportation of Dangerous Goods Act*. That Act only regulated on the basis of safety during

⁵⁰ For an independent review of the Environmental Choice Program, see Cohen, 1991: 255-260.

transportation and did not, for example, permit the federal government to track shipments or preclude shipments that were not consented to by the recipient country or that would be handled in an environmentally undesirable manner, the main requirements of the Basel Convention.

CEPA provides this authority in sections 43 to 45. However, there are three main problems with these sections. First, the Canada—US Agreement on the Transboundary Movement of Hazardous Waste was amended in 1992 to cover other wastes destined for disposal. As a result of this amendment, Environment Canada must now amend CEPA to cover the import and export of all wastes and must subsequently develop the required regulation. Second, the details of the requirements are split between the Act and the Regulations. This has created confusion among both shippers and Environment Canada enforcement staff.

Finally, section 45(3)(c) does not explicitly provide for either bans or discretionary authority—for example, the imposition of conditions on proposed exports and imports or the possibility of exemptions from certain requirements, as in the case of small quantities or minimum concentrations of hazardous wastes. Section 45(3)(c) authorizes the Governor-in-Council to “prescribe conditions.” In some cases Environment Canada has decided to ban all shipments of a certain form or to a certain destination (e.g., Antarctica). Such bans would be easier if the section explicitly authorized a ban as well as the imposition of conditions. Section 45(3)(c) does not provide for the inclusion of any discretionary authority to decide if an export or import should take place.

3.2.2.3 Fuels

Sections 46 and 47 regulate the production, import and use but not the export of leaded gasoline and other gasoline additives. Under these provisions Canada was one of the first nations to restrict the use of leaded gasoline. Environment Canada has emphasized the enforcement of the provisions, and in the opinion of most observers these restrictions represent an important “success” on the part of CEPA. Nonetheless, some critics point to the fact that exports of leaded gasoline are not subject to the same restrictions that apply to the import, production and use of gasoline in Canada. In our opinion, consideration should be given to eliminating this discrepancy either by amending sections 46 and 47 or by adding the various gasoline additives regulated under sections 46 and 47 to the Schedule II list of substances banned from export under section 41.

3.2.2.4 Nutrients

Sections of the *Canada Water Act* pertaining to nutrients were incorporated into CEPA under Part III. The focus of this Part of the Act is restricted to cleaning agents, and the only set of regulations under Part III is intended to control phosphorous concentrations in laundry detergents. According to regional enforcement staff, compliance with the regulations is high. As a result, the number of inspections has been reduced considerably, and inspection priority has shifted away from this area. The high level of compliance and diminished need for enforcement can be viewed as another CEPA success story.

It is less clear, however, whether this success should be attributed to CEPA per se. This regulation was in effect prior to CEPA, and our evaluation did not reveal any evidence that reduced levels of phosphorous are a result of this regulation now being administered as part of CEPA.

It is not clear whether CEPA should focus only on phosphates in laundry detergent. Phosphates enter water from a wide variety of sources, many of which could also be controlled under CEPA.

3.2.2.5 International Air Pollution

Under CEPA, federal authority to regulate sources of international air pollution can only be exercised if provinces neglect to act. Since no incident has reached the stage at which the federal government has decided to act and since general issues of international air pollution are being addressed through international agreements and joint federal-provincial response programs, no federal action under this Part of CEPA has been taken to date.

These sections do not address the emerging concern about the long-range transport into the Canadian atmosphere of toxic substances produced and used in other jurisdictions. This issue is currently being addressed within the United Nations Economic Commission for Europe and, according to a senior Environment Canada official, is an issue that Canada may want to address in the near future. There is some uncertainty within the Department about whether this issue can be addressed under Part II or Part V. Consequently, the Act may have to be amended to deal with it.

3.2.2.6 Ocean Dumping

Part VI of CEPA contains virtually all the provisions of the previous *Ocean Dumping Control Act* and regulates the disposal of substances at sea using a system of permits and inspections. In 1988-89, an evaluation was conducted of the scientific and technical support for the Ocean Dumping and Marine Program. This was followed by the Auditor General's Report of 1991, which examined Environment Canada. Both reports were very critical of the scientific support for the Ocean Dumping Program and of the Department's monitoring of dump sites and dumping activities. The reports also questioned the scientific justification for the permit approvals in excess of scheduled limits that were occasionally granted under the "rapidly rendered harmless" provisions of the Act prior to 1989.

Environment Canada is addressing these criticisms through the Ocean Dumping Action Plan, a five-year, \$10 million Green Plan initiative.⁵¹ The Action Plan includes components to improve regulations, implement a more effective dump site monitoring program and address the problem of persistent plastics in coastal waters.

The first phase of regulatory amendments was put into effect on September 30, 1993. The Phase I changes replace the old fee scale of \$50 to \$1000 with a flat rate fee of \$2,500, the estimated average administrative cost to government for processing a permit

⁵¹ See Appendix C for a more complete description of the Ocean Dumping Action Plan.

application. The changes also replace the previous five forms with one, more detailed, form.

During the second phase, the Department intends to develop new environmental assessment procedures and standards, which will better account for the effects on the marine environment. A discussion paper on the Phase II amendments was circulated for comments this summer. The draft discussion paper contemplates that these changes will include approximately 12 sediment-quality guidelines, five bioassay protocols, dump site monitoring guidelines and workplans, and a public information strategy for reducing persistent plastics in coastal waters and beaches. Each of these initiatives is under way. According to the Office of Waste Management, the protocol for marine-sediment-quality guidelines will be finalized this year, as will the draft Dumpsite Monitoring Guidelines and three of the five bioassay protocols. Consideration is also being given to amending the Schedule III list of substances to reflect recent international agreements concerning the banning of industrial waste dumping and the incineration of liquid noxious wastes at sea.

In response to continued criticism from environmental groups that the department has been slow to address the problems identified in 1989, department officials argue that their ability to respond was hampered by limited resources prior to the release of the Green Plan. Green Plan funds did not become available until the calendar year 1992. Since that time, officials argue, considerable activity has taken place, all within a focused action plan.

These arguments have some merit. Delay in the completion of draft guidelines and release of a work plan can be legitimately attributed to lack of funds, since this involved new work. The Marine Environment Division initiated partnerships to develop protocols prior to the Green Plan. The release of funds from the Ocean Dumping Control Plan has since allowed the Marine Environment Division to start paying its share of the development costs. The first protocols are just now about to be completed. Even if funds had been available, it is unlikely that this process could have been significantly shortened.

In addition, since 1989, both the Atlantic and the Pacific and Yukon Regional Offices (the two most significant ocean dumping regions) have implemented a number of interim measures. The issuance of permits for dumping in excess of limits has been curtailed. Green Plan resources have permitted monitoring to resume at dump sites and have increased preload inspections. Both offices now require more information than the existing application forms specify. As well, to reflect local problems, each office has a slightly different set of additions to the regulated substances.

It is not possible to evaluate the adequacy or effectiveness of the proposed changes to the approval system since they have only begun to be implemented. The following points have been raised by academics, ENGOs and Environment Canada regional staff.

Regional Differences

Over the past few years, Environment Canada has devoted considerable efforts to minimize the differences between regions in the application of the Act. In June, 1993

the Regional Directors responsible for ocean dumping issues established a national policy on interpretation and application of the Act. The amended regulations require a standardized list of minimum information requirements and permit some flexibility in the application of the Act to reflect regional diversity. Nonetheless, some regional staff expressed concern that the Phase II changes will not completely eliminate the existing regional differences in the administration of the current provisions. The Atlantic and Pacific regions, for example, have different practices concerning the dumping of fish waste and the use of bioassays.

Polluter Pays

Even with the increased permit application fee, the ocean dumping regulations will not fully reflect the "polluter pays" principle, for two reasons. First, the increased fee covers only the processing cost of the permit rather than the full costs of the program, which include ongoing monitoring and enforcement efforts. At the moment, section 86 limits the Department to charging fees "with respect to an application." According to government lawyers, charging for monitoring dump sites after dumping or by volume dumped would constitute a fee "with respect to a permit" and would therefore require an amendment to the Act. The Marine Environment Division has recently initiated a socio-economic analysis to determine the advisability of amending the Act to this effect. The result of this analysis will be included in the Phase II Strategic Options Report.

It is important to observe that the "polluter pays" principle works only when a polluter can be identified. Given that hazardous pollution also comes from illegal dumping and from land-based pollution, it may be inappropriate to force dredging applicants to pay for all the program costs.

The ocean dumping provisions also fail to reflect the "polluter pays" principle because they do not provide an adequate mechanism for compensating those adversely affected by ocean dumping. A number of commentators, including academics and a prominent environmental lawyer, argue that there are problems with the current dispute resolution mechanism for conflicts between ocean dumping and other marine uses. Currently, decisions on ocean dumping permits are reviewed by Fisheries and Oceans, Environment Canada and provincial representatives. In addition, the public is notified at the application stage and may be consulted when the Regional Ocean Dumping Action Committee (RODAC) concludes that there is potential for conflict with other legitimate uses of the sea. In evaluating potential dump sites, RODAC takes into account the relative distance to sensitive areas and any requirement to transport sediments off site. The problem is that although permit applicants or holders can require the Minister to appoint a Board of Review to hear complaints about permit refusal or conditions, a member of the public can obtain a Board of Review hearing only if the Minister "deems it advisable" (section 89(3)). In addition, there is no pre-established compensation scheme for those adversely affected by ocean dumping. Section 136 provides a civil cause of action for victims of any violation of the Act. In the case of ocean dumping, however, damage might also occur to private property as a result of legally permitted dumping. Professors McConnel and VanderZwaag of Dalhousie Law School have argued that a clear decision process to help resolve damage claims

should be established by legislation or regulation (McConnel and VanderZwaag, 1990: 186). Such a process could include a number of "hoops" designed to encourage resolution of the issue between the parties, including direct negotiation and mediated settlement. VanderZwaag has also argued that it might be cheaper and more acceptable to increase the involvement of communities in the overall planning process for selecting appropriate dumping sites (VanderZwaag, 1989: 137).

Cost

Some of the respondents to the request for input to Environment Canada's 1993 regulatory review of the Ocean Dumping Regulations maintained that the fee increase is too high. Some industries as well as some of the regional staff interviewed suggested that the fees should vary according to the amount of work actually required to process the application.

Staff in the Office of Waste Management respond that the increased fee remains small relative to the overall cost of a typical dumping project. They also argue that it is administratively more efficient to charge a uniform fee. In our opinion, the proposed fees are not excessive. They are small compared with the costs of dredging projects and are much lower than the tipping fees and transportation costs required for landfill sites (Marine Environment Division, June, 1993). Dredging in Canada costs approximately \$30 million per year. The application fees for 80 (on average) dredging permits per year will therefore be less than 1% of total costs. To the extent that they are more of a burden for fish-waste disposal, they are probably nonetheless warranted to the extent that they encourage the creation of recycling plants to turn the waste into meal.

Enforcement staff in the Atlantic Regional Office expressed concern that increased fees might simply lead to increased illegal dumping unless action is also taken to bolster monitoring and enforcement efforts. Officials in the Marine Environment Division argue that it might be better to allocate some of the fees to supporting fish-waste recycling efforts in the Atlantic Region. This would reduce the incentive to illegally dump fish waste.

According to both the Atlantic and Pacific Regional Offices, enforcement staff are currently not allocated to monitoring illegal dumping. If such dumping becomes a problem and resources are not increased, the enforcement offices would only be able to address the problem by transferring resources from some other enforcement activity.

Science

Some of the ENGOs we interviewed oppose the proposed effects-based approach to permit approval on the grounds that the lack of regulations represents a relaxation of control. In our opinion, this concern is premature. In principle, the effects-based approach satisfies the concerns articulated in the 1989 Ocean Dumping Evaluation Report. The actual efficacy of this approach will depend on the criteria established. For example, if effects testing is added to the current criteria for individual substances, the standard would be higher than at present: an applicant would have to pass both the existing criteria and demonstrate that there will be no toxic effect.

The proposed changes may not adequately account for cumulative effects. For example, bioassays are suitable for the detection of acute effects but are less able to identify the long-term effects associated with potential carcinogens or mutagenic agents. New bioassay protocols are being developed to address sublethal end points so as to improve predictions of cumulative effects and of the long-term fate of contaminants. Nonetheless, in the opinion of some scientists interviewed for this evaluation, additional as yet undeveloped procedures may be required to account for cumulative effects and the longer term fate of chemicals in the marine ecosystem.

Fish waste

Some scientists and fishermen have expressed concerns over the dumping of herring waste, a by-product of the herring roe fishery, because of the potential harm to herring migrations and lobster movements (McConnel and VanderZwaag, 1990: 185). The dumping of fish offal can lead to problems such as reduced dissolved oxygen due to increased chemical and biological oxygen demand. For example, a study conducted in the mid-1980s found that the dumping of fish wastes resulted in anoxic conditions in an in-harbour dump site in Fogo Island Harbour, Newfoundland (McIver and Aggett, 1987: 60). Improper disposal also results in wastes washing ashore, causing aesthetic and health problems.

Ocean dumping of fish wastes is not permitted in the Pacific Region, where most waste is recycled into meal and some is placed in landfills. Since land disposal costs are high and few recycling plants exist on the east coast, ocean dumping of fish waste is permitted in the Atlantic Region, however, only as a last resort. According to officials in the Office of Waste Management, it is expected that the increased application fees will place greater pressure on the fisheries industry to seek alternatives to ocean dumping and, in particular, should create pressure to develop recycling facilities.

These problems have been addressed and are now declining in their severity. In addition, as a result of the Newfoundland study referred to above, fish processing waste is now dumped at "dispersive" sites. This distributes fish offal over a larger area, allowing for better use by scavenger species and thus reducing the possibility of anoxic conditions induced by the decomposition of large volumes of wastes in areas of restricted circulation. Furthermore, according to the Marine Environment Division, the aesthetic problems were mainly associated with uncontrolled dumping and have been reduced in recent years by the use of ocean disposal permits.

Comprehensiveness

Some interviewees expressed concern that the proposed amendments do not give adequate consideration to the physical as opposed to the biochemical impacts of dumping. In the past, critics have also argued that the ocean dumping provisions do not provide an adequate framework within which to address alternative disposal methods, and that in particular the provisions did not adequately encourage pollution prevention. One of the objectives of the Phase I amendments has been to incorporate the "Waste Assessment Framework" into the application form. The Waste Assessment Framework is an internationally agreed upon process designed to provide guidance on the classification and assessment of wastes so as to integrate ocean disposal with other

forms of waste management. The new application form will also require a waste audit and information on disposal alternatives and opportunities to recycle, re-use or reduce wastes.

In our opinion, the most important problem with the ocean dumping provisions in CEPA is not an issue that can be addressed by amending CEPA. The fundamental problem is that Canada currently does not have an effective overall strategy to address the problem of land-based pollution. Land-based sources constitute up to 80% of marine pollution (Green Plan: 40). This problem has been recognized at the international level. For example, Article 207 of the United Nations Law of the Sea requires states to adopt laws to prevent, reduce and control land-based pollution from rivers, pipelines and outfall structures and to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances into the marine environment. In 1985 Canada assisted in developing the Montreal guidelines for the Protection of the Marine Environment Against Land-Based Sources of Pollution (Green Plan: 40-41).

There are obviously constitutional impediments to a federal assertion of control over all coastal property management. Land-based sources of marine pollution are subject to section 36 of the *Fisheries Act*. However, land and water use in coastal zones is also subject to the *Navigable Waters Protection Act* and to various provincial and local rules. Land use planning is regulated by all levels of government in Canada but is particularly subject to local control. Accordingly, the problem is not one that can or should be addressed through CEPA alone. The fundamental problem with the ocean dumping provisions, therefore, is that they do not operate in the context of a national, comprehensive planning program for land and water uses along the coastal zones.

3.2.3 CONCLUSIONS AND RECOMMENDATIONS

Among the reasons provided for consolidating these provisions into one Act, the most important appear to have been (i) the desire to have a comprehensive federal pollution control statute and (ii) the desire to harmonize these provisions.⁵² Harmonization was intended to improve the coordination of scientific effort and to ensure common standards for regulation, public participation and enforcement.

In the opinion of both government and nongovernment interviewees, with certain minor exceptions relating to the different powers inspectors have under the ocean dumping provisions, the consolidation of these provisions within CEPA has helped foster a more uniform approach to environmental management than was the case under the formerly distinct statutes. CEPA also represents much more powerful and inclusive legislation than any previous federal environmental legislation. However, it by no means constitutes a comprehensive environmental quality Act or even a comprehensive pollution control Act. Although CEPA consolidates all Environment Canada's pollution-related legislation, there are numerous pollution control statutes in a number of other federal ministries, including Agriculture Canada and Energy Mines and Resources. The rationale for including the nutrient provisions from the *Canada Water Act* but not similar provisions from that Act or from others, such as the *Pesticide Products Control Act*, for example, is unclear.

⁵² See Appendix E, for a more complete description of the objectives of CEPA.

The example of the ocean dumping program illustrates how this lack of coordination can undermine the effectiveness of individual regulatory initiatives, which often require a more comprehensive framework to be most effective. The effect of this patchwork of federal legislation is discussed further in section 6 (Conclusions and Recommendations).

On the basis of these observations, we make the following recommendations:

Export and Import of Wastes and Recyclable Materials

1. CEPA should be amended so that the provisions in the Act concerning the export and import of hazardous waste describe the purpose and outline the general parameters of the regulatory scheme; the requirements should all be contained in the regulations.
2. CEPA should be amended to cover the export and import of all wastes.
3. Section 45(3)(c) should explicitly authorize a ban as well as the imposition of conditions.
4. Section 45(3)(c) should indicate some discretionary authority to allow the export or import to take place.

Fuels

5. The same restrictions should apply to the type of fuel that can be exported from Canada as apply to the use, production and import of fuel.

Nutrients

6. Consideration should be given to whether CEPA should cover sources of phosphate other than laundry detergents.

International Air Pollution

7. Environment Canada should investigate the need to amend CEPA to deal with the problem of the long-range transport into the Canadian atmosphere of toxic substances produced and used in other jurisdictions.

Ocean Dumping

8. Environment Canada should minimize the regional differences in the dumping of fish waste, the use of bioassays and the substances that are regulated.
9. The Act should be amended to allow the permit fees to be increased to cover more of the ongoing costs of monitoring and enforcement.

10. The Act should be amended to provide for a mechanism to compensate those adversely affected by ocean dumping. Consideration should also be given to whether some of the current problems could be allayed by involving potentially affected communities in the overall planning process for selecting appropriate dump sites.
11. To address the fact that the increase in fees under Phase II of the Ocean Dumping Action Plan might lead to increased illegal dumping, particularly on the east coast, consideration should be given to dedicating some of the increased revenue to supporting the development of fish-waste recycling plants and/or to augmenting the enforcement staff in the Atlantic Regional Office.
12. Environment Canada should initiate an interjurisdictional attempt to develop a comprehensive framework for coastal management.
13. The Department should assign a high priority and provide resources to the dump site monitoring elements of the Ocean Dumping Action Plan, since it is difficult to determine how to improve the Ocean Dumping Regulations without information on the effectiveness of the current regulation.

3.3 ENFORCEMENT AND COMPLIANCE

"Laws are worthless without an active enforcement program."
Environment Canada, October 22, 1987.

3.3.1 BACKGROUND

As public concern for environmental protection grew during the 1980s, increasing attention was directed to the question of appropriate strategies for ensuring that established environmental standards would be respected.⁵³ Two general strategies were identified, and these became the framework for a debate that continues today. Although various terms have been used to describe them, the two approaches may be referred to as "promotion" and "enforcement." The former generally consists of noncoercive measures to encourage or promote improved environmental performance. An enforcement strategy, on the other hand, relies more heavily on the use of prosecution and formal sanctions.⁵⁴ Although each general strategy has advocates and detractors, debate about their comparative merits is seriously complicated by the inevitable relationships between the two approaches. Their evaluation is also problematic in that neither approach has been consistently applied.

Advocates of a promotion-based process have often been willing to acknowledge that the possibility of prosecution provides some reinforcement for their efforts. On the other hand, it has been argued that effective enforcement depends on moral as well as legislative "legitimacy" and that this is likely to be absent when the institutions and

⁵³ For early contributions to the discussion, see Thompson, 1980; and Rankin and Finkle, 1983.

⁵⁴ For a comprehensive discussion of differences between the two general approaches, see Hawkins, 1984; in the Canadian context see Chappell, 1988.

processes of compliance are ignored.⁵⁵ Defenders of a promotional strategy also note its contribution to the dissemination of knowledge. There is an informal benefit, it is argued, from the work of inspectors who are sometimes in a position to facilitate the transfer of experience and learning between different companies that have encountered similar environmental compliance challenges.

In addition to this debate over the appropriate enforcement strategy, a number of observers argued at the time CEPA was being developed that Environment Canada's enforcement efforts had been inconsistent and inadequate. For example, widely cited studies and reports by Andrew Thompson (1980), CEAC (Giroux, 1985) and by staff at the Law Reform Commission of Canada (Webb, 1988) criticized Environment Canada for deficiencies in the enforcement of environmental legislation, or for what was described as an "implementation gap." During this same period, the Law Reform Commission of Canada had become an influential participant in discussions about treating certain environmental harms as criminal activity.

In response to criticisms about its own lack of enforcement effort, Ontario resolved in the mid-1980s to enhance the prosecutorial capability of the Ministry of the Environment. Sixty-two staff members were allocated to a newly created Investigation and Enforcement Branch, which replaced the 12-member Special Investigation Unit. Since these changes, a significant increase has taken place in the level of enforcement in Ontario: from 1985 to 1991 the number of prosecutions initiated increased from 86 to 313 while convictions rose from 71 to 272 (a slightly increased conviction rate, from 82% to 86%) (Environment Ontario, 1991).

CEPA came into effect during this period of intense interest in stricter enforcement, a situation that no doubt encouraged the then Minister of the Environment to emphasize the severity of the sanctions to be embodied in the new legislation:

Sanctions will include million-dollar-a-day fines. But more than fines are needed because they affect the balance sheet but not necessarily the polluters themselves. The new law will also place responsibility squarely where it belongs—on the shoulders of the chief executive officers and company presidents who commit violations or who permit them. They will be subject to jail sentences of one to five years. And the government intends to enforce the law with vigor.

These widely-quoted and well-remembered remarks contributed in an important way to the nature of the expectations attendant on the introduction of CEPA. This stricter approach to enforcement was also reflected in the Enforcement and Compliance Policy and in the logo chosen for all official CEPA documents: the judicial gavel.

⁵⁵ "What is sanctionable," Keith Hawkins explained, "is not rule-breaking as such, but rule-breaking which is deliberately or negligently done, or rule breaking accompanied by uncooperativeness which amounts to a symbolic assault upon the enforcer's ... authority and legitimacy." (Hawkins, 1984: xi).

3.3.2 ANALYSIS

CEPA introduced a number of important innovations for federal environmental legislation, many of which have been incorporated into subsequent federal and provincial legislation. Some of the important innovations include:

- the development of an official compliance and enforcement policy;
- modulated fines;
- high fines;
- provisions for third-party monitoring and whistle blowing;
- a more remedial focus, in terms of the broad clean-up and restitution orders permitted by the Act; and
- the provision in section 129 allowing for a supplementary penalty to cover profits made as a result of illegal activities (designed to ensure that fines can no longer be seen as a cost of doing business).

Despite these innovations, enforcement under CEPA has encountered a number of problems. Many of them relate to the fact that the debate about the effectiveness of the alternative approaches discussed above has continued since CEPA's introduction. For example, a number of studies appear to confirm the utility of a sanctions-based approach to enforcing regulatory legislation (e.g., Saxe, 1991; Brown and Rankin, 1990). There are also indications, however, that in certain circumstances significant reductions in the discharge of environmental contaminants may be brought about without resort to substantial sanctions or penalties—for example, through volunteer programs or through economy incentives (Deweese, 1990). Recent polling data indicate that most of the public support the need for strict environmental regulation while also desiring to see the development of more efficient, incentive-based control mechanisms (Synergistics, 1993).

Within Environment Canada, recent policy statements have created the perception among many of the enforcement staff that official policy has moved away from the relatively strict approach outlined in the Enforcement and Compliance Policy. The Policy articulates strict enforcement predicated on three basic principles: (i) compliance means conformity with the law, (ii) compliance is mandatory and (iii) every suspected violation will be investigated and acted on. In contrast to these principles, the consultation document for the Green Plan, the 1990 Framework for Discussion of the Environment and the subsequent Green Plan emphasize the promotion of compliance over strict enforcement.

Recent procedural changes have added to the perception among the enforcement staff that strict enforcement is being downplayed. Enforcement activity *has* increased under CEPA. However, partly as a result of this new activity the Department has recently developed a procedure, in consultation with the regional offices, to provide for consistency and predictability of enforcement action. This procedure is based on information flow between the various regions and the central Office of Enforcement (OOE). Regional enforcement staff are now required to produce briefing material for the OOE describing all enforcement actions. The goal of the new procedure is to ensure that the dialogue that follows between regional enforcement staff and the OOE provides for consistency in the delivery of the Department's national enforcement program, OOE

staff acting as a common denominator in the analysis of the various enforcement actions that have taken place or are on the verge of doing so. It should also be noted that the procedure allows for circumstances in which immediate enforcement is required. Many of the enforcement staff we interviewed argued that these increasingly stringent reporting requirements divert resources from enforcement activities, undermine the regional arrangement and are inconsistent with the Enforcement and Compliance Policy, under which inspectors and investigators nominally are personally responsible for enforcement decisions.

In the opinion of enforcement staff from three of the five regions, these developments also mean that government departments are treated more leniently than is private industry. They argue that the procedural changes permit senior officials to delay proceedings against government departments and to place pressure on enforcement officials to try alternative, promotion-based approaches. Officials pointed to the following examples:

- In British Columbia a private citizen has raised as a defence to a charge under the ocean dumping provisions the argument that he has been treated differently from the federal government.
- In another case, although charges were ultimately laid against a federal government department, regional enforcement staff argue that the charges would have been laid sooner had the case involved a private company.
- A Department of Justice lawyer explained that cases involving federal departments are reviewed by more senior officials than are routine prosecutions.

In response, senior officials in Environment Canada point out that no specific instructions have ever been given to apply different standards to federal departments. They argue that the briefing requirements ensure that the government is able to act in a responsible and coordinated manner to the greatest degree possible.

To a certain extent this tension concerning the appropriate enforcement strategy is inevitable and results from the multiple roles that Environment Canada has to play. One of the Department's main functions is to promulgate and enforce a strict set of regulatory standards, but it also engages in many activities designed to encourage and assist society as a whole, and industry in particular, to reduce environmental impacts and to improve environmental quality. Most enforcement staff are of the view that since a violation of CEPA is a criminal offence, all violations should be strictly enforced. On the other hand, many senior managers are concerned that strict enforcement should not undermine the work of other Environment Canada officials that is directed to assisting and advocating improved compliance.

External observers who have described the enforcement dilemma under CEPA note that the types of difficulties being experienced are not confined to CEPA administration but are common to such schemes:

Clearly ... as with any statute which requires persistent enforcement, there will be a great deal of discretion as to how a far-reaching piece of legislation like CEPA

will be implemented. With a broad range of enforcement techniques and a limited amount of resources for enforcement, the federal government recognizes that any enforcement policy will have to set priorities. In determining whether to warn offenders, to implement orders or injunctions or to pursue court challenges, a number of factors in making these choices are highlighted within the Enforcement and Compliance Policy. In selecting an appropriate response, the federal government, through Environment Canada will consider such things as the nature of the violation, the seriousness of the harm flowing from the offence, and whether the offender has attempted to conceal information. (Kirby and Lederer, 1992: 215)

In the opinion of a number of legal commentators, restrained enforcement may also be due to the uncertain constitutional grounds for federal action in this area:⁵⁶

The enforcement of CEPA has not been as vigorous as one might expect. CEPA was an attempt by the federal government to pull together a patchwork of environmental legislation and to address cross-boundary environmental concerns both nationally and internationally. The constitutional jurisdiction to enforce such legislation, however, has not been clearly established. (Jeffery, 1992: 185; see also Swanson, 1990: 3)

Prior to CEPA, Environment Canada was not set up as an enforcement agency and had a reputation as a weak enforcer.⁵⁷ In his 1991 report, the Auditor General noted that Environment Canada could demonstrate neither the efficiency nor the effectiveness of its enforcement and compliance activities. According to senior officials involved in enforcement prior to CEPA, Environment Canada's orientation at the time stemmed in part from the desire not to aggravate federal-provincial relations, in part from a conscious enforcement strategy focused on conciliation and in part from the predominance of technical staff having little enforcement experience.

As well, many of Environment Canada's inspectors are reluctant to enforce because they are technically trained and therefore do not have an "enforcement mentality." They deal with other technically trained people in the regulated industries and share a common professional problem-solving ethos, which is not congruent with the enforcement approach.

Inspectors are also reluctant to enforce because they inevitably develop relationships with the regulated industries that they are reluctant to disrupt by "getting tough." This problem is particularly severe when the same people are inspecting as are investigating and laying charges. During the consultations about the *Environmental Contaminants Act* both environmentalists and representatives from industry favoured the separation of abatement and enforcement activities along the lines of the Ontario Ministry of the

⁵⁶ See Appendix H for a more detailed review of the constitutional aspects of environmental control.

⁵⁷ This was acknowledged by the Department in its Treasury Board Submission dated October 22, 1987: "The past record [of the federal government] has generated cynicism on the part of the Public Interest Groups and the general public and a scepticism that the new Act will be no different."

Environment model. Industry was concerned about the possibility of "self-incrimination" if the same official performed both tasks. Environmentalists were concerned that an official who had been working with a company to develop improved abatement procedures would be loath to initiate enforcement actions. This consensus was reflected in the recommendations received by the department in its consultations on the draft bill. The same recommendation was provided by a retired RCMP officer who had been retained in 1987 to review enforcement and compliance activities at Environment Canada. He recommended some separation of enforcement and compliance activities, particularly for the front end of the life cycle, the main area of federal jurisdiction.

During the first three years of CEPA, resource limitations made it impossible to separate enforcement and promotion activities. Extra resources made available under the Green Plan have now enabled all the regional offices except for the Western and Northern Region to create separate investigation offices. In our opinion, however, this development has only partially succeeded in separating the two functions. Enforcement staff do not have a central chain of command. Instead, enforcement and promotion staff both report to the Regional Director General. A number of enforcement staff maintain that as a result, there remains an inadequate separation of the two functions.

The challenge of consistency in a regional enforcement structure

The regional organization of enforcement activities exacerbates the tensions already described. We have discussed the procedural changes recently initiated by the Department in order to try to ensure consistent enforcement. These procedures require that all enforcement staff report to their respective regional directors, who must approve all enforcement decisions. The procedures also require that enforcement staff prepare briefing notes on all enforcement activities. These notes are sent to the OOE, which circulates them to the Director General of Conservation and Protection, the Assistant Deputy Minister and the Deputy Minister.

Under this arrangement, enforcement staff are effectively caught between multiple masters and can receive conflicting messages. The Act and the Enforcement and Compliance Policy say one thing, the OOE may say another, the Deputy Minister of Environment Canada and the Assistant Deputy Minister of Conservation and Protection may have their own policy messages, and the five regional directors general may each interpret those messages in a slightly different way. This leads to confusion and has undermined morale.

The regional arrangement also means, on occasion, that there is incomplete communication between headquarters and the enforcement staff. For example, when the regulations for the import and export of hazardous waste were introduced, the Office of Waste Management informed industry that there would be a transition period, effectively exempting wastes that had been generated before the regulations came into force. This information was not received by the regional inspectors, some of whom commenced inspections and were preparing to issue directions before they were instructed to back off. According to regional enforcement staff, similar problems have arisen when head office has made agreements with the Federal-Provincial Advisory Committee but has not informed the regional enforcement staff.

The regionalization of enforcement staff also results in inconsistent enforcement practices across the country. There are different strategies and philosophies between the regions. For example, the Western and Northern Region emphasizes a proactive policy and has reduced its investigation activities over the past couple of years. The Regional Director recently instructed that the job descriptions for two vacant enforcement staff positions be rewritten to emphasize compliance-promotion activities. Other regions, however, place greater weight on traditional inspection and investigation-related activities.

There are also discrepancies between regions in terms of the enforcement of certain regulations. For example, the PCB storage regulations are not enforced uniformly. Under the interim order there were agreements with the provinces according to which the provinces inspected all provincial sites, and the federal inspectors handled only federal sites. Now that a regulation is in place technically, such an arrangement is only permissible under Administrative or Equivalency Agreements, none of which have yet been signed. Thus, the federal inspectors are now responsible for supervising all PCB storage sites. This regulation is now only being enforced fully in the Atlantic Region, where the new obligation did not impose a large increase in work load. According to regional enforcement staff and the Office of Enforcement, these regulations are not fully enforced in the other regions.

Resources

Enforcement resources have been increased under CEPA. Regional enforcement offices have expanded, and the Department now pays for eight prosecutors from the Department of Justice to work full time on environmental cases. The increases have not been as large as were initially expected. The regional consultations with departmental staff for the preparation of the CEPA Action Plan reported the view that the National Inspection Plan could not be delivered with the resources available at the end of 1989. These consultations also reported that many enforcement staff lacked technical training. Although additional resources were subsequently provided for enforcement under the Green Plan, cuts in Green Plan funds and related budget cuts have affected Environment Canada's enforcement capacity. In addition, money nominally earmarked for enforcement does not always end up being used for enforcement. Many of the regional enforcement staff reported that their regional office had "taxed" enforcement money, taking some of it for increased administrative and other staff. In the end, according to the Director of Enforcement, only about one-quarter of the 30 additional staff promised under the Green Plan are now expected to be provided directly for enforcement activities.

The effectiveness of the central OOE is also affected by low resources. The Office attempts to ensure consistent enforcement by the production of Uniform Enforcement Guidelines for each regulation and by the National Inspection Plans (NIPs). The OOE is very small, however, and may not have the capacity to fulfil its coordinating role. For example, according to officials in the Office, it has not yet had sufficient resources to evaluate the effectiveness of a National Inspection Plan.

Some regions also argue that resources have not been allocated in proportion to regional need. The enforcement resources provided under the Green Plan were divided equally among the regions. The problem with determining demand is that different

factors contribute to demand in different regions. For example, Ontario has more industry than any of the other regions, but because it covers just one province its operations are relatively centralized. On the other hand, Western and Northern, and Atlantic have fewer industries but cover a number of provinces.

Even where money has been available, Environment Canada has had difficulty attracting qualified applicants. The Western and Northern Region has had enforcement staff vacancies that it has been unable to fill for over a year.

Compliance information

In recognition of the limited resources and increased demand for inspection, the Guidelines for the Preparation of the 1992-93 National Inspection Plan emphasized that the Plan had evolved to a "target oriented approach" in which inspection activities are directed to resolving noncompliance. In other words, there are not enough resources to monitor all activities, and monitoring will focus on known or suspected violators. The problem with this is that the information needed to make the requisite strategic targeting decisions is not available.

The Regulatory Compliance Project (1992) emphasizes that information is the key to effective enforcement:

Every regulatory regime should have effective administrative systems for operational planning, ongoing management, and a periodic review of compliance related activities The key to all these functions is a good system which provides the required information to management and operational staff Information requirements may be significantly influenced by the overall strategy adopted by the program, and by the detailed requirements of the compliance policy. For instance, a program of planned audit and inspection activities cannot be sensibly developed by management without accurate information on the most critical problems or types of violations.

The industry reports under CEPA regulations are treated differently depending on the regulation and the region. Some reports are sent to program branch staff in Hull and then disseminated to the regions. Others are sent directly to the regions. In some regions, reports are received by technical staff, who must then give the information to inspectors when they detect a violation. In other regions, the reports are reviewed first by the inspectors.

Although there are good reasons for sending most of the reports to program staff, who are responsible for monitoring the effectiveness of the regulations, inadequate communication protocols have resulted in a number of problems. If program staff review the reports first, there is a chance that violations will not be detected or followed up in a timely fashion by inspectors. For example, one region reported cases in which enforcement staff had started an investigation and then discovered that the Commercial Chemicals Branch had been in receipt of information about the violation for up to eight months. Such delays can create problems because of the two-year limitation period for summary offences in section 117(1). This limitation period commences as soon as the Department is in receipt of information about an offence.

Regional inspectors maintain their own databases about inspection and enforcement results. These results are transferred manually to head office on a quarterly basis and then input into a head office database. Because head office is not connected either to the program branch databases or to the regional inspection databases, there is very poor centralization of the data.

A recent review of the information systems in the enforcement and compliance offices (LeMay, 1993) identified a number of problems:

- Lack of standardization. There is no standard format for inspection or investigation reports. Enforcement staff in each region are organized differently, use different administrative procedures and in some cases rely on different enforcement priorities.
- Limited access to information. Compliance histories and inspection and investigation information are decentralized and incomplete, both within and across the regions. For example, the Ontario Region has no central filing system for recording compliance history information.
- Difficulty in tracking enforcement activities. Each region has a different tracking system. Ontario and Quebec have no tracking system. The other regions rely on manual or stand-alone automated systems. Even when regions have their own tracking system, the lack of a national system prevents the development of a compliance report for companies located in more than one province.
- Lack of consistency in enforcement activities. Since information on enforcement from other regions is not available, except by ad hoc phone contact, there is a lack of consistency in enforcement across the country.
- Poor communication. Inspection results are not always reported back to the company being inspected. Inspectors are not always informed of investigation results.
- Poor timeliness of information. Inspectors experience delays in receiving laboratory results. The enforcement "approval" process can also cause delays.

A number of the regional enforcement offices are considering how to prepare regional compliance status reports. These will assess overall compliance by giving different scores to different types of violations (e.g., administrative versus environmental damage). The Pacific Region is preparing the first such report.

The current initiative to develop a centralized enforcement database will also address some of these problems. Previous efforts to create a centralized database failed, primarily because of a lack of expertise. A trained systems analyst has now been hired and is in the process of designing a system. Her first goal is to create a uniform system across the regions that is connected to head office. This will permit greater sharing and analysis of information and is supported by all the regional enforcement offices. The next, potentially more difficult, step is to try to connect to other Environment Canada systems, including the Commercial Chemicals Branch and Industrial Programs Branch

(IPB) databases. Without access to these databases, the OOE has no way to evaluate overall compliance trends.

The enforcement information problem is a subset of a larger problem concerning information management within the Department. For example, the IPB system is also deficient. At the moment, industry submits reports on paper. These are then manually input into an Industrial Programs Branch computer system. A pilot project has recently been initiated to have pulp and paper reports submitted on diskettes.

The incompatibility of Environment Canada information systems is an important deficiency in an organization so reliant on information. This issue is reiterated in section 4, below.

Charter issues

The enforcement of CEPA has been complicated because of the uncertain nature of the constraints placed on enforcement by the evolving jurisprudence under the *Canadian Charter of Rights and Freedoms*. The Charter entrenches protections for citizens in the context of actual or contemplated prosecutions against them. These protections are available equally to the obviously innocent and the potentially guilty, including those who might be accused of serious transgressions of the environmental protection regime. Section 8 of the Charter specifies, for example, that "Everyone has the right to be secure against unreasonable search or seizure." And section 10(b) confirms that "Everyone has the right on arrest or detention ... to retain and instruct counsel without delay and to be informed of that right."

These general provisions leave considerable detail to be worked out by the judiciary on a case-by-case basis. This jurisprudence has resulted in a number of important constraints on environmental enforcement initiatives, which have evolved over time. When CEPA was introduced there was concern about conflict between the announced intention of the government to "get tough with polluters" and the Charter.⁵⁸ For example, the information-gathering provisions contained in CEPA include

⁵⁸ One of the most important issues facing all government enforcement officials is the degree to which the Charter governs inspections and investigations. In the context of reconciling the state's needs for information to promote compliance with the expectations of citizens for privacy and autonomy, a significant distinction has been drawn by the courts between inquiries of a routine nature generally known as inspections, and inquiries undertaken with a view to assessing the likelihood that a contravention entailing the possibility of prosecution might be established. Since the latter category, loosely known as searches or investigations, involves a greater threat to the liberty of the subject, such inquiries have become subject to more demanding requirements: certain procedures are impermissible while the acceptability of others depends on conformity to judicially scrutinized standards.

However appealing the distinction between inspection and investigation appears in principle, it takes little imagination to realize how difficult the separation may be in practice. As Roger Cotton, a leading practitioner of environmental law, explains "any inspection can become an investigation if the officer should, during the course of his inspection, come to believe that an offense has been committed on any premises" (Cotton and Snider, 1990: 15).

authorization for inspections, for search and seizure, and for the retention of evidence relating to a contravention of the legislation. Should any of these be found to contravene a constitutionally protected right under the Charter, the Crown would face the challenge of establishing that the infringement was "reasonably justified in a free and democratic society" as that test has been formulated by the courts. In the opinion of many of those interviewed for this study, the uncertainty created by the possibility of such a conflict contributed to the caution advocated by Justice lawyers when advising Environment Canada on specific enforcement cases. In turn, many interviewees argued, this caution exacerbated the tension within the Department concerning appropriate strategies.

Conversely, it has been an inevitable consequence of the combination of Charter protection and more aggressive environmental enforcement at the federal and provincial levels across Canada that those potentially subject to prosecution have become more circumspect and cautious in their dealings with government officials. Not surprisingly, legal advisors have been active in advising their clients about the extent to which they may lawfully resist certain forms of inquiry and about the pitfalls of unnecessary openness and disclosure.

There is little to be gained in attempting here to review in any detail the evolution of legal doctrine delineating the relationship between the regulatory state and private parties or to report on current understandings of the safeguards required in the myriad circumstances in which enforcement officials act. A recent professional summary of the situation regarding search warrants will serve to illustrate the sensitivity and uncertainty of the investigative process (Estrin, 1993: 25-26):

To sum up, in Canada, as a result of judicial decisions interpreting the Charter, where a government officer attends at premises for the purpose of investigating a possible offence, if it is feasible to obtain a search warrant, a search warrant must be obtained. Examples of what might be held to be 'exigent circumstances,' i.e., situations where the courts might hold it not feasible to obtain a warrant have been suggested as including the following:

- where reasonable grounds exist to search a vehicle or vessel which is moving or is likely to be moved;
- the existence of an immediate hazard to the environment or human beings; and
- where evidence of an environmental incident, such as a spill or ignition is transient, allowing no time to obtain a warrant before the disappearance of the evidence.

This is a firmer base for decision making than once existed. Nonetheless, the overall context remains dynamic, and confident predictions are hard to make. For example, it is possible to interpret early Charter cases as implying more severe restrictions than recent decisions might indicate.⁵⁹ The problem for both CEPA enforcers and for senior management responsible for establishing enforcement policy, then, is that uncertainty persists as to the precise limits of permissible enforcement action.

⁵⁹ Contrast, for example, the judgment in *Hunter v. Southam Inc.*, (1984), 11 D.L.R. (4th) 641 (SCC) with the judgment in *R. v. Wholesale Travel* (1991) 3 S.C.R. 154.

Emerging pressures on enforcement

- **The North American Free Trade Agreement**

In addition to the criteria described at the beginning of this report, there are two additional factors that should be taken into account when the enforcement experience under CEPA is evaluated. The first is NAFTA. The North American Agreement on Environmental Cooperation—the environmental "side deal" under NAFTA—establishes a Commission for Environmental Cooperation, comprising a governing Council, a central secretariat and a Joint Public Advisory Committee. The Agreement specifies that any of the three countries can refer to the Council an alleged "persistent pattern of failure to effectively enforce an environmental law relating to a situation involving the production of goods or services traded between the Parties." If the Council cannot resolve the dispute, any of the three nations can request an arbitral panel, which will have the power, *inter alia*, to impose monetary penalties.

- **Crown liability for failure to enforce**

Finally, enforcement under CEPA should be evaluated in the context of the recent jurisprudence concerning the potential liability of the Crown for failure to enforce regulatory standards. Prior to the emergence of this jurisprudence, governments had typically assumed that the appropriate level of enforcement was essentially subject to administrative discretion. These cases indicate that governments will now be held to a minimum standard of enforcement.

In a recent series of cases, the Supreme and Federal Courts of Canada have indicated that the Crown may be liable for damages caused by failure to enforce its regulations.⁶⁰ The case law suggests that when the government has a regulatory scheme and that scheme is generally enforced such that the public has a reasonable expectation of a given standard of behavior, the government may be at least partially liable for any damage caused by failure to meet that standard if it has not been enforced up to the standard the public had been led to expect.

The Counsel to the Regulatory Compliance Project at the Department of Justice described the implications of these cases in a recent paper (Fairbairn, 1992):

... regulatory agencies tend not to prosecute regulatory offences in criminal courts except where it is reasonably evident that non-compliance was deliberate. In the absence of such evidence, prosecutors also know that criminal courts are inclined to give regulatory matters cursory treatment or to award low fines. In the result, regulatory enforcement actions often depend more on techniques of informal persuasion than may be entirely appropriate for effective enforcement.

⁶⁰ *Just v. The Queen* [1989] 2 SCR 1228; *City of Vernon v. Manolagos* [1989] 2 SCR 1259; *Tock v. St. John's Metropolitan Area Board* [1989] 2 SCR 1181; see also: *Swanson v. The Queen* (Trial) T1637-85; and *Devloo v. The Queen* (Trial) T241-83.

Ineffective enforcement, however, is not the only risk flowing from excessive informality in regulatory enforcement programs. It is clear from a recent line of cases in the Supreme and Federal Courts of Canada that governments, at all levels, are now more exposed to civil damages for the careless under-enforcement of regulatory programs.

In the past, minimum enforcement responsibilities under regulatory legislation have been largely self-imposed through policy guidelines, enforcement manuals and administrative practices. Because the courts customarily treated the level of inspection and the degree of enforcement activity as involving mainly policy decisions that fell exclusively within the domain of administrative discretion, there has never been a uniform concept of minimum enforcement standards. Most regulatory activities, however, no longer enjoy this exemption from judicial scrutiny. The court may now assess many regulatory inspection and enforcement operations against a general standard of reasonableness. Lack of resources—while still a relevant factor in answering a claim of improper enforcement—no longer provides a conclusive defense in a negligence action.

Legal counsel at Environment Canada have reported these cases to senior management within the Department, and have advised that, at a minimum, any decision to pursue an enforcement measure other than prosecution should be well-documented.

3.3.3 CONCLUSIONS AND RECOMMENDATIONS

In this evaluation, we do not recommend an enforcement strategy for Environment Canada to adopt under CEPA. The literature is ambiguous, and some combination of promotion and enforcement is probably appropriate, both in terms of Environment Canada's operational responsibilities and in terms of what works best. Ultimately the issue is a political one. That said, it is clear that the Department needs to clarify its policy and try to minimize the tension that currently undermines its enforcement efforts. Clarification is required to improve the effectiveness and consistency of enforcement efforts and to maintain a clear distinction between information and promotion activities. Clarification is also required to minimize the Department's potential liability for failure to enforce up to a standard it may have led the public to expect (e.g., through the Enforcement and Compliance Policy).

In our opinion, enforcement would be improved by the adoption of a system of administrative sanctions, by a centralized system of enforcement and by improved information systems throughout the Department.

Centralized enforcement

Some enforcement staff favour centralized enforcement. They point to the experience in Ontario and in the United States and argue that centralized enforcement would enhance consistency, maintain a clear distinction between enforcement and promotional activities, and create a critical mass of staff that might be able to resist ad hoc pressures to relax enforcement on individual cases. Others resist the concept,

arguing that regional enforcement offices are necessary to reflect regional priorities. In most regions, the federal enforcement staff have a good relationship with the provincial enforcement staff.

According to a former senior departmental official, regional enforcement was intended to preclude the possibility or even the appearance of political interference from the centre. However, this system may no longer make sense, given the recognition by senior management at headquarters that some degree of centralized supervision is required to ensure national consistency. The concern for regional sensitivity is important and must temper any reform. In our opinion, however, centralized enforcement would alleviate at least some of the tension in Environment Canada attributable to the current regional organization of enforcement.

For centralized enforcement to be effective, several additional changes will be required. The centralized headquarters would have to have considerable independence from senior managers, who in turn will have to be firmly committed to the centralized model. Finally, the Office of Enforcement will have to develop more regional awareness. Currently, all head office enforcement staff are from either Ontario or Quebec.

Increase the enforcement options

The Regulatory Compliance Project is an interdepartmental initiative led by the Department of Justice to review and recommend improvements to government enforcement efforts. The Project recently published "A Strategic Approach to Developing Compliance Policies: A Guide" (Regulatory Compliance Project, 1992). This guide argues that it is critical that each regulatory program have a compliance policy specifically tailored to its needs. As was the case with the CEPA Enforcement and Compliance Policy, to be most effective such a policy should be developed in conjunction with the development of the actual regulatory program. In addition, however, the recent case law implies that it is important for a compliance policy to reflect operational realities and not to promise more than can be delivered.

The guide advocates the use of a wide range of compliance promotion, monitoring and enforcement mechanisms. Promotion options include information programs and various incentive schemes. Monitoring options include audits, inspections, self-monitoring, third-party monitoring and whistle-blower laws. Enforcement tools include warnings, tickets, administrative directives, administratively imposed penalties, reporting requirements, inspections, adverse publicity, licensing sanctions, contract listing, civil court remedies and criminal prosecutions.

In our opinion, Environment Canada should consider expanding its enforcement options by adopting a system of administrative penalties and by expanding the use of self-reporting provisions and compliance agreements.

- **Administrative penalties:** Many of the problems currently being experienced with enforcement under CEPA relate to the fact that CEPA provides for criminal sanctions. The stigma attached to a criminal offence explains in part the reluctance of many officials to enforce the regulations strictly. Similarly, the

courts are reluctant to view environmental offences in the same category as traditional criminal offences in many cases. Conversely, the fact that they are enforcing criminal law makes the enforcement staff reluctant to turn their back on an offence, once committed.

Sentencing options are also constrained under the criminal law. Some courts have divided their judgment between fines and remediation orders. This can help enforcement efforts since fines go to the Consolidated Revenue Fund, while remediation orders can direct money to be spent directly on a wide range of environmentally beneficial activities.

Many of these problems could be resolved by the introduction of a system of administrative penalties for the majority of CEPA offences, leaving only the most egregious violations as criminal offences. The US EPA uses a system of administrative sanctions for over 85% of all the offences it prosecutes. This system saves time by relying on less formal and demanding procedures and evidentiary rules. It relies on expert adjudicators who do not require considerable education concerning the environmental consequences of an action. Finally, the system also allows for flexibility in sentencing.

- **Self-Reporting:** Despite the obvious advantages of self-reporting, there are currently two problems with respect to its use. First, as we observed in section 3.1, a "significant new use" policy should be developed. Second, both Industry and Science Canada and industry representatives informed us that Environment Canada does not have a satisfactory policy with respect to environmental audits; many of them argued that Environment Canada should encourage these audits. To do so, however, the Department must clarify its enforcement policy with respect to the use of information discovered as a result of a voluntary audit.

In the opinion of many staff, the self-reporting provisions in the pulp and paper regulations are effective and should be applied to other regulations.

- **Compliance Agreements:** CEPA does not provide an adequate framework for negotiated solutions. Other jurisdictions use a number of variations to this approach, including contracts, remedial action plans and formalized compliance waivers for undertakings to employ improved control measures. Such agreements can be enforced through performance bonds and parallel administrative penalties. These would allow CEPA inspectors to offer regulatees more flexibility in terms of timing and conditions of compliance. At the moment such flexibility is only possible under unenforceable informal agreements. Regulatees would benefit from increased flexibility in exchange for a formalized and more easily enforceable compliance schedule.

It should also be noted, however, that in the opinion of many ENGOs negotiated settlements should only be permitted if there are also provisions for public participation in the process. For example, Ontario's new Environmental Bill of Rights reflects these concerns and will open up the provincial process for renewing Certificates of Approval and Central Orders.

Specific Issues

A number of more specific issues also arose in the course of the evaluation:

- **Transition periods for new regulations:** Currently, when a new regulation is introduced there is typically an informal period during which it is not strictly enforced. For those cases in which a transition period is desirable, the regulation should explicitly provide for one. Ontario's Municipal/Industrial Strategy for Abatement regulations provide a useful model of how transition periods can be incorporated into legislation.
- **Improved signalling to the courts:** The maximum penalties in CEPA are significantly higher than in any previous environmental legislation and have initiated a subsequent ratcheting up of penalties in other environmental legislation. According to enforcement staff and to a number of academic observers, however, in many cases court-awarded fines have been disappointingly low. Judges often appear to be unwilling to punish violations severely. Recent cases in British Columbia and in Ontario suggest that courts are now more willing to hand down severe penalties.

Beyond sensitizing the judiciary to the gravity of environmental offences through specific judicial training courses, there are two possible ways to improve the signals that are sent to the courts concerning the appropriate application of these provisions. First, prosecutors need to improve their understanding of what issues are considered important for sentencing.⁶¹ Second, legislation could be altered to provide for explicit classification of offences and to increase the number of factors to be accounted for in sentencing. For example, a recent amendment to the *Canada Shipping Act* adds an extensive list of factors to be accounted for in sentencing. These factors are designed both to assist the courts in applying appropriate penalties and to serve as an incentive for violators to undertake remedial actions.

- **Overly complex regulations:** In the opinion of a number of the enforcement staff interviewed, the complexity of some of the regulations renders enforcement difficult. For example, enforcement and legal staff informed us that it is effectively impossible to satisfy the standard of testing required to demonstrate a violation of the Lead Smelter regulation. Other regulations, such as the Import and Export of Hazardous Waste Regulations, are very complex and consume a lot of time on the part of both the enforcement staff and industry in determining what is required. This issue was studied by the Regulatory Review of Environment Canada regulations. The Regulatory Review's draft report recommended that the scope and application of some CEPA regulations should be clarified.

⁶¹ For a judicial discussion on factors that courts may consider relevant to sentencing in the environmental context, see *R. v. United Keno Hill Mines Ltd.* (1980) 10 C.E.L.R. 43 (Y.T. Terr. Ct.).

- **Conspiracies:** Enforcement officials currently have only limited ability to deal with conspiracies. According to the Ontario Provincial Police, environmental crime is the third biggest criminal problem in Ontario at the moment. This should be addressed, either in the *Criminal Code* or in CEPA.
- **Limitation period:** An amendment should be made to section 117 as a result of recent case law in British Columbia. Section 117 establishes a limitation period of two years for the prosecution of summary offences under CEPA. The standard criminal law summary offence limitation period is six months. The British Columbia courts have opined that in order to commence a prosecution after six months a certificate is required from the Minister. This creates paperwork. The section should be amended to clarify that the two-year limitation applies without any requirement for a Minister's certificate outside of the normal six-month period.
- **Training:** Most enforcement staff agreed that the investigators' course is good; refreshers should be offered to keep staff current with issues and techniques. Staff also agreed that the courses that are offered to help enforcement staff understand new regulations are useful. These courses are only offered, however, when the regulation is introduced. When staff turnover occurs there should be a mechanism to train new staff.
- **Ticketing:** Ticketing regulations have now been developed under the Contraventions' Act. The Act received Royal assent on October 15, 1992 but has not yet been proclaimed. The Enforcement and Compliance Policy contained guidance on ticketing. Once the Contraventions' Act is proclaimed, the Enforcement branch will also include guidelines on the use of tickets in the Uniform Enforcement Guidelines it is preparing for each CEPA regulation.
- **Publicity:** Improved publicity is required both with respect to informing industry about the nature of regulations and with respect to enforcement activities. In the opinion of many of the enforcement personnel and industry representatives, information about regulations enhances compliance levels. A number of staff argue that in many cases regulations are developed in consultation with the larger industry stakeholders, but little effort is paid to communicating with smaller businesses. They suggest that although it is difficult to include all affected parties in consultations, initial compliance would be increased by additional efforts to communicate regulatory requirements to all small businesses.

Tough enforcement has an important deterrent effect. This effect could be increased if Environment Canada publicized its prosecutions. Academic studies emphasize that concern about public opinion is an important factor governing business behavior, and accordingly the threat of publicity about environmental violations can have a significant effect (Chappell, 1988). According to the British Columbia government the publication of its noncompliance report has also had a demonstrable effect in inducing persistent polluters to take remedial effects (British Columbia, 1993). There is some disparity between the regions in the use of publicity about enforcement actions. For example, the Pacific and Yukon

Region emphasizes publicity, whereas some other regions are reluctant to publicize prosecutions.

Increased publicity would also enhance the effectiveness of public participation under the Act. Tips from the public are a potentially important source of enforcement information. However, in practice there have been few requests under s. 108. The number and accuracy of tips depends on the publicity that has accompanied a regulation. For example, tips have been a relatively important source of information concerning the well-publicized ODS regulations covering CFCs but have not been common for a number of the other regulations.

- **Spills reporting:** Regulations are required under s. 17 to clarify reporting requirements for unauthorized releases of toxic substances.
- **Federal-Provincial overlap:** As we discuss in more detail later, industry is expressing increasing concern about overlap between federal and provincial environmental activities. In section 6.0, we discuss the possibility that resolution of these concerns may lead to a redefinition of the federal role with respect to, *inter alia*, enforcement activities. Currently, however, this problem is being addressed in a number of regions by the development of working agreements with provincial environmental enforcement officials. Ideally, such arrangements would be developed in all regions and would lead to full coordination of federal and provincial enforcement activities.

On the basis of these observations, we make the following recommendations:

1. Environment Canada should consider implementing a system of centralized enforcement. The experience with centralized enforcement in other jurisdictions should be reviewed in assessing this issue.
2. Environment Canada should review and update the Enforcement and Compliance Policy.
3. Consideration should be given to increasing the range of enforcement options currently available under CEPA by:
 - a) adopting a system of administrative penalties similar to the system used by the US EPA and similar to the system currently being developed on a trial basis by Agriculture Canada;
 - b) expanding the use of self-reporting provisions similar to those of the pulp and paper regulations; and
 - c) providing a framework for negotiated settlements.
4. To encourage the use of environmental audits, Environment Canada should clarify its policy with respect to the use of information discovered by voluntary audits.
5. Environment Canada should improve its signalling to the courts by:

- a) conducting information sessions to sensitize the judiciary to the gravity of environmental offences;
 - b) improving the level of understanding of federal prosecutors about what issues are considered important for sentencing in environmental cases; and
 - c) following the example set by the recent amendment to the *Canada Shipping Act* by amending legislation to provide for explicit classification of offences and to include factors to be taken into account in sentencing.
6. Conspiracy to commit an environmental offence should be addressed, either in the *Criminal Code* or in CEPA.
 7. An amendment should be made to section 117 to clarify that the two year limitation for initiating summary offence procedures applies without any requirement for a Minister's certificate outside of the normal six-month limitation period for summary offences.
 8. Implementation strategies for new regulatory initiatives should be jointly developed by both program and enforcement staff and should account for the need to communicate regulatory requirements to small businesses as well as to large businesses.
 9. Environment Canada should actively publicize enforcement actions.
 10. The federal government, in cooperation with the provinces, should consider a number of initiatives to improve federal-provincial cooperation, including:
 - a) consolidated reporting requirements;
 - b) coordinated inspections (inspections under various statutory regimes and by provincial and federal officials should be coordinated to minimize the administrative burdens on industry and the government);
 - c) coordinated enforcement (organizations with multiple violations under various regulations should face stiffer penalties);
 - d) coordinated permitting; and
 - e) synchronized compliance schedules (so that organizations can plan capital investments and changes to operating procedures simultaneously for multiple regulatory requirements).

3.4 PUBLIC PARTICIPATION AND INTERVENTION

3.4.1 BACKGROUND

One of the important problems with the *Environmental Contaminants Act* that CEPA was designed to remedy was the failure to provide for public input. CEPA addresses public participation on two levels. First, it attempts to raise public awareness and knowledge about environmental issues by ensuring public access to assessment reports, proposed regulations and monitoring data, as well as by authorizing a number of activities, such as SOE reporting and the publication of annual reports under CEPA. Second, the Act contains a number of provisions authorizing public participation in the regulatory and enforcement processes. This evaluation focuses only on the latter provisions.

CEPA authorizes public participation in almost the full range of the regulatory process. Section 8(3) authorizes the Minister of the Environment to consult widely with respect to the establishment of environmental quality objectives, guidelines and codes of practice. Section 12(3) permits the Minister of the Environment to consult widely with respect to the selection of the PSL. Section 12(4) permits any person to request an addition to the PSL. Section 89 of the Act authorizes the establishment of a Board of Review to respond to a variety of public concerns. Individuals are entitled to participate in all Boards of Review. The Minister is obliged to establish a Board of Review when a member of the public complains that a PSL substance has not been assessed within five years of being added to the list (section 14). A section 89 Board is also mandatory when a member of the public files a notice of objection concerning proposed regulations under the nutrient provisions (section 51), the federal undertaking provisions (section 55) or the international air pollution provisions (section 62). Finally, a Board of Review is also mandatory if an ocean-dumping permit applicant complains about the terms of a permit or about a refusal to issue a permit (section 74).

The Minister is also granted discretion to establish a section 89 Board of Review when a member of the public complains about a decision not to add a PSL substance to the List of Toxic Substances (section 13) or about any order or regulation made under Part II (toxics, fuel, and import and export of wastes) or Part IV (ocean dumping).

CEPA also enhances the public's right to participate in enforcement activities. Any two Canadians can petition the Minister to require an investigation into an alleged infraction of CEPA (section 108). Individuals can also seek injunctions to stop or prevent activities that are causing or may cause them damage and that are an offence under the Act (section 136). Section 136 also permits individuals to sue for compensation for loss from an offence under the Act.

3.4.2 ANALYSIS

3.4.2.1 Participation in the Regulatory Process

CEPA has benefited from public consultation, both in its design phase and in the assessment and regulatory development processes. Initially, the view at Environment Canada was that the assessment process should be a closed one, which should simply try to access available information but not involve outsiders in the assessment. Over the last year and a half this view has altered, and Environment Canada is now trying to involve outsiders. The hope is that this will produce a more complete scientific debate and that it will enhance industry buy-in of a determination that a substance is CEPA toxic, if necessary, and at the control options stage.

There are now a number of standing committees focused on industry sectors, comprising representatives of Environment Canada, Industry and Science Canada and industry. The "Friday Group," representing an ad hoc association of industries, has spun off a regulatory committee. According to Industry and Science Canada staff, the increased emphasis on consultation in the past two years has been responsible for a transition from a bad relationship with industry to the current situation of "consultation fatigue."

Despite these improvements, a number of concerns have been voiced by stakeholders. Many ENGOs complained about the initial consultations leading up to the new Act. As we describe in section 2, the consultations initially focused on how to improve the *Environmental Contaminants Act*. All participants in the process acknowledge that the decision to develop and introduce a consolidated bill addressing the wider range of issues now included in CEPA was made very late in the process. As a result, the ENGOs, in particular, argue that there was little opportunity to comment on and participate in the overall shape of the Act.

Both industry and ENGOs also argue that ongoing involvement has been difficult because of the long delays and fragmented nature of the assessment and regulation development process. Industry remains concerned that there is inadequate consideration of economic issues at the early stages of policy design (see section 3.1). ENGOs voice similar concerns about early participation in the assessment process.

A number of enforcement staff commented that they observe a discrepancy between the levels of awareness of CEPA between large and small industries. To a certain extent this problem is inevitable. Smaller industries have fewer resources to devote to remaining abreast of regulatory developments. However, in the opinion of many of the enforcement staff, the problem also arises because often regulations are developed in consultation with the larger industry stakeholders, but little effort is paid to communicating with smaller businesses. The enforcement staff acknowledge that it is impossible to include all affected parties in the consultation process and that the industry associations have a strong onus to communicate with their constituencies. They argue that a lot of initial noncompliance could be avoided by improved communications efforts at the introduction of new regulations.

Environment Canada has initiated a number of multi-stakeholder approaches over the past few years. These have met with mixed reaction from industry and environmental groups. For example, a multi-stakeholder process was initiated recently to try to develop harmonized environmental effects monitoring for the mining sector across the country. Representatives of a number of mining industries told us that they support this process, particularly since they were involved at the outset. Early involvement has meant that the mining industry was able to participate in defining the problem and has been able to take advantage of the expertise provided by the government scientists involved in the process, thereby reducing the strain on resources.

Some industries are less enthusiastic about multi-stakeholder processes. The reasons for their objections vary. Some told us that in their experience these processes consume an inordinate amount of time and resources for what they perceive to be limited benefits. Others are uncomfortable with some of the stakeholders involved and question their legitimacy.

Most of the nongovernment organizations we interviewed favour multi-stakeholder consultations, although they too express concerns about the time and costs involved and the number of often uncoordinated consultation demands being placed on them.

Both industry and ENGOs also observe that participation is complicated by the high emphasis now placed on consultation at all levels of government. They argue that

more attention must be paid to issues of scope, so that participation is meaningful and therefore worth the deployment of their limited resources.

From the perspective of the ENGOs, public participation is a double-edged sword. Participation allows them to push their views, and it ensures improved industry buy-in at the end of the process. On the other hand, many ENGOs perceive that they must make a trade off between participation in the policy development process—which may require agreeing to compromises—and continued public advocacy (Wilson 1992). As well, increased public participation also allows industry to water down proposals. A number of ENGOs perceived themselves as having been relatively influential at the early stages of CEPA, including during the development of the legislation itself. Many argue, however, that industry has subsequently devoted considerable resources to the process and is now able to “outweigh” them. Most ENGOs, therefore, argue that increased participant funding is required to ensure balanced input.

3.4.2.2 Participation in Enforcement

During the consultations prior to the new Act, one of the most controversial issues was whether the Act should include an “environmental bill of rights,” providing for private prosecutions to enforce violations. Notwithstanding the description by the then Minister of the Environment of CEPA as “in effect, if not technically, this country’s first ‘environmental bill of rights’” the Act falls well short of what many ENGOs had lobbied for.⁶² Sections 108 to 110 of CEPA only provide that any two persons resident in Canada may apply to the Minister for an investigation of an alleged offence. Subsection 135(1) gives standing to the Minister of the Environment alone to apply for an injunction to stop or prevent conduct that would constitute an offence under CEPA. An individual only has the right to stop or prevent a violation of CEPA if he or she has suffered or is about to suffer loss or damage (section 136(2)).

A number of commentaries on CEPA by environmentalists acknowledge that these provisions represent an advance over previous legislation. The whistle-blowing provisions were an important innovation in federal environmental legislation and have subsequently been emulated in other legislation. In addition, by providing for injunctive relief, these provisions allow the Minister to deal with a threatened violation without being burdened by the burden of proof of criminal law, the special rules of evidence and the Charter defences that are available to a delinquent once a charge has been laid under CEPA.⁶³ Finally these provisions retain all common law and other federal and provincial remedies.

Nonetheless, opinion about the provisions is divided. A number of environmentalists complain that CEPA does not go far enough in overturning the common law restrictions on standing to obtain injunctive relief (e.g., Lindgren, 1989; Goetler, Muldoon and Valiente, 1990; Shrecker, 1993). Others are critical of the fact that the

⁶² Indeed, the Minister himself went to great lengths to repudiate the concept of legally entrenched environmental rights before the parliamentary committee studying the legislation: see Schrecker, 1993: 101-102.

⁶³ See Goetler et al, 1990, at 89. For a full description of the law with respect to injunctions, see Sharpe, 1983.

Enforcement and Compliance Policy does not explicitly articulate an official position toward private prosecutions (Webb, 191: 822). By contrast, at least at the time of its introduction some industry groups voiced serious complaints to the effect that, for example, the public complaint provisions "opened the door to individual citizens to bypass the normal political process in this country."⁶⁴

As a middle ground, Kernahan Webb, a former analyst at the Law Reform Commission of Canada, argues that although the Act falls short of an environmental bill of rights, the provisions taken as a whole "may either deviate the need to undertake such actions [private prosecutions], or supply further evidence in support of private actions." (Webb, 1991: 819). Further, he argues that these provisions may be an effective accountability mechanism allowing citizens to ascertain whether the government is doing a good job and to goad officials to do so.

In 1991, Webb observed that the whistle-blowing provisions under CEPA had not led to the flood of complaints predicted by industry but had been useful in bringing issues to the attention of the government without unduly diverting administrative resources (Webb, 1991: 819). Enforcement staff report that use of the provision has actually declined over the past two years and is now rarely invoked. They suggest that the low level of public participation is due in part to the complexity of the regulations, and in part to the fact that s. 108 has not been publicized since the introduction of the Act. One regional office prepared explanatory materials but ultimately did not distribute them. No other offices have taken any action to publicize these provisions.

Some ENGOs and some corporate lawyers offer an alternative explanation for the low public involvement in the enforcement of CEPA. They argue that involvement has been minimal because CEPA regulations in fact cover very few issues, particularly when compared with provincial legislation.

3.4.3 CONCLUSIONS AND RECOMMENDATIONS

Stakeholders agree that to be meaningful, opportunities for public input should occur earlier in the process than is typically the case at present. It is apparent that there are many opportunities in the CEPA assessment and regulatory process for consultation with the public. Many industry and ENGO representatives complain of "consultation overload." In the opinion of many stakeholders, participation currently requires time and financial resources that are not commensurate with the usefulness of the results. A consultation process that is less fragmented, more focused on priorities and that provides useful feedback to participants is required.

The problem of consultation overload is particularly severe for ENGOs and other public interest groups. The argument for public support for these groups is premised on the assumption that they represent a large but very diffuse public interest. Accordingly, it is difficult for a public interest group to raise the funds to attend hearings, even though if they attended they might represent the views of a large but silent part of the population. By contrast, when an industry is directly affected by a proposed regulation it is in that industry's direct and immediate interest to spend time and money to address the issue.

⁶⁴ As quoted in Schrecker, 1993: 102.

On the basis of these observations, we make the following recommendations:

1. Environment Canada should optimize its consultation process so that it is less fragmented, more coherent in terms of the issues addressed, more focused on key priorities and able to provide useful feedback to participants.
2. Environment Canada should consider whether it should support intervenors to ensure that a full spectrum of interests are represented during the CEPA consultation process.

3.5 FEDERAL-PROVINCIAL HARMONIZATION⁶⁵

3.5.1 ANALYSIS

Under the Canadian constitution, environmental protection is a responsibility that the federal and provincial governments share. Interjurisdictional coordination is therefore essential to achieve efficient and effective environmental protection. As both levels of government have expanded their activities in response to the growing importance of environmental issues, the scale and complexity of their interaction has increased. This increase has made coordination, including enforcement by all levels of government, more difficult, a fact observed by the Auditor General of Canada in his 1990 report.

In the short term, the expansion of environmental activities by both levels of government in the late 1980s has led to overlap and increased tension. CEPA was a major contributor to this tension, since it proclaimed a more interventionist federal presence in what had traditionally been largely a provincial domain of activity. Since then, however, both the federal and provincial officials interviewed agree that there has been a "maturing" in the relationship between their environment departments. CEPA did not lead to the disruptive federal intrusion in environmental protection that some provinces had feared. The negotiation of the CCME Statement on Interjurisdictional Cooperation in 1990 (whose ironic acronym is STOIC) has also helped defuse tension. Furthermore, the recent lower public profile of environmental issues has meant that the federal and provincial governments no longer have to engage in the one-upmanship ("my standard is higher than your standard") evident in the late 1980s.

It is impossible to dissociate federal-provincial relations on CEPA implementation from this broader context. The constitutional debate that has taken place for most of the time that CEPA has been in existence and the court challenges concerning the application of the federal environmental assessment review process (EARP) created considerable uncertainty concerning the future extent of federal environmental jurisdiction. This uncertainty has affected CEPA's implementation.

In the Green Plan, the federal government states that it attaches "a high priority on formalizing agreements with the provinces to work cooperatively in key areas to fulfill our joint environmental obligations and responsibilities" (Green Plan:133). This

⁶⁵ See Section 6, Appendix C "The Status of the Implementation of the Canadian Environmental Protection Act" for a description of the activities undertaken to harmonize federal-provincial activities in environmental protection.

priority is rooted in the philosophy that "every Canadian is entitled to the same level of environmental protection" (CEPA Mandate, 1990: 66); but it is also rooted in two pragmatic considerations:

- Overlap and duplication between federal and provincial regulations and policies create confusion, irritate industry and may harm Canadian competitiveness. The Regulatory Review under way at Environment Canada has identified seven CEPA regulations that overlap with provincial regulations.⁶⁶ An interviewee described the overlapping and inconsistent regulations of the Canadian pulp and paper industry as a "public disgrace."
- At a time of tightening government budgets, Environment Canada does not have sufficient resources to implement CEPA on its own (see section 4).

3.5.1.1 Federal-Provincial Advisory Committee

Interviews with FPAC members and a review of the minutes of FPAC meetings indicate a general satisfaction with the Committee's operations. It is important, however, not to confuse this satisfaction with provincial acquiescence to the status quo. At least two provinces question whether FPAC should continue to exist; their scenario for CEPA reform, which includes a more modest role for the federal government, has the Environmental Protection Committee of CCME playing the necessary federal-provincial coordinating role. Even provinces that are satisfied with the current federal role question whether FPAC and the Environmental Protection Committee should not be merged (their membership already overlaps) or their activities better coordinated. There is no consensus, however, on this issue.

Under the terms of reference approved in 1990, FPAC was to meet four times a year, a rhythm it has never achieved. The slower pace satisfies most provincial representatives interviewed, several of whom could not afford to meet more often than they do now (FPAC meetings rotate through the provinces). In 1992, FPAC decided to meet twice a year.

In light of the turn-out at the spring 1993 meeting (only 7 of 12 provincial and territorial representatives attended), both federal and provincial officials have begun to ask whether the federal government should consider defraying the travel costs of FPAC members. Some interviewees point out that FPAC is a federal instrument designed to advise federal ministers about the discharge of their mandate. They argue that the federal government should therefore be ready to assume FPAC's operating costs. They note that there are precedents for the federal government bearing the travel costs of its advisory committees. Alternatively, most provincial representatives interviewed agreed that teleconferencing could also be used to reduce travel costs.

⁶⁶ The Preliminary Findings of The Regulatory Review (July 1993) recommended that the Department attempt to negotiate administrative agreements concerning the following regulations that overlap with provincial regulations: Asbestos mines and Mills Release Regulations, Secondary Lead Smelter Release Regulations, Storage of PCB Materials Regulations; and Ozone Depleting Substances Regulations Nos. 1, 2, 3 and 4.

In 1991, the provinces expressed their concern that insufficient time was available to comment on federal regulatory and other initiatives. This concern seemed to have been addressed by the seventh meeting in 1992. The minutes of this meeting note "Members agreed that the current consultation process through FPAC is acceptable. ... British Columbia noted that a good effort had been made to allow more time for review of federal documents." This view was echoed in several interviews. One provincial official noted that small provinces in particular benefit from FPAC by being given regular access to regulatory developments at the national level.

In the first few years of CEPA implementation, the provinces asked that one of their representatives cochair FPAC along with the federal government. Both federal and provincial officials acknowledge that lingering provincial mistrust over the federal government's intentions lay behind this request. All but one of the provincial representatives interviewed agree that cochairmanship is no longer an issue. Although some federal officials interpret the provinces' loss of interest in cochairing FPAC as an indication of increased provincial comfort with CEPA's implementation, one should be careful not to confuse a general satisfaction with FPAC's operations with an implicit acceptance of the federal role in environmental protection as defined under CEPA (see below).

3.5.1.2 Equivalency Agreements

The federal government introduced the concept of equivalency agreements during the parliamentary debate about CEPA to reassure the provinces about the growing federal presence in a field that had historically been theirs. Environmental groups attacked the concept at the time for "implicitly recognizing and accepting the constitutional competency of the provinces to legislate in an area of federal jurisdiction" (Duncan and Swanson, 1987). Subsequent legal analysis (Lucas, 1989) raised questions about the concept's vulnerability to legal and constitutional challenges.

Equivalency agreements are "work-limiting" partnerships that terminate the application of a CEPA regulation in a province by recognizing an equivalent or more stringent provincial or territorial regulation. Under CEPA, equivalency must be determined for each CEPA regulation in each province. At first, Environment Canada thought it would negotiate individual equivalency agreements for each substance being regulated. Because of the potentially large number of agreements involved (up to 12 for each substance), the government is now pursuing single umbrella agreements with the provinces to which individual regulations would be added as required.

The standards to be used in determining equivalency are set out both in CEPA and in policy. Section 34(6) of CEPA provides two standards for the determination of equivalency:

- a written declaration by the province that it has equivalent provisions;
- provisions similar to sections 108 to 110 (which provide for an application by the public to the Minister for an investigation).

In February 1988, the Minister added the following criteria during his appearance before the House of Commons Committee studying the proposed legislation that became CEPA:

- the measurement and test procedures for determining compliance must be comparable with federal requirements;
- the provincial standards must be enforced in a manner consistent with the CEPA Enforcement and Compliance Policy;
- penalties under the equivalent provincial measure must be comparable with those specified in CEPA.

These provisions were added to the legal requirements to ensure that provincial regulations had the "same punch" as federal ones.

Environment Canada has characterized equivalency agreements as "a contract between the federal Minister and his provincial counterpart for the co-operative delivery of a national environmental standard"(CEPA Mandate, 1990: 23). There are no such "contracts" at present and only one is likely in 1993. There are several reasons:

- When CEPA was proclaimed, no other jurisdiction in Canada could meet the equivalency criteria of sections 108 and 109 of the Act (concerning citizens' requests for investigations) because their environmental legislation did not include similar provisions. Ontario, Alberta, Saskatchewan, the Yukon and the Northwest Territories now do. Of all the provinces, only Ontario originally met the requirement for a published enforcement and compliance policy, another of the criteria for the negotiation of an equivalency agreement.
- The development of standards to regulate toxic substances has turned out to be slower than expected. Only 10 substances on the PSL had been assessed and gazetted by October 1993. There is little point in negotiating equivalency agreements until the federal regulations in question are in place.
- In 1990, an internal Environment Canada document noted that "provinces have indicated that the enforcement of existing regulations as per our enforcement and compliance policy, the reporting of information and other CEPA related activities are costly in terms of human resources and operation costs" (CEPA Mandate, 1990: 5). Until now, the federal government has refused to transfer resources to the provinces in the negotiation of equivalency agreements, on the grounds that the federal government should not pay the provinces to administer their own regulations. It should be noted, however, that several provincial officials indicated in interviews that equivalency agreements would not impose additional financial obligations.
- Defining the meaning of "equivalency" turned out to be much more difficult than expected. After the federal government had adopted a very strict definition of the term, the federal and provincial governments agreed that their requirements did not need to be identical but that they should have an "equivalent effect." To determine this effect, an FPAC working group suggested that "core" and "ancillary" standards be established for each CEPA regulation that

could become the subject of an equivalency agreement. Core standards are defined as the essential elements of the federal regulation that must be included in the provincial provisions in an essentially identical form. Ancillary standards are defined as those that are auxiliary to the essential elements or core standards and that may be provided for by alternative but equally effective means in the provincial scheme. Since a single regulation concerning a toxic substance may cover several matters—the specification and quantity, testing procedures, monitoring and reporting requirements, the sharing of information, penalties and other legal remedies—the technical determination of equivalency can become a laborious task.

The CEPA provision for equivalency agreements is clearly an irritant in federal-provincial environmental relations. Several provinces expressed their reluctance to change their laws, their priorities or the way they did business “just because the federal government wants to do things differently.” They chafe at having to develop equivalent procedures and argue that greater emphasis should be placed on achieving equivalent results instead. They complain about the lack of flexibility in defining equivalency, particularly the criterion requiring that citizens’ complaints be investigated as a matter of law rather than policy (viz. sections 108 and 109). Provincial representatives who spoke on this subject all said that citizens’ complaints are being investigated routinely already, even though there is no legal requirement for this to be done. They complain about being forced to undertake activities they would have chosen not to carry out. Several provinces (Alberta, Quebec, New Brunswick) ask why the federal government needs to regulate matters that have traditionally been under provincial jurisdiction, such as the storage of PCBs (the Quebec Superior Court has ruled that this federal regulation was *ultra vires*; the federal government is appealing).

It would be wrong to discount these views simply because some of the officials who articulated them have not accepted CEPA and the stronger federal role it implies. Some federal officials agree with their provincial colleagues. They note that the federal government can be “pretty arrogant” and sometimes treats the provinces as stakeholders rather than as equals. They recognize that the federal government initially placed too much emphasis on achieving equivalent processes rather than equivalent results.

At least four provinces state that they do not intend to negotiate equivalency agreements. This situation reflects more an unwillingness to change their regulatory approach and a scepticism about the federal government’s ability to go it alone than an implicit acceptance of the federal role. One provincial official sums up the attitude of several of his colleagues this way: “Let’s stand back and watch them try to enforce all these regulations.” The provinces that object to the definition of equivalency know that the federal government’s limited resources ultimately give the provinces a strong bargaining position. They have therefore limited incentive to negotiate.

It is important to note that when the *Fisheries Act* also applies, an equivalency agreement reached under CEPA would not eliminate federal-provincial administrative overlap. This is the case, for example, for the pulp and paper regulations, in which any province that negotiated an equivalency agreement under CEPA would also have to negotiate a separate administrative agreement under the *Fisheries Act* (there are no provisions for equivalency under the *Fisheries Act*). The Federal-Provincial Working

Group on Co-operative Administration of the Pulp and Paper Regulations (1990) noted that the need to negotiate two agreements diminished the attractiveness of equivalency agreements.

Notwithstanding these comments, it is important to underline that all provincial officials who spoke on the topic believe that their relationship with Environment Canada is a good one. They point to good working arrangements at the operational level, good communications at all levels and a shared desire to reach pragmatic solutions. They also add that the absence of agreements does not necessarily imply inconsistency between the federal and provincial governments in the application of regulations. Indeed, both federal and provincial officials note that they often work "in the spirit" of an agreement even when none exists.

This state of affairs is partly the result of the fact that the federal government has promulgated few new regulations under CEPA. In the absence of equivalency agreements, we believe that there is a real potential for a deterioration of relations as more federal regulations are forthcoming.

One province raises a more fundamental issue: it does not accept that the federal government should both set environmental standards and determine how each province should administer them (through the mechanism of equivalency criteria). In this province's view, such an approach has the effect of "subordinating" provincial to federal regulation. In order to redress this bias, to eliminate duplication and provide industry with a "one-window" regulatory approach, the province is seeking to negotiate the federal withdrawal from the regulation of pulp and paper effluent by April 1996 as part of a CEPA "administrative agreement." The withdrawal would not be complete, as the federal government would be entitled to intervene, but only if a provincial regulation were shown to be absent or ineffective and this resulted in a major and recognized risk to human health and the environment. The arrangements the province proposes would include the *Fisheries Act* as well as CEPA. If successfully negotiated, these arrangements would stretch the definition of equivalency much beyond current practice.

3.5.1.3 Administrative Agreements

Section 98 of CEPA provides for bilateral federal-provincial agreements with respect to the administration of the Act. Administrative agreements represent "work-sharing" partnerships for the cooperative and reciprocal management of toxic substances under the authority of both federal and provincial legislation. The agreements aim to eliminate overlap and duplication and to provide a "one-window" approach to industry. In order to maintain ministerial accountability under CEPA, administrative agreements will provide information-sharing and other mechanisms to allow the federal government to verify industry compliance with federal regulations. The federal government reserves the right to intervene directly if federal requirements are not being met.

By their very nature, administrative agreements do not have to meet the tough tests that equivalency agreements do. The Final Report of the Federal-Provincial Working Group on CEPA Partnerships (1991, 1992) notes that the negotiation of administrative

agreements raised few concerns. It is here, accordingly, that the federal government has been focusing its efforts for the last two or three years.

Agreements are ready for signing in four provinces. With the one exception already noted, the administrative agreements being negotiated are all based on the model developed by the Task Force on Federal-Provincial Partnerships for Environmental Protection in January 1990. In June 1992, FPAC members noted at their seventh meeting that "several federal-provincial administrative agreements are close to finalization." In April 1993, they observed that "at present, there are no major impediments to finalizing administrative agreements apart from time and resource restrictions." Although Environment Canada invested a significant effort in negotiating administrative agreements, the pace at which these agreements are being negotiated implies that they are not a priority for many of the provinces. Interviews with provincial officials confirm this view. This is particularly true where operational coordination is already good and where both levels of government are already working "in the spirit of partnership."

Administrative agreements include information-sharing provisions. Some provincial officials resent what they see as the federal government's overseeing role in these reporting requirements. They remain suspicious that the federal government wants the provinces to do things "the federal way."

Although administrative and equivalency agreements are designed to meet different objectives, they are obviously linked. In at least one instance, the federal policy on equivalency is delaying the signing of an administrative agreement. An official of the province in question, which does not meet the section 108 equivalency criterion, found it so "distasteful" that the federal government would not sign an equivalency agreement that he now refuses to bring an administrative agreement forward for signature.

Nevertheless, federal and provincial officials believe that it is likely that administrative agreements on the regulation of pulp and paper effluent will be signed with several provinces in the near future.

3.5.2 CONCLUSIONS AND RECOMMENDATIONS

The 1992 CCME Strategic Plan notes three areas of differences among its members that are relevant to this evaluation:

- a common approach to risk assessment does not exist;
- approaches to developing environmental standards, objectives and codes of practice vary among jurisdictions; and
- the application of standards and the enforcement of related regulations vary among jurisdictions.

CEPA creates three mechanisms to reduce or eliminate these differences. The fact that no administrative or equivalency agreements have been signed five years after the Act was proclaimed, although several are close to completion, has severely limited the Act's effectiveness in harmonizing environmental protection responsibilities between the

federal and provincial governments. Federal officials argue, with some justification, that the absence of such agreements should not be interpreted as a complete failure of these provisions of the Act. In support of their position, they argue that:

- although the federal-provincial negotiation process that CEPA forced may not have borne direct fruit yet, it arguably contributed in part to the development of the 1990 CCME Statement on Interjurisdictional Cooperation;
- federal-provincial collaboration is occurring at the operational level even without agreements, sometimes notwithstanding official provincial opposition to equivalency agreements; and
- in response to CEPA's challenge that they occupy the field of environmental protection more effectively or see their responsibilities eroded, several provinces have strengthened their environmental laws since CEPA came into effect. Although it would be wrong to give CEPA the entire credit for this development, the fact that some of these laws have adopted elements of CEPA helps to harmonize environmental protection activities in Canada.

Some provincial officials recognize that they must share responsibility for the limited progress achieved to date towards harmonization. Nevertheless, the federal government's lack of success in negotiating equivalency agreements calls into question the criteria it has used. More specifically, the requirement that citizens' complaints be investigated as a matter of law rather than policy (sections 108 to 109) needs to be rethought, given both the obstacle that it poses to the successful negotiation of equivalency agreements and the fact that it has been used only twice since 1988.⁶⁷ Is it necessary to jeopardize agreement with the provinces for the sake of a provision that is used so little?

Five years after CEPA was proclaimed, the benefits that equivalency agreements were to yield—the creation of a “one-window” regulatory framework for industry, national standards, the reduction if not elimination of duplication, lower costs to the federal government—have not been achieved. This situation is widely cited as a major failure of CEPA. Industry is particularly frustrated by interjurisdictional regulatory duplication. The greater concern placed on competitiveness issues—driven in part by the negotiation of NAFTA—adds urgency to the resolution of these issues.

The fact that no equivalency agreements have been signed means that this approach towards harmonization has not been tested and therefore cannot be evaluated. Nevertheless, we note the following concerns that were raised during our research:

- To what extent will the federal government remain accountable for the enforcement of CEPA regulations after the signature of an equivalency agreement? Some observers have already argued that the current situation leads to the potential for responsibility without accountability, because federal-

⁶⁷ Environment Canada has received between six and ten requests for investigations under Sections 108 to 109, but only two were for matters under the Act's purview.

provincial arrangements vary over time, depending on informal as well as formal agreements (e.g., Mulvihill and Jacobs, 1991).

- How easily could the federal government re-establish its enforcement activities in the event that a province were to reduce its own?
- At a time when all governments face diminishing resources, how long can a process endure that builds duplication in its very design? Are there more efficient alternatives to the development of parallel federal and provincial regimes in order to demonstrate equivalence?

On the basis of these observations, we make the following recommendation:

Environment Canada should rethink the criteria for equivalency agreements, particularly sections 108 and 109, and reconsider its strategy to minimize inter-jurisdictional overlap, while retaining its right to promulgate national environmental quality guidelines and to regulate toxic substances.

3.6 ENVIRONMENTAL MANAGEMENT WITHIN THE FEDERAL GOVERNMENT

3.6.1 BACKGROUND

The federal government has been described as Canada's largest single "business":

- its annual expenditures exceed \$125 billion;
- it employs over 585,000 Canadians;
- it rents or owns more than 50,000 buildings, ranging from office towers to laboratories to military bases;
- it owns and manages 41 percent of Canada's landmass; and
- it purchases over \$9 billion in goods and services annually (Green Plan: 159).

The federal government recognizes that its activities have a significant impact on the environment, notably in the areas of site contamination, underground fuel storage, PCB and CFC management and the generation of wastes. In the Green Plan, the federal government therefore notes that "Federal operations must be exemplary in meeting and frequently exceeding all regulations and standards as well as being compatible with provincial and international environmental objectives" (Green Plan: 159).

Federal works and activities are subject to all federal legislation, including CEPA, but not provincial environmental laws. It is this constitutional fact that creates the rationale for Part IV of CEPA. Part IV provides the federal government with part of the regulatory framework to ensure that provincially regulated activities from which the federal government is exempt (e.g., discharge and storage of wastes) meet appropriate environmental standards. Section 4 of the legislation confirms that "This Act is binding on Her Majesty in right of Canada..." More specifically, Part IV of CEPA gives the Minister of the Environment the authority to regulate waste handling and disposal practices, and emissions and effluents from activities of federal departments and agencies, and Crown corporations. It also gives the Minister the authority to make regulations and guidelines that apply to federal lands, works and undertakings when no other act of Parliament applies.

Part IV regulations are in place for the treatment and destruction of PCB wastes. Regulations or guidelines are planned for:

- hazardous waste management;
- nonhazardous solid waste incinerators;
- air emissions from boilers;
- spill reporting;
- aircraft de-icing (glycol);
- underground storage tanks; and
- pesticides.

In every case, these initiatives are limited to federal facilities.

The development of criteria for landfilling operations and the control of wastewater discharge on federal lands (primarily Indian reserves) are in abeyance pending the outcome of the federal review on environmental decision making involving native lands.

The main responsibility for coordinating the implementation of Part IV rests with the Federal Activities Division of Environment Canada. This Division has four person-years and about \$75,000 in its operations and maintenance budget. The Division has focused on liaison, transfer of information, training, scientific and technical advice and the promotion of environmental auditing. It has held two workshops for other departments to provide federal employees with a better understanding of the environmental implications of their operations. It is planning two more for the next fiscal year and intends to offer such workshops at the rate of two a year thereafter. The Division has also coordinated the federal position for the development of the Canadian Standards Association criteria for the conduct of environmental audits.

At least one Environment Canada regional office has implemented both a compliance-promotion and pollution-prevention program for federal facilities in its region to reinforce initiatives taken at headquarters.

In addition, as part of the Green Plan, the government has undertaken several initiatives designed to improve its environmental performance. The federal initiatives taken to "put the government house in order" should be seen together with the activities being carried out under Part IV, because they are mutually reinforcing and are sometimes used as alternatives to each other. The supporting initiatives taken outside Part IV include the following:

- In 1992, the government announced a Code of Environmental Stewardship. The Code requires all federal agencies to incorporate environmental considerations into their operations and practices, from managing facilities and real property to obtaining goods and services and handling waste. Federal departments are to issue annual reports on their progress in meeting the Code.
- The federal government established an Office of Environmental Stewardship in June 1992 at the same time it introduced its Code. The Office manages an

electronic bulletin board, assists departments in the preparation of their environmental action plans, distributes information, funds demonstration programs and is investigating how to incorporate the Code in management tools.

- Environment Canada has struck an Environmental Accountability Partnership Agreement with the Office of the Comptroller General whose role is now carried out by the Government Review Branch of Treasury Board. The function includes facilitating the implementation of environmental auditing practices in the federal government and is seen as the focus for coordinating the environmental evaluation of Green Plan initiatives.
- The Federal Buildings Initiative helps federal departments improve the energy efficiency of their facilities.

Environment Canada has used both the Treasury Board Committee on Real Property Management and the Interdepartmental Committee on the Green Plan as mechanisms for environmental protection initiatives.

One notable development was the laying of charges by an Environment Canada investigator against Public Works Canada for a contravention of CEPA section 67(1)(a) on ocean dumping in Part VI of the Act. The proceedings have been described as "the first time in this country, [that] a Minister of the Crown was prosecuting another Minister for an offence enacted by the Parliament of Canada."⁶⁸ In sentencing the Department of Public Works, Decoste J. of the Court of Quebec explained the decision to prosecute as counsel had described it to the court:

First, he submitted, the general deterrent aspect is very important. By this he meant sending a clear message to the private sector of the seriousness of the objective adopted by Parliament: the protection of the environment, of human life and of the health of Canadians. They want to practice what they preach.

Second, they also want by doing this to make government employees and contractors take more responsibility. They must also be sensitized to the concept of the environment, and act in such a way that none of the many decisions which they must make involve the slightest risk to environmental protection. [*Canada (Ministère de l'Environnement) c. Canada (Ministère des Travaux publics)* (1993) 10 C.E.L.R. (N.S.) 134 at 149]

3.6.2 ANALYSIS

There is no reliable estimate of how much it would cost the federal government to meet the environmental standards that the private sector and many provinces are observing. Many departments do not have the information on which to base such estimates. We were told that those that do tend to estimate higher than Environment Canada. Nevertheless, it is generally believed that contaminated sites represent the government's single most expensive environmental liability. "The Progress Report on Identification, Assessment and Remediation of Contaminated Sites on Federal Crown Land" (Draft Report June 1993) estimates the cost of assessing and remediating contaminated sites on federal land at \$1 billion.

⁶⁸ According to Environment Canada's Office of Enforcement, as of May 1993 there were three other cases before the courts involving federal departments, all under the *Fisheries Act*.

According to interviewees, the concern about the cost of meeting existing commitments (e.g., disposal of PCBs, the phase-out of CFCs, 50 percent waste reduction) is making the government cautious about taking on new ones. It is not surprising that at a time of budgetary restraint departments are having difficulty finding the resources to meet increasing environmental obligations. The Treasury Board responded to departmental concerns in November 1991 by requiring Environment Canada to consider the financial and operational implications of any new environmental regulation or guideline on other government departments.

Since the proclamation of CEPA, there has been a marked shift in emphasis in the implementation of Part IV away from regulation towards voluntary approaches (viz. the Green Plan message about changing decision making), a shift that has come as no surprise to at least one outside observer (Duncan, 1990). An Environment Canada information brochure on *The Canadian Environmental Protection Act and the Role of Federal Organizations* (October 1988) emphasizes the regulatory powers under Part IV and the legal consequences of noncompliance. By contrast, the Code of Environmental Stewardship released in 1992 merely "sets out the principles by which the government will manage its internal operations." No formal sanctions apply to federal agencies that do not meet the Code.

The shift in management philosophy is also evident in the fact that only one regulation (on PCB treatment and destruction) out of the six listed in the 1989 draft "Canadian Environmental Protection Act Action Plan Report" for promulgation by mid-1991 has been passed under Part IV. The regulations reported as under development in CEPA's first annual report were still being developed three years later, albeit mainly as guidelines. The delays and the shift in approach result from the current drafting of section 54, which has not allowed Environment Canada to pursue the regulatory approach it had originally intended and has forced it to rely on voluntary guidelines instead.

This legal impediment came to light in 1988 when Environment Canada proposed to regulate underground storage tanks on federal property. The regulation would have been based on the "Environmental Code of Practice for Underground Storage Tank System Containing Petroleum Products" developed by the Canadian Council of Resource and Environment Ministers (a code that Environment Canada had been largely instrumental in developing). Documents show that because the regulation would have specified minimum technical requirements for the *prevention* of releases from underground storage, rather than prescribed *limits* on permissible emissions, Department of Justice lawyers found that Environment Canada was overstepping the authority of section 54. Environment Canada was therefore forced to change direction.

Given that contaminated sites are probably the government's greatest environmental liability, it is of concern that some Environment Canada officials believe that Part IV may not provide the Department with the authority it needs to regulate such sites. Whereas spills can be cleaned up on an emergency basis, contaminated sites usually result from years of sloppy housekeeping, leaking storage tanks or past industrial activity. It is not at all clear that Part IV empowers Environment Canada to force the clean-up of historical contamination.

However, even the voluntary approach to which Environment Canada has resorted as a result of the limits to regulatory action under Part IV has been hampered by a lack of resources; a short brochure for federal civil servants on the implications of CEPA has been under development for two years and may be published only late in 1993.

Because many of the initiatives taken to improve the government's own environmental performance (e.g., Code of Environmental Stewardship) are very recent, it is too early to evaluate their impact. The first annual report of the Federal Environmental Stewardship Office documents "progress on a number of broad fronts, including green office practices, waste reduction, and training and awareness programs" and notes smaller advances in areas such as the control of ODS and underground storage tanks. Notwithstanding the accomplishments to date, it is difficult to see how the Code of Environmental Stewardship, an initiative "with no muscle" in the words of a government official and limited resources (the \$10 million over five years the Office of Environmental Stewardship initially received has been reduced as part of government-wide cutbacks), will enable the government "to meet or exceed the letter and spirit of federal environmental laws and, where appropriate, to be compatible with provincial and international standards" (Commitment 2 of the Code).

Interviewees agree that implementing Part IV of the Act has been a low priority. As a result of few resources being allocated to the task, of low commitment and of technical problems with the wording of a key section of the Act, government officials told us that "very little" had been accomplished.

Both in CEPA and the Green Plan, the federal government has committed itself to demonstrating moral leadership in the field of environmental protection. It is unlikely anyone would challenge this objective. At issue is what priority to attach to it and how to achieve it. On the basis of interviews and the documentary evidence available, it is apparent that the government has chosen to make its own environmental performance a low priority relative to the implementation of other parts of CEPA, and to rely primarily on a voluntary approach to achieve its objective.

Opinions on these implicit choices are divided. One interviewee argued against the principle of imposing special legal obligations on government and, therefore, on the approach behind Part IV. Because the drafting of regulations takes time, raises expectations and promotes litigation (including Environment Canada suing other departments), he would prefer Cabinet to issue a directive to federal agencies if it wants to clean the federal house. Another interviewee argued very strongly against any "missionary zeal" in greening the government's operations, because the environmental benefits of being exemplary would not be worth the high financial costs.

A contrary argument is that Part IV should be expanded and strengthened and made one of the centrepieces of CEPA. The argument here is that, given expenditure constraints and the inability to impose a command-and-control regulatory regime in an area of shared jurisdiction such as the environment, it is imperative that the federal government strengthen its powers of persuasion. It can earn the moral high ground if it becomes a model environmental citizen by ensuring that its ongoing practices meet the highest standards of environmental stewardship. According to this line of reasoning,

the effectiveness of CEPA as a whole would be enhanced if the federal government took stronger action to raise and enforce its own standards.

In a related vein, Schrecker (1990) argues that the federal government can make a powerful statement about the importance it attaches to environmental issues through its procurement policies for recycled and recyclable products, and by requiring suppliers to adopt certain environmental practices. He recommends that most suppliers to the federal government certify their compliance to an environmental code of practice in order to be eligible for future federal contracts.

Similarly, the federal government could demonstrate leadership through increased research and development and by demonstrating new technologies.

Not surprisingly, the interviewees who made these comments see the lack of forceful action under Part IV as a major failure of CEPA.

Criticisms of federal inaction in relation to the environmental impacts of the federal government's own operations have been forcefully made by external observers. Diane Saxe, for example, has eloquently condemned the federal government's environmental housekeeping record (Saxe, 1990: 114-115):

There are many areas of environmental law in which the federal government has no adequate controls. ... No federal legislation requires the federal Crown, its agents or servants, to report or clean up spills which contaminate soil, nor to compensate those who suffer damages as a result, except in a few very limited cases.

Nor is there effective federal legislation to require federal agents or servants to practice proper waste disposal. No Act requires federal agents and servants to deposit their wastes in licensed sites, to use licensed carriers when disposing of them, nor to use special sites for hazardous wastes or manifests to track them.

Saxe specifically dismisses Part IV as not having made any contribution to improving a disturbing situation:

Although these gaps have been frequently brought to the attention of federal officials, little has been done. Part IV of the Canadian Environmental Protection Act, S.C. 1988, c. 22 purports to authorize the necessary regulations, ... Not only has the federal government failed to bring in adequate measures of its own, it has also refused to comply with provincial measures. As a result, unnecessary contamination has occurred, innocent people have been exposed without recourse, and those committing equal acts of pollution have received vastly different treatment.

The federal government's failure to implement controls equivalent to provincial regulations in areas as diverse as underground storage tanks, hazardous-waste management and air emissions has created the perception, if not the reality, of a double standard.

3.6.3 CONCLUSIONS AND RECOMMENDATIONS

The low priority assigned to controlling the environmental effects of federal government activities represents a significant failure of political will and has important consequences for environmental protection in Canada. As Canada's largest enterprise, the federal government potentially has a huge impact on the environment. However, at present the extent of the federal government's liability is unknown. In addition, as Saxe (1990), Duncan (1990), Toner (1993) and a number of other critics have observed, this failure to control the impact of federal government activity creates a double standard between the public and private sector. Such a double standard undermines the legitimacy of efforts to enforce CEPA regulations against private companies. Moreover, as the government moves away from command and control style regulation to nonregulatory control measures the significance of this lack of moral authority can be expected to increase.

The fact that the federal government has assigned such a low priority to keeping its own house in order makes it impossible to evaluate the potential effectiveness of suasion versus regulation. What is clear, however, is that the current combination of low resources, inadequate legal drafting, minimum political will and almost no regulations is ineffective and must be changed.

On the basis of these observations, we make the following recommendations:

1. Environment Canada should establish priorities for improving the government's environmental performance based on an analysis of financial costs and environmental impacts. Such analysis would render explicit the costs and benefits of various policy options.
2. Environment Canada should exert a much stronger leadership position through the authority vested in it by Part IV of CEPA to minimize the environmental impacts of federal government operations.
3. Part IV should be redrafted to give the Minister of the Environment clearer authority to develop and implement regulations concerning federal activities not otherwise regulated.

3.7 FULFILMENT OF INTERNATIONAL ENVIRONMENTAL OBLIGATIONS

3.7.1 BACKGROUND

There is a growing consensus that many of the most important environmental issues have an international dimension. Accordingly, there is increased concern in Canada to ensure adequate legal authority to adopt and implement international agreements, such as those related to global warming and species diversity. On the other hand, because Canada is a federal state, the federal government is limited in its ability to enter into and enforce international agreements unilaterally. In many cases, compliance with an international agreement will require provincial action.

3.7.2 ANALYSIS

There are growing numbers of international agreements related to environmental issues. Only a few are addressed by CEPA. Most are covered by other, more subject-specific legislation at both the federal and provincial levels. This section reviews the international agreements currently covered by CEPA and discusses the potential need for a more general provision related to future international agreements.

CEPA covers international agreements in three ways. First, as we noted in section 2.2, the assessment provisions in CEPA were designed to accord with an OECD agreement of the late 1980s to transfer more of the responsibility and burden for the assessment of toxic substances to the private sector. The assessment provisions are reviewed in sections 3.1 and 3.2, and the impact on industry of these provisions is reviewed in section 5.2.

Second, there are specific legislative provisions covering three international agreements. Part VI is designed to comply with the requirements of the London Dumping Convention, 1972. The ocean-dumping provisions also cover some of the requirements of the United Nations Convention on the Law of the Sea. Sections 43 to 45 are similarly designed to comply with the Basel Convention on the Import and Export of Hazardous Wastes. Each of these agreements is discussed below.

Third, there is the potential for the provisions concerning toxic substances to cover substances that are the subject of international agreements. In the opinion of a senior official involved in the preparation of CEPA, the definitions of "toxic" and of "substance" were broadened from the definitions in the *Environmental Contaminants Act* precisely in order to increase the potential for CEPA to cover substances such as ODS that might not be toxic according to traditional toxicology but about which there was significant international concern.

Many of the people we interviewed argue that with respect to international agreements it is going to be increasingly important for the federal government to have some authority that goes beyond the explicit authority contained in discrete legislation such as CEPA. Some argue that the federal government should have the authority to ratify any international environmental agreement. However, most commentators recognize that such a provision would require extensive constitutional changes. Many therefore argue that there should be a federal mechanism for ensuring that once an international agreement is ratified it becomes legally binding in Canada.

In our opinion, the latter option is a sensible step that could be taken to address the issue. Currently, before the federal government can ratify any agreement that touches on provincial jurisdiction it must enter into agreements with all affected provinces. In order to do so, federal negotiators must receive Cabinet approval. After the necessary federal-provincial agreements have been completed, the international agreement can be ratified. An additional Cabinet approval is then required, however, for the international agreement to become law in Canada. A federal provision stipulating that once an agreement is ratified it becomes law would remove the need for the second cabinet approval.

Export and Import of Wastes and Recyclable Materials

Canada has ratified and is a party to the Basel Convention, which regulates the export and import of hazardous wastes. The Convention was negotiated during the same period that CEPA was being developed. Sections 43 to 45 of CEPA were explicitly intended to provide legislative authority to ensure compliance with the Convention. As we noted in section 3.3, these provisions represent an important improvement over the previous provisions in the *Transportation of Dangerous Goods Act*. However, in order to fully comply with the recent amendment to the Canada-US Agreement on the Transboundary Movement of Hazardous Waste, and by extension to fully comply with the Basel Convention, CEPA must be amended to cover the import and export of all wastes.

Ocean Dumping Convention and the United Nations Convention on the Law of the Sea

The *Ocean Dumping Act* was designed to comply with the ocean-dumping provisions in The London Convention, 1972. After the London Convention and the original promulgation of the *Ocean Dumping Act*, the 1982 United Nations Law of the Sea Convention (UNCLOS) introduced a new international code for oceans. UNCLOS requires signatory nations to manage coastal and ocean uses on a sustainable, ecosystem basis. Articles 194 and 212 require strong legal frameworks for controlling all sources of marine pollution—atmospheric, land-based, ocean-dumping and pollution from seabed exploration/exploitation—and for protecting marine habitats. Although Canada is not yet a signatory to UNCLOS, these provisions are increasingly recognized as customary international law and are therefore potentially binding on Canada, regardless of whether it signs the agreement (McConnell and VanderZwaag, 1990: 182).

CEPA is not designed to, and cannot be expected to, ensure compliance with all of the obligations imposed by UNCLOS. Some obligations are addressed in other federal legislation, and for constitutional reasons some issues are left to provincial jurisdiction. Nonetheless, to the extent to which the administration of Part VI has encountered problems in the past, Canada has failed to live up to its international commitments concerning ocean dumping.

Because it addresses only ocean dumping, Part VI of CEPA does not link land-based sources to marine pollution. Land-based sources constitute up to 80% of marine pollution (Green Plan: 40). In 1985, Canada assisted in developing the Montreal guidelines for the Protection of the Marine Environment Against Land-Based Sources of Pollution (Green Plan: 40-41). These guidelines are not binding on Canada. The fact that there is no national, comprehensive planning program for land and water uses along the coastal zones means, however, that Canada is probably not in compliance with Article 207 of UNCLOS. This article requires states to adopt laws to prevent, reduce and control land-based pollution from rivers, pipelines and outfall structures, and to minimize the release of toxic, harmful or noxious substances into the marine environment.

3.7.3 CONCLUSIONS AND RECOMMENDATIONS

Sections 43 to 45 are designed to comply with the Basel Convention on the import and export of hazardous wastes. Specific recommendations to improve the administration of these provisions are made in section 3.3.

Part VI of CEPA is designed to comply with the London Dumping Agreement, 1972. To ensure full compliance with this agreement, the issues discussed in section 3.3, should be addressed.

Canada may not be complying fully with the coastal zone management provisions in UNCLOS. This problem reflects the fact that coastal zone management involves all jurisdictions of government. While CEPA cannot be expected to address these issues on its own, it would be more effective if it operated within the context of an overall policy integrating all relevant jurisdictions. More effort is required at all levels of government to address this issue.

Finally, we believe that with respect to the issue of future international agreements, there should be a federal authority indicating that once an international agreement is ratified, it is legally binding in Canada.

On the basis of these observations, we make the following recommendation:

CEPA should include a provision indicating that once an international agreement is ratified, it is legally binding in Canada.

4. MANAGEMENT ARRANGEMENTS AND RESOURCES

Having reviewed the operational activities under CEPA in section 3, we turn now to the organizational and administrative framework within which these activities are managed. Environment Canada and Health Canada share responsibility for CEPA. Both departments are involved in the development of regulations and guidelines. Responsibility for administering CEPA falls primarily within Conservation and Protection (C&P) of Environment Canada.

In section 4.1, we investigate the following questions:

- How are priorities set among the range of activities authorized under CEPA?
- Given the close relationship of CEPA initiatives to other responsibilities already established for Environment Canada and Health Canada, how is CEPA's implementation monitored and coordinated?
- How effectively did senior officials and decision-making structures respond to implementation problems as they became apparent?

Additional specific management issues are dealt with in other sections of this report and are iterated here, as appropriate, to support the discussion of these broader concerns. In section 4.2, we examine the level and distribution of resources for CEPA along with their implications for the Act's administration. Appendix C provides detailed information on management arrangements and resources.

4.1 MANAGEMENT ARRANGEMENTS

4.1.1 BACKGROUND

The Act placed new and substantial demands on the federal government. When CEPA passed in June 1988, management arrangements were not well established nor were the implications of implementation well understood. Consequently, work had to begin soon afterwards to define results and accountabilities and to develop the necessary management systems and structures. A "CEPA Office," with a planned two-year existence, was established by June of 1988 to coordinate the initial implementation activities. By the end of 1989, a draft CEPA Action Plan existed (see Appendix K), and C&P had developed a Results Definition Model that incorporated CEPA's expected results with the overall results of C&P. The draft Action Plan defined priorities, responsibility centres and broad action to be taken by Environment Canada to implement CEPA. Since then, a variety of mechanisms have been employed and activities undertaken to administer CEPA.

4.1.2 ANALYSIS

Implementation arrangements

Several factors suggest that particularly clear and careful planning for the implementation of CEPA was and continues to be important because:

- of the high public expectations held for CEPA, many of which were actively fostered by the government;
- CEPA was new legislation requiring significant changes to responsibilities and practices in C&P and other government agencies;
- significant new resources were allocated to Environment Canada and Health Canada to help administer CEPA;
- government recognized from the outset that CEPA was complicated and that implementation would present important challenges; and,
- several activities within CEPA are mandatory.

In hindsight, three other factors support this view:

- many changes have occurred within the senior management levels of C&P and within the Department;
- the Department underwent a significant reorganization in which the Environmental Conservation Service and the Environmental Protection Service were merged into C&P; and
- several aspects of the context within which CEPA must operate have evolved since CEPA was enacted, as discussed in section 2.3.

It might be argued that managing CEPA as a discrete program was warranted given that a five-year review of CEPA's administration is required under the Act. As well, Environment Canada had administered CEPA's predecessor, the *Environmental Contaminants Act* (ECA), as a program. According to officials involved with the ECA, however, this arrangement made it relatively easy to manage and track ECA activities but made coordination with activities managed outside of the ECA program difficult. Based on this experience, senior officials decided to try to meld the responsibilities and activities under CEPA into the general business of the service. Accordingly, the draft Action Plan was not approved, the CEPA Office only operated for two years and resources for CEPA have not been tracked consistently as a separate item within C&P budgets, although Health Canada has done so. CEPA activities are today embedded within the broader planning structure of C&P.

The CEPA Office was disbanded over five years ago. Since the office closed, some files have been accidentally destroyed. The CEPA priority document, roles and responsibilities documents, tracking and reporting system, and resource allocation plan were never completed. Some specific activities identified in the draft Action Plan were devolved to the Regulatory Affairs and Program Integration Branch (RAPI), such as the preparation of the CEPA annual reports. RAPI also provides an overall tracking process for all Environmental Protection activities. This system tracks most CEPA activities. Separate mechanisms have been developed by the responsible programs for tracking Priority Substance List (PSL) assessments and enforcement and compliance under CEPA.

Other administrative actions include the establishment of a joint Health Canada-Environment Canada Management Advisory Committee to link the work of the two departments.

Many of the implementation problems anticipated by the draft Action Plan are identified elsewhere in this report, such as inconsistency in enforcement across regions and the lack of a reliable estimate of the federal government's environmental liability. It is difficult to attribute all of these to the lack of a specific implementation plan per se. Indeed, it was reasonable to expect that the introduction of CEPA into the Department's diverse business and decentralized structure would experience some obstacles and delay. In retrospect, the commitments made in the draft Action Plan appear too optimistic. As described elsewhere in this report, there are important examples of corrective action having been taken to resolve implementation problems. For example, in December 1991, when it had become evident that the PSL process was encountering difficulties and that the promised assessment of 44 substances within the first five years might not be achieved, Environment Canada and Health Canada held a workshop to deal with the underlying problems (RFI, 1991). Both departments are now confident that all 44 assessments will be completed and released on time. In addition, C&P began producing a monthly "strategic monitoring report" on progress in producing PSL assessments.

Nevertheless, some significant management problems persist and these are discussed below.

Definition of priorities and results

In section 2.2 we observe that CEPA's original goals and objectives are unclear and relate primarily to process rather than to environmental quality targets. Reflecting this observation, a number of interviewees representing Non-governmental Organizations (NGOs) and industry believe that the federal government needs to express its objectives for CEPA—and for environmental protection in general—more precisely. Lack of clarity, they argue, impedes effective implementation of CEPA.

In our opinion, this lack of clarity with respect to overall priorities manifests itself in the fact that no clear expression was ever made of the criteria to be applied in implementing CEPA's array of mechanisms and instruments singly or in combination.

We also believe that the lack of criteria for determining priorities within CEPA has hampered administration of the Act. We conclude that there is a need to develop explicit criteria and to adopt a more deliberate process for choosing among CEPA's various instruments (e.g., regulation versus guidelines) for given environmental management problems. At the same time, the application of CEPA needs to be guided by a clearer definition of priorities for environmental protection in C&P and, more broadly, among the many other environmental problems faced by Environment Canada. This subject (considered in greater depth in section 6) is especially important considering the degree to which CEPA is bound up in the other business of C&P and Environment Canada, all of which competes for a limited pool of resources. The more clearly environmental quality objectives and priorities are defined at these levels, the more effectively CEPA's provisions can be deployed.

It is interesting to observe that the US Environmental Protection Agency (EPA) has recognized and has been wrestling with this issue of the need for an overall set of priorities to guide environmental policy and action. In 1987, the EPA Science Advisory Council published a report entitled, *Unfinished Business: A Comparative Assessment of Environmental Problems*. The March/April 1991 edition of the *EPA Journal* was dedicated entirely to the issue of priority setting on the basis of risk assessment. The issue was prompted by a second report by the Science Advisory Board, entitled *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*. In the lead article, the then Administrator of the EPA, William Reilly states (EPA, 1991:2-3):

For 20 years we have established goals on a pollutant by pollutant and medium by medium basis without adequately considering broader environmental quality objectives. Rarely have we evaluated the relative importance of pollutants or environmental media—air, land and water. Nor did we assess the combined impacts on whole ecosystems and human health. Given the scatter shot evolution of the Agency and its missions, we were seldom encouraged to look at the total loadings of pollutants deposited through different media from separate routes of exposure at various locations. We have seldom if ever been directed to seek out the best opportunities to reduce environmental risks in total, or to employ the most cost effective procedures.

C&P recognizes the importance of priority setting and has taken a number of important steps to address the problems identified here. For example, C&P recently completed a service-wide results measurement exercise. In addition, C&P is currently redefining the principal components of its work—68 in all—and will, for the first time (according to an Environment Canada official) assess the relative priority of each of these components. Associated resource requirements will also be examined. CEPA activities will presumably be contained within this assessment. As well, Environment Canada is developing a priority setting methodology based upon a "stressor-exposure-response" framework, and has commissioned the development of a method for forecasting threats to ecosystems. Other mechanisms that could potentially assist in the development of departmental priorities are Environment Canada's State of the Environment reports (produced every five years), the more frequent environmental results performance measures indicator reports as well as the annual "scans" of environmental issues produced by the Canadian Council of Ministers of the Environment (CCME).

Measuring performance

Appendix C and the CEPA annual reports provide information on the activities undertaken under CEPA to date. We review the performance in terms of CEPA activities in section 3 and performance in terms of impacts in section 5. Some general observations are made here.

In the absence of a clearly defined measure of results, assessing CEPA's performance has had to relate more to the completion of activities (e.g., the number of PSL assessments completed, the number of equivalency agreements struck) than to the achievement of

objectives and results. In its report,⁶⁹ the first Priority Substances Advisory Panel recommended that "To ensure that the assessment process meets public expectations, work plans and progress on specific tasks should be reviewed every two years by a multi-stakeholder group." The Regulatory Impact Analysis Statement (RIAS) for each regulation developed under CEPA considers the benefits and costs of a regulation. This analysis could serve as the baseline against which the effects of a regulation are evaluated.

We conclude that more environmental results-driven performance measurement is needed and should be linked to the current effort to define C&P priorities. As well, we observe that the five-year review of CEPA has stimulated consideration not only of the Act, but of its function within the broader sustainable development and environmental objectives of the federal government. As outlined in section 2.3, the context within which CEPA operates has changed significantly since the introduction of the Act and continues to evolve rapidly. Given this, and in light of our conclusion (see section 5) that it is too early to ascertain what effect CEPA has had on the environment and health, periodic review of the Act as a whole seems warranted.

Clarifying accountability

At the time the Action Plan was developed, many responsibility centres were already involved in implementing CEPA activities. The Plan identified the specific obligations and time commitments for implementation. The responsibility centres specified in the Action Plan for various aspects of CEPA are given in Appendix G.

For the first few years, inadequate definitions and understanding of responsibilities caused difficulties in the PSL assessment process. The workshop convened by Environment Canada with Health Canada addressed this problem and as a result, individual roles and lines of accountability have been clarified (RFI, 1991).

Information management

In sections 3.1 (control of toxic substances) and 3.3 (enforcement) we observe that incompatibilities within and between Environment Canada information systems is a serious deficiency in an organization so reliant on information. In our opinion, this situation has hampered the toxic substance assessment process, as well as regulation and enforcement efforts, and should be addressed.

Human resources

While much of the activity prescribed by CEPA was already within the mandate of the Department, the implementation of CEPA necessitated changes in Environment Canada's relationship with its "clients," gave new emphasis to certain activities, and gave rise to new management requirements. The changes faced by Environment Canada were arguably much greater than those faced by its partner department Health Canada.

⁶⁹ Report of the Ministers' Priority Substances Advisory Panel, Under the *Canadian Environmental Protection Act*, August 1988, p.1.

All of this had implications for recruitment and training. As discussed in section 3.1, managers suggest that some of the start-up problems encountered in the PSL assessment process were due to an initial shortage of trained personnel. The PSL process did not require new skills in Health Canada, but from the outset Environment Canada has had difficulty recruiting qualified personnel and has often been forced to hire staff who require training. In our opinion, a long-term human resources strategy should be developed to support the product of the priority setting work described earlier. The strategy could consider options including the potential for contracting out more tasks, building stronger partnerships with research institutions and universities, and providing more focused and intensive training, all to ensure that Environment Canada has ready access to the necessary expertise and skills.

As indicated in section 3.4.3, many of Environment Canada's inspectors are reluctant to become involved in enforcement because they are technically trained and do not have an enforcement background. This problem would likely be alleviated with the clarification of enforcement policy we recommend earlier in this report. At the same time support for enforcement activities would be increased by providing enforcement training to senior and middle management staff of Environment Canada.

Finally, a few interviewees indicated that the philosophy and attitude of management regarding environmental protection has much to do with the manner in which CEPA has been administered. This relates to observations made in section 3.4 regarding conflicting perceptions between some enforcement staff and management as to enforcement policy. Both CEPA and the changing context since 1988 have required C&P to conduct its business differently from the past. We were told that there has been resistance to change. On the other hand, some industry officials and Environmental Non-government Organizations (ENGO) representatives were highly complimentary of certain senior C&P staff in enhancing the performance of the organization. Even if it were possible to substantiate that resistance to change has been a serious impediment to progress, we suggest that this issue can be addressed most effectively through such means (some currently employed) as ensuring that policy positions and changes are communicated clearly to staff and the public.⁷⁰

Management across the federal government

Responsibility for pollution control is widely shared in the federal government. In 1990, the Auditor General noted that responsibility for environmental legislation at the federal level is shared between 24 departments administering over 50 Acts. (OAG, 1991). As we noted in sections 3.1 and 3.2, many observers are highly critical of this fragmentation and conclude that it hampers the development of a coordinated and comprehensive approach to environmental protection.

Surmounting the problem of interdepartmental coordination is a pervasive difficulty in government. In the case of CEPA, the key activities that involve two or more federal agencies are the PSL and new substance assessments (which Environment Canada and Health Canada undertake jointly with the assistance of a number of federal partners, as

⁷⁰ An example is the "Uniform Enforcement Guidelines" produced by the Office of Enforcement.

required), regulation development, enforcement and compliance, and environmental management of federal facilities and activities. As the previous section of this report observed, there have been improvements in many areas but some problems in interdepartmental coordination and interaction are still evident.

In 1992, the PSL assessments were seriously behind schedule. Frictions between Environment Canada and Health Canada, stemming mainly from differences in approach and problems in transferring information, were addressed in a special workshop and have largely been alleviated. Regulation development has been accelerated with the full-time assignment of Privy Council Office, Justice (PCOJ) lawyers to the process. Direct involvement of other federal agencies in CEPA science has been limited and many scientists observe that there has been little integration of science priorities among government research programs relevant to environmental quality. Environment Canada collaborates more now than in the past with Industry Canada and this has improved Environment Canada's ability to respond to and to take into account the interests of industry. Finally, as we discuss further in section 5.0, one of industry's main criticisms of environmental legislation in general and of CEPA in particular relates to the perceived lack of coordination of enforcement and monitoring activities at the federal level.

4.1.3 CONCLUSIONS AND RECOMMENDATIONS

Over time, CEPA activities have been meshed closely with the general business of C&P. On balance, we conclude that many of the difficulties encountered in administering CEPA stem from the problems identified in section 3 related to the assessment and control of toxic substances. Many of the factors at play at the time of CEPA's introduction continue to call for a clearer management strategy. This, combined with the fact that approaches and priorities for environmental management are continuing to evolve, suggests that the most important management issue is the manner in which objectives are established, priorities are set and results are defined. These are matters upon which we consider many aspects of successful implementation hinge. Related to this is the need for more objective-driven performance measurement. There is also a need to enhance the assembly and analysis of information (such as from State of the Environment (SOE) reporting and environmental scans) to support the identification of priorities and the measurement of performance.

Although a great deal of learning has occurred and corrective action has been taken in many cases, the Act is complex and CEPA's administration would have benefited from a more explicit implementation plan. In our opinion, several elements of the draft CEPA Action Plan are still relevant and although many have been addressed, an administrative framework that focused on CEPA would assist with such aspects as selecting from CEPA's tools, enhancing coordination among departments and bringing about more uniform enforcement.

On the basis of these observations, we make the following recommendations:

1. The specific results to be achieved over the next five years through CEPA and related instruments should be articulated. Performance against these results

should be reviewed annually. We further recommend that the five-year evaluation of CEPA, stipulated by the Act, be repeated five years hence.

2. A plan describing the actions required to achieve the results, once defined, should be developed.
3. Criteria should be developed to guide the selection of CEPA instruments and their application to environmental management problems.
4. A long-term human resource strategy (covering recruitment and training) should be developed and linked to defined priorities and results.

4.2 IMPLEMENTATION RESOURCES

This section examines the allocation and adequacy of resources for the administration of CEPA.

4.2.1 ANALYSIS

Allocation of resources

A detailed description of the resources devoted to CEPA is provided in Appendix C. The resources that support the implementation of CEPA are a composite of the A-base resources devoted to environmental protection by Environment Canada and Health Canada, the new resources allocated for CEPA by the Treasury Board, and special Green Plan funding. Many of the activities authorized under CEPA were being pursued by Environment Canada and other federal agencies prior to the Act being passed. For example, Part I of CEPA authorizes SOE Reporting, public information programs such as Environmental Choice, and a wide range of scientific research. All of these activities pre-date CEPA. The resources that were requested from Treasury Board following the enactment of CEPA were *supplementary* resources. Over time, it became evident that resources, in addition to those approved by Treasury Board and contained within the base budgets of the federal agencies involved, were required to implement certain portions of CEPA. In 1992, additional funds were made available through the Green Plan for several program areas that intersect the implementation activities of CEPA.

The total cost of CEPA, based on information provided by Environment Canada and Health Canada, is in the order of \$72.4 million annually. Exhibit 4.2 summarizes the resources allocated to CEPA within the departments of the Environment and Health.

EXHIBIT 4.2: TOTAL COST OF CEPA

SOURCE	EC (including DOJ staff)				HC	
	1987-1988 ¹		1993-1994 ²		1993-1994	
	PYs EC(DOJ)	\$ millions	PY EC(DOJ)	\$ millions	PY	\$ millions
CEPA related A-base	78	5.3	191 (5) ⁵	28.4	15	3
Additional CEPA funds granted in 1988 ¹	30 (8)	7.6	30 (8)	7.6	7 ³	1
Green Plan CEPA related resources ²			235 (4)	31.0	8 ⁴	1.6
TOTAL	108 (8)	12.9	456 (17)	66.0	30	5.6

Notes:

1. Maximum in 1992.
2. Reaching a maximum in 1994.
3. Received from MYOP.
4. To increase to 10 PYs in 1996-97.
5. In 1987 only A-base resources relating directly to CEPA, such as chemical assessment and enforcement, were declared. During the intervening years prior to the Green Plan the role of departmental science was more clearly understood and recognized. Thus by the time the *Green Plan* was financed the departmental research institutes (AES, NWRI, NHRI, WTC and RRTEC) clearly understood the contribution they made to CEPA and made the appropriate declarations. This resulted in an additional 113 PYs and \$23.1 million A-base being declared against CEPA.

The costs to government of developing (including toxicological assessments, RIAS, etc.), administering and enforcing environmental protection regulations under CEPA are estimated by RAPI⁷¹ to have averaged some \$16.6 million a year. One senior departmental official suggests that the costs are probably much higher. The RIAS provide some information on the costs imposed on government of implementing regulations. In the case of the New Substances Notification Regulations, for example, the costs (over and above administering section 9 of the *Environmental Contaminants Act*) of evaluating notifications, compliance program administration, industry consultation and enforcement were estimated to be \$2,055,000 annually (1992 dollars).

Adequacy of resources

Although Treasury Board granted 22 fewer person years than requested in 1988, an Environment Canada official indicated that the Department considered the resources to be adequate to "launch" CEPA. Despite a 3% reduction in Environment Canada's 1991-92 budget, which was repeated in 1992-93, the original CEPA funding and the additional funding from the Green Plan has meant that the overall level of resources for the Department has been increasing relative to the budgets of many other federal institutions.

⁷¹ Estimate prepared by the Regulatory Affairs and Program Integration Branch for consideration in a government-wide regulatory review.

Because the adequacy of resources for administering CEPA depends upon the priorities set for administering the Act, and on a clear picture of which activities are directly related to CEPA, it is only possible to examine whether activities readily identifiable as being undertaken through CEPA are sufficiently funded.

As indicated in section 4.1, the work involved in the PSL was deemed to be a high priority for implementation. It was evident early on that the resources available for the PSL assessments were inadequate. The shortfall was corrected with Green Plan funds, which are estimated to provide in the order of 55% of total annual funding for PSL assessments in both Health Canada and Environment Canada. Assuming that PSL2 imposes approximately the same demands as PSL1 did, unless the Green Plan money is renewed or added to the A-base at the termination of Green Plan funding, neither Health Canada nor Environment Canada will be able to meet its obligations under PSL2.

For regulations, the drafting resources were short at first but this problem was alleviated with the additional funding made available through the Green Plan and the PCOJ. As the New Substances Notification Regulations are put into place and as the number of completed PSL assessments increases so too will the pressure on resources for developing control measures.

As described in section 3.2.2.6, Environment Canada officials argue that their ability to respond to problems associated with the Part VI ocean dumping provisions was hampered by limited resources prior to the Green Plan. Limited resources have also been cited to justify in part the slow progress in improving the federal government's own environmental performance.

Several officials also believe that funding is lacking for enforcement activities. As reported in section 3.4.3, though enforcement resources have increased under CEPA these increases have not been as large as expected and subsequent budget cuts have affected Environment Canada's enforcement capacity.

The adequacy of funding in the future depends upon such factors as the nature of initiatives the government wishes to pursue under CEPA and the negotiation of equivalency agreements. Similarly, as the number of regulations increases so too presumably will the enforcement activity. A decision to fund provincial and territorial activity under equivalency or administrative agreements, or to increase public involvement in CEPA activities, would likewise require additional funds or a shift in the current use of resources. Though it is possible that pressure on resources could be alleviated if the government moves away from a strong regulatory approach towards other forms of environmental management, it would be necessary to examine whether these alternatives would be more or less cost-effective in achieving CEPA's objectives.

A few interviewees pointed out that there may be opportunities for reducing costs. Some of these would require significant changes to CEPA. Such would be the case if the federal government sought to reduce the overall cost to government of assessments by limiting its responsibility for assessing the toxicity of substances to inherent toxicity. Would-be users of a substance would be responsible for covering the expense of assessing exposure risks. Alternatively, assessment costs could be transferred to proponents with the assessment work still being carried out by government. Some

argue that it would simply be cheaper to contract out more of the assessment work than is the case at present. We recommend in section 3.1 that Environment Canada should consider these options in more detail.

The importance of setting priorities for environmental protection, as discussed in other sections of this report, pertains directly to the allocation of resources for CEPA. This is especially true at a time when overall resources are declining and different approaches to environmental protection are being explored. Departmental officials report that reviews of resource allocations, in light of established priorities and current and foreseen budgetary pressures, take place at Environment Canada Management Board (ECMB) each September and February. Decisions taken at ECMB are integrated into C&P's business plans and management contracts. Throughout the year, an Internal Review Committee deals with unanticipated resource pressures. These officials also point out that C&P management has historically made cuts across the board on a pro rata basis, irrespective of priorities. General cuts, rather than targeted cuts, make it much more difficult to ensure that priorities are met.

4.2.2 CONCLUSIONS AND RECOMMENDATIONS

Departmental officials consider that Green Plan resources have permitted the Department's budget to weather fiscal restraint well, relative to the rest of the government. Nonetheless, it is impossible to evaluate the adequacy of resources to support the implementation of CEPA in the absence of a clear set of objectives. Resource allocation decisions should be coupled with a clearer definition of priorities. Green Plan funding extends to 1996-97 and clearly the government will face critical choices if and when this funding expires. This is of particular concern given that the pace of substance assessment and regulation development is expected to increase over the next few years with the implementation of the new substances provisions.

On the basis of these observations, we make the following recommendations:

1. The allocation of resources to activities conducted through CEPA should be reviewed annually in conjunction with a review of performance against results.
2. Funding needs for CEPA should be re-examined in light of clarification of CEPA's objectives and the status of Green Plan funding should be clarified immediately thereafter.

5. THE IMPACTS OF CEPA

In section 3, we presented our evaluation of CEPA on the basis of what CEPA was intended to do at the time it was enacted (i.e., its original goals and objectives). In this section, we extend our analysis to the broader question of CEPA's overall impact on environmental quality, human health and industry.

It is difficult to determine the direct environmental and health impacts of CEPA for three reasons. First, it is too early to tell what impact CEPA is having on environmental quality and human health; relatively few regulations have been developed and only a relatively short time has passed during which these regulations could be expected to produce tangible effects. Second, it is difficult to separate the effects of actions taken under CEPA from other factors, such as provincial actions, green consumerism, industrial changes due to the recession, free trade and technical advances. Third, data and knowledge related to health and environmental conditions, toxic levels, and cause and effect relationships are limited. There are many data gaps, and the understanding of impacts is particularly weak at the ecosystem level. Therefore, this evaluation focuses on the following questions:

- What is the scope of the environmental and health problems CEPA is likely to address?
- Based on our analysis in section 3 of the administration of CEPA, what can be inferred about CEPA's likely impact on environmental and human health?
- What specific instances of potential impacts do we know of from our interviews and case examples?
- Do existing monitoring and management efforts provide the information needed in future to determine impacts?

Although it is premature to draw definitive conclusions regarding the impacts of CEPA control measures on industry, interviews with industry indicated that a number of impacts have occurred related both to the regulatory process under CEPA and to the direct impact of certain regulations. These impacts as well as the more general concerns expressed by industry about the ability of the regulatory process under CEPA to account adequately for economic impacts are summarized in the latter part of this section.

5.1 IMPACTS ON THE ENVIRONMENT AND HUMAN HEALTH

5.1.1 ANALYSIS

The promotion surrounding the introduction of CEPA, together with statements by government officials, elevated the expectations of Canadians about federal environment regulations. A number of commentators have observed that these expectations may have had effects beyond those directly attributable to the actual initiatives undertaken in formal compliance with CEPA. For example, the introduction of CEPA raised public concerns about toxic substances. The original promise of improved federal-provincial

harmonization of environmental regulations may also have created pressure for enhanced cooperation, notwithstanding the fact that formal progress in this area has been slow. Similarly, the emphasis on strict enforcement by the federal government raised public expectations and promoted a similar emphasis within a number of provincial governments. Although these developments were important, the symbolic effects of CEPA have inevitably waned over time, and it is important to determine whether performance under the Act has lived up to those expectations.

5.1.1.1 Scope of Health and Environment Problems Addressed by CEPA

Impact assessment involves looking at the changes caused by polluting substances or actions to environmental and human health conditions. The first step in determining the impacts of CEPA is to define the aspects of health, the environment and polluting substances/actions that apply to CEPA. In this section we suggest general definitions for these items and then examine the potential scope of CEPA's impacts. Exhibit 5.1 illustrates the possible scope for CEPA, based on our understanding of the Act and how it is used. CEPA affects three different environmental features: (i) environmental elements (air, soil, water and sediments), (ii) Canadian/Regional ecosystems and (iii) global ecosystems.⁷² The effects on human health of CEPA are assumed to be broad and at the level of Canadian society overall or of specific regions or populations.⁷³ Finally, the specific substances or activities controlled by CEPA that could cause environmental or health impacts are toxic substances, phosphates, the import and export of hazardous wastes, fuel additives, ocean dumping, international air pollution and the environmental impact of federal government activities.

The specific activities accomplished by CEPA to date are detailed in Appendix C (status) and for purposes of this discussion can be summarized as:

Toxic Substances

- forty four (44) Priority Substance List (PSL) substances identified. Assessment and development of control mechanisms for these substances is ongoing;
- consultations with the public, industry and provincial governments are being held regarding these substances; and
- new substances notification regulations established.

Phosphates

- activities similar to those under the earlier *Canada Water Act* continued.

⁷² These three levels follow the definitions for environment given in CEPA and the Department's conceptualization of environmental results given in the proposed One Program Operational Plan Framework (December 1992).

⁷³ Health is not defined in the Act; however, health is referenced at the beginning of the Act in terms of "protection of the environment and of human life and health."

EXHIBIT 5.1 POSSIBLE SCOPE OF CEPA IMPACTS

Environmental Effects				Health Effects	
Substances/ Activities Controlled by CEPA	Quality of Air, Soil, Water and Sediments	Integrity of Canadian/ Regional Ecosystems	Integrity of Global Systems	Canadian Population	Specific Regions/ Populations
Toxic Substances	✓	✓	✓	✓	✓
Nutrients	✓	✓	✓	?	✓
Ocean Dumping	✓	✓	?	?	✓
International Air Pollution	✓	✓	✓	✓	✓
Pollution from Federal Facilities	✓	✓		✓	✓

EXHIBIT 5.2 PRESENT SCOPE OF CEPA IMPACTS

Environmental Effects				Health Effects	
Substances/ Activities Controlled by CEPA	Quality of Air, Soil, Water and Sediments	Integrity of Canadian Ecosystems	Integrity of Global Systems	Canadian Population	Specific Regions/ Populations
Toxic Substances	Direct effects related to PSL and new substance notification. Also indirect effects		Direct effects from ODS*	Direct effects related to PSL new substance notification, lead and ODS. Also indirect effect	
Nutrients	Limited effects				
Ocean Dumping	Limited direct and indirect effects				
Int'l Air Pollution	No action has been taken under Part V				
Pollution from Federal Facilities	Very limited direct effects		Minimal effort	Very limited if any direct effects	
Fuel additives	Direct effects		Minimal effort	Direct effects	
Import and Export of Hazardous Wastes	Direct effects		Limited direct effects	Direct and indirect effects	

* ozone depleting substances.

Ocean Dumping

- activities similar to those under the earlier *Ocean Dumping Control Act* continued (work on regulatory amendments is ongoing and will result in new activities and changes in future).

International Air Pollution

- CFC regulation and actions related to ODS (no actions have been implemented under section V of the Act).

Pollution from Federal Government

- very little has been accomplished.

The number of specific new regulations and "on the ground" actions of CEPA is limited. Thus, the scope of CEPA's direct health and environmental impacts is limited. CEPA has also had and will continue to have indirect effects, such as changes in public awareness or improvements in consultation between federal and provincial environmental agencies. In the long run, these indirect effects may be more important than any direct effects. It is virtually impossible to attribute these indirect health and environmental impacts exclusively to CEPA as many other factors are involved. All that can reasonably be asked is whether CEPA's indirect effects are moving action in the right direction—are they supporting or undermining overall efforts to improve health and environmental conditions?

The impacts caused by CEPA must be placed in context in order to appraise their significance. The 1991 State of the Environment (SOE) Report⁷⁴ provides a baseline for environmental and human health conditions prior to CEPA since its data predate the implementation of CEPA. Although this analysis is done for illustrative purposes and is not intended to be exhaustive, it does reflect the conclusions of Canadian Council of Ministers of the Environment (CCME) scans and other similar sources.

The SOE Report indicates that the levels of toxic chemicals in the environment are declining, as are many specific types of industrial discharges (e.g., mercury, lead, dioxins and furans, and organochlorides like DDT and PCBs). According to a staff member at the SOE Branch, however, recent data indicates that levels of toxic substances in the environment may have reached a plateau, and in some cases may be increasing again. Industrial emissions of many of the pollutants entering the water and air are improving. The hazardous waste situation, however, is getting worse. Industries are by far the largest source of hazardous waste in Canada and they have not succeeded in reducing the levels of toxic chemicals and other hazardous wastes below 1980 levels. Because the volume of hazardous wastes is increasing, disposal of these wastes is becoming more problematic.

⁷⁴ Government of Canada, *The State of Canada's Environment*, Ottawa, Supply and Services, 1991.

With regard to ecosystems, there is widespread low-level contamination in all ecozones, including the most remote ones. Contamination is particularly problematic in the following regions:

- the Great Lakes region;
- the St. Lawrence valley, waters and estuary;
- the Fraser River Basin, Vancouver Lower Mainland and Strait of Georgia;
- the west coast of Vancouver Island; and
- Atlantic harbours and coasts.

The picture presented in the SOE Report for ocean dumping is mixed. Marine contamination is considered to be of moderate concern in Atlantic Canada and of low concern in the Pacific and the Arctic. In contrast, activities of high concern are discharges from pulp and paper mills, discharges of municipal wastewater and urban and agricultural run-off. Furthermore, the report acknowledged that the effects of ocean dumping on the marine environment are not fully understood but that improved monitoring programs are being implemented.

The SOE Report identifies several areas of concern with respect to human health. In the Arctic, heavy metals and chlorinated organic compounds with origins from industrial sites thousands of miles away are appearing in the food chain.⁷⁵ This may pose a risk for aboriginal peoples who consume a larger proportion of wild game and fish (chlorinated organic compounds, such as PCBs are the biggest risk). For the Canadian population as a whole the main health concerns from environmental problems currently relate to UV radiation and ground level ozone (over half of Canadians are exposed to unacceptable levels of ozone). In addition, some communities near industries face potential health risks due to toxic pollutants.

With a few notable exceptions (e.g., CFCs and leaded fuels) none of these trends can be attributed to CEPA, because CEPA interventions are just starting to be implemented.

5.1.1.2 Specific Examples of Impacts

Most interviewees agree that it is too early to evaluate the ecological and health impacts of CEPA. Some emissions have been significantly reduced. Emissions of ODS have been curtailed; and phosphorous levels in detergents have been greatly reduced (however, phosphorous levels declined before CEPA and cannot be attributed to CEPA). In addition, a number of regional enforcement staff observed that enforcement operations that "blitzed" a problem area—such as on the sale of CFC's by small vendors—have proved very effective.

Only recently have efforts been made to develop a mechanism to evaluate overall compliance rates. Based on anecdotal evidence, however, the fact that there are few

⁷⁵ For future predictive purposes, it is suggested that trends in the Arctic of contamination from distant sources can serve as an indicator of the rate and extent to which these pollutants are entering the global environment. Furthermore, between 1991 and 1997, the Arctic Environmental Strategy will monitor the levels of contaminants in the Arctic from long-range transport.

repeat offenders suggests that enforcement activities do have a deterrent effect. Enforcement staff also observed that the majority of industries will comply when inspected.

Preliminary findings indicate that dioxin levels in fish and herons downstream of pulp mills in British Columbia are declining much faster than expected.

It happened a lot faster than expected, said Phil Whitehead, a toxicologist with the Canadian Wildlife Service. We were expecting to see a decade of slow decline, but that didn't happen. In two years, we've seen a very dramatic decline. We're down to 10 percent of peak levels in some species. (*Vancouver Sun*, May 8, 1993)

Although dioxin and furan regulations for pulp mills were developed under CEPA, the environmental benefit from better quality pulp mill effluent cannot be attributed solely to CEPA. Market forces (i.e., the European market's demand for dioxin free products) influenced the industry as did adverse public opinion and the actions of provincial governments. As well as ensuring a level of playing field, the CEPA pulp and paper regulations effectively provided a "goal of approval" that helped the Canadian producers address the European concerns about the environmental impact of Canadian pulp and paper production.

It is also very difficult to measure ecological and health impacts from those toxic substance reductions that are known or suspected to have occurred. On occasion, environmental improvements have been attributed to regulation, and commentators have associated the changes with improvements in human health:

With the virtual elimination of lead in gasoline already having occurred by December 1, 1990, blood levels of Canadians have been reduced substantially. ("Gasoline Regulations—Amendment," *Canada Gazette*, Part I, 13 May 1993)

Specialists might often be more cautious, but in this instance, at least, there are reasonable grounds to be confident that the legal initiative contributed directly to the physiological improvement. (Health and Welfare Canada, 1992)

However, even in this case, scientists at Health Canada informed us, it is difficult to extrapolate from the physiological change in blood lead levels to a particular human "health" impact.

Another problem with assessing impacts is that they are not routinely monitored. The pulp and paper regulations attempt to remedy this problem by requiring environmental effects monitoring (EEM). According to Environment Canada officials, this is the first federal requirement to measure an environmental objective, rather than just compliance with a set of discharge requirement. The pulp and paper environmental effects monitoring requirements are contained in a regulation to the *Fisheries Act*. Conservation and Protection officials informed us, however, that they hope to incorporate environmental effects monitoring into future reporting requirements under CEPA. One problem with these requirements is that they could become quite

expensive, particularly to demonstrate causal relationships (i.e., did reduction of effluent improve the fish stock, or did something else?).

Environmental effects monitoring is a relatively new approach to monitoring environmental baseline and impact conditions. EEM is still under development (EEM of pulp and paper mills is expected to start in 1994; for further details see Appendix J). Most scientists interviewed, however, felt EEM would provide useful data to characterize the quality of the ambient environment, and that the use of EEM should therefore be encouraged. Many industry and management interviewees argued that the use of EEM will have to be limited by the need to maintain a balance between the high cost of numerous end-of-pipe effluent control samples, the willingness of the environmental community to believe that the sampling protocols truly represent the nature and quantity of effluent, and the ability of regulatory agencies to determine whether effluent loadings are within the capacity of the receiving environment. A number of scientists also cautioned that EEM should not become too formalized and rigid. Scientific support for EEM is not universal, however, as some scientists feel the approach is fundamentally flawed as it does not provide the methodological rigour needed to prove impact causality. In acknowledgment of this uncertainty, Environment Canada has decided to test the effectiveness of EEM on an incremental basis.

5.1.1.3 Impacts Related to Achievement of Administrative Objectives

Notwithstanding the difficulties in measuring impacts described earlier, we consider it useful to attempt to infer the impacts CEPA may have had based on the degree to which the Act's administrative objectives have been met.

In section 3, we examined whether CEPA's administrative objectives have been met and found that in most cases they have been, at best, only partially achieved.⁷⁶ While considerable work has been done related to cradle-to-grave management of toxic substances, enforcement and compliance, scientific approaches and harmonization, more effort and more time is needed before these objectives will be substantially achieved. Finally, very little has been achieved in the areas of environmental management within the federal government. Thus, it is difficult to assess at this time whether achieving these administrative objectives will lead, as intended, to the ultimate goal of protecting the health and environment of Canadians. From what has been accomplished so far, it is clear that CEPA will have specific impacts related to specific problems. It is unclear, however, whether CEPA will have broader health and environment impacts; the number of problems and limitations encountered thus far make it difficult to detect such broad trends.

It is possible that some broad institutional impacts and changes in public and industry awareness have resulted from CEPA, and that these in turn may lead to indirect health and environmental impacts. Indeed, in the opinion of a number of interviewees, the main impacts of CEPA have been institutional improvements within Environment Canada, an increase in public awareness, and an increase in industry concern over the use of toxic chemicals. Specific impacts include:

⁷⁶ For a full list of the objectives see Exhibit 2.2.

- the development of a knowledge base, which will be useful no matter what form of pollution control strategy is adopted in the future;
- improved coordination between the scientific and regulatory arms of Environment Canada;
- the development of risk assessment methodologies;
- operation of the assessment program, required by CEPA, enabled Canada to participate in and benefit from the sharing of assessment information that is occurring within the OECD and other international forums;
- the emphasis on toxic substances created by CEPA raised public and industry awareness of these issues. In particular, as a consequence of CEPA and related legislation in Europe and in the US, industry now places more effort on attempts to anticipate and minimize future regulatory obligations with respect to new substances as they are developed; and
- the strengthening of several provincial environmental laws since CEPA came into effect. Although CEPA cannot take full credit for these improvements, it is notable that some of these laws have adopted elements of CEPA.

5.1.1.4 Monitoring Information Is Needed to Determine Impacts

It is clearly too early to ascertain more than a limited number of specific environmental and health impacts from CEPA. In our opinion, however, it is not too early to establish mechanisms to identify and measure impacts in the future. As we indicated in section 3.1, ideally the government should have access to information to help it (i) identify priorities; (ii) determine the nature of particular problems; (iii) design and implement appropriate policy measures; and (iv) evaluate the effectiveness of policy measures taken.

In this section, we examine whether mechanisms are in place to determine the health and environmental impacts of CEPA in the future. Senior officials inform us that the monitoring and research activities at Environment Canada are currently under review, with the aim of linking them more closely to departmental priorities. The implications of this exercise regarding the capacity of the Department to establish priorities is unknown. As we noted in section 3.1, efforts have been made over the past few years to improve the use of information within the government to assist in the PSL assessment process. At the broad strategic level of State of Environment reporting, on the other hand, the scope and contents of SOE reporting are not well linked to CEPA. The table of contents for the next State of Environment Report is being developed and is expected to be finalized within the next six months. Departmental monitoring priorities and baseline data requirements have not as yet been integrated into this exercise. It is pertinent to note that SOE staff are discussing whether toxic substances should be a separate chapter in the upcoming SOE Report. The 1996 SOE Report could provide useful integrated information for evaluating the environmental performance of Environment Canada regarding toxic substances, and more specifically, for the substances addressed by CEPA.

Our discussions with Health Canada reveal that no monitoring activities to determine the broad health impacts of CEPA are ongoing or planned by the Department. Scientists at Health Canada believe it is impossible, in most cases, to link environmental effects directly to health effects. Health Canada therefore intends to rely on Environment

Canada information concerning environmental impacts to help judge the efficacy of CEPA control measures. We note, however, that Health Canada is doing research on health and environmental linkages (e.g., its Health and Environmental Action Plan).⁷⁷ Moreover, a considerable amount of monitoring information is collected by other jurisdictions and universities on health and environmental linkages. The possibility of integrating this research with the specific information required to evaluate CEPA's health impacts should be investigated.

It should be recognized that not all the information needed to predict impacts conclusively is or will be available within the next few years. Our knowledge of cause-effect relationships at the ecosystem and human population levels is limited, and in the opinion of many of the scientists we interviewed, it may be many years before such knowledge is acquired. Nonetheless, many scientists also observe that there is sufficient knowledge available to indicate effects, and to determine whether these indicators fall within a range acceptable to Canadian society. Thus, it is possible, with our current levels of scientific knowledge, to estimate impacts by using performance indicators and baseline data. In our opinion, the following types of data will need to be collected and analyzed:

- the level of environmental degradation acceptable to Canadians;
- data on the sources and distribution of known toxic substances in Canada, particularly the substances addressed by CEPA;
- baseline environmental data related to air and water quality and some indicators of ecosystem integrity; and
- the geographical "hot spots" of public and scientific concern. These would be hot spots either because of their level of contamination or their ecological or cultural value.

Environment Canada has a wide range of mechanisms to collect some of this information. Currently, however, not all these data are available. Nonetheless, we believe that within the next five years it will be possible to develop enough information to evaluate the impacts adequately for management and public accountability purposes. To develop such information over the next five years Environment Canada will have to plan carefully and focus its monitoring and research efforts. And again, as we have emphasized throughout this report, the important first step in such an initiative should be the development of general objectives against which to measure performance.

5.1.2 CONCLUSIONS AND RECOMMENDATIONS

Environmental issues pose enormous challenges to governments in Canada. CEPA is designed to address directly only a small part of the problem. By authorizing activities such as State of the Environment Reporting, monitoring and the promulgation of national environmental quality guidelines, however, CEPA could potentially have an important and widespread indirect impact on public behaviour.

CEPA's scope is dictated to a certain extent by constitutional limits on the federal government's authority. As we noted in section 2, however, the precise limits of federal

⁷⁷ *Green Plan For a Healthy Environment*, p.28.

jurisdiction over environmental issues are not clear, and a number of critics—particularly Environmental Non-government Organizations (ENGOS) such as West Coast Environmental Law Association, the Canadian Environmental Law Association and Pollution Probe—argue that the federal government should assert more authority.

CEPA's scope is also limited by issues of *realpolitik*; CEPA does not even consolidate all existing federal legislation affecting toxics. We argue in a number of places in this report that this piecemeal approach to environmental regulation limits CEPA's potential and actual impacts.

In practice, CEPA's environmental and health impacts have been restricted by the small number of control measures promulgated under the Act. CEPA's impact has also been limited by the problems observed in section 3.3, with respect to enforcement. While the recency of the Act explains some of these issues, we have suggested that there are some management and structural problems that limit the potential impact of CEPA. It also merits repeating, that CEPA provides most of the tools necessary for the federal government to have a considerable impact on the environmental effects of its own operation; what is now required is sustained political commitment.

Finally, it is important to recognize that with a small number of exceptions, it is too early to assess the impacts of specific CEPA initiatives. More importantly, however, Environment Canada does not currently have in place a system to ensure that impacts will be identified in the future. In our opinion, this is a major deficiency, and the current efforts to try to address it should be supported.

On the basis of these observations, we make the following recommendations:

1. Implementation objectives need to be more clearly defined and the links between results, objectives and operational activities need to be clarified.
2. Better integration is needed between SOE reporting and departmental monitoring priorities regarding toxic substances.
3. In order to develop the information needed to assess impacts five years from now, Environment Canada should carefully plan and focus its monitoring and research efforts regarding toxic substances.

5.2 IMPACTS ON INDUSTRY

5.2.1 ANALYSIS

The development and implementation of CEPA regulations have resulted in the imposition of costs on industry at three levels. The first area relates to the costs incurred by industry to participate in the CEPA process. This issue is addressed in sections 3.1 and 3.4. One of the principal concerns of industry relates to the structure of the consultation process, which has caused industry to devote increasing time and financial resources to participate in a process that, in the opinion of some stakeholders, appears to offer few benefits.

The second level of costs experienced by industry is ongoing administrative costs. In our opinion, although estimates of monitoring and reporting costs are required in the RIAS, these analyses do not adequately take into account the additional reporting and documentation costs associated with (i) the structure of some CEPA regulations; and (ii) regulatory overlap. With respect to the first point, a number of initiatives, such as monitoring of hazardous waste management and ozone depleting substances, have been addressed through multiple regulations, each of which has its own administrative requirements. As the preliminary results from Environment Canada's Regulatory Review indicate, in many instances these issues could be addressed through omnibus regulations that would reduce the regulatory burden imposed on industry.

Industry views regulatory overlap as a major problem with CEPA, and with Canadian environmental legislation in general. Many critics complain that a number of CEPA regulations have been implemented that do not adequately take into account existing/proposed provincial regulations and their associated reporting requirements. In certain provinces, ad hoc coordination arrangements for reporting relationships have emerged. In others, however, the imposition of both provincial and CEPA regulations has led to duplications in reporting requirements and administrative costs.

The final level of impact relates to the direct costs associated with regulatory compliance. The results of our assessment indicate that, with the exception of the regulations relating to pulp and paper mill effluent and, to a lesser degree, ozone depleting substances, the direct compliance costs imposed on industry have not been significant, and have not affected the competitiveness or financial viability of most firms. Furthermore, of the costs identified in the RIAS analyses, and incurred by industry, it is difficult to assess what portion are attributable to specific CEPA regulations. Industry faces pressures from the consuming public—both in domestic and international markets—to adopt more environmentally benign production practices. Hence, industry may shut-down marginal plants, implement pollution control and abatement technologies, invest in alternative production processes, etc., well in advance of the implementation of a CEPA regulations. Attribution is further complicated by the fact that regulatory authority in certain segments of the economy may be exercised by more than one level of government. In certain provinces, regulations may have been implemented in advance of CEPA regulations and they may impose stricter requirements (the converse is also possible). As a consequence, in certain provinces or regions, the CEPA regulation may be viewed as the dominant regulation, or it may be seen as redundant. Attempting to attribute compliance costs to certain regulations, when jurisdictional overlap exists, can be quite a complex procedure, and it is subject to significant uncertainties.

Some industries observe that the actual regulations have very little impact on modern, up-to-date companies. Plants that are old and have not made investments in pollution control technologies over the past decade tend to be the ones impacted. Many of these older plants are less competitive and likely to go out of business anyway unless major investments are made to modernize them.

A number of industry representatives expressed concern to us about the New Substances Notification Regulations. For example, in a letter to Environment Canada dated April 5, 1993, the Canadian Chemical Producer's Association congratulated Environment

Canada for "bringing a tough consensus together" but noted that it remained concerned that the regulation would impose costs higher than those imposed by equivalent legislation in the United States.

The Regulatory Impact Analysis Statement (RIAS) published with the New Substances Notification Regulations estimates total annual notification costs of \$7,633,000 for new chemicals and \$843,000 for new polymers. Individual compliance costs could be as high as \$100,000. The RIAS also estimates that the total costs under CEPA will be less than were incurred under the old *Environmental Contaminants Act* (ECA), and would approximately equal the compliance costs under the US *Toxic Substances Control Act*, and that there will therefore be "no or very little impact on competitiveness" (RIAS, p. 1432).

Certain industry representatives disagree with the RIAS. One of the main grounds for arguing that the costs would be less than under the ECA is the fact that the new regulations only require one notification when a new substance is introduced, no matter how many companies or uses are involved. Industry argues that this is only a theoretical saving since, in fact, there was widespread under-reporting with the ECA. Industry also points out that in each case some company will bear the cost, and this will act as a deterrent to doing business in Canada.

Critics of the New Substances Notification Regulation argue that in an era of free trade, the high costs of introducing a new substance into Canada will discourage multinationals from industrial and chemical innovation in Canada. They argue that the regulation is more onerous than the comparable US regulation. They also argue that although the CEPA procedures are similar to the European Community procedures, the European Community process has a much larger exclusion list, and therefore applies its procedures in fewer cases. If a commercially viable substance is developed, companies may produce it in Europe, given that the benefits of the huge market may outweigh any high regulatory costs. But given that the Canadian regulatory costs are even higher, that the Canadian market is only 10% the size of the EEC or the US, and that manufactured goods can be shipped into Canada cheaply under the Canada-US Free Trade Agreement, there will be little incentive to produce any new substances in Canada.

In addition, a number of industries are also concerned about the potential implications of some of the forthcoming PSL assessments. For example, the mining industry is concerned about the potential impacts of PSL assessments that would conclude a number of minerals are toxic (i.e., arsenic and nickel). The mining industry argues that these assessments are too broad to be applicable to specific mines (because these assessments focus on minerals rather than specific compounds). Therefore, the mining industry anticipates investing considerable time and effort in the future to developing more specific and practical analysis. The car industry on the other hand is concerned about ODS regulations and the lack of harmony between federal and provincial requirements. The overlap and patchwork of CFC regulations between provincial/federal governments increases the cost of producing vehicles for markets across the country.

5.2.2 CONCLUSIONS AND RECOMMENDATIONS

The industry representatives we interviewed identify three main areas of concern about CEPA. First, they complain that participation in the consultations surrounding regulation development is now quite costly. While pleased with the increased access to the process, industry emphasizes that it is now important to ensure that public input is structured in as meaningful a way as possible. Earlier input into the problem identification phase and more coherent consultation on the development of control options would render the process more transparent, and in the opinion of many stakeholders, would be more effective. We agree with this argument.

The second key shortcoming in the CEPA process stems from the persistence of overlapping regulation. Regulations implemented at the provincial level do not appear to have been adequately taken into account in the calculation and attribution of direct compliance costs, and in the specification of reporting and administrative requirements. As a consequence, the cost estimates provided in the RIAS documentation may not accurately reflect the costs attributable to a given CEPA regulation; nor do they reflect the incremental costs that could be avoided by industry if provincial and federal regulations were harmonized with respect to reporting requirements, etc.

Finally, although there is little direct evidence of undue impact to date, industry remains concerned about Environment Canada's ongoing problems with accounting for the socio-economic costs of regulations. In an increasingly cost conscious and regulation shy world, this is an issue that must be addressed by Environment Canada.

On the basis of these observations, we make the following recommendations:

1. Environment Canada should improve the coordination and priority setting of its consultation activities.
2. Environment Canada should improve its ability to integrate socio-economic issues into its process for developing policy instruments.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 OVERVIEW

It is virtually impossible to overstate the seriousness of current environmental problems facing Canada and the world. Man-made substances have contaminated almost every part of the biosphere and affect almost every aspect of our daily lives (Office of the Auditor General, 1990).

CEPA, "the cornerstone of federal environmental legislation" (CEPA Annual Report, 1990), is designed to help address this threat to the natural environment and human health. CEPA is complex legislation. Administered by two departments, it prescribes a framework for the control of toxic substances, enables the ministers of the Environment and Health to issue guidelines, provides for intergovernmental agreements, stipulates federal-provincial consultation, creates the legal umbrella for a wide range of programs (e.g., State of the Environment (SOE) Reporting and Environmental Choice), consolidates pre-existing federal environmental laws on ocean dumping, air and water pollution, and allows the domestic implementation of some international environmental agreements.

The federal government has allocated considerable resources towards CEPA's implementation: about \$360 million over the first five years. During this period, it has established a number of new management and coordination structures, recruited staff, released 10 Priority Substance List (PSL) assessments (and completed the scientific work on most of the remaining 34), refined the assessment process, developed 12 new regulations, replaced 16 regulations developed under previous legislation, improved its compliance and enforcement capacity, liaised extensively with the provinces, published the second SOE Report, and made important changes in the application of the ocean dumping provisions.

CEPA's success, however, needs to be evaluated in terms of results rather than activities. The important question, therefore, is: to what extent is CEPA meeting its ultimate objective of contributing to the protection of environmental and human health? In the previous section, we reached three general conclusions: First, because CEPA does not cover all environmental protection problems, its impact is necessarily limited. Second, the government has not yet addressed all of the environmental problems within the scope of the Act because of the short period of time which has elapsed, the learning required and the priorities set. Third, it is too early to attribute direct environmental and human health benefits to CEPA initiatives, except in limited cases.

The evaluation of CEPA's results is complicated by the fact that some of the information needed to assess the impact of CEPA is either not being collected or is not being reported in a way to allow cause and effect relationships to be established. Nevertheless, some evidence of direct health and environmental impacts can be discerned, including reductions in emissions of ozone depleting substances, lead in gasoline, phosphates in detergents, and in dioxin and furan levels in fish downstream of pulp mills in British

Columbia. The publicity surrounding the introduction of CEPA may also have induced a number of the provinces to strengthen their environmental legislation. CEPA has also affected institutional arrangements within Environment Canada, public awareness and industry concern over the use of toxic chemicals. Over time, these changes may indirectly lead to positive health and environmental impacts.

Beyond such qualitative observations, the success of CEPA is difficult to appraise largely because of the absence of a clear set of objectives for the Act. As we observed in section 1, numerous objectives have been articulated for the Act over the past five or more years. These objectives have not been consolidated in a hierarchy that would establish clear priorities and thus guide resource allocation.

Ultimately then, we have come to focus on two fundamental questions:

- does CEPA enable the federal government to "do the right thing" respecting environmental protection; and
- is the federal government "doing things the right way" in administering CEPA?

Several factors lend perspective in considering these questions. In the previous section and at the beginning of the report we explained how the context within which CEPA operates continues to change and what constraints this evolution places on implementation. We point as well to the gap between the actual scope of the Act and the manner in which it was "sold" to the public. In turn, the expectations different people hold for CEPA give rise to differing views of its success. We found that there is still divergence of opinion between and within stakeholder groups on several aspects of CEPA. Indeed, there are differences about several important issues within the two departments responsible for administering the Act.

With regard to the first question of whether the federal government is "doing the right thing," it is essential to keep in mind that CEPA does not embrace all environmental issues facing Canadians. Responsibility for environmental protection in Canada is shared among several government jurisdictions. Even in the federal sphere, CEPA only deals with a portion of the federal government's range of environmental responsibilities. It is also essential to consider the statute's functions and capabilities relative to the variety of tools, programs and activities of other departments, other governments, the private sector and the public which also contribute to addressing the environmental protection needs of Canadians. The complete question, therefore, is whether CEPA does the right thing in terms of making an effective and appropriate contribution to the overall effort to ensure environmental quality in Canada. We address this question in section 6.2.

With regard to the second question of whether the federal government is "doing things the right way," we repeat in section 6.3 the recommendations made throughout the report that pertain to the administration of CEPA.

6.2 DOES CEPA ENABLE THE FEDERAL GOVERNMENT TO "DO THE RIGHT THING" RESPECTING ENVIRONMENTAL PROTECTION?

6.2.1 NATIONAL LEADERSHIP

Views about what constitutes the "right thing" have changed over time and this, we believe, has affected the administration of CEPA. The federal government has been involved in environmental protection activities for many years. Its role has evolved over time and is continuously being re-examined as a result of many factors, such as constitutional discussions and federal budgetary restraint. We expect this re-examination to continue but note that the Standing Committee on the Environment (SCE) reported in 1992 "a unanimity and convergence of views" from the witnesses who appeared before it on the need for federal leadership (SCE, 1992: 255). This emphasis is echoed in recent Synergistics polling data, which indicate that Canadians believe the federal government should demonstrate leadership to ensure that environmental quality is maintained (Synergistics, 1993).

In our opinion, for CEPA to help the government assert national leadership, with respect to the control of toxic substances in particular, and the environment in general, the following elements are required:

- a statement of ecosystem quality and human health objectives;
- moral leadership by, among other things, setting a high standard for federal government activities;
- the ability to meet international obligations with respect to toxic substances;
- excellent science;
- mechanisms and processes that permit the efficient and effective identification, assessment and control of priority toxic substances;
- a consistent, clear, and non-duplicative control regime; and
- fair and consistent enforcement.

At an operational level, the effective management of CEPA requires systems to provide the information needed to determine priorities, systems to assess, control and monitor the effectiveness of controls, mechanisms to facilitate meaningful public participation, and sufficient resources.

6.2.1.1 Ecosystem and Human Health Objectives

One of the most difficult challenges of sustainable development is to account for the full range of social, economic and environmental consequences of action. Sustainable development requires that any given statute be situated within a well-defined policy context that includes the pursuit of social, economic and environmental objectives. In our opinion, the effectiveness of CEPA has been limited by the absence of a clear statement of the environmental quality objectives to which the Act is to contribute. None of the objectives listed at the beginning of this report states what measurable improvement in environmental quality or human health is to result from CEPA implementation.

Although a very broad statute, CEPA is implemented through a series of incremental decisions. The best example of this approach is in the regulation of toxic substances,

which are assessed and regulated individually, although the environment and humans are exposed to many of them simultaneously. In the absence of measurable environmental quality objectives, there is a risk that the cumulative impact of decisions made at the margin could negate the very purpose of the Act.

Ecosystem and human health objectives would also help the government make the inevitable trade-offs inherent in the risk management process. Once a substance has been assessed as "toxic" under section 11 of CEPA, a subsequent decision must be made as to whether it poses a socially unacceptable risk. Whereas the section 11 risk assessment is properly based on scientific judgment, the unacceptable risk issue requires a judgment as to whether the offsetting economic benefits from using the substance outweigh the environmental and health costs. Because such a judgment is inherently value-laden, it should only be reached through a transparent and accountable process. In our opinion, such a judgment should also be guided by a normative statement of ecosystem and human health objectives. Clear environmental quality objectives (e.g., "swimmable water") would help the government make such difficult judgments as they would provide a balance to the economic objectives (e.g., profits, increased employment, economic growth) that underlie investment decisions.

Ecosystem and human health objectives would also help focus the scientific and regulatory efforts under CEPA; would force a clear articulation of the federal government's desired enforcement policy; would provide a benchmark to help the government evaluate the effectiveness of the implementation of CEPA's various provisions.

At a broader level, a statement of the ecosystem and health objectives to which CEPA is expected to contribute would help gauge the degree to which environmental policy reinforced or conflicted with economic or social policy objectives. It is always difficult for a government to ensure policy coherence when it pursues multiple objectives. The federal government must coordinate environmental protection legislation such as CEPA with all the other elements of public policy that determine the use and fate of toxics and other threats to environmental quality that are within its jurisdiction. Conflicts between environmental policy on the one hand, and energy, industrial, transportation and other policies on the other, have largely been reconciled in the past through remedial approaches. The Brundtland Commission and others have pointed out that a more efficient and effective approach to resolving such conflicts lies in integrating environmental and economic considerations at the earliest stages of policy making. Such integration is greatly facilitated by explicit statements of objectives.

The definition of objectives for CEPA should therefore be based on an understanding of how CEPA fits into this overall mix of policy instruments and initiatives. An important step in repositioning CEPA within the current context should therefore be to develop an inventory of all the toxic substance related federal, provincial and private-sector initiatives, together with an assessment of the potential scope and effectiveness of those initiatives and an understanding of what gaps need to be filled. Such a framework would help situate CEPA within the array of instruments, including tax laws, technology transfer programs, industrial development policies, and intellectual property rights, that affect the use and fate of toxic substances in Canada.

6.2.1.2 International Environmental Obligations

The constitutional division of powers limits the ability of the federal government to bind the provinces to international agreements in areas within their jurisdiction. Nonetheless, as the ozone depleting substances regulations demonstrate, CEPA does enable the federal government to ensure that Canada fulfils a wide range of potential obligations because it applies broadly to all "toxic" substances. In addition, specific provisions in CEPA are designed to comply with various international obligations, including the Basel Convention (import and export of hazardous wastes), and certain portions of the London Convention (ocean dumping) and the United Nations Convention on the Law of the Sea.

6.2.1.3 Moral Leadership

We agree with the argument made by a number of critics that the federal government must assert moral leadership in order to influence the behaviour of others. The double standard applied to federal government activities that we document in section 3.5 undermines the legitimacy of CEPA and of all federal environmental regulations. In our opinion, this problem will become more important as the government resorts to a broader variety of instruments beyond the traditional command and control regulations to attempt to influence environmental quality decisions.

While critically important, this problem cannot be attributed entirely to CEPA. The fact that the government does not have a good estimate of the environmental damage caused by its own activities is a failure of management. And the low priority accorded to getting its own house in order is a failure of political will that should be redressed, but requires no new legislation to do so.

6.2.1.4 Excellent Science

The federal government has a tradition of providing national leadership with respect to research on environmental and human health. All levels of government rely on the valuable information provided by the federal research institutes. Nonetheless, the potential contribution of federal science to the control of toxic substances in Canada is limited in a number of ways. For example, it will be important to resolve the dispute within Environment Canada about whether a substance can be declared toxic under CEPA if it only poses a risk within a single provincial boundary. In our view, this interpretation impedes the ability of the federal government to fulfil its leadership responsibilities with respect to setting a national baseline for environmental quality. Few provinces have the resources to duplicate the scientific capacity of the federal government. And in any event, pollution tends to be a trans-boundary problem; there will rarely be any assurance that a problem will remain localized.

Federal leadership is also required to ensure that Canadian research efforts are coordinated with and take full advantage of international research efforts. The need to take advantage of international research can be expected to grow over time for three reasons. First, a number of the PSL1 substance assessments will be inconclusive due to insufficient information. Second, once a substance has been assessed, it is now recognized that in many cases it is a more complex waste, effluent or product that must be assessed and controlled. Finally, the necessity to focus research at an ecosystem level

will compound these already difficult research challenges. While not a panacea, international collaboration is an important source of assistance, and the federal government is best positioned to take advantage of these opportunities.

The assessment work that is currently being conducted pursuant to CEPA has also been impeded by problems related to information management. In section 3.1 we recommended a number of specific statutory amendments to help the government access information from industry. In addition, increased effort is required to link internal governmental information systems to the various priority setting, assessment, and control design and implementation efforts that are mandated by CEPA. In our opinion, the State of the Environment reporting provisions that are also provided for in CEPA could help fulfil this requirement. We have also noted that, in some cases, environmental effects monitoring systems can enhance the feedback required to evaluate the effectiveness of control mechanisms that have been implemented.

6.2.1.5 Efficient and Effective Identification, Assessment and Control of Priority Toxic Substances

Priority setting

Priority setting should occur at two points in the process. The substances and issues that are the priority for research and assessment should be identified. Once that work is completed, decisions are then required to specify which of the substances that have been determined to pose an unacceptable risk should be a priority for controls. The PSL and new substance provisions in CEPA represent important attempts to identify the priorities for assessment. The new substance provisions require assessment of almost all new substances. The key issues affecting the achievement of this objective are therefore the adequacy of resources and the efficiency of the process for determining what control measures are required. Because the New Substances Notification Regulations are not yet proclaimed, we have been unable to evaluate the operational effectiveness of these provisions.

In section 3.1 we observe that the PSL may not include all issues that should be a priority for assessment and research. Prevailing concerns about the lack of scientific protocols and procedures for assessing the risks of complex mixtures meant that PSL1 included primarily single substances or classes of clearly related compounds. The criteria that were originally proposed for the selection of PSL2 similarly focused on single substances and related classes. Given that many of the most important problems result from complex mixtures, such as commercial products, and industrial effluents and wastes, the departments have recently added criteria for the selection of complex mixtures. In our opinion, this is an important change.

A final problem that should be addressed is that the focus of scientific effort under CEPA on substance-by-substance assessments is too limited. Many problems are first identified as an undesirable ecosystem response. Although there are ecosystem research efforts under way within Environment Canada, this type of research should also be mandated under CEPA. For example, priorities for the different types of research could be explicitly set if CEPA were also to provide a mechanism for designating areas at risk and other environmental responses of concern for priority research.

Assessment

Over the last five years, considerable effort has been devoted to implementing and improving the PSL assessment process and to preparing for the new substances assessment provisions. Notwithstanding these improvements, the risk assessment process needs to be clarified. The process should be more transparent, with enhanced accountability and focused opportunities for public participation.

In principle, risk assessment should be distinct from risk management. In practice, this distinction is undermined by the s. 13 requirement that, concurrently with the release of the risk assessment report (the end point of the risk assessment phase), the ministers declare whether or not they intend to develop regulations (a risk assessment decision). The definition of "toxic" in s. 11 has created further uncertainty about the end point of a risk assessment under CEPA. In section 3.1 we therefore recommended the following changes to clarify the distinction between the risk assessment and risk management process:

- a) clarify the end point of the risk assessment phase by replacing the term "toxic" with some other, less provocative term, such as "poses or may pose a risk";
- b) amend section 13;
- c) clarify the process for determining that a substance poses an unacceptable risk;
- d) make the Schedule 1 List of Toxic Substances the list of substances the government has determined pose an unacceptable risk and that it intends to control in some manner; and
- e) impose accountability for controlling substances on Schedule 1 by (i) requiring that the ministers state within a given period of time what control mechanisms will be adopted; and/or (ii) requiring an annual public report on progress made in controlling substances on Schedule 1.

Appropriate use of instruments

There are also problems with the risk management process under CEPA. This process has been impeded in part by the poor operational connection between the risk assessments and the risk management phases. The effective implementation of control mechanisms has been undermined by the fact that there are also insufficient monitoring mechanisms to help evaluate the effectiveness of existing control mechanisms. There is also no formal mechanism to establish priorities for the development of controls for each of the various substances that have been and might be determined to pose an unacceptable risk.

In 1988, the federal government favoured a strong regulatory approach to pollution control, as did many other jurisdictions both in Canada and internationally. Five years later, the emphasis is shifting as the costs of, and limits to, a purely regulatory approach are becoming increasingly evident. In the Green Plan, and subsequently, the federal government has indicated the desirability of applying a mix of management solutions to pollution problems. In doing so, the federal government is participating in a broad international trend (Innovest, 1993).

Industry has voiced strong criticisms about Environment Canada's failure to account for the economic costs and benefits of regulations developed under CEPA. As we suggest in section 3.1, many of these problems relate to the fact that until recently Environment Canada has not placed a high priority on integrating socio-economic considerations into its decision making, and in any event has been hampered in its ability to do so by a lack of economic expertise.

It is also not clear whether Environment Canada has the capacity to continue to fulfil the assessment and regulation development requirements of CEPA. Implementation of the new substances assessment provisions is expected to be difficult. The lack of use and exposure data will compound the tight time frame provided to the government. According to departmental officials, it is expected that an average of about 100 new substances will have to be assessed each year (and as many as 300 to 400 for the first year or two). It can also be expected that it will become increasingly difficult to obtain the required information as the assessment process turns to less well-known substances. And even if only a small percentage of the substances assessed under PSL1, PSL2 and the new substance provisions require regulations in the next five years, this may require a large increase in Environment Canada's regulation development and enforcement capacity.

At a time of dwindling resources, the federal government will have to learn to regulate and otherwise manage its responsibilities differently and more efficiently. The government and the public are demanding that prospective regulations meet increasingly stringent standards. Even if environmental issues rise in importance relative to other areas of government intervention, it is possible that the total resources available for the development of regulations will decline.

6.2.1.6 Consistent, Clear, and Non-Duplicative Control Regime

Academic literature emphasizes that social factors are very important in controlling pollution.⁷⁸ Governments interested in reducing pollution should focus on changing cultural values in addition to setting the rules. This requires both promoting values in favour of reduced pollution and helping organizations to learn how not to pollute.

With respect to efforts to assist industry in learning how not to pollute, there is a broad consensus that in general it is more effective to provide flexibility in terms of how to comply, rather than to specify all the technical requirements, thereby limiting the possibility for the innovation. In short, the best way to help a company learn how to control pollution is to create a regulatory environment in which it is simple to learn and in which the objectives are clear. This requires a consistent, clear and non-duplicative regulatory regime.

More specifically, the emerging literature emphasizes that the effectiveness of policies as symbols that lead potential polluters to value environmental quality in general and

⁷⁸ For a review of the policy learning literature related to pollution control efforts, see Roy, 1988; for a review of the policy learning literature in the Canadian context generally, see Lindquist, 1992.

pollution control in particular depends as much on their predictability and clarity as on the competence and strictness with which they are implemented (Roy, 1988).

The current regime for the control of toxics in Canada cannot be described as "consistent, clear and non-duplicative." CEPA exists within a patchwork of regulations and policies from all levels of government. There is a consensus among Environmental Non-government Organizations (ENGOS) and industry that this represents a major problem that must be overcome if meaningful progress is to be made. To a certain extent, inter-jurisdictional fragmentation is inevitable given the complicated constitutional dimensions affecting environmental regulation in Canada. Similarly, the inter-departmental division of responsibilities within the federal government represents an imposing historical legacy that will not easily be overcome. On the other hand, as we have noted, the criteria established for equivalency agreements in CEPA have also inhibited the efforts made to achieve interjurisdictional harmonization.

Indeed, the failure to conclude any equivalency or administrative agreements after the five years raises serious questions about the utility of the equivalency agreement approach under the current regime of shared federal-provincial jurisdiction over the environment. It may be necessary for both the federal and provincial governments to redefine their roles in environmental protection prior to negotiating such work-sharing arrangements. Recent initiatives in Australia and the Netherlands indicate that an alternative approach is possible, an approach that involves the federal and provincial governments negotiating a comprehensive environmental management regime, allocating responsibilities and defining accountability. Without underestimating the serious impediments to such a solution in Canada, the problems raised in this evaluation with respect to regulatory overlap and inconsistent enforcement may indicate that it is time to consider such an approach.

6.2.1.7 Fair and Consistent Enforcement

A redefinition of the federal role with respect to controlling toxic substances might lead to reduced federal responsibility for enforcement. Under the current arrangement, however, the federal government has an important enforcement role to play. And in section 3.3, we observe that enforcement under CEPA is inconsistent, both between regions and between regulations. We conclude that these problems result from a number of factors, including a lack of clarity within the Department as to the appropriate overall enforcement strategy, poorly coordinated information systems, complex regulations and a decentralized management system for enforcement. Each of these factors can be addressed without changing the Act itself. However, we also argue that many of the problems currently being experienced with enforcement under CEPA relate to the fact that CEPA regulations are enforced as criminal law. The stigma attached to a criminal offence explains in part the reluctance of many officials to enforce strictly. Similarly, the courts are reluctant to view environmental offences in the same category as traditional criminal offences in many cases, and in any event, sentencing options are also constrained under the criminal law.

In section 3.4, we conclude that some of these problems could be resolved in part by the introduction of a system of administrative penalties for the majority of CEPA offences, leaving only the most egregious violations as criminal offences. We also argue that

enforcement would be improved by a clearer separation of enforcement and promotion activities, by centralizing enforcement efforts, and by expanding the use of self-reporting provisions and compliance agreements.

6.2.2 THE DEPARTMENT OF THE ENVIRONMENT

For CEPA to achieve the goals that were established for it, an important corollary was required: CEPA would have to reposition Environment Canada and enhance its status within the federal administration. One historian of the Department's evolution has argued that four factors constrained Environment Canada's development and effectiveness from the mid-1970s (Conway, 1990):

... its inability to establish and carry out rigorous compliance procedures; an overtaxed and declining scientific and investigative capacity; uncertainty and insecurity in federal-provincial and interdepartmental relations; and a lack of economic and legal literacy.

Our evaluation indicates that CEPA has not resolved these shortcomings. Evidence concerning Environment Canada's changing status is mixed. Although the Green Plan, the appointment of senior ministers to lead the Department, and the creation of a Cabinet Committee on the Environment⁷⁹ all testify to the rising importance of environmental issues within the federal government, the expectations of many environmentalists were higher still. One of them suggests that disappointment with CEPA drove several environmental groups to court action (Tingley, 1991):

Environmentalists, in particular, were extremely disappointed with the efforts of the federal government to pursue strong environmental legislation through CEPA. One consequence of their lack of confidence in the federal government was the many subsequent lawsuits, initiated by environmentalists, that have required the federal government to comply with its own environmental requirements, and in particular with the Environmental Assessment Review Process Guidelines Order.

Nevertheless, the federal government is more active today in the sphere of environmental protection, partly as a consequence of CEPA, but also as a product of other initiatives such as the Green Plan.

Of course there are limits to the potential for Environment Canada to assume a central role in government, at least in the near future. Doern (1993) identifies five constraints to an enhanced role for Environment Canada within the federal government: the types of decisions and varying statutory capacities confronting the department; the volume of such decisions; the nature of the relationships with other government departments; the legitimacy and degree of mobilization of the Canadian environmental policy community; and the Department's organizational and analytical ability. Many of these constraints lie outside the scope of CEPA.

⁷⁹ The former Cabinet Committee on the Environment has since merged into a Cabinet Committee on Economic and Environmental Policy.

6.2.3 CONCLUSIONS

CEPA is an essential element of any federal environmental protection strategy. Improved protection of human health and the environment through the control of toxic substances will require the continued expansion of scientific knowledge. Similarly, there is a need for regulatory mechanisms in the event that alternative approaches are not effective or appropriate. The more difficult question is whether CEPA is the optimum way to deliver these scientific and regulatory elements in the context of an overall national policy and strategy for toxic substance control.

Some commentators argue that CEPA fails to reflect emerging environmental protection concerns such as the need to focus on pollution prevention, and should be completely re-written in order to do so (CLC, 1992; Lindgren, 1991). On the other hand, many of the people we interviewed – both from within and outside government – emphasize that CEPA is a flexible tool, and that its application has been and will be determined largely by overall policy decisions.

In a federal state, such as Canada, where jurisdiction over the environment is shared, the issue of what is the appropriate role of different levels of government is important. A recent ten-country review of international trends in environmental policy (Innovest, 1993) notes that, in general, federal countries are attempting to allocate the responsibility for national guidelines and standards and the negotiation of international treaties to the federal government, while provincial governments are chiefly responsible for implementation and enforcement.

CEPA provides the basic elements to follow this model of federal-provincial responsibility: the Act provides for the promulgation of nationally binding cradle-to-grave regulations; for national environmental quality guidelines; and for federal-provincial agreements under which the federal government would not implement its regulations where provincial regulations were deemed to be equivalent. Nonetheless, the effectiveness of these provisions has been undermined by a number of management and structural problems with the Act, and most fundamentally by the lack of a clear set of objectives for the Act.

The main structural problems include:

- the fact that CEPA does not cover all toxic issues under federal jurisdiction, but exists within a patchwork of regulations and enforcement schemes;
- the failure of the Act to separate effectively risk assessment from risk management;
- the inherent limitations of the substance-by-substance approach;
- the overly strict criteria for equivalency agreements;
- the absence of an administrative penalty scheme; and
- inadequate powers under Part IV to regulate federal activities.

In addition, many of the problems detailed in this evaluation—such as inconsistent enforcement, and the failure to put the federal house in order—are management related. Both structural and management deficiencies will need to be remedied if CEPA is to meet the ambitious objectives set for it.

6.3 RECOMMENDATIONS

The following recommendations all appear in the body of the report. Here we have consolidated and reorganized our recommendations under three headings: recommendations related to federal environmental protection; recommendations related to the management of CEPA; and specific operational recommendations.

6.3.1 RECOMMENDATIONS RELATED TO FEDERAL ENVIRONMENTAL PROTECTION POLICY

1. Ecosystem quality and human health objectives should be developed for federal environmental responsibilities. These objectives should be designed to help set priorities, to guide the selection, implementation and enforcement of control mechanisms, and to provide useful measures of effectiveness.
2. Mechanisms are required to help establish priorities for risk assessment and for the development of control measures. Relative-risk ranking methods should be developed and used in conjunction with State of the Environment reporting and a clear set of overall objectives. Relative-risk assessment should encompass ecosystem-response problems, substances that are candidates for inclusion on the PSL, PSL substances, PSL and new substances found to be toxic but not yet controlled, and substances already under control.
3. In light of the experience in implementing CEPA to date, the federal government should review what roles—science, standard-setting, compliance and enforcement, moral leadership, resolution of interjurisdictional issues—it can most usefully play in protecting the Canadian environment. This review should lead to negotiations with the provinces concerning the allocation of the responsibility for the control of toxic substances in Canada.
4. The federal government should exert a much stronger leadership position through the authority vested in it by Part IV of CEPA to minimize the environmental impacts of its operations.

6.3.2 RECOMMENDATIONS RELATED TO THE MANAGEMENT OF CEPA

Management by results (section 4.1)

5. The specific results to be achieved over the next five years through CEPA and related instruments should be articulated. Performance against these results should be reviewed annually. We further recommend that the five-year evaluation of CEPA stipulated by the Act be repeated five years hence.
6. A plan describing the actions required to achieve the results, once defined, should be developed.
7. A long-term human resource strategy (covering recruitment and training) should be developed and linked to defined priorities and results.

Resources (section 4.2)

8. Funding needs for CEPA should be re-examined in light of clarification of CEPA's objectives and the status of Green Plan funding should be clarified immediately thereafter.
9. The allocation of resources to activities conducted through CEPA should be reviewed annually in conjunction with a review of performance against results.

Public participation (section 3.4)

10. Environment Canada should develop a consultation process that is less fragmented, more coherent in terms of the issues addressed, more focused on key priorities and able to provide useful feedback to participants.
11. Environment Canada should consider whether it should support certain intervenors to ensure that a full spectrum of interests are represented during the CEPA consultation process.

Regulatory harmonization (sections 3.3 and 3.5)

12. The federal government, in cooperation with the provinces, should consider a number of initiatives to improve federal-provincial cooperation, including:
 - a) consolidated reporting requirements;
 - b) coordinated inspections (inspections under various statutory regimes and by provincial and federal officials should be coordinated to minimize the administrative burdens on industry and the government);
 - c) coordinated enforcement (organizations with multiple violations under various regulations should face stiffer penalties);
 - d) coordinated permitting; and
 - e) synchronized compliance schedules (so that organizations can plan capital investments and changes to operating procedures simultaneously for multiple regulatory requirements).
13. Environment Canada should rethink the criteria for equivalency agreements, particularly sections 108 and 109, and reconsider its strategy to minimize inter-jurisdictional overlap, while retaining its right to promulgate national environmental quality guidelines and to regulate toxic substances.

6.3.3 SPECIFIC OPERATIONAL RECOMMENDATIONS

Selection of substances to assess (section 3.1.1.1)

14. Given the need in many cases to control complex mixtures, such as industrial effluents, wastes or commercial products, either:

- a) the criteria for selecting substances for the PSL2 should also include the selection of complex mixtures such as wastes, effluents and commercial chemicals; or
 - b) a policy should be developed that recognizes that all substances put on PSL2 are not intended to be evaluated by both departments, and mechanisms should be put in place to ensure that research resources are also focused on more complex mixtures such as industrial effluents, wastes and commercial products.
15. Given that in some cases the effects of toxic substances will be first observed as "ecosystem responses":
- a) more support should be provided to ecosystem-response research; and
 - b) consideration should be given to amending CEPA to provide a mechanism to designate geographical areas and environmental responses for priority assessment.
16. When naturally occurring chemicals are nominated to PSL2, guidance should be provided regarding the cause of concern (industrial sector or process) and the species of concern that should be assessed.

The risk assessment process (section 3.1.1.2)

17. To increase the efficiency of the risk assessment process under CEPA, the government should consider the merits of:
- a) contracting out more of the PSL assessment processes than at present; and
 - b) a reverse onus provision (similar to the provisions for pharmaceuticals under the *Food and Drug Act* or for pesticides under the *Pest Control Product Act*), requiring industry to perform the risk assessments to government standards.
18. The issue of whether a substance can only be declared toxic under CEPA if it is capable of being controlled by federal legislation should be clarified.
19. Risk assessment should be more separate from risk management, and the determination of whether the risk is unacceptable should occur in the risk management phase. To accomplish this, the following changes to CEPA should be considered:
- a) change the word toxic to some other, less provocative term, such as "poses or is likely to pose a risk to the environment or health";
 - b) remove the section 13(1)(c)(i) and (ii) requirements to declare the government's intentions concerning regulation concurrently with the publication of a PSL assessment report;
 - c) the Schedule 1 List of Toxic Substances should be the list of substances the government has determined to pose an unacceptable risk and which it intends to control in some manner; and

- d) impose accountability for controlling substances on Schedule 1 by (i) requiring that the ministers state within a given period of time what control mechanism will be developed and/or (ii) requiring that the ministers provide an annual public report on the progress made in controlling substances on Schedule 1.
- 20. Further consideration should be given to requiring the articulation of acceptable risk levels in the form of ecosystem health guidelines under section 8 for each substance placed on Schedule 1.
- 21. Environment Canada should make increased use of scientific peer review for PSL assessments.
- 22. The option of establishing one or more formal advisory panels for the PSL and new-substances assessment processes should be considered.
- 23. Draft PSL assessments should be released for public comment before the Minister formally releases the assessment under section 13.

Risk management (section 3.1.1.3)

- 24. The risk assessment process should be better integrated with the risk management process in the following ways:
 - a) when possible the risk management should anticipate the outcome of the risk assessment and begin before a substance is formally declared toxic;
 - b) the risk management personnel should inform the risk assessment personnel about their information needs; and
 - c) an administrative policy should be developed requiring that assessment reports contain information useful for the evaluation of how to manage the risk. In particular, future PSL assessments should contain more information related to the life cycle of substances. This will require more resources and should only be implemented to the extent that the extra effort is more than offset by a time and resource saving in the risk management phase.
- 25. Risk management should be improved by:
 - a) considering alternatives to regulation at the earliest possible stages of the risk management phase; and
 - b) improving the capacity of Health Canada and Environment Canada to take into account socio-economic factors when evaluating control options.

Information (section 3.1.1.5)

- 26. There are currently insufficient monitoring mechanisms to evaluate the effectiveness of existing control mechanisms. To remedy this, three changes should be considered:
 - a) increased use of environmental effects monitoring;

- b) a policy requiring that PSL assessment reports specify the parameters to be measured in determining the effectiveness of any control measures that might ultimately be developed; and
 - c) SOE reporting to be linked to departmental monitoring of toxic substances.
27. Environment Canada should improve the linkages between its scientific databases.
 28. Section 18 should be amended so that it enables the government to require industry to provide information more than once for the same substance—i.e., to help both assess the substance and determine how it should be controlled.
 29. A “significant new use” provision is required to compel industry to inform the government when a substance already assessed is used in either a different quantity or a new manner.
 30. A “stop-clock” provision should be added to section 14. (Currently, each PSL assessment must be completed within five years of the substance being added to the PSL. When the government has insufficient information to assess a substance, it should be able to use sections 16 and 18 to require information from industry and to “stop the clock,” at least until an effort is made in good faith to provide the required information.)
 31. Cost-sharing provisions are required to allocate fairly the costs of providing information requested under CEPA among all affected industries.

Biotechnology products (section 3.1.1.3)

32. Environment Canada and Health Canada should ensure that they have sufficient resources to comply with the requirement that all new biotechnology substances be assessed under CEPA—even if they are to be regulated under other federal legislation—unless another federal act mandates an assessment equivalent to the assessment of toxic under CEPA.
33. CEPA should be amended to include different, nonquantitative triggers for biotechnology products.

Export and import of wastes and recyclable materials (section 3.2.2.2)

34. CEPA should be amended so that the provisions in the Act on the export and import of hazardous waste describe the purpose and outline the general parameters of the regulatory scheme; the requirements should all be contained in the regulations.
35. CEPA should be amended to cover the export and import of all wastes.
36. Section 45(3)(c) should explicitly authorize a ban as well as the imposition of conditions.

37. Section 45(3)(c) should indicate some discretionary authority to allow the export or import to take place.

Fuels (section 3.2.2.3)

38. The same restrictions should apply to the type of fuel that can be exported from Canada as apply to the use, production and import of fuel.

Nutrients (section 3.2.2.4)

39. Consideration should be given to whether CEPA should cover sources of phosphate other than laundry detergents. Alternatively, consideration should be given to repealing this part of CEPA.

International air pollution (section 3.2.2.5)

40. Environment Canada should investigate the need to amend CEPA to deal with the problem of the long-range transport into the Canadian atmosphere of toxic substances produced and used in other jurisdictions.

Ocean dumping (section 3.2.2.6)

41. Environment Canada should reduce the existing regional differences in the dumping of fish waste, the use of bioassays and the substances that are regulated.
42. The Act should be amended to allow the permit fees to be increased to cover more of the ongoing costs of monitoring and enforcement.
43. The Act should be amended to provide for a mechanism to compensate those adversely affected by ocean dumping. Consideration should also be given to whether some of the current problems could be allayed by increasing the involvement of potentially affected communities in the overall planning process for selecting appropriate dump sites.
44. To address the fact that the increase in fees under Phase II of the Ocean Dumping Action Plan might lead to increased illegal dumping, particularly on the east coast, consideration should be given to dedicating some of the increased revenue to supporting the development of fish-waste recycling plants and/or to augmenting the enforcement staff in the Atlantic Regional Office.
45. Environment Canada should initiate an interjurisdictional attempt to develop a comprehensive framework for coastal management.
46. The Department should assign a high priority and provide resources to the dump site monitoring elements of the Ocean Dumping Action Plan, since it is difficult to determine how to improve the Ocean Dumping Regulations without information on the effectiveness of the current regulation.

Enforcement (section 3.3)

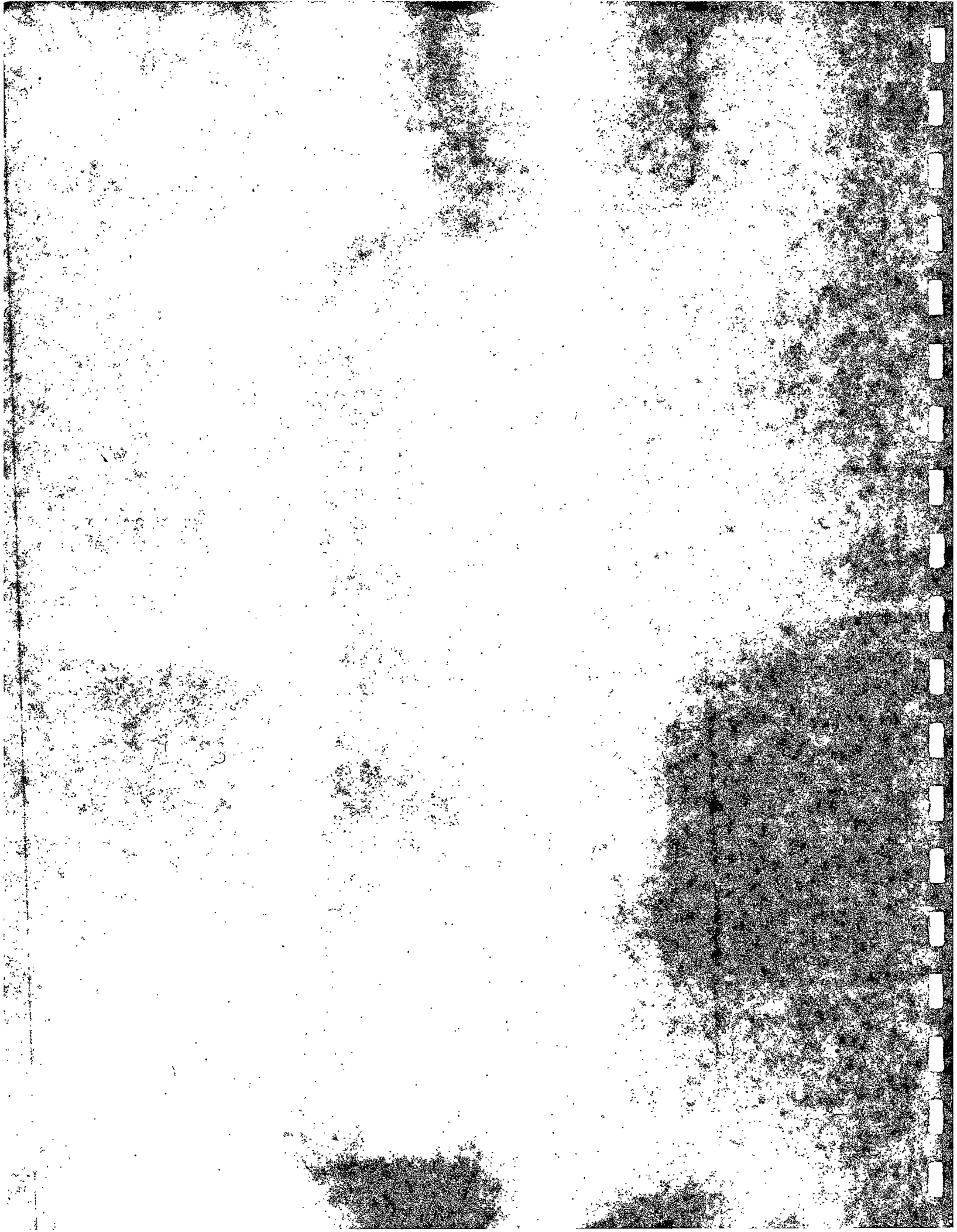
47. Environment Canada should consider implementing a system of centralized enforcement. Experience with centralized enforcement in other jurisdictions should be reviewed in assessing this issue.
48. Environment Canada should review and update the Enforcement and Compliance Policy.
49. Consideration should be given to increasing the range of enforcement options currently available under CEPA by:
 - a) adopting a system of administrative penalties similar to the system used by the US EPA and similar to the system currently being developed on a trial basis by Agriculture Canada;
 - b) expanding the use of self-reporting provisions similar to those of the pulp and paper regulations; and
 - c) providing a framework for negotiated settlements.
50. To encourage the use of environmental audits, Environment Canada should clarify its policy with respect to the use of information discovered by voluntary audits.
51. Environment Canada should improve its signalling to the courts by:
 - a) conducting information sessions to sensitize the judiciary to the gravity of environmental offences;
 - b) improving the level of understanding by federal prosecutors of what issues are considered important for sentencing in environmental cases; and
 - c) following the example set by the recent amendment to the *Canada Shipping Act* by amending legislation to provide for explicit classification of offences and to include factors to be taken into account in sentencing.
52. Conspiracy to commit an environmental offence should be addressed, either in the Criminal Code or in CEPA.
53. CEPA should be amended to correct the recent British Columbia case that held that the two-year limitation period provided for summary offence proceedings under section 117 requires a certificate stating the date at which the Minister became aware of the offence.
54. Implementation strategies for new regulatory initiatives should be jointly developed by both program and enforcement staff.
55. Environment Canada should publicize its enforcement activities under CEPA.

Federal house in order (section 3.6)

56. Environment Canada should establish priorities for improving the government's environmental performance based on an analysis of financial costs and environmental impacts. Such analysis would render explicit the costs and benefits of various policy options.
57. Part IV should be redrafted to give the Minister of the Environment clearer authority to develop and implement regulations concerning federal activities not otherwise regulated.

International environmental agreements

58. CEPA should include a provision indicating that once an international agreement is ratified, it is legally binding in Canada.



REFERENCES

- Armstrong, V.C. and R.C. Newhook. 1992. "Assessing the Health Risks of Priority Substances under the Canadian Environmental Protection Act." *Regulatory Toxicology and Pharmacology* 15: 111-121.
- Auditor General of Canada. 1991. *Report of the Auditor General of Canada to the House of Commons, Fiscal Year Ended 31 March 1990*. Ottawa: Minister of Supply and Services Canada.
- Bakvis, H. and N. Nevitte. 1992. "The Greening of the Canadian Electorate." In *Canadian Environmental Policy: Ecosystems, Politics, and Process*. Edited by R. Boardman. Toronto: Oxford University Press, 144-163.
- Brickman, R., S. Jasanoff, and T. Ilgen. 1985. *Controlling Chemicals: The Politics of Regulation in Europe and the United States*. Ithaca and London: Cornell University Press.
- British Columbia, Ministry of Environment, Lands and Parks. August 1993. *Non-Compliance Lists Assist in Improving B.C.'s Waste Management*. News release, 1993: ELP 148.
- Brown, R. and M. Rankin. 1990. "Persuasion, Penalties, and Prosecution: Administrative v. Criminal Sanctions." In *Securing Compliance*. Edited by M. Friedland. Toronto: University of Toronto Press, 325-353.
- Canadian Chemical Producers' Association (CCPA). 1993. Letter From Gordon Lloyd to Peter Higgins, April 5, 1993.
- Canadian Council of Ministers of the Environment. *Statement of Interjurisdictional Cooperation on Environmental Matters*.
- Canadian Environmental Advisory Council. 1988. *Listing Toxics Under CEPA—Is The Chemistry Right?*
- Canadian Environmental Advisory Council. 1987. *Review of the Proposed Environmental Protection Act*.
- Canadian Labour Congress, Environment Bureau. 1992. *A National Pollution Prevention Strategy*. Ottawa, February.
- CCME Working Group on Co-Operative Administration of Pulp and Paper Effluent Regulations. 1990. *Report of a Federal-Provincial Working Group on Co-Operative Administration of Pulp and Paper Effluent Regulations*. Presented to the CCME Deputy Ministers. Draft
- Chappell, D. 1988. *From Sawdust to Toxic Blobs: A Consideration of Sanctioning Strategies to Combat Pollution in Canada*. Ottawa: Minister of Supply and Services Canada.

- Cohen, D.S. 1991. "The Regulation of Green Advertising: The State, the Market and the Environmental Good." *UBC Law Review* 25: 225.
- Conway, T. 1990. "Taking Stock of the Traditional Regulatory Approach." In *Getting it Green: Case Studies in Canadian Environmental Regulation*. Edited by G. Bruce Doern. Toronto and Calgary: C.D. Howe Institute, 25.
- Cortner, H. and D. Schweitzer. 1983. "Institutional Limits and Legal Implications of Quantitative Models in Forest Planning." *Environmental Law* 13: 493.
- Cotton, R. and Kelley M. McKinnon. 1993. "An Overview of Environmental Law in Canada." In *Environmental Law and Business in Canada*. Edited by Geoffrey Thompson, Moira L. McConnell and Lynne B. Huestis. Ottawa: Canada Law Book.
- Cotton, R. and D. Snider. 1990. *An Overview of the Canadian Environmental Protection Act*. Canadian Bar Association, Continuing Legal Education Program, 19 January.
- Croal, P., D. Halliburton and N. Levin. 1989. "Impact of the Canadian Environmental Protection Act on the Recycled Paperboard Industry." *Pulp and Paper Canada* 90, 12: 213-215.
- Currie, J. Undated. "An Approach to Assessing the Management of Environmental Responsibilities in Federal Departments and Agencies." *The Journal of Public Sector Management*.
- Davies, J. 1988. *Sustainable Development: A Conservation and Protection Newsletter*, Vol. 9 No. 2. August 1988.
- Davies, J. 1988. "CEPA—The Canadian Environmental Protection Act." *JAPCA* 38, 9: 1111-1113.
- Deweese, D. 1990. "The Effect of Environmental Regulation: Mercury and Sulphur Dioxide" In *Securing Compliance*. Edited by Friedland. Toronto: University of Toronto Press, 354-391.
- Doern, G. Bruce. 1993. "From Sectoral to Macro Green Governance: The Canadian Department of the Environment as an Aspiring Central Agency." *Governance* Spring: 37.
- Duncan, L.F. 1990. "The Rule of Law and Sustainable Development." *CBA Sustainable Development in Canada: Options for Law Reform*. 284.
- _____, ed. 1985. "Environmental Enforcement: Proceedings of the National Conference on the Enforcement of Environmental Law." Edmonton: Environmental Law Centre.

- Duncan, Linda F. and Elizabeth Swanson. 1987. *Submission to the Parliamentary Committee on Bill C-74: Canadian Environmental Protection Act*. Edmonton: Environmental Law Centre.
- Ecosystem Consulting Inc. and Resource Futures International. *An Evaluation of the Substance-by-Substance Approach of the Canadian Environmental Protection Act (CEPA) From an Ecosystem Perspective: A Preliminary Proposal*. Prepared for: The Eco-Health Branch, Ecosystem Sciences and Evaluation Directorate, Environment Canada.
- Environment Canada. 1993. *Report: Science Forum I*. Ottawa.
- Environment Canada. 1993. "Alternatives to Existing Regulations: Environment Canada Review." Draft. July 16, 1993.
- Environment Canada, Environmental Protection Directorate. 1993. *Report on Codes, Guidelines and Objectives in Conservation and Protection*. Prepared by: Regulatory and Economic Affairs Division, Regulatory Affairs and Program Integration Branch.
- Environment Canada, Regulatory and Economic Affairs Division. 1993. *Report on Codes, Guidelines, and Objectives in Conservation and Protection*. Ottawa.
- Environment Canada. 1992. *Synthesis Report: Science Forum I*. Office of the Science Advisor.
- Environment Canada. 1992. *Canadian Environmental Protection Act: Enforcement and Compliance Policy*. Ottawa.
- Environment Canada, Conservation and Protection. 1992. *Environment Canada One-Program Operational Plan Framework*. Accountability Directorate, Finance and Administration.
- Environment Canada. 1992. *A Proposed Process for the Preparation of Strategic Options Reports to Reduce Discharges of "Toxicity" Priority Substances and Other Substances of Concern*. Ottawa.
- Environment Canada. 1992. "Canada's Strategic Approach to Pollution Prevention and Control." OECD.
- Environment Canada. 1989. *Canadian Environmental Protection Act: Questions and Answers*. Ottawa.
- Environment Canada. 1989. *Canadian Environmental Protection Act: IWD Roles and Responsibilities*. Ottawa.
- Environment Canada. 1989. *Controlling Toxic Substances Under CEPA—An Integrated Management Framework*.

- Environment Canada, Conservation and Protection. 1989. *Canadian Environmental Protection Act Action Plan Report*.
- Environment Canada, Conservation and Protection. 1989. *Controlling Toxic Substances Under CEPA: An Integrated Management Framework*.
- Environment Canada, Evaluation Branch. 1989. *Evaluation of the Scientific and Technical Support for the Ocean Dumping and Marine Program, Final Report*. Ottawa.
- Environment Canada. 1988. *Canadian Environmental Protection Act and the Role of Federal Organizations*. Ottawa.
- Environment Canada, Environmental Protection Service. 1988. *The Canadian Environmental Protection Act and Environmental Auditing: An Information Seminar for Federal Departments, Agencies and Crown Corporations*. December 7-8, 1988, Ottawa, Ontario. Ottawa.
- Environment Canada. 1987. *Development of the Environmental Protection Act, Background Paper, National Consultations Meeting, March 1987*.
- Environment Canada. *Development of the Canadian Environmental Protection Act: Response to Public Input*. Ottawa.
- Environment Canada, Conservation and Protection. 1987. *Development of the CEPA: Response to Public Input*.
- Environment Canada, Conservation and Protection. undated. *Development of the Canadian Environmental Protection Act*.
- Environment Canada, 1986. *From Cradle to Grave: A Management Approach to Chemicals*. Ottawa.
- Environmental Law Centre. 1990. *Into the Future: Environmental Law and Policy for the 1990's*. Edited by Donna Tingley. Papers Presented at a Conference Held in Edmonton. October 19-20, 1989.
- Environment Ontario. 1991. *Offences Against the Environment: Environmental Convictions in Ontario*. Queen's Printer.
- Estrin, D. ed. 1993. *Business Guide to Environmental Law*. Toronto: Carswell.
- Fairbairn, L.S. *Administratively-Imposed Civil Monetary Penalties: Features, Opportunities and Constraints*. Prepared for the Canadian Bar Association's Continuing Legal Education Committee Administrative Law Section and The General Practitioner Conference on Emerging Issues in Administrative Law.

- Fairley, H. Scott. 1990. "The Environment, Sustainable Development and the Limits of Constitutional Jurisdiction." *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association, 55.
- Federal-Provincial Advisory Committee. 1991. *Final Report of the Federal-Provincial Working Group on CEPA Partnerships*. Presented to the CEPA Federal-Provincial Advisory Committee. Draft
- Gaba, J.M. 1984. "Regulation of Toxic Pollutants Under the Clean Water Act, NPDES Toxic Control Strategies" *Journal of Air Law and Comm.* 50: 761.
- Goetler, F., P. Muldoon and M. Valiante. 1990. "Public Access to Environmental Justice." *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association.
- Gibson, D. 1973. "Constitutional Jurisdiction Over Environmental Management in Canada." *University of Toronto Law Journal* 23 : 54.
- Giffin-Boudreau, Diane. 1989. *Canadian Environmental Protection Act Coordination Evaluation, Atlantic Region*. Dartmouth: Environment Canada, Atlantic Region.
- Giroux, Lorne. 1985. "A Statement by the Canadian Environmental Advisory Council on Enforcement Practices of Environment Canada." June 1985.
- Government of Canada. 1991. *The State of Canada's Environment*. Ottawa: Minister of Supply and Services Canada.
- Government of Canada. 1990. *Green Plan for a Healthy Environment*. Ottawa: Minister of Supply and Services Canada.
- Greenwood, T. 1988. *Knowledge and Risk Assessment in Government Regulation*. Toronto: Praeger.
- Hahn, R. and J. Hird. 1991. "The Costs and Benefits of Regulation: Review and Synthesis." *Yale Journal of Regulation* 8, 1: 233-278.
- Hawkesworth, M.E. 1988. *Theoretical Issues in Policy Analysis*. State University of New York Press.
- Hawkins, K. 1984. *Environment and Enforcement: Regulation and the Social Definition of Pollution*. Oxford: Clarendon Press.
- Health and Welfare Canada. 1992. *A Vital Link: Health and the Environment in Canada*. Ottawa, 41-43.
- Health and Welfare Canada, Bureau of Chemical Hazards. 1992. *Determination of "Toxic" Under Paragraph 11c) of the Canadian Environmental Protection Act*. First edition.

- Holdren, J.P. 1980. *Integrated Assessment for Energy-Related Environmental Standards: A Summary of Issues and Findings*. Energy and Resources Group, University of California.
- Holmberg, R. 1993. *Pulp Mills and the Environment: An Annotated Bibliography for Northern Alberta*. Northern Reference Series No.1. Athabasca University, the Canadian Circumpolar Institute, (CCI) and the Environmental Research and Studies Centre, University of Alberta, Edmonton.
- The Innovest Group International. 1993. *New Direction in Environmental Policy: A Ten-Country Review of International Trends and Best Practices*. A discussion paper prepared for Policy and Strategic Planning Branch, Environment Canada.
- Jaeger, M.A. 1992. "Back to the Future: Environmental Federalism in an Era of Sustainable Development." *Journal of Environmental Law and Practice* 3(1): 3-40.
- Kirby, C.W.D. and T.R. Lederer. 1992. "Enforcement of Water Quality Regulations in Canada." In *Water Pollution: Law and Liability*. Edited by P. Thomas. Graham and Trotman and the International Bar Association, 211.
- Law Reform Commission of Canada. 1985. *Working Paper on Crimes Against the Environment*. Ottawa.
- Lawrence, J. 1990. *Toxic Substances Science in C&P*. Burlington: National Water Research Institute, Environment Canada.
- Lederer, T.R. 1989. "The Canadian Environmental Protection Act." *Environmental Law: New Developments, Enforcement Policy, Practical Advice*. The Canadian Institute.
- Lee-Davis, D. 1985. "The Shotgun Wedding of Science and Law: Risk Assessment and Judicial Review." *Columbia Journal of Environmental Law* 10: 67.
- Le May, F. 1993. *Enforcement Activity Tracking System Feasibility Study - Final Report*. Ottawa: Environment Canada.
- Lindgren, D. 1989. "Toxic Substances in Canada: The Regulatory Role of the Federal Government." In *Into the Future: Environmental Law and Policy for the 1990's*. Edited by D. Tingley. Edmonton: Environmental Law Centre, 37-45.
- Lucas, A. 1989. "Case Comment: R. V Crown Zellerbach Canada Ltd." *University of B.C. Law Review* 23: 335.
- MacDonald, J.R. 1989. "The CEPA and the CPPA." *Pulp and Paper Canada* 91(3), 119-121.

- MacLaughlan, H.W. 1991. "Developments in Administrative Law." *Supreme Court Law Review* 2 (Second Series): 77-81.
- Marine Environmental Division. 1993. *Ocean Dumping Regulations: Phase 1 Amendments*. Report on Consultations.
- Marine Environment Division. June 1993. *Ocean Dumping Regulations*. Draft Report to the Regulatory Review.
- Marine Environment Division. March 1993. *Interim National Dumpsite Monitoring Guidelines*. Draft.
- McConnel, M.L. and D. VanderZwaag. 1990. "Sustainable Development and Marine Environmental Protection." In *Options for Sustainable Development*. Carswell, Canadian Bar Association, 180.
- McIver A. and D. Aggett. 1987. "Issues and Concerns Surrounding the Ocean Disposal of Fish Processing Wastes and a Case Study." Paper presented at the 7th International Waste Disposal Symposium, Wolfville, N.S.
- McMillan, T. 1987. Notes for Minister's Speech to the Consultative Committee on Bill C-74. February 3, 1988. *Development of the Environmental Protection Act*, Background Paper, National Consultation Meeting, March.
- McMillan, T. 1987. *The Right to a Healthy Environment: An Overview of the Proposed Environmental Protection Act*. Ottawa: Environment Canada.
- Minister's Advisory Substances Advisory Panel. 1988. *Report of the Minister's Advisory Substances Advisory Panel*
- Ministers' Priority Substances Advisory Panel (Canada). 1988. *Report of the Minister's Priority Substances Advisory Panel Under the Canadian Environmental Protection Act*. Ottawa.
- Muldoon, P. 1990. "Toward a National Pollution Prevention Strategy: Principles for Reform to Address the Problem of Toxic Contamination of the Canadian Environment." In *Sustainable Development in Canada: Options for Law Reform*. Canadian Bar Association, 130-153.
- Mulvihill, P. and P. Jacobs. 1991. "Towards South/North Development Strategies in Canada." *Alternatives* 18(2): 34-39.
- National Wildlife Federation and Canadian Institute for Environmental Law and Policy. 1991. *A Prescription for Healthy Great Lakes: Report of the Program for Zero Discharge*. Washington: National Wildlife Federation.
- Northey, R. 1991. "Federalism and Comprehensive Environmental Reform: Seeing Beyond the Murky Medium." *Osgoode Hall Law Journal* 29: 127.

Office of Waste Management. 1993. Ocean Dumping Regulations: Background Information.

_____. 1993. *Progress Report on Ocean Dumping Control Action Plan*. February 18.

Popper, K. 1959. *The Logic of Scientific Discovery*.

Rankin, M. 1993. "Environmental Regulation and the Changing Canadian Constitutional Landscape." In *Environmental Law and Business in Canada*. Edited by G. Thompson, M. McConnell, and L.B. Heustis. Ottawa: Canada Law Book, 31-51.

Rankin, M. and P. Finkle. 1983. "The Enforcement of Environmental Law: Taking the Environment Seriously." *UBC Law Review* 17: 35.

Regulatory Compliance Project of the Department of Justice. 1992. "A Strategic Approach to Developing Compliance Policies: A Guide." *Regulatory Affairs Series Number 2*. Ottawa.

Resource Futures International (RFI). 1992. *Conservation and Protection: Strengthening Socio-Economic and Economic Direction*. A workshop report. October 27-28, 1992.

Resource Futures International. 1991. *Canadian Environmental Protection Act, Priority Substances Assessment Program*. Report on the Priority Substances Program Task Group Leaders' Workshop. December 3, 4, and 5, 1991. Prepared for: Chemicals Evaluation Division, Commercial Chemicals Branch, Environment Canada.

Roy, Manik Ratan. 1988. "How We Are Learning to Pollute Less: Pollution Control, Organizational Culture, and Social Learning.." PhD Thesis, Harvard University.

Ryan, J.F. and J. Lawrence. 1993. *Compendium of Research Needs Identified in PSL Assessments*. Burlington: National Water Research Institute, Environment Canada.

Ryan, J.F. and J. Lawrence. 1990. *Toxic Science Network: Preliminary Evaluation of Feasibility*. Burlington: National Water Research Institute, Environment Canada.

Saxe, D. 1991. "The Impact of Prosecution of Corporations and their Officers and Directors upon Regulatory Compliance by Corporations." *Canadian Journal of Environmental Law and Practice* 1: 91.

- Saxe, D. 1990. "Application of Provincial Environmental Statutes to the Federal Government, Its Servants and Agents." *Canadian Environmental Law Review* (N.S.) 114.
- Schrecker, T. 1990. "Spending Green: Federal Expenditure Reform and Sustainable Development." In *Sustainable Development in Canada: Options for Law Reform*. Ottawa: Canadian Bar Association.
- Schrecker, T. 1992. "Of Invisible Beasts and the Public Interest: Environmental Cases and the Judicial System." In *Canadian Environmental Policy: Ecosystems, Politics, and Process*. Edited by R. Boardman. Toronto: Oxford University Press.
- Searle, D.H. 1989. "Canadian Environmental Protection Act: An Industry Perspective." In *Toxic Substances and Environmental Legislation*. Insight Press.
- Sharpe, R.J. 1983. *Injunctions and Specific Performance*. Toronto: Canada Law Book.
- Sly, Peter. 1993. "Ecosystem Health: An Example of Implications Arising From Regulations Under the Canadian Environmental Protection Act (CEPA), and the Importance of Setting Precedent." *Journal of Aquatic Ecosystem Health* 1(1).
- _____. 1993. *Habitat Management: More Effective Use of the Ecosystem Approach*. Presented at the 36th Annual Conference on Great Lakes Research, International Association for Great Lakes Research, St. Norbert College, Green Bay, Wisconsin, June 1993.
- Standing Committee on Finance. 1993. *Regulations and Competitiveness*. Seventeenth Report of the Standing Committee on Finance, First Report of the Sub-Committee on Regulations and Competitiveness. Ottawa: Minister of Supply and Services Canada.
- Stevenson, Ian L. 1991. *Workshop on the Draft Regulations for Biotechnology Products Under the Canadian Environmental Protection Act*, 21-22 January, 1991, Federal Study Centre, Ottawa, Ontario, Canada. Ottawa: Environment Canada and Health and Welfare Canada.
- Swanson, E. 1990. "CEPA—Where Are We Now?" *Environmental Law Centre Newsletter*, 5(1-2).
- Sypher: Mueller International Inc. 1991. *Towards a Regulatory Strategy for Environmental Protection: A Management Study*.
- Synergistics. 1993. *Canadians and the Environment: Key Trends and Implications for Federal Decision Makers*.

- Task Force on the Federal-Provincial Partnership for Environmental Protection. 1989. *Report of the Task Force on Federal-Provincial Partnerships for Environmental Protection*. Presented to the CCME Deputies Working Group. Draft
- Temple Scott Associates. 1993. *Environmental Dimensions*. Volume 4, Number 23.
- Tingley, D. 1991. "Conflict and Cooperation on the Environment." In *Canada: The State of the Federation*. Edited by D.M. Brown. Kingston: Institute of Intergovernmental Relations, 131.
- Treasury Board of Canada. 1993. *A Strategic Approach to Assessing Regulatory Alternatives: A Guide*.
- Treasury Board of Canada. 1993. *Responsive Regulation in Canada: Highlights*. Reply to the Report on Regulations and Competitiveness.
- Treasury Board of Canada, Secretariat. 1992. *Regulatory Policy: Regulatory Affairs Guide*.
- United States Environmental Protection Agency. 1992. *Report to Congress: Pollution Prevention Strategy*. Washington, D.C.
- United States Environmental Protection Agency (EPA). 1991. "Setting Environmental Protection Priorities: The Debate About Risk." *EPA Journal*. 17(2).
- VanderZwaag, D. and L. Duncan. 1992. "Canada and Environmental Protection: Confident Political Faces, Uncertain Legal Hands." In *Canadian Environmental Policy: Ecosystems, Politics, and Process*. Edited by R. Boardman. Toronto: Oxford University Press.
- VanderZwaag, D. 1989. "Canada and Marine Environmental Protection: The Changing Tides of Law and Policy." In *Canadian Oceans Policy: National Strategies and the New Law of the Sea*. Edited by D. McRae and G. Munro. Vancouver: UBC Press.
- Versteeg, Hajo. 1993. *Examining the Current and Proposed Potential of The Canadian Environmental Protection Act to Incorporate Pollution Prevention Principles and Strategies*. Final Report. Prepared for Environment Canada.
- Waterston, Dorothy Jane. 1989. *Canadian Environmental Protection Act: Priority Substances Science Forum*. Held at the Canada Centre for Inland Waters, Burlington, Ontario, February 22-23, 1989. Ottawa: Environment Canada.
- Webb, K. 1988. *Pollution Control in Canada: The Regulatory Approach in the 1980's*. Ottawa: Law Reform Commission of Canada.

Webb, K. 1991. "Taking Matters Into Their Own Hands: The Role of Citizens in Canadian Pollution Control Enforcement." *McGill Law Journal* 36 : 771.

Will, E.J. 1993. "Integrated Resource Management in Canada: Enhancing the Federal Role in Water Management." Ph.D. dissertation, University of Ottawa.

Wilson, J. 1992. "Green Lobbies: Pressure Groups and Environmental Policy." In *Canadian Environmental Policy*. Edited by R. Boardman. Toronto: Oxford University Press. 109-125.

Wyche, B.W. "The Regulation of Toxic Pollutants Under the Clean Water Act: EPA's Ten Year Rulemaking Nears Completion." *National Resource Lawyer* 15: 511.

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