Report of the Commissioner of the Environment and Sustainable Development to the House of Commons - 1999

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Foreword

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Foreword

I am pleased to submit my 1999 Report to the House of Commons. This Foreword is followed by "The Commissioner's Observations – 1999" and the Main Points from all of this year's chapters. This volume also contains nine chapters, bound separately:

Sustainable Development Strategies

1. Implementing Sustainable Development Strategies: Laying the Groundwork for Progress
2. Sustainable Development Strategy Consultations

Managing Toxic Substances

3. Understanding the Risks From Toxic Substances: Cracks in the Foundation of the Federal House
4. Managing the Risks of Toxic Substances: Obstacles to Progress

Working Together

5. Streamlining Environmental Protection Through Federal-Provincial Agreements: Are They Working?
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The Commissioner's Observations — 1999

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The Commissioner's Observations — 1999

Main Points

1. At the same time that global sustainable development conditions are worsening, my third Report to the House of Commons provides additional evidence of the gap between the federal government's intentions and its domestic actions. We are paying the price in terms of our health and our legacy to our children and grandchildren.

- **Managing toxic substances and risks to our health.** The federal government's policy objective is to permit the safe and productive use of chemical substances while safeguarding Canadians and their environment from unacceptable risks. While releases of many toxic substances into the environment have been reduced, our audit work identified a number of cracks in the federal infrastructure. They include poor interdepartmental co–ordination of research efforts, incomplete monitoring networks, unfulfilled commitments, a lack of re–evaluation of pesticides against new health and environmental standards, and a growing gap between the demands placed on departments and the availability of resources to meet those demands.

  We also found that federal departments are deeply divided on many key issues. They do not share a common vision of how toxic substances should be managed. They disagree strongly on the degree of risk posed by some industrial chemicals, the interpretation of federal policy and the actions required to implement it, the relative merits of voluntary and regulatory controls, and the respective roles and responsibilities of departments. The behaviour demonstrated by some departments is a major impediment to the effectiveness of federal programs.

- **Federal–provincial agreements to protect the environment.** The federal government has entered into environmental partnership agreements with the provinces to reduce overlap and duplication. The seven agreements we audited cover activities such as inspection, enforcement, monitoring and reporting. We found that these agreements do not always work as intended: many activities that are essential to implementing them are not working as well as they could.

  Before entering into these agreements, the federal government did not formally analyze and document the potential for failure, including whether both parties could do what they were agreeing to do. There is no ongoing analysis of the impact of the agreements on environmental performance or on the industries involved. The federal government does not have a documented plan in the event that a province is unable to carry out its assigned responsibilities or an agreement is terminated.

2. Many of the issues raised in this Report are not unique to Canada. Other countries have identified similar impediments to government's implementation of sustainable development. But the problems are not insurmountable. This Report identifies a number of good practices and lessons learned.

- **The Arctic — a barometer of global environmental change.** Canada has made a major contribution in the international efforts to enhance the understanding of the Arctic's unique environment and the actions needed to protect it. To meet Canada's commitments, scientists and program managers have been struggling with many of the same challenges discussed elsewhere in this Report: building a solid information base through scientific research and monitoring, managing jurisdictional complexity, developing a strong domestic regime for implementing agreements, and responding to budget cuts.

Managers in other program areas could learn from this experience. An overall strategy for the North would also help federal departments and agencies to carry out their scientific research, monitoring and other responsibilities effectively and efficiently.

- **Involving Canadians in policy development.** We found a high level of satisfaction with the consultations that departments used to prepare their first sustainable development strategies. Participants generally felt that departments had listened; in turn, departments believed that the consultations had broadened their own perspectives. The result was better strategies, with more "buy–in". Nevertheless, we identified weaknesses that should be dealt with in the next round of consultations leading to the revised strategies due in December 2000.

- **Learning from others.** Organizations around the world have shown how their environmental performance can be improved by strengthening basic management practices. Managers recognize that building strategies — and hence organizations— that deliver economic, environmental and social value is essential to securing their future. We in government need to do the same.

3. The Report discusses the importance of sustainable development strategies as a tool for strengthening the federal government's performance.

- **A work in progress.** Departments are now in the early stages of turning their strategies into action. They are making progress in delivering on their commitments. However, the quality of the information they have provided varies widely among departments. Departments are also just beginning to establish practices to support the delivery of their strategies, and gaps exist in key areas. Departments need to accelerate their plans to put appropriate management systems in place, paying particular attention to staff training and continual improvement practices.

Introduction

4. Each year in this chapter, I highlight the key issues in the Government of Canada's environmental and sustainable development practices that I think should be brought to the attention of the House of Commons. Previous Reports have identified key weaknesses in the federal government's management of those issues (see Exhibit 1). This Report illustrates how deeply rooted those problems are, and how government performance can be improved by strengthening basic management practices.

Exhibit 1

Key Weaknesses in the Federal Government's Management of Environmental and Sustainable Development Issues

Gaps between commitments made and concrete action taken. Canadians have been at the forefront of thinking about environmental and sustainable development issues, domestically and internationally. We have been less effective at turning those thoughts and words into action - in finishing what we start. In many areas, the federal government's performance falls well short of its stated objectives.

Lack of co–ordination among departments and across jurisdictions. Some of the most pressing issues facing governments today cut across departmental mandates and political jurisdictions. Effective co–ordination is essential for meeting our sustainable development challenges - governments are not very good at it.

Inadequate review of performance and provision of information to Parliament. Good information is critical for good decisions: for setting priorities, designing policies and programs, assessing progress and reporting on accomplishments. Our current information base is not up to those tasks.

Sustainable development challenges

5. Last year I presented the conclusions from the 1997 special session of the United Nations General Assembly, where Canada had joined more than 165 countries to assess progress toward sustainable development and to set future priorities. The international community expressed deep concern that overall global trends had worsened in the five years since the Rio Earth Summit. Greenhouse gas emissions, toxic pollution and solid waste were increasing; renewable resources like fresh water, forests, topsoil and fisheries were being overused; and the gap between the rich and the poor was growing.

6. All of these were signs of unsustainable development at the global level — an inability to care for people and, at the same time, the environment that supports them. Canada joined other countries in committing to ensuring that by 2002 — ten years after the Earth Summit — they would demonstrate measurable progress toward sustainable development. We have three years to go.

Managing for sustainable development

7. Last year's Report also illustrated how difficult these challenges can be. Despite being a strong proponent of international action on climate change and biological diversity, for example, Canada failed to meet its commitments flowing from the Earth Summit. I concluded that in these and other areas, the federal government needed to pay more attention to the management side of the sustainable development equation.

8. Exhibit 2 illustrates the type of model that many organizations are using to manage their environment and sustainable development agendas. Like other management models, the ISO 14001 standard that is presented is based on the "plan–do–check–improve" approach to strengthening an organization's performance. It was adopted as an international standard in 1996, and more than 100 Canadian firms have registered so far. Many more organizations in both the private and public sectors are using the standard to guide their management practices.

Exhibit 2 is not available, see the Report.

9. I believe that significant improvements can be made in protecting our environment and promoting sustainable development if sound management practices are applied to these issues. Use of the systematic approach to continual improvement embodied in standards like ISO 14001 would strengthen management practices significantly.

10. We can also look to concrete examples of how others are coming to grips with the challenges of sustainable development. Exhibit 3 describes how one company views global environmental and sustainable development challenges and their implications. Electrolux sees global growth in population, economies and resource use leading to more regulation, increased resource efficiency and greater market demand for environmentally friendly products. Environmental considerations form part of the business context — a stimulus to the company's strategic direction. They are not going to go away; but they provide the organization with a range of opportunities as well as challenges.

Exhibit 3 is not available, see the Report.

This year's Report

11. This Report maintains our focus on the challenges the federal government faces in dealing with environmental and sustainable development issues. It illustrates that unsustainable development is not simply a distant global problem: it affects us where we live and where we work. How we manage sustainable development issues has important economic, social and environmental consequences.

Managing Toxic Substances and Risks to Our Health

12. More than 35 years ago in *Silent Spring*, Rachel Carson warned of the environmental dangers posed by indiscriminate use of chemical pesticides — their effects on plants, animals and humans. The book refers to a town that once had lived in harmony with nature, but awoke from a winter's slumber to silence, without the sounds of scores of birds welcoming the new season. The birds had been the victims of pesticides, used with little regard to their effects on other creatures. *Silent Spring* raised the environmental consciousness of our generation.

13. We have learned a great deal since 1962. Chapters 3 and 4 of this Report examine the federal government's management of toxic substances.

14. Canadians use large quantities of chemical substances every day, in pharmaceutical drugs, food preservatives, household products, industrial chemicals, agricultural and household pesticides, fuels and other products. These substances play a vital role in modern society. They have reduced the incidence of disease, increased food production and food safety, revolutionized manufacturing processes and provided consumers with many modern conveniences.

15. But substances that are released into the environment can ultimately find their way back to us through air, water, soil and food, and can affect our health. Industrial chemicals and pesticides in the environment have been linked to cancer, lung disease, reproductive problems and birth defects, allergic reactions, and lowered resistance to disease.

16. Toxic substances are a highly complex public policy issue: there are literally thousands of potentially toxic substances; they come from a variety of sources; opinions are divided on issues like risk, significance and burden of

proof; the knowledge base is incomplete and still evolving. The lack of scientific understanding of the substances and their impacts leaves ample room for disagreement on what needs to be done about them.

17. Canada has established an elaborate infrastructure of scientific research and monitoring, regulations, policies and voluntary programs to manage the most dangerous toxic substances. The purpose of these activities is to permit the safe and productive use of chemical substances while safeguarding Canadians and their environment from unacceptable risks.

18. Our audit identified significant weaknesses in the federal government's assessment and management of toxic substances. We found poor interdepartmental co–ordination of research efforts, incomplete monitoring networks, unfulfilled commitments, a lack of pesticide re–evaluation in light of new health and environmental standards, conflicting departmental agendas and priorities, and a growing gap between the demands placed on departments and the availability of resources to meet those demands.

19. The federal government's cornerstone policy in this area, the Toxic Substances Management Policy, represents a potentially powerful and pragmatic approach to a complex and difficult issue. But it is not being acted on, nor is there a government–wide plan to do so. Strategies for the management of specific substances, although required by the Policy, have not been developed. Established government objectives are not being met.

20. I believe that taken together, these cracks in the foundation threaten the federal government's ability to detect, understand and prevent the harmful effects of toxic substances on the health of Canadians and their environment.

21. I am particularly concerned that federal departments are deeply divided on many key issues. They do not share a common vision of how toxic substances should be managed. They disagree strongly on such issues as the degree of risk posed by some industrial chemicals, the interpretation of federal policy and the need to take action on it, the relative merits of voluntary and regulatory controls, and their own respective roles and accountabilities.

22. In my view, the situation has gone beyond the healthy and constructive debate that is integral to the policy process. I believe that the behaviour displayed by some departments is a major impediment to the effectiveness of federal programs.

Working With Provincial Governments to Protect Our Environment

23. Responsibility for protecting the environment and promoting sustainable development is shared within the federal and provincial governments and between them. Good working relationships are essential for the success of their efforts.

24. We audited seven federal–provincial environmental agreements under the *Canadian Environmental Protection Act* and the *Fisheries Act*. These agreements cover activities such as inspection, enforcement, monitoring and reporting. Some agreements suspend the application of certain federal regulations where there are equivalent provincial regulations; others provide for shared administration of regulations and a "single window" to government for industry. But regardless of who does what under the agreements, the federal ministers of the Environment and Fisheries and Oceans remain ultimately accountable to Parliament for the application of these Acts.

25. Federal–provincial environmental agreements offer the potential for better protection of the environment and streamlined administration and regulation by government. As requested by the Standing Committee on Environment and Sustainable Development, Chapter 5 asks whether the agreements are working. We conclude that

they are not always working as intended; nor do many activities essential to implementing them work as well as they could.

26. Before it entered into these agreements, the federal government did not formally analyze and document the potential for failure, including whether both parties could do what they were agreeing to do. There is no ongoing analysis of the agreements' impact on the environment and on the industries involved. The federal government does not have a documented plan in place that describes how it would reassume its responsibilities should a province be unable to carry out its assigned responsibilities, or should it or a province decide to terminate an agreement.

27. The federal government is planning to enter into more bilateral agreements under the Harmonization Accord signed in January 1998 by all jurisdictions except Quebec. Environment Canada needs to evaluate the existing bilateral agreements and incorporate the lessons learned into any new ones.

The Arctic — A Barometer of Global Environmental Change

28. The Arctic plays a defining role for Canada as a northern frontier nation. It accounts for 40 percent of our landmass and two thirds of our coastline. With its long, cold winters, the North has fewer plant and animal species than southern Canada. But it supports plant and animal species that are unique, and provides a breeding ground for millions of birds.

29. Pollutants transported by air and water currents over long distances from industrialized and agricultural regions of the world — pesticides, industrial chemicals and heavy metals — are one of the main threats to environmental quality in the Arctic. They persist longer in the Arctic than in southern regions, accumulate in the fatty tissues of fish and wildlife and attack a fundamental aspect of Aboriginal culture in the North — its reliance on traditional or "country" foods.

30. Canada has signed or endorsed more than 30 international initiatives that affect environmental quality in the Arctic. Chapter 6 reviews four of them that deal with wildlife management and transboundary pollutant issues. In those areas, Canada has made a major contribution in the international efforts to enhance the understanding of the Arctic's unique environment and the actions needed to protect it.

31. To meet Canada's environmental commitments in the Arctic, scientists and program managers have been struggling with many of the same challenges discussed elsewhere in this report: building a solid information base through scientific research and monitoring, managing jurisdictional complexity, developing a strong domestic regime for implementing the agreements and contending with budget cuts. Managers in other program areas could learn from this experience.

32. However, Canada has taken a piecemeal approach to fulfilling its international commitments in the North. There is no overall Northern strategy to guide federal departments and agencies in carrying out their scientific research, monitoring and other responsibilities effectively and efficiently. The success of Canada's overall efforts is vulnerable to program or funding decisions by individual departments that may have detrimental effects on programs of other departments.

Involving Canadians in Policy Development

33. Over the last decade, a recurring public policy theme has been the need for more and better involvement of citizens in government decision making. Canadians — both as individuals and as members or representatives of

particular groups — want to influence decisions that interest and affect them. At the same time, governments are looking for ways to make decisions that are well informed and widely accepted.

34. Chapter 2 presents our assessment of one major consultation exercise by 28 federal government departments, as part of preparing their first sustainable development strategies. More than 1,600 organizations and Aboriginal communities were involved in helping departments identify priorities for sustainable development and how to achieve them.

35. Overall, among both participants and departments, we found a high level of satisfaction with the process. Participants generally felt that departments had listened to them and that their comments would be taken into account in the final strategies. In turn, departments believed that the consultations had broadened their own perspectives on the sustainable development issues they faced, and had increased the awareness of those issues inside and outside the department. The result was better strategies with more "buy–in".

36. A number of weaknesses were identified, however, that need to be dealt with in the next round of consultations leading to the strategy revisions due in December 2000. Three of the most significant weaknesses we found were limited co–ordination among departments, limited involvement of senior management and limited feedback to participants.

37. We also noted that most of the guidance provided to departments on conducting and evaluating consultations had been developed in the early 1990s, and much of it is still in only draft form. Given the federal government's re–emerging interest in public involvement, we believe these consultation "building blocks" need to be updated.

Turning Talk Into Action

Implementing sustainable development strategies

38. Monitoring and reporting on federal progress toward sustainable development is a key part of my mandate. Last year, I provided our first assessment of the sustainable development strategies tabled in the House of Commons on behalf of 28 federal government departments and agencies. Through those strategies, departments are being challenged to take environmental, economic and social considerations into account more systematically across the board — in their policies, their programs and their day–to–day operations.

39. Departments are now in the early stages of strategy implementation. Chapter 1 provides our first assessment of their progress. According to their own reports, departments have so far completed about 11 percent of what their strategies said they would do. They are making progress in implementing their action plans.

40. However, the quality of the information that departments have provided varies widely. I expect that the quality of reporting will improve substantially as implementation proceeds, and as departments establish the clear and measurable targets we recommended last year. Parliamentarians, the public and departments themselves will then have a better picture of how the sustainable development strategies are unfolding.

41. Departments are also just beginning to establish practices to support the delivery of their strategies, and we note that there are gaps in key areas. As Exhibit 4 illustrates, the six departments we examined have applied about one third of the practices in the ISO 14001 standard that are relevant to sustainable development strategy implementation.

Exhibit 4 is not available, see the Report.

42. The exhibit provides an interesting perspective on the "implementation gap" — the gap between commitments made and concrete action taken — that I have referred to in previous reports. Compared against the ISO standard, departments' practices are strongest at the early stages of the management cycle, and become progressively weaker as departments move into implementation, monitoring and improvement. Departments have not yet systematically identified their priorities, defined responsibilities for achieving them, or established training needs. They are not reviewing progress in a way that would lead to steady improvement in their performance.

43. As a consequence, the current management practices for delivering the strategies do not yet provide assurance that departmental action plans will be implemented consistently or that the intended results of the strategies will be achieved. Departments need to act now to get their management systems into place.

Greening the federal government

44. Chapters 8 and 9 focus on two aspects of the "greening" of the federal government: how departments are measuring the environmental effects of their internal operations and how they could make better policy and program decisions — decisions that would integrate the different dimensions of sustainable development.

45. Departments could realize substantial financial and environmental benefits by taking an integrated sustainable development approach to managing their operations. In only one aspect of departmental operations, energy use in buildings, we estimate that the government could save more than $300 million over 20 years. However, most departments are not yet in a position to collect the information they need to track their environmental performance and realize the potential benefits. There is also no consistent and comparable basis across departments for reporting to Parliament on progress in the "greening of operations" — and there should be.

46. Recognizing that its policies and programs have a much greater impact on sustainable development than its operations, the federal government has committed to integrating environmental, social and economic considerations into its decision making. Departments, however, have not fully come to terms with how they will do this in practice. This is relatively uncharted territory; through four case studies, we look at some of the tools that other jurisdictions are using.

Learning From Others

Managing for sustainable development in other organizations

47. Many of the issues raised throughout my Report are not unique to Canada. Other countries have identified impediments to government's implementation of sustainable development.

48. For example, the Australian government recently commissioned an independent assessment of the way departments and agencies are implementing sustainable development (see Exhibit 5). Key impediments it identified include a lack of clarity about what sustainable development means for government policy, the complexity associated with scientific uncertainty and lack of information, poor policy–making practices, difficulties of co–ordination and the lack of a long–term planning process.

Exhibit 5

Implementation of Sustainable Development in Australian Departments and Agencies

In 1992, all Australian governments endorsed the National Strategy for Ecologically Sustainable Development. The core objectives of the strategy were to:

- enhance individual and community well–being and welfare by following a path of economic development that safeguards the welfare of future generations;
- provide for equity within and between generations; and
- protect biological diversity and maintain essential processes and life support systems.

Six years later, the Australian government commissioned an independent assessment of how departments and agencies have incorporated ecologically sustainable development into their policy formulation, decision–making processes and programs.

The common view of submissions to the Productivity Commission, which conducted the assessment, was that progress had been variable. Agencies responsible for resource management and environmental protection provided the best examples of sustainable development implementation. There was less emphasis and progress where natural resource management is not a core business of the agency.

The Commission identified a number of impediments or constraints that limit the extent and quality of implementation by departments and agencies.

- A lack of clarity of what sustainable development means for government policy - is it a broad concept or a narrow one?
- The complex issues that sustainable development raises for policy makers - such as dealing with scientific uncertainty, measurement and estimation - that tend to occur frequently and in combination.
- The failure of departments to follow good practices in their policy making, involving consideration of all costs and benefits - private and social.
- The absence of effective mechanisms for intra– and inter–governmental co–ordination for sustainable development.
- The lack of a long–term policy focus in departments.

The Commission's draft recommendations seek to address those issues.

Source: *Implementation of Ecologically Sustainable Development by Commonwealth Departments and Agencies*, Draft Report, Australian Productivity Commission 1999, Canberra. The report is available at: http//www.pc.gov.au/inquiry/esd/draftrep/index.html

49. Chapter 7 examines why and how 17 organizations — in both the public and private sectors — are changing in response to the challenges and opportunities that sustainable development presents. The chapter is based on the understanding and experience of senior executives in these organizations.

50. Almost all senior managers we interviewed were convinced that given global trends in population growth, production and resource use, the environment will continue to be an important strategic consideration for organizations.

51. Increasingly, organizations are focussing on the social dimension of sustainable development and on what socially responsible management means to them. In the private sector, companies are looking at the impacts of their activities in areas like community incomes and health. In the public sector, managers are dealing with issues like promotion of health, nutrition and education, access to economic opportunity and social services, equity and human rights.

52. Even leading organizations are still in the early stages of thinking and acting on the social dimension of sustainable development. Unlike the environmental dimension, where there is more consensus on the issues and how to deal with them, the ability to integrate the social dimension into an organization's overall strategy is still in its infancy.

53. The managers we interviewed talked about the challenges posed by sustainable development, but also about the opportunities that it presents. Managers in both the public and private sectors said they were pursuing a sustainable development agenda for reasons of competitive advantage. A sustainable organization can retain customer loyalty and secure new markets, attract talent and address stakeholder concerns.

54. These organizations are using a range of tools to advance their sustainable development agendas. Managers are thinking in terms of "sustainable systems" — like sustainable building design and construction, energy, distribution — and are situating their organizations within them. They are addressing complexity by engaging outside experts and stakeholders to help the organization better understand the issues and their implications. They are building alliances to meet common objectives. And they are using training and awareness campaigns to overcome resistance to change. They believe that developing strategies — and hence organizations — that deliver economic, environmental and social value is essential to securing their future.

Our Work Plan

55. Our work plan is divided into four broad areas: the review of departmental sustainable development strategies and their implementation; audits of the federal government's management of environmental and sustainable development issues; studies aimed at improving understanding and strengthening management practices; and the monitoring of petitions. Exhibit 6 summarizes our work plan.

Exhibit 6

Environment and Sustainable Development Issues: Our Work Plan

Task	In 1999-2000	In 2000-2001
Departmental sustainable development strategies	Issue a report on the Commissioner's expectations for strategy updates Conduct an assessment of departmental targets Conduct audits of: • Second–year strategy implementation • Interdepartmental co–ordination	Conduct audits of: • Second sustainable development strategies • Third–year strategy implementation
Integrating the fourth "E" into the work of the Office of the Auditor General Has money been spent with due regard to economy, efficiency, effectiveness and environmental effects of those expenditures?	Conduct audits of: • Smog • Management of hazardous materials at National Defence • Management of the Pacific salmon fishery • Canada Infrastructure Works Phase II Follow up previous audits of: • Transboundary movement of hazardous waste • Ozone layer protection	Conduct audits of: • Managing water issues • Endangered species Follow up previous audits of: • Climate change/Energy efficiency

	• Biodiversity • Environmental assessment	
Special studies	Conduct studies of: • Level playing field for energy sources • Federal–provincial/territorial co–operation and co–ordination • Co–operative arrangements in the private sector • Accounting for sustainable development	Conduct studies of: Studies program to be determined
Petitions	Monitor on behalf of the Auditor General	Monitor on behalf of the Auditor General

A focus on co–operation and co–ordination

56. Many of the chapters in this report consider the challenges of working in areas of shared responsibility. This is a particular issue in the areas of environmental protection and sustainable development, where responsibilities are shared widely within the federal government and between government jurisdictions.

57. The April 1999 Report of the Auditor General also examines collaborative arrangements, in general as well as for specific social programs. Managing these arrangements and other horizontal issues has proved to be a particular challenge for governments. In my next Report, I will build on this earlier work and make working together the key theme.

Review of sustainable development strategies

58. Departments released their first sustainable development strategies in 1997, and their first progress reports in 1998. The strategies are an important new tool for advancing sustainable development across the federal government, setting out each department's objectives and the steps it will take to meet them. The progress reports are intended to help parliamentarians, the public and departments themselves judge whether the strategies are on track or whether corrective action is needed.

59. Last year, I identified three main challenges that departments faced:

- **Implementing their strategies.** Since the release of their strategies, departments have turned their attention to delivery. Each year, I will report on the extent to which departments did what their strategies said they would do. Using the ISO 14001 standard as our benchmark, we will continue to examine departments' management of strategy implementation.

- **Establishing clear and measurable targets.** Last year I recommended that departments establish a clear set of benchmarks to judge whether they are implementing their strategies successfully, and present them to the House of Commons in the spring of this year. I will include an assessment of those targets in next year's report.

- **Preparing for the strategy update.** Departments are required to update their strategies at least every three years, with the first update due by December 2000. I will issue a special report later this year setting out my expectations for the strategy update. The report will indicate how my staff and I will assess the next round of strategies.

60. Interdepartmental co–ordination — or more precisely, the lack of it — has been a recurring theme of my reports to the House of Commons. Many of the most pressing issues facing governments today cut across departmental mandates. Over the next year, we will look at the issue of interdepartmental co–ordination from the perspective of sustainable development strategies — their preparation, implementation and reporting.

Integrating the fourth "E" into the work of the Office

61. Through its own strategy, the Office of the Auditor General is working to make sustainable development integral to what it does, and how it does it. Over the last year, the Auditor General has conducted a number of audits with an important environmental or sustainable development component (see Appendix A).

- The Office identified weaknesses in the environmental inspection program at the National Energy Board, inconsistencies between the management of climate change science and the Federal Science and Technology Strategy, and a lack of due diligence in managing environmental screenings of projects under Transport Canada's highway investment programs.

- Follow–up of earlier work done by the Office found continuing weaknesses in emergency preparedness, environmental stewardship, treatment of contaminated sites and completion of the national parks system.

- On a more positive note, the Office concluded that Public Works and Government Services Canada has been appropriately managing the environmental aspects of the Northumberland Strait Crossing Project.

62. Over the next year, the Office will be looking at other issues:

- **Smog.** There are air quality problems in most of Canada's major urban centres and many rural areas. Air pollution has a significant impact on human health and the environment. The audit will examine the federal government's national leadership and management of its initiatives to reduce air pollution.

- **Management of hazardous materials at National Defence.** National Defence operates some of the largest industrial facilities in the country, including repair facilities, workshops and testing sites. These facilities use tons of paint, solvents, cleaners, petroleum, oil, and lubricants every year. The audit is intended to assess whether the Department is following good environmental practices in its handling of these materials.

- **Management of the Pacific salmon fishery.** This is the second of three audits dealing with Fisheries and Oceans' management of salmon in British Columbia. Our objective is to determine if the Department's processes and practices for salmon management are ensuring — with due regard to economy and efficiency — the conservation of the resource base and the sustainability of the Aboriginal, commercial and sports/recreational fisheries that depend on it.

- **Canada Infrastructure Works Phase II.** The Canada Infrastructure Works program was introduced as a temporary shared–cost program in 1994 to help local communities with the maintenance and development of infrastructure and the creation of employment. In January 1997, the federal government announced an extension of the program. One of our audit objectives is to determine whether compliance with federal environmental obligations is adequate.

Studies of special interest to parliamentarians

63. Each year, we conduct studies aimed at advancing understanding of the management of environmental and sustainable development issues. We step outside an audit framework, often working directly with departments or other organizations. Over the next year, we will be conducting studies in the following areas:

- **Level playing field for energy sources.** This study will examine federal tax treatment and other support of investment in non–renewable and renewable sources of energy and in energy efficiency.

- **Federal–provincial/territorial co–operation and co–ordination.** Through this study, we will document the range of mechanisms for federal–provincial/territorial co–operation and co–ordination on sustainable development issues.

- **Co–operative arrangements in the private sector.** Linked to our work on interdepartmental and federal–provincial co–ordination, we will review the arrangements companies make to formalize co–operation between firms so we can identify good practices and lessons learned for the federal government.

- **Accounting for sustainable development.** Work on this project will focus on departmental progress in using environmental performance measures for their own operations, incorporating environmental concerns into the federal government's procurement practices, and "greening" policy and program decisions.

The petition process

64. Amendments to the *Auditor General Act* in 1995 created the position of Commissioner of the Environment and Sustainable Development and required ministers to prepare sustainable development strategies. The amendments also established a petition process — a vehicle for Canadians to register their concerns about specific environmental and sustainable development issues that fall under federal jurisdiction, and to obtain a response to those concerns.

65. Under the process, a Canadian resident can send a written petition to the Auditor General. The petition is then forwarded to the appropriate federal minister for response. The minister has 120 days to respond to the petitioner.

66. During the year ended 31 March 1999, nine new petitions were received and sent to ministers for response. Seven of those petitions dealt with issues falling under the purview of the Minister of Fisheries and Oceans. Five of the petitions concerned environmental assessment. Appendix B provides information on the nature and status of the petitions.

Conclusion

67. Sustainable development has been described as the great challenge facing our generation: how we will take care of people and, at the same time, the environment that supports them. Like other countries, Canada has repeatedly stated its commitment to the principles of sustainable development. Like other countries, Canada faces the challenge of turning those words into action.

68. My third Report to the House of Commons identifies some successes, some failures, some works in progress. Their common theme is the need to apply sound management practices to our environmental and sustainable development objectives. There are few quick solutions; what we need is persistence — sustained and focussed effort.

Appendix A

Environmental and Sustainable Development Work by the Office of the Auditor General, 1998

Reference	Key Conclusions
National Energy Board, Chapter 13	The Board's ability to fully meet its environmental regulatory responsibilities is at risk due to shortfalls in its environmental inspection program — namely, in setting priorities and scheduling inspections and in inspection practices, which are too informal and unstructured. (paragraph 13.3)
The Federal Science and Technology Strategy: A Review of Progress, Chapter 22	In our opinion, the management of climate change science to this point does not reflect fully the intent of the commitments made in the Federal Science and Technology Strategy. The government has recognized that a more concerted approach is needed to optimize resources and co–ordinate research at the federal level and across all sectors, especially in view of its Kyoto commitments. We believe that the proposed approach holds the promise of improved management of this horizontal issue. (Case study - Management of Federal Activities in Climate Change Science)
Transport Canada – Investments in Highways, Chapter 25	Transport Canada should demonstrate due diligence in the management of environmental screenings of projects under highway investment programs, backed by an appropriate management information system that would facilitate compliance with environmental laws. Such a system should include a mechanism for monitoring unanticipated environmental effects in order to improve the screening process in future environmental assessments. (paragraph 25.116)
Follow–up of Recommendations in Previous Reports, Chapter 28	
Emergency Preparedness in the Federal Government — Nuclear Emergencies — 1992, Chapter 24	Health Canada is not in a position to effectively co–ordinate and respond to a major nuclear accident affecting Canada. (paragraph 28.2)
Public Works and Government Services Canada — Northumberland Strait Crossing Project — 1995, Chapter 15	Based on our review, we conclude that since the time of our original audit, the government has been managing the project's environmental aspects appropriately. (paragraph 28.67)
The Implementation of Federal Environmental Stewardship — 1996, Chapter 2	It is not clear whether the Code of Environmental Stewardship is still in place for those agencies not required to produce a sustainable development strategy and there is also a need to involve Crown corporations in the government's greening efforts. (paragraph 28.2)
Federal Contaminated Sites — Management Information on Environmental Costs and Liabilities — 1996, Chapter 22	While limited progress has been made in specialized areas, the federal government, the largest landholder in Canada, still does not have a comprehensive view of the potential risks to health, safety and the environment associated with its more than 5,000 contaminated federal sites identified at the time of our November 1996 chapter. Nor does it yet have a complete and accurate view of the related contingent or actual liabilities. (paragraph 28.245)
Canadian Heritage — Parks Canada — Preserving Canada's Natural Heritage — 1996, Chapter 31	While no new parks have been created since 1996, work is continuing toward completing the national parks system. However, it is becoming increasingly clear that the system will not be complete by the year 2000. Although work is also under way to create new marine conservation areas, Parks Canada has not created any new areas since 1990. (paragraph 28.340)

Appendix B

Summary of Petitions Received*

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
8. **Effects of ozone depletion.** The petitioner requested information on the actions government departments would take over the next five years to protect the health and livelihoods of Canadians from the effects of ozone depletion. In particular, the petitioner requested specific budgeted commitments with targets and time frames for conduct of research on the health and environmental impacts of increased UV radiation and on the nature of protective measures to be taken. The petitioner also sought information on Canada's continued commitment to the development of policy and implementation measures under the *Montreal Protocol* in developing countries. In addition, the petitioner requested information on enforcement of laws prohibiting the import and export of ozone–depleting substances.	Friends of the Earth	Fisheries and Oceans Canada	8 September 1997	19 January 1998	The Minister of Fisheries and Oceans indicated that the Department had commissioned a study to provide baseline information on UV–B radiation and its effects on commercially important crustaceans and fishes. Fisheries and Oceans also collaborates under a Memorandum of Understanding with Environment Canada, Natural Resources Canada and Agriculture and Agri–Food Canada for co–ordination in the use of science and technology for sustainable development.
		Agriculture and Agri–Food Canada		23 March 1998	Agriculture and Agri–Food Canada provided information on research on impacts on crop production of UV–B radiation carried out until the end of Green Plan funding in 1997. The Department was actively investigating alternatives to methyl bromide, the ozone–depleting substance used in a significant way by the agricultural community. These activities would continue until 2005, when methyl bromide is targeted for 100% phase–out of use by developed countries.
		Environment Canada		21 May 1998	The Minister identified a number of departmental activities related to ozone depletion and increased UV radiation, including: stratospheric ozone monitoring, science research, public awareness, negotiations with foreign governments, multilateral funding and the development and administration of federal control measures for ozone–depleting substances.

* Petitions 1 to 7 were included in our 1998 Report.

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
8. **Effects of ozone depletion (cont'd)**		Health Canada		1 June 1998	The Minister stated that information on spending trends over the last five years was difficult to obtain and document completely because research and public information initiatives undertaken by the Department in relation to the health effects of UV radiation are included in other program components. Within Health Canada there had been no major recent research or information initiatives dealing specifically with UV radiation, and at this time none were planned. It was not possible to predict the budget commitments for the conduct of research on the health and environmental impacts of UV radiation to be undertaken over the next five years, due to prioritization and the pending renewal of some programs.
		Natural Resources Canada		8 June 1998	The Minister provided a summary of activities and estimated budgets for the mitigation of climate change and ozone–depleting substances. The Department's activities to reduce ozone–depleting substances and to mitigate the effects of global change involve its physical operations, program activities and work with other government departments in the following areas: research on health and environmental impacts of increased UV radiation, development of policy and implementation of measures pursuant to the Montreal Protocol, enforcement of laws and activities to protect Canadians from the cumulative effects of global change.

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
9. **Multilateral Agreement on Investment.** The petitioner expressed concerns about the uncertain effects of the Multilateral Agreement on Investment on social equity, environmental protection, public health protection and sustainable development; and asked for clarification of the terms of reference and objectives of the agreement with respect to these issues.	Canadian Association of Physicians for the Environment	Environment Canada	14 January 1998	17 August 1998	The Minister explained that the Minister of Foreign Affairs and International Trade was responsible in the Government of Canada for negotiation of the agreement. Environment Canada officials had been working with officials from the Department of Foreign Affairs and International Trade to ensure that the agreement would not infringe on the right of governments to maintain and enforce strong, effective environmental regulations.
		Department of Foreign Affairs and International Trade		22 May 1998	The Minister stated that Canada stands to benefit from a good and fair set of rules for international investment. Canada has a long history as a champion of the rules–based international trade and investment system. The government was committed to ensuring that an agreement would in no way limit Canada's ability to maintain, promote and enforce our high environmental standards. The government would not sign any agreement unless it advanced and protected our national interests and values.
10. **Harmonization Accord.** The petitioner requested the Minister of the Environment not to sign the Canada–wide Accord on Environmental Harmonization. The petitioner alleged that the Accord would lead to the devolution of federal roles and responsibilities for the environment to the provinces and hence be inconsistent with sustainable development.	Canadian Environmental Law Association	Environment Canada	22 January 1998	19 May 1998	The Minister informed the petitioner that the federal government had decided to proceed with signing the Accord and related sub–agreements, a decision that the petitioner subsequently challenged in the Federal Court. The concerns raised in the petition were substantially the same as those raised in the legal challenge. The detailed response to the petition was contained in the affidavits filed by the federal government. The Minister also forwarded the government response to the concerns raised by the Standing Committee on Environment and Sustainable Development in its report on harmonization, and indicated that federal, provincial and territorial ministers of the environment had promised to report openly on progress and to review the Accord with the public after two years to ensure it was achieving results.

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
11. **Crown Obligations to First Nations**. The petitioners stated that they had been pursuing a claim for the past six years with Indian and Northern Affairs Canada alleging that the Crown was in breach of its common law, statutory, constitutional and fiduciary obligations to the First Nation by enabling and permitting BC Hydro to construct and operate the WAC Bennett Dam in a manner that permanently destroyed the environment of Indian Reserve 201 and a major source of economic opportunity for the First Nation. The petitioners claimed that the Government of Canada and BC Hydro had in effect destroyed their reserve, and in particular the habitat base for the wildlife on which they relied to earn a substantial living from hunting and trapping. The damage to the reserve was continuing without any effort at remediation or compensation by Canada or BC Hydro.	Athabasca Chipewyan First Nation	Indian and Northern Affairs Canada	4 May 1998	10 August 1998	The Minister requested an extension in providing a reply because the petition was the subject of litigation involving the Government of Canada. Officials of the Department would review the file in six months to determine if a more detailed response would be appropriate at that time.
12. **Environmental Assessment**. The petitioner requested an investigation of environmental issues in the Petitcodiac River Valley of New Brunswick resulting from actions of the federal departments of Environment and Fisheries and Oceans. The petitioner alleged that the federal ministers had acted improperly in obtaining provincial agreement for the trial opening of the Petitcodiac River Gates and that federal public servants had misrepresented information relating to the gate opening experiment and the environmental screening associated with it. The petitioner also requested a full–scale independent environmental assessment of the proposed trial opening and that concerned citizens be able to respond to it.	Lake Petitcodiac Preservation Association	Fisheries and Oceans	15 May 1998	11 December 1998	The Minister responded that both Fisheries and Oceans and Environment Canada were dedicated to the conservation and sustainability of Canadian resources and take appropriate steps to fulfil this responsibility. The Petitcodiac River situation was a good example of an opportunity to restore the productivity of an aquatic system in support of several valuable fisheries resources. The Province had invited both federal departments into this endeavour through a Memorandum of Understanding, and both had participated on terms acceptable to the Province. The Minister indicated that the public servants involved with various aspects of this project had carried out their duties in a responsible and professional manner. They continue to promote open and objective discussions and exchanges with all stakeholders, and to consider all available information in a scientific and

					objective way. The Minister also stated that the authors of the 19 May 1998 screening report had exercised their duties with the

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
12. **Environmental Assessment (cont'd)**					same scientific objectivity that would be expected of any expert assessing a project under the *Canadian Environmental Assessment Act (CEAA)* process, and that the public, environmental, social, economic, health and safety concerns had been adequately considered. The Minister also stated that federal departments had voluntarily undertaken an environmental assessment screening of the trial gate opening, without prejudice to the proceedings in the Federal Court, and had followed the process outlined in the CEAA. Extensive consultations were carried out prior to the preparation of the screening report in 1998; consultations will also take place prior to the preparation of the screening report for the proposed 1999 trial gate opening. The 1999 Environmental Assessment screening report would then be released to the public to allow concerned citizens an opportunity to comment.
13. **Environmental Assessment.** The petitioner indicated difficulties with the environmental assessment process as administered by Fisheries and Oceans Small Craft Harbours. The petitioner sought assurance that the project's environmental assessment had been conducted properly and in accordance with the *Canadian Environmental Assessment Act*. In particular, the petitioner was concerned with the construction of breakwalls in Lake Simcoe and their environmental and coastal impacts, that mitigation measures had not been properly implemented and that comments made by him and other opponents of the project had been overlooked.	Scott Williamson	Fisheries and Oceans	29 June 1998	22 July 1998	The Minister replied that the comments made by the petitioner and other opponents of the project had not been overlooked in the Department's review of the project. The Town of Georgina had consulted the public and sought approvals from regulatory agencies. In addition, regional officials referred the issues to expert departments for guidance. It was concluded that significant environmental effects were unlikely, taking into account the mitigation measures proposed. As a result, the Town was authorized to proceed with the project. An environmental screening was completed and is available for viewing along with all related records produced, collected or submitted.

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
14. **Use of Science**. The petitioner alleged that the science in the 1998 coho conservation plan was distorted. Specifically, the strategy of designating no–fishing Red Zones and selective–fishing Yellow Zones contradicted advice from Fisheries and Oceans scientists and its sustainable development guiding principles. As a consequence, the coho stocks would be damaged and small–boat salmon fishers would have their salmon allocations redistributed to American fishers and the corporate fleet.	West Coast Sustainability Association	Fisheries and Oceans	15 July 1998	16 November 1998	The Minister responded that scientific input into the management process was transparent. Stock assessments and pre–season forecasts were reviewed through the Pacific Stock Assessment Review Committee and made available to all those consulted. The decision was based on scientific advice from within the Department and on the information collected through public meetings. The Minister indicated that conservation of the resource was placed ahead of allocation requirements among commercial fishing sectors. Fish management plans for 1998 required severe cutbacks in fishing opportunity for all sectors, and that year was identified as the beginning of a serious downturn in the fisheries. As a consequence, the federal government announced funding to rebuild the resource, to restructure the Pacific fishery, and to help people and communities adjust to the changes in it. The federal government also committed resources to assist those who would be affected by the conservation measures being implemented and by the long–term restructuring of the Pacific salmon fishery. The funding would be targeted to programs to assist Aboriginal, commercial, and recreational participants in the fishery.
15. **Environmental Assessment.** The petitioner requested an investigation of matters relating to the construction of a dam in the headwaters of the Englishman River system on Vancouver Island. The Regional District of Nanaimo, the City of Parksville and the Town of Qualicum Beach were constructing the dam as a joint venture. The petitioner alleged that despite federal jurisdiction, Fisheries and Oceans had issued no approval or permit; and it was essential to have environmental impact studies done on the downstream impacts of the dam.	Society for the Preservation of the Englishman River Estuary	Fisheries and Oceans	22 July 1998	27 November 1998	The Minister acknowledged that no permits or approvals had been issued for this project. The Canadian Coast Guard had determined that the *Navigable Waters Protection Act* did not apply in this case and thus no permit was required. In the case of the *Fisheries Act*, authorization would have been appropriate in advance of the completion of the project. However, the Department was satisfied that the proponent took appropriate steps during construction to protect fisheries resources both upstream and downstream. The Department determined that the project would create major benefits to the fisheries resources in the Englishman River, downstream of the dam, by providing increased summer

					stream flows. Provincial Ministry of Environment, Lands and Parks officials had determined that with

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
15. **Environmental Assessment. (cont'd)**					mitigation measures implemented during construction, and with habitat compensation, the project would result in significant benefits to non–salmon fish habitat within the Englishman River watershed, both upstream and downstream of the dam. The Department agreed with this assessment.
16. **Environmental Assessment.** The petitioner alleged that Fisheries and Oceans had conducted an inadequate environmental assessment of the harbour project at Jackson's Point, Lake Simcoe, Ontario.	Lakewatch Society – Lake Simcoe	Fisheries and Oceans	11 August 1998	3 September 1998	The Minister indicated that regional officials in Burlington had responded directly to the petitioner's concerns with respect to the environmental screening conducted for this project. A copy of the reply was attached as reference. The Minister encouraged interest in this project and invited the petitioner to liaise with regional officials in Burlington if he wished to discuss the project further.
17. **Environmental Assessment.** The petitioner requested that an environmental assessment be conducted to identify problems before additional development of the Farewell and Black creeks watershed proceeded and to assist them with the protection and rehabilitation of the fishery and habitat. The petitioner wanted the health of the watershed and ecosystem to be returned to its former state.	Friends of the Farewell	Fisheries and Oceans	23 July 1998	23 November 1998	The Minister emphasized the Department's commitment to the protection and rehabilitation of fish habitat through the habitat protection provisions of the *Fisheries Act*, the Policy for the Management of Fish Habitat and the departmental Habitat Conservation and Protection Guidelines. The Minister indicated that harmful alteration, disruption or destruction of fish habitat is prohibited under subsection 35(1) of the *Fisheries Act*. Official plans and zoning changes do not, in themselves, meet that condition. An offence occurs only after there has been harmful alteration, disruption or destruction of fish habitat that was not authorized by the Minister. The Department was providing input to an updated Provincial Stormwater Management Manual to clarify responsibilities under the *Fisheries Act*, the Policy and the Guidelines to ensure that they were addressed in new planning and development in Ontario. The Department understood that cumulative impacts of development over the past two decades had resulted in some impacts on fish and fish habitat in Farewell and Black creeks. It believed that participation in fisheries management planning

					would help to ensure that fisheries

Subject of Petition	Petitioner	Federal Department	Date of Petition	Date Response Received	Response
17. **Environmental Assessment. (cont'd)**					interests and responsibilities would be incorporated into the review process, and would in future guide resource managers in identifying areas for habitat rehabilitation and areas for habitat protection.
18. **Forestry.** The petitioner expressed concern over the Indian and Northern Affairs Canada decision to recommend an allowable timber cut in the Nisutlin Management Area of up to 89,000 cubic metres for the next 400 years. Historically the cut had been 2,000 cubic metres annually. The Petitioners alleged that this decision was made without proper consultation with the citizens of Teslin, and in contravention of the Yukon First Nations Umbrella Final Agreement and the Teslin Final Agreement.	Richard and Brenda Oziewicz	Indian and Northern Affairs Canada	1 September 1998	26 November 1998	The Minister replied that the Department's release of the Timber Supply Analysis for those areas where inventory work had been undertaken was done to establish a starting point for ongoing consultations. Assumptions were made to determine the forested area and volume that could be sustainably harvested in conjunction with an ongoing reforestation program. The purpose of the consultation was to challenge those assumptions, allow for other assumptions based upon local input and ultimately revise the supply volume estimates. The Department needed to know what the maximum annual allowable cut was for each area in order to know the sustainable level. The Minister assured the petitioner that the Department was aware of its obligations to consult all Yukon First Nations, and that it would not promote over–harvesting.
19. **Enforcement**. The petitioner requested an investigation of the non–enforcement of environmental protection legislation by the federal departments of Fisheries and Oceans and Environment Canada, concerning past and ongoing operations of the Pine Falls Paper Company in Pine Falls, Manitoba.	Alice Chambers	Fisheries and Oceans and Environment Canada	30 November 1998	pending	

Appendix C

Auditor General Act — Excerpts

An Act respecting the Office of the Auditor General of Canada and sustainable development monitoring and reporting

INTERPRETATION

Definitions

2. In this Act,

"appropriate Minister"

"appropriate Minister" has the meaning assigned by section 2 of the *Financial Administration Act*;

"category I department"

"category I department" means

(a) any department named in Schedule I to the *Financial Administration Act*,

(b) any department in respect of which a direction has been made under subsection 24(3), and

(c) any department, as defined in the *Financial Administration Act*, set out in the schedule;

"Commissioner"

"Commissioner" means the Commissioner of the Environment and Sustainable Development appointed under subsection 15.1(1);

"sustainable development"

"sustainable development" means development that meets the needs of the present without compromising the ability of future generations to meet their own needs;

"sustainable development strategy"

"sustainable development strategy", with respect to a category I department, means the department's objectives, and plans of action, to further sustainable development.

DUTIES

Examination

5. The Auditor General is the auditor of the accounts of Canada, including those relating to the Consolidated Revenue Fund and as such shall make such examinations and inquiries as he considers necessary to enable him to report as required by this Act.

Idem

6. The Auditor General shall examine the several financial statements required by section 64 of the *Financial Administration Act* to be included in the Public Accounts, and any other statement that the President of the Treasury Board or the Minister of Finance may present for audit and shall express his opinion as to whether they present fairly information in accordance with stated accounting policies of the federal government and on a basis consistent with that of the preceding year together with any reservations he may have.

Annual and additional reports to the House of Commons

7. (1) The Auditor General shall report annually to the House of Commons and may make, in addition to any special report made under subsection 8(1) or 19(2) and the Commissioner's report under subsection 23(2), not more than three additional reports in any year to the House of Commons

(a) on the work of his office; and,

(b) on whether, in carrying on the work of his office, he received all the information and explanations he required.

Idem

(2) Each report of the Auditor General under subsection (1) shall call attention to anything that he considers to be of significance and of a nature that should be brought to the attention of the House of Commons, including any cases in which he has observed that

(a) accounts have not been faithfully and properly maintained or public money has not been fully accounted for or paid, where so required by law, into the Consolidated Revenue Fund;

(b) essential records have not been maintained or the rules and procedures applied have been insufficient to safeguard and control public property, to secure an effective check on the assessment, collection and proper allocation of the revenue and to ensure that expenditures have been made only as authorized;

(c) money has been expended other than for purposes for which it was appropriated by Parliament;

(d) money has been expended without due regard to economy or efficiency;

(e) satisfactory procedures have not been established to measure and report the effectiveness of programs, where such procedures could appropriately and reasonably be implemented; or

(f) money has been expended without due regard to the environmental effects of those expenditures in the context of sustainable development.

STAFF OF THE AUDITOR GENERAL

Appointment of Commissioner

15.1 (1) The Auditor General shall, in accordance with the *Public Service Employment Act*, appoint a senior officer to be called the Commissioner of the Environment and Sustainable Development who shall report directly to the Auditor General.

Commissioner's duties

(2) The Commissioner shall assist the Auditor General in performing the duties of the Auditor General set out in this Act that relate to the environment and sustainable development.

SUSTAINABLE DEVELOPMENT

Purpose

21.1 The purpose of the Commissioner is to provide sustainable development monitoring and reporting on the progress of category I departments towards sustainable development, which is a continually evolving concept based on the integration of social, economic and environmental concerns, and which may be achieved by, among other things,

(a) the integration of the environment and the economy;

(b) protecting the health of Canadians;

(c) protecting ecosystems;

(d) meeting international obligations;

(e) promoting equity;

(f) an integrated approach to planning and making decisions that takes into account the environmental and natural resource costs of different economic options and the economic costs of different environmental and natural resource options;

(g) preventing pollution; and

(h) respect for nature and the needs of future generations.

Petitions received

22. (1) Where the Auditor General receives a petition in writing from a resident of Canada about an environmental matter in the context of sustainable development that is the responsibility of a category I department, the Auditor General shall make a record of the petition and forward the petition within fifteen days after the day on which it is received to the appropriate Minister for the department.

Acknowledgement to be sent

(2) Within fifteen days after the day on which the Minister receives the petition from the Auditor General, the Minister shall send to the person who made the petition an acknowledgement of receipt of the petition and shall send a copy of the acknowledgement to the Auditor General.

Minister to respond

(3) The Minister shall consider the petition and send to the person who made it a reply that responds to it, and shall send a copy of the reply to the Auditor General, within

(a) one hundred and twenty days after the day on which the Minister receives the petition from the Auditor General; or

(b) any longer time, where the Minister personally, within those one hundred and twenty days, notifies the person who made the petition that it is not possible to reply within those one hundred and twenty days and sends a copy of that notification to the Auditor General.

Multiple petitioners

(4) Where the petition is from more that one person, it is sufficient for the Minister to send the acknowledgement and reply, and the notification, if any, to one or more of the petitioners rather than to all of them.

Duty to monitor

23. (1) The Commissioner shall make any examinations and inquiries that the Commissioner considers necessary in order to monitor

(a) the extent to which category I departments have met the objectives, and implemented the plans, set out in their sustainable development strategies laid before the House of Commons under section 24; and

(b) the replies by Ministers required by subsection 22(3).

Commissioner's report

(2) The Commissioner shall, on behalf of the Auditor General, report annually to the House of Commons concerning anything that the Commissioner considers should be brought to the attention of that House in relation to environmental and other aspects of sustainable development, including

(a) the extent to which category I departments have met the objectives, and implemented the plans, set out in their sustainable development strategies laid before that House under section 24;

(b) the number of petitions recorded as required by subsection 22(1), the subject–matter of the petitions and their status; and

(c) the exercising of the authority of the Governor in Council under any of subsections 24(3)to (5).

Submission and tabling of report

(3) The report required by subsection (2) shall be submitted to the Speaker of the House of Commons and shall be laid before that House by the Speaker on any of the next fifteen days on which that House is sitting after the Speaker receives it.

Strategies to be tabled

24. (1) The appropriate Minister for each category I department shall cause the department to prepare a sustainable development strategy for the department and shall cause the strategy to be laid before the House of Commons

(a) within two years after this subsection comes into force; or

(b) in the case of a department that becomes a category I department on a day after this subsection comes into force, before the earlier of the second anniversary of that day and a day fixed by the Governor in Council pursuant to subsection (4).

Updated strategies to be tabled

(2) The appropriate Minister for the category I department shall cause the department's sustainable development strategy to be updated at least every three years and shall cause each updated strategy to be laid before the House of Commons on any of the next fifteen days on which that House is sitting after the strategy is updated.

Governor in Council direction

(3) The Governor in Council may, on that recommendation of the appropriate Minister for a department not named in Schedule I to the *Financial Administration Act*, direct that the requirements of subsections (1) and (2) apply in respect of the department.

Date fixed by Governor in Council

(4) On the recommendation of the appropriate Minister for a department that becomes a category I department after this subsection comes into force, the Governor in Council may, for the purpose of subsection (1), fix the day before which the sustainable development strategy of the department shall be laid before the House of Commons.

Regulations

(5) The Governor in Council may, on the recommendation of the Minister of the Environment, make regulations prescribing the form in which sustainable development strategies are to be prepared and the information required to be contained in them.

Appendix D

Panel of Advisors to the Commissioner of the Environment and Sustainable Development

David Barron
Senior Vice President, Environment, Resources and Technology
Canadian Pulp and Paper Association, Montreal, Que.

Randy C. Billing
President
Ernst & Young Environmental Services Inc., Toronto, Ont.

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Dow Chemical Canada Inc., Ottawa, Ont.

Ken Ogilvie
Executive Director
Pollution Probe, Toronto, Ont.

Beatrice Olivastri
Chief Executive Officer
Friends of the Earth Canada, Ottawa, Ont.

Robert Page
Vice President, Sustainable Development
TransAlta Corporation, Calgary, Alta.

Richard Paton
President
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Peter Victor
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York University, North York, Ont.

Main Points

Table of Contents

Implementing Sustainable Development Strategies

Laying the Groundwork for Progress

Chapter 1 - Main Points

1.1 In 1997, 28 federal departments and agencies tabled their first sustainable development strategies in the House of Commons. These organizations are now in the early stages of implementing their strategies and establishing the policies and procedures to support achievement of their objectives.

1.2 In their first annual progress reports to Parliament on sustainable development, departments reported on actions to date. However, the links between the large number of actions that departments reported and the objectives set out in their strategies are frequently too abstract to provide insights about progress. As a result, beyond tallying the activities reported accomplished by departments, we are unable to conclude whether the strategies are on track or whether corrective action is required.

1.3 Current management and control practices being applied to strategy implementation in the six departments that we audited in–depth do not yet provide assurance that their action plans will be consistently implemented or that the intended results of the strategies will be achieved.

Background and other observations

1.4 In 1995, the *Auditor General Act* was amended to require departments to produce sustainable development strategies. They were also directed to report annually to Parliament on their progress.

1.5 We compared the information provided by the departments in their progress reports with their strategy commitments and with what they were asked to provide to Parliament by the Treasury Board Secretariat in its Guideline for the Preparation of Departmental Performance Reports to Parliament**.** Most of the reports fell well short of the Secretariat's Guideline, making it difficult to judge whether progress is being made. We expect the quality of reporting to improve substantially as departments gain experience implementing their strategies and establish clear and measurable targets as we recommended last year.

1.6 We also took an in–depth look at the capacity of six departments to implement their strategies. Using relevant sections of the ISO 14001 environmental management system standard, we examined the practices and procedures being applied to the task.

1.7 Key gaps exist relative to the ISO 14001 benchmark. Departments have not yet adopted a systematic approach to identifying their priorities, defining management expectations, assigning accountability for results and identifying related training needs at lower levels in the organization; and they have not performed the self–assessments that would facilitate steady improvement.

Sustainable Development Strategy Consultations

Chapter 2 - Main Points

2.1 Overall, among both participants and departments, we found a high level of satisfaction with the consultations conducted by departments in preparing their first sustainable development strategies. Most participants felt that departments were listening to them and that their comments would be taken into account in the final strategy. Departments believed that the consultations broadened their own perspective on the issues they faced, and increased the awareness of those issues among clients, partners and employees. The result, from the departments' point of view, was better strategies and more "buy–in" for them.

2.2 However, a number of opportunities for improvement were identified that should be reflected in the consultations leading to the sustainable development strategy revisions due in December 2000. The three most significant weaknesses were the following:

- **Limited feedback.** Participants were given uneven feedback on what had been heard and how their views were reflected in the strategy. While most participants believed they were listened to, they were not sure to what extent they influenced the result. Following the consultations, many departments did not provide participants with sufficient information to make that judgment.

- **Limited co–ordination among departments.** Both departments and participants noted that many sustainable development issues, such as sustainable transportation, involve a number of departments, and that there is a need for joint consultations on those issues to complement department–specific consultations.

- **Limited involvement of senior management.** The choice of who represents the department in the consultation process sends an important signal about the priority the department attaches to consultation and to the subject. Some departments involved department representatives who were senior enough to have some authority in conveying participants' comments and in integrating them into the strategy; other departments delegated representation significantly downward. Participants noticed the difference.

Background and other observations

2.3 Over the last decade, the need for more and better citizen involvement in government decision making has been a recurring theme. The public — both as individuals and as members or representatives of particular groups — want to influence decisions that interest and affect them. Governments are looking for ways to make decisions that are well informed and widely accepted.

2.4 This chapter presents our assessment of one major exercise — the consultations conducted by 28 federal government departments and agencies when preparing their first sustainable development strategies. Across Canada, more than 1,600 organizations and Aboriginal communities were consulted on departmental sustainable development issues, objectives and priorities and on the action plans and strategies to achieve them.

2.5 We also noted that most of the guidance provided to departments on the conduct and evaluation of consultations was developed in the early 1990s, and much of it exists only in draft form. Given the federal

government's re–emerging interest in public involvement, we believe these consultation "building blocks" need to be updated.

Understanding the Risks From Toxic Substances

Cracks in the Foundation of the Federal House

Chapter 3 - Main Points

3.1 The federal government's ability to detect and understand the effects of toxic substances on Canadians and our ecosystems is seriously threatened. There is a growing gap between the demands placed on federal departments to provide scientific information on toxic substances and their ability to meet existing obligations and respond to emerging issues.

3.2 Co–ordination and collaboration among departments in research and monitoring lacks strategic leadership. There are also significant shortcomings in the federal government's environmental monitoring activities and programs. These deficiencies impact the government's ability to assess the risks of toxic substances.

3.3 Many pesticides used in Canada today were evaluated against previous and less stringent human health and environmental standards. The federal government has not met its long–standing commitment to implement a program to re–evaluate those existing pesticides against the newer standards. Re–evaluations of three groups of pesticides, under way now for close to 20 years, have not been concluded.

3.4 Federal departments are divided on the degree and significance of risks posed by some individual toxic substances, the interpretation and application of legislation and the nature of their respective roles and authorities. This has led to indecision, inaction and strained relations among departments.

Background and other observations

3.5 Canadians use many types of chemical substances every day. They have a vital role in modern society, enhancing our quality of life, economic well–being and industrial competitiveness. However, when released in sufficient amounts into the air, water or land, some of these substances can threaten human health and ecosystems.

3.6 A complicated infrastructure of research and monitoring, regulations, policies and voluntary programs has been established to protect the health of Canadians and their environment from threats posed by the most dangerous toxic substances. Scientific information developed through research, monitoring and assessment is the essential first step toward understanding the risks and making informed decisions. Environment Canada, Fisheries and Oceans, Health Canada and Natural Resources Canada each undertake scientific research on toxic substances, and have collaborated on individual programs and projects. Federal scientists are well recognized domestically and internationally for their work on toxic substances.

3.7 There are over 23,000 chemical substances in industrial, agricultural and commercial use in Canada. Information about these substances is incomplete, in particular about the risks they pose, if any, to human or environmental health. While many are not considered to pose risks, some have been linked to respiratory illnesses, birth defects, reproductive disorders, lowered resistance to disease, and cancer. Based on what is known, and considering what is not yet known, their release and exposure remain a cause for concern.

3.8 To date, only 31 substances or groups of substances have been conclusively assessed for toxicity and risk under the *Canadian Environmental Protection Act*. Risk assessments have taken five years to complete.

Assessments of 13 substances identified in 1989 as priorities are still inconclusive; assessments of 25 additional substances identified in 1995 as priorities are expected to conclude in 2000.

3.9 We have significant concerns about the lack of effective co–operation between the Pest Management Regulatory Agency, which is responsible for regulatory decisions, and Environment Canada and Fisheries and Oceans, which undertake scientific research on the effects of pesticides. The full expertise of the federal departments is not being brought to bear on research and management of pesticides.

3.10 In this chapter, we make 12 recommendations addressed to five federal departments and one federal agency. If they are implemented, we believe the federal activities related to the collection and use of scientific information on toxic substances will be substantially improved.

The departments have responded that they are committed to working co–operatively to carefully assess the recommendations. They are also committed to ensuring continuous improvement in managing releases of toxic substances in Canada, relying on the principles of sustainable development and risk management as well as the precautionary principle to achieve this. To ensure continuous improvement, they are committed to working co–operatively to develop an appropriate course of action.

Managing the Risks of Toxic Substances

Obstacles to Progress

Chapter 4 - Main Points

4.1 The federal Toxic Substances Management Policy is not being implemented as intended. Few federal departments have established implementation plans. Risk management plans for many toxic substances have not yet been developed or implemented.

4.2 The federal government has been slow to take action on some substances assessed and declared toxic under the *Canadian Environmental Protection Act*. The current programs are insufficient to ensure that risks will be adequately addressed in the future. Objectives for the protection of human health and the environment have not been specified, and agreed reductions in the release of toxic substances are not assured.

4.3 The federal government has not met its commitment to develop a risk reduction policy or strategy for pesticides. Governments elsewhere have implemented such policies in order to minimize risks to people and ecosystems.

4.4 The federal government relies on voluntary programs to achieve reductions in the release of toxic industrial chemicals. Existing programs do contribute but lack effective accountability, reporting and monitoring arrangements. We are concerned that existing voluntary programs alone may not be sufficient to effectively manage priority toxic substances.

Background and other observations

4.5 Industrial chemicals and pesticides provide many benefits to Canadian society and are important to our economy. Many of these substances are harmful or potentially harmful to people and ecosystems. Those that are toxic need to be managed so the risks presented by their use do not outweigh the benefits they provide.

4.6 Good management of the risks posed by toxic substances is a complex and daunting challenge. It requires Canadian society to permit and foster productive and safe use of thousands of chemical substances while, at the same time, safeguarding people and the environment from any unacceptable adverse effects. It involves balancing often–polarized expectations of various stakeholders, including the public, federal and provincial governments, large and small industries and public interest groups.

4.7 The federal Toxic Substances Management Policy establishes the policy objective of virtual elimination of certain toxic substances, and prevention or minimization of releases of other substances throughout their life cycles.

4.8 Federal programs to manage toxic substances are numerous and fragmented and federal departments are divided on many key issues. Conflicts between departments result in long periods of inaction and impede risk reduction actions for toxic substances and pesticides.

4.9 The government does not collect data on the release of many toxic substances. There are no reliable data on the levels of sales or use of pesticides. Of 22 countries responding to an OECD survey, only Canada and the Slovak Republic do not collect data on pesticide sales.

4.10 While this chapter identifies several weaknesses in the federal management of toxic substances, there has been some progress: releases of many toxic substances into the environment have reportedly been reduced.

4.11 In this chapter, we make 15 recommendations addressed to five federal departments and one federal agency. If they are implemented, we believe the federal management of toxic substances will be substantially improved.

The departments have responded that they are committed to working co–operatively to carefully assess the recommendations. They are also committed to ensuring continuous improvement in managing releases of toxic substances in Canada, relying on the principles of sustainable development and risk management as well as the precautionary principle to achieve this. To ensure continuous improvement, they are committed to working co–operatively to develop an appropriate course of action.

Streamlining Environmental Protection Through Federal–Provincial Agreements

Are They Working?

Chapter 5 - Main Points

5.1 Federal–provincial environmental agreements offer potential for increased protection of the environment and the streamlining of the administration and regulatory activities between the two levels of government. The agreements that we audited are not always working as intended. We found that many activities that are essential to implementing these agreements are not working as well as they could.

5.2 Environment Canada was unable to provide us with documents to indicate that before entering into these agreements the federal government had formally analyzed the associated risks to determine, for example, whether both parties could do what they were agreeing to do. Therefore, we have no evidence that such an analysis was done. Furthermore, the federal government does not have a documented plan in place that indicates how it would reassume its responsibilities should a province be unable to carry out its assigned responsibilities, or should it or a province decide to terminate an agreement.

Background and other observations

5.3 We examined seven federal–provincial environmental agreements under the *Canadian Environmental Protection Act* (*CEPA*) and the *Fisheries Act*. Two of the agreements include environmental protection as a stated objective. The other five agreements mention environmental protection in their preambles. There has been no evaluation of environmental performance for any of the agreements that we examined.

5.4 Environment Canada has not formally evaluated or documented the extent to which the agreements have been effective in reducing duplication.

5.5 Several improvements can be made to the design of the agreements, such as including specific reporting requirements that will be meaningful to Parliament, government, the public and industry.

5.6 Parliament has been provided with incomplete and out–of–date information on how well the agreements are working.

5.7 The federal government is planning to enter into more bilateral agreements under the Canada–Wide Accord on Environmental Harmonization. Environment Canada needs to evaluate existing bilateral agreements and incorporate the “lessons learned” into any new agreements.

Environment Canada has committed to incorporate lessons learned from working together with its provincial and territorial partners into any future negotiations. The Department is also committed to ensuring a thorough and complete flow of information to the public and to Parliament.

Fisheries and Oceans has stated that it and Environment Canada will work together to resolve concerns related to the non–designation of provincial enforcement personnel as *Fisheries Act* inspectors. In addition,

Fisheries and Oceans has committed to include the reports prepared on the implementation of administrative agreements by Environment Canada in its annual report to Parliament on the administration of the habitat provisions of the *Fisheries Act*.

Making International Environmental Agreements Work

The Canadian Arctic Experience

Chapter 6 - Main Points

6.1 To fulfil its domestic and international commitments to protect Arctic ecosystems, Canada must have a solid base of information, much of it derived from scientific research and monitoring. In the areas this study examined — wildlife resource management and transboundary pollutants — Canada has been a world leader in some of its research, despite the challenges posed by a vast and remote territory and the need to balance international commitments with local and regional concerns.

6.2 Notwithstanding the positive efforts we observed, we heard consistently that the overall picture reflects a piecemeal approach to meeting Canada's international commitments in the North. There is no overall Northern strategy or policy to guide federal departments and agencies in carrying out their science, monitoring and other responsibilities effectively and efficiently. This leaves these activities vulnerable to program or funding decisions by individual departments that can have detrimental effects in other areas.

Background and other observations

6.3 While the Arctic plays a key role in the functioning of global environmental systems, it is also particularly vulnerable to changes in those systems. Considering its sparse population and comparative lack of development, the Arctic stands to be disproportionately affected by global change. Environmental contaminants such as pesticides, industrial chemicals and heavy metals transported by air and water currents from industrialized and agricultural regions of the world are one of the main threats to its environmental quality. Contaminants that accumulate in the fatty tissues of fish and wildlife are a health concern for native Arctic peoples who rely on these foods as a significant part of their diet.

6.4 There has been a growing realization internationally that human activities, both in the Arctic and elsewhere in the world, affect the future sustainability of Arctic ecosystems. In turn, changes in the Arctic environment and ecosystems have an effect on other parts of the world. This awareness is reflected in an increasing number of environmental agreements and other arrangements to protect the Arctic, which Canada has signed or endorsed. It has also led Canada and the other circumpolar nations to collaborate in programs of extensive scientific research and monitoring in the North.

6.5 Our study examined three aspects of making international agreements work: building a solid information base, dealing with multiple jurisdictions and developing appropriate domestic regimes. The agreements and programs we reviewed provide lessons for overcoming some of the implementation challenges Canada faces in meeting its international commitments.

Building a Sustainable Organization

The View From the Top

Chapter 7 - Main Points

7.1 Virtually all of the executives and senior managers interviewed in both the public and private sectors said they understand and accept the importance of considering the environmental impacts of their decisions. Environmental issues are moving from being only operational concerns related to emissions, wastes and resource consumption. Increasingly, environmental impacts present strategic challenges for organizations, with global climate change being one of the most significant challenges to date for both corporations and governments.

7.2 Many of the senior managers told us that while their organizations are building environmental considerations into how they do their business, the social implications of their activities are attracting increasing attention. They are being asked to respond to a wide range of issues that vary considerably across organizations. Senior managers highlighted the need to integrate values alongside hard data or scientific evidence when considering the social dimension of sustainable development.

7.3 During our interviews, senior managers consistently drew to our attention the opportunities that they see in proactively responding to such concerns. Time and again we heard from both corporate and government senior managers that achieving and maintaining competitive advantage is a key motivator and significant benefit of addressing sustainable development.

7.4 The view from the top is that building strategies, and hence organizations, that deliver economic, environmental and social value is essential to securing the future success of both corporations and government departments.

Background and other observations

7.5 This study discusses how 17 organizations in North America and Europe are working to build environmental and sustainable development considerations into the way they do business. These organizations face pressures from a range of sources: regulators, customers, employees, interest groups, shareholders, and the public at large.

7.6 The focus of the study is on the role of senior management in building a sustainable organization. We present lessons learned from senior managers in both the public and private sectors on why and how their organizations are changing in response to the challenges and opportunities that sustainable development presents.

7.7 In addition, we found that organizations are using a variety of approaches to make progress toward sustainable development. They are thinking in terms of "sustainable systems" — such as sustainable building design and construction, energy, and distribution — and situating their organizations within them. They are addressing complexity by engaging outside experts and stakeholders to work with their organizations to help them better understand the issues and their implications. They are building alliances to combine their individual efforts and promote new solutions. They are using research and education to overcome resistance to change. They are developing new tools to support decision making, education and performance measurement. And they are implementing the management systems needed to monitor actions and support continuous improvement.

Greening Government Operations

Measuring Progress

Chapter 8 - Main Points

8.1 Departments are modifying their management systems to measure and report on the environmental and financial performance of their internal operations. While the key objective of greening operations is to reduce environmental impacts, departments may obtain large potential financial and environmental benefits from collecting, combining and using such information. Based on only one aspect of departmental operations, energy use in buildings, the net present value of the net savings is likely to exceed $300 million over 20 years.

8.2 We are concerned that most departments are not yet in a position to collect the necessary information to track their environmental performance and realize the potential benefits. We are also concerned that there is no basis for reporting progress to Parliament in a consistent and comparable form across departments. In addition, we have no assurance of central leadership to ensure that comparable measurements are made. As a result, Parliament does not possess sufficient information to exercise its oversight role. The capacity of individual departments, and the government as a whole, to effectively manage the environmental effects of their operations is at risk.

Background and other observations

8.3 We examined the experiences of two departments, Agriculture and Agri–Food Canada and Public Works and Government Services Canada, with implementing environmental performance measurement. These two departments have made significant progress. They are now facing the continuing challenges presented by incomplete data, and the need to implement new information systems and to sustain management support. Public sector organizations in other jurisdictions are also making progress in breaking down the barriers to effective measurement of their environmental performance.

8.4 We found that measuring environmental performance is practical and feasible for government departments. Collecting baseline information demands a flexible approach and strong and sustained commitment by senior management. Better measurement promotes due diligence, helps manage costs and supports progress on government–wide environmental objectives. Departments have several options for integrating financial and environmental information to identify and capture the potential financial savings.

8.5 Next year, in the third phase of this five–year project on accounting for sustainable development, we will provide Parliament with a status report for all departments, describing progress toward better environmental performance information.

The two departments we worked most closely with this year, Public Works and Government Services Canada and Agriculture and Agri–Food Canada, provided responses to this study. Public Works and Government Services Canada made a commitment to evaluate and report on its environmental performance annually. In addition, it stated that it will continue to support interdepartmental efforts to develop common environmental performance measures for operations. Agriculture and Agri–Food Canada will continue to develop an approach to managing its environmental information. The Treasury Board Secretariat also responded to the study, indicating that it will continue to participate in interdepartmental efforts to develop common environmental performance measures.

Greening Policies and Programs

Supporting Sustainable Development Decisions

Chapter 9 - Main Points

9.1 The federal government most strongly affects Canadians through its policies and programs. For example, the government's own operations contribute less than 0.5 percent of Canada's greenhouse gas emissions, yet it has policy levers that could influence the remaining 99.5 percent.

9.2 In our first report on this project last year, we noted that the federal government has made a commitment to integrate environmental, social and economic considerations into its operational and policy decisions. Almost all departments made further commitments to integrated decision making in their sustainable development strategies. We are concerned that some departments have not yet come to terms with the challenges of this integration and identified how they plan to deliver on their commitments.

9.3 We believe that Parliament needs to know what action departments are taking to meet their commitment to integrated decision making for policies and programs, and when the gap between commitment and implementation will be closed.

Background and other observations

9.4 In this chapter, we focus on ways of supporting integrated decision making for policies and programs. Making decisions in an integrated way requires a distinct approach for policies and programs because of issues of timing, the specific information requirements, and the need to evaluate results.

9.5 We reviewed four approaches that would allow departments to consider the environmental, social and economic implications of their policies and programs: foresight initiatives, strategic environmental assessment, multiple accounts analysis, and national environmental accounting. All four approaches are being used in other jurisdictions and all are applicable to Canadian federal departments. One approach, strategic environmental assessment, is already required by Cabinet directive. In last year's Commissioner's Report, we noted slow and inconsistent compliance with this directive across departments.

9.6 We recognize that departments will require time to implement fully an effective mix of tools. Based on the four approaches reviewed, we identified several aspects of implementation that would help departments successfully use these approaches. The aspects include the flexibility to mesh with the policy development process, a balance among the different aspects of sustainable development, consideration of the long–term consequences, early application and clear accountability.

To the Honourable the Speaker of the House of Commons:

On behalf of the Auditor General of Canada, I have the honour to transmit herewith my Report to the House of Commons for the year 1999, to be laid before the House in accordance with the provisions of section 23(3) of the *Auditor General Act*.

Brian Emmett
Commissioner of the Environment
and Sustainable Development

OTTAWA, 25 May 1999

TO THE READER:

I welcome your comments and suggestions on this Report and other issues related to the environment and sustainable development. I can be reached at:

Brian Emmett

The Commissioner of the Environment and Sustainable Development

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Chapter 1

Implementing Sustainable Development Strategies

Laying the Groundwork for Progress

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Exhibits

Implementing Sustainable Development Strategies

Laying the Groundwork for Progress

Main Points

1.1 In 1997, 28 federal departments and agencies tabled their first sustainable development strategies in the House of Commons. These organizations are now in the early stages of implementing their strategies and establishing the policies and procedures to support achievement of their objectives.

1.2 In their first annual progress reports to Parliament on sustainable development, departments reported on actions to date. However, the links between the large number of actions that departments reported and the objectives set out in their strategies are frequently too abstract to provide insights about progress. As a result, beyond tallying the activities reported accomplished by departments, we are unable to conclude whether the strategies are on track or whether corrective action is required.

1.3 Current management and control practices being applied to strategy implementation in the six departments that we audited in–depth do not yet provide assurance that their action plans will be consistently implemented or that the intended results of the strategies will be achieved.

Background and other observations

1.4 In 1995, the *Auditor General Act* was amended to require departments to produce sustainable development strategies. They were also directed to report annually to Parliament on their progress.

1.5 We compared the information provided by the departments in their progress reports with their strategy commitments and with what they were asked to provide to Parliament by the Treasury Board Secretariat in its Guideline for the Preparation of Departmental Performance Reports to Parliament**.** Most of the reports fell well short of the Secretariat's Guideline, making it difficult to judge whether progress is being made. We expect the quality of reporting to improve substantially as departments gain experience implementing their strategies and establish clear and measurable targets as we recommended last year.

1.6 We also took an in–depth look at the capacity of six departments to implement their strategies. Using relevant sections of the ISO 14001 environmental management system standard, we examined the practices and procedures being applied to the task.

1.7 Key gaps exist relative to the ISO 14001 benchmark. Departments have not yet adopted a systematic approach to identifying their priorities, defining management expectations, assigning accountability for results and identifying related training needs at lower levels in the organization; and they have not performed the self–assessments that would facilitate steady improvement.

Introduction

1.8 In 1997, 28 federal departments and agencies (hereinafter referred to as departments) tabled their first sustainable development strategies in the House of Commons. The objective of the strategies was to operationalize sustainable development — to move it from a concept to a practice — by articulating what needed to be done by federal government departments.

1.9 The strategies contained each department's action plan for sustainable development, including the objectives and targets that will be used by the department and others as benchmarks for measuring progress. To ensure accountability for results, ministers were directed to report annually to Parliament on progress against their sustainable development commitments in their Part III Estimates (now the Departmental Performance Reports).

1.10 In October 1998, ministers tabled their first annual sustainable development strategy progress reports based on progress to 31 March 1998. The purpose of these reports is to apprise parliamentarians of progress against commitments — that is, whether or not the departmental strategy is on track and, if not, what is being done to get it on track. Because only highlights were to be presented to Parliament, departments were also asked to provide references to other documents to allow interested parties access to more detailed information.

1.11 The 1995 amendments to the *Auditor General Act*, which required ministers to have sustainable development strategies prepared for their departments, also created the position of Commissioner of the Environment and Sustainable Development. Under the Act, the principal duty of the Commissioner is to monitor and report annually to Parliament on the extent to which departments have implemented their action plans and met their objectives for sustainable development.

1.12 This is our first report on progress. Our objectives are to help parliamentarians understand and exercise oversight over the departments' progress on sustainable development and to help departments understand their management obligations and best practices in meeting them.

Focus of the audit

1.13 In conducting the audit, we set out to answer two main questions that would indicate the progress being made by departments: Are departments doing what they said they would do in their strategies? Have departments established the capacity to reliably implement their strategies?

1.14 To answer the first question, we compared the goals, objectives, targets and actions set out by each department in its 1997 strategy with the performance information each department presented to Parliament in its 1998 progress report.

1.15 We reviewed the strategies and Departmental Performance Reports of the 28 departments that tabled progress reports (see Exhibit 1.1). In addition, we contacted these departments to request copies of any additional, more detailed sustainable development progress reports that had been prepared, and we reviewed those reports where available.

Exhibit 1.1

Departments That Tabled Sustainable Development Progress Reports

- Agriculture and Agri–Food Canada
- Indian and Northern Affairs Canada

- Atlantic Canada Opportunities Agency
- Canadian Environmental Assessment Agency
- Department of Canadian Heritage
- Canadian International Development Agency
- Citizenship and Immigration Canada
- Correctional Service Canada
- Environment Canada
- Canada Economic Development for Quebec Regions
- Department of Finance
- Fisheries and Oceans
- Department of Foreign Affairs and International Trade
- Health Canada
- Human Resources Development Canada
- Industry Canada
- Department of Justice
- National Defence
- Revenue Canada
- Natural Resources Canada
- Office of the Auditor General of Canada
- Public Works and Government Services Canada
- Royal Canadian Mounted Police
- Solicitor General Canada
- Transport Canada
- Treasury Board Secretariat
- Veterans Affairs Canada
- Western Economic Diversification Canada

1.16 To answer the second question, we compared the management practices being applied to the implementation of sustainable development strategies in six departments with recognized standards of good management practice. The departments selected represent a cross–section of policy, program and operational mandates: Agriculture and Agri–Food Canada, the Atlantic Canada Opportunities Agency, Citizenship and Immigration Canada, Health Canada, the Department of Justice, and Veterans Affairs Canada.

1.17 The criteria we used to assess the capacity of these six departments reflect the management principles set out by the International Organization for Standardization (ISO) in its environmental management systems standard — 14001. This standard is consistent with the Canadian Institute of Chartered Accountants' criteria of control, the European Eco–Management and Audit Scheme (EMAS) and principles of good management set out by the Treasury Board Secretariat's Planning, Reporting and Accountability Structure.

1.18 Additional details on the audit can be found in **About the Audit** at the end of this chapter.

Observations and Recommendations

What Ministers and Their Departments Were Asked to Do

1.19 The annual Departmental Performance Reports and their supporting documentation are the key means of documenting and communicating the progress of federal departments on implementing their sustainable development strategies.

1.20 By informing management of where the department stands relative to its objectives and identifying opportunities for improvement, these documents are the key mechanism for keeping the sustainable development

strategies alive and on track. They also serve as an important tool for the Commissioner of the Environment and Sustainable Development and others interested in monitoring the progress of the 28 departments.

1.21 To help departments present sustainable development performance information to Parliament, the Treasury Board Secretariat published the Guideline for the Preparation of Departmental Performance Reports to Parliament. The Guideline clearly specifies the information that departments should include in their progress reports (Exhibit 1.2).

Exhibit 1.2

Guideline for Preparing Sustainable Development Strategy Progress Reports

The purpose of the Sustainable Development Strategies (SDS) subsection is to apprise parliamentarians of progress against commitments since the SDS was submitted, and any corrective action being taken — in other words, whether the organization is or is not on track and, if not, what will be done to get on track. Updates or further development of components of the SDS should be noted.

To facilitate reporting and encourage a logical flow of information, departments should report the following information in a narrative of about a half–page in length (and not more than one page):

- key goals/objectives/long–term targets;
- performance indicators or performance measurement strategy;
- targets for the reporting period; and
- progress to date and any corrective action.

Departments may wish to utilize the following matrix for reporting performance against Sustainable Development Strategies.

Key Sustainable Development Goals/Objectives/Long–Term Targets	Performance Indicators or Performance Measurement Strategy	Targets for the Reporting Period	Progress to Date and any Corrective Action

Where commitments are shared across departments, this should be noted and interdepartmental discussions should be held to ensure consistency. A substantial investment of resources in the SDS, as a whole, or in specific initiatives, if identifiable, could be highlighted as well.

If helpful, additional structure can be added by segregating the information into categories (e.g. policy and stewardship; or program performance, change management performance and stewardship performance).

Because only highlights are included, these should be referenced so that the reader of the progress report is able to access sources of additional information (e.g. reports and other publications). Internet addresses should be included where available.

Source: 1998 Guideline for the Preparation of Departmental Performance Reports to Parliament, Treasury Board Secretariat

1.22 Specifically, the annual progress reports are expected to contain five pieces of information: the key commitments set out by departments in their strategies; the indicators or measures that departments and others can use to gauge progress against those commitments; the targets that departments expected to achieve during the reporting period; a summary of accomplishments relative to each target, including corrective actions being taken to ensure that commitments are met; and cross–references to other documents to allow readers access to more detailed information.

1.23 We recognize that departments are in the early stages of implementing their sustainable development strategies and that it will take time to accomplish all of the goals set out in those strategies. Moreover, the lack of clear measurable targets in the 1997 strategies means that there are few benchmarks to judge whether the strategies are being successfully implemented. However, we expect departments to have established accountability for the action commitments set out in their strategies, and the monitoring and reporting procedures necessary to provide annual performance information to Parliament as directed. Exhibit 1.3 presents the process used by Natural Resources Canada to monitor and report progress.

Exhibit 1.3

Monitoring and Reporting Strategy Progress - Natural Resources Canada

Natural Resources Canada (NRCan) recognizes that translating sustainable development principles into implementation requires a concrete action plan. Regular progress reports are essential to monitor the Department's success in moving from concept to action and making the sustainable development strategy work.

Systems and Procedures

NRCan developed a comprehensive implementation plan to ensure that it meets its policy commitments and to reinforce the Department's accountability to Parliament and the Canadian public. NRCan's first step in advancing the plan was the appointment of the Assistant Deputy Minister (ADM) of the Canadian Forest Service to act as a champion of the sustainable development strategy. The departmental champion guides NRCan's Sustainable Development Working Group, together with the Director General of the Strategic Planning and Coordination Branch, who is responsible for strategy development, implementation and reporting.

The Director of the Sustainable Development and Environment Division chairs the Sustainable Development Working Group, which is comprised of directors and senior analysts from all sectors — Energy, Minerals and Metals, Canadian Forest Service, Earth Sciences, Corporate Services — and corporate branches (e.g. Audit and Evaluation, Communications). The involvement of all staff is critical to ensuring accountability at all levels within the organization.

Monitoring Action Plan Commitments

The Sustainable Development Working Group members co–ordinate the development and provide updates of implementation plans for each of the 68 action commitments within NRCan's sustainable development strategy with sector/branch managers and officials undertaking actions. The Deputy Minister requested quarterly updates on implementation, for submission to the Departmental Management Committee. Feedback is provided at each stage to ensure the quality and accuracy of information.

A Sustainable Development Action Items Management System is being developed to improve the efficiency and effectiveness of reporting procedures. The system, which will be an interactive, Web–based tracking and reporting tool, is intended to minimize reporting fatigue on the part of those implementing the action commitments, while expediting the reporting of progress to senior management, staff and stakeholders.

Sustainable Development and Performance Indicators

A significant step in monitoring sustainable development progress has been the development of a single set of performance indicators to meet various reporting needs. The Department has realigned the goals of its business plan to match those in the strategy, ensuring that sustainable development is incorporated into the ongoing planning of NRCan's business. This revised set of goals and objectives is now used in all corporate planning and reporting documents.

A valuable asset for establishing performance indicators is an independent advisory group, made up of 100 stakeholders representing a cross–section of target audiences. Stakeholders include federal, provincial and territorial governments, industry, and environmental organizations, academics, Aboriginal groups and others. Feedback from these stakeholders was incorporated by the Department's Performance Measurement Working Group to refine the indicators. The Performance Measurement Working Group is composed of representatives from all sectors and corporate branches, including the Sustainable Development Working Group, and is chaired by the Director of the Sustainable Development and Environment Division.

From this process, the Performance Measurement Working Group developed assessment criteria that reflect the comments from stakeholders. It was agreed that each sector would review draft indicators, based on assessment criteria, and seek ADM sign–off on proposed revisions and targets. The Performance Measurement Working Group analyzed each sector's assessment with a view to publishing refined indicators and targets, where appropriate, in the 1999 Report on Plans and Priorities.

Accountability at Three Levels

NRCan's work in promoting sustainable development can be assessed by stakeholders at three different levels. At the most basic level, through regular reporting on action commitments, stakeholders will have a clear indication of whether the Department is meeting its commitments. At the second level, through the refinement of indicators and establishment of targets, NRCan's performance can be measured against the strategy's objectives. Finally, at a broader level, Canada's overall progress in the sustainable development of its natural resources can be assessed through indicators dealing with sustainable development practices in the areas of forest management, energy and minerals and metals. This goes beyond the contributions of NRCan. It must reflect the work and efforts of all Canadians who have an interest in the sustainable development of our resources — a key commitment in NRCan's sustainable development strategy.

Source: Natural Resources Canada

What Departments Did

All departments that produced a sustainable development strategy also produced a progress report

1.24 All departments that tabled a sustainable development strategy in 1997 also tabled a summary sustainable development progress report (as a subsection of their 1998 Departmental Performance Reports). We assessed the information departments provided in their reports relative to the information specified by the Treasury Board Secretariat in its Guideline for the Preparation of Departmental Performance Reports to Parliament. The extent to which departments followed the Guideline varied widely (Exhibit 1.4).

Exhibit 1.4 is not available, see the Report.

1.25 Only three departments provided all of the performance information specified in the Guideline, including reference to more detailed information. Six of the twenty–eight departments sent us a detailed progress report in response to our request for additional performance information.

1.26 The six detailed progress reports we received referenced each of the departments' key objectives and summarized related activities undertaken by them during the reporting period. The best of these reports clearly indicated the status of each action commitment as either complete or in progress, thereby allowing readers to understand the extent to which the department had implemented the actions set out in its strategy.

1.27 Information on the status of each action commitment made monitoring progress easier and conveyed a greater sense of assurance about the department's capacity to track its activities and manage its progress. Reports that presented information according to the Treasury Board Secretariat's Guideline greatly facilitated our monitoring work.

1.28 Adopting a straightforward, logical reporting framework is an essential first step toward producing useful performance information for Parliament. As Exhibit 1.4 indicates, most departments referenced some of the objectives from their sustainable development strategies and reported activities they had undertaken for sustainable development during the reporting period.

Most departments did not provide all of the information specified in the Guideline

1.29 In some cases, departments reported on activities that were not mentioned in their strategies and did not link them to existing objectives for sustainable development. Five departments highlighted miscellaneous sustainable development activities undertaken during the reporting period without cross–referencing them to their strategic objectives. The information provided by these departments was inadequate to assess whether they had done what they said they would in their sustainable development strategies.

1.30 Most departments did not provide references to other documents in their summary reports to allow readers access to more detailed performance information, nor did they provide such information in response to our request. Only 10 departments provided performance indicators that the department and others could use to gauge progress. Nine departments included performance targets for the reporting period.

Did Departments Do What They Said They Would Do in Their Strategies?

1.31 The 1997 sustainable development strategies were intended to cover a three–year period — to December 2000. The 28 departments that prepared strategies committed to 149 goals, 340 objectives, 411 targets and 1,542 actions.

Reporting needs to be improved to allow a judgment to be made

1.32 For most departments, current reporting practices need improvement. The links between the large number of activities that departments reported and the departments' sustainable development objectives are too abstract to provide insights about whether the strategies are on track. As a result, beyond tallying the percentage of activities reported accomplished by departments, we are unable to conclude whether the strategies are on track or whether departments are making progress toward sustainable development.

1.33 In their first sustainable development strategy progress reports to Parliament, departments reported accomplishing about 11 percent of the actions set out in their strategies. The reports cover the initial three months of strategy implementation or about eight percent of the time horizon covered by the strategies. We did not audit the results reported to validate their accuracy; this will be the subject of future work.

1.34 For five departments, we found no performance information that allowed us to assess progress relative to the specific actions set out in their strategies. The sustainable development commitments of these five departments represent about 33 percent of the total number set forth by the 28 departments. This represents a significant gap.

1.35 Until departments present a clear set of targets as recommended in our 1998 Report, those interested in monitoring progress lack the broader benchmarks required to judge whether the strategies are being successfully implemented.

Have Departments Established the Capacity to Reliably Implement Their Strategies?

1.36 The production of a sustainable development strategy progress report is only one indicator of a department's capacity to monitor its progress and effectively manage its action plan for sustainable development.

1.37 To gain a better perspective on the capacity of departments to successfully implement their strategies, we compared approaches to implementation under way in six departments with the ISO 14001 environmental management systems standard. The standard, developed under the auspices of the International Organization for Standardization, is a tool for managing environmental and sustainable development issues.

1.38 The ISO 14001 standard was the product of broad stakeholder consultation and consensus on the elements of good management practice. It has received unanimous approval from the standards bodies of 67 countries, including the Standards Council of Canada. ISO 14001 is considered to be consistent with sustainable development and compatible with diverse cultural, social and organizational frameworks.

1.39 Each of the six departments we chose for this component of our monitoring work indicated in their strategies that they were developing a management system to address their environmental issues. Three of the six indicated that their management systems would be based on ISO 14001.

A well–functioning management system is a strong indicator that intended results will be accomplished

1.40 A management system is the process used to provide an organization with reasonable assurance that its work is conducted in accordance with applicable regulatory requirements, professional standards and its own policies and procedures. Good management practice is a cyclical process that systematically links an organization's objectives, action plans and results. Exhibit 1.5 illustrates this management cycle.

Exhibit 1.5 is not available, see the Report.

1.41 Effective control embraces all of the elements of management including accountabilities, organizational resources and the processes and procedures that are required to achieve an intended result. Exhibit 1.6 indicates the type of practices and procedures one might expect to see where environmental and sustainable development issues are being effectively managed. The Canadian Institute of Chartered Accountants has developed a framework that organizations can use to develop and assess a management control system (Appendix A).

Exhibit 1.6

ISO 14001 Environmental Management Systems Standard - Key Requirements

Policies: Communication of Policies and Performance Expectations
Policies, procedures, objectives and targets - for identifying and managing the organization's environmental and sustainable development aspects with clear commitments to regulatory compliance, pollution prevention, and continual improvement.
Planning: Assignment of Responsibilities and Resources
Clearly defined, documented and communicated roles, responsibilities and authority for those whose work may have significant environmental and sustainable development impacts; and allocation of the appropriate resources (human, technical, financial) necessary for training and implementation.
Implementation and Operation: Development of Policies, Processes, Procedures and Work Instructions
• that reflect the organization's policies for the environment and sustainable development and the environmental and sustainable development aspects of the organization's programs, activities, products or services • for the communication of the system for managing the organization's environmental and sustainable development aspects to stakeholders such as employees, clients, suppliers and contractors • to ensure the competencies, training and awareness required to manage the organization's environmental and sustainable development aspects • to monitor and assess the adequacy of the system for managing the organization's environmental and sustainable development aspects • to perform timely corrective preventative actions of non–conformance with regulatory requirements and/or the organizations policy commitments for the environment and sustainable development • for the identification, maintenance and protection of documents and records related to the system for managing the organizations environmental and sustainable development aspects
Checking, Corrective Action and Management Review

Senior management periodically reviews the adequacy of the system for managing the organizations environmental and sustainable development aspects and ensures that corrective actions are taken to improve its performance.

Source: Office of the Auditor General of Canada

1.42 A management system provides a structured process for continual improvement. It is a tool that enables an organization to achieve and control the level of performance it sets for itself. Although some improvement in performance may be anticipated when adopting a systematic approach, the rate and extent of improvement will be determined by the organization.

1.43 The existence of a well–functioning management control system is a strong indicator that intended results will be accomplished. Where senior management is committed to achieving results, such a system will enhance an organization's capacity to anticipate key issues and achieve its performance objectives. A well–functioning management system would help to "operationalize" a sustainable development strategy, provide reasonable assurance that the action plan will be consistently and reliably implemented and improve confidence that intended results will be achieved.

1.44 In 1994 the government directed departments to establish environmental management systems and to emulate best practices used in other sectors to manage these issues. Departments were further directed to improve their management systems and operational practices for greater consistency with sustainable development.

ISO 14001 is becoming the standard of due diligence

1.45 Many public sector organizations around the world are establishing management systems in accordance with internationally recognized standards to address their environmental aspects and commitments (Appendix B). In Canada and the United States, several recent legal judgments have directed convicted parties to become ISO 14001 certified or face further penalties. ISO 14001 is becoming established as the standard of due diligence relative to environmental and sustainable development issues.

1.46 Accordingly, in performing his annual monitoring duties, the Commissioner would like to place reliance on recognized standards of practice for managing environmental issues and sustainable development in much the same way as financial auditors rely on accepted principles and criteria of control as part of their monitoring and assurance audit work.

A More In–depth Look Confirmed Capacity Gaps

1.47 The six departments that we looked at in–depth are in the early stages of implementing their action plans for sustainable development. We anticipated that they would also be in the early stages of establishing processes and procedures to effectively manage strategy implementation.

1.48 Consistent with our expectation, we found that the management and control practices currently being applied to strategy implementation by these six departments are not yet sufficiently developed to provide reasonable assurance that their plans will be achieved.

1.49 Exhibit 1.7 compares current management practices being applied to strategy implementation with the ISO 14001 standard. On average, the six departments we audited have established about one third of the practices reflected in the ISO 14001 standard.

Exhibit 1.7 is not available, see the Report.

1.50 So far, departmental practices are most developed at the planning stage of the management cycle. They become weaker as the departments move from the planning stage to the implementation and operation stage, and weakest at the monitoring and corrective action stage.

Overall, we found that:

- corporate responsibility for strategy implementation has been assigned but no clear targets have been established;
- the sustainable development aspects of specific departmental policies, programs and activities have not been itemized or prioritized;
- regulatory and other potentially applicable environmental and sustainable development obligations have not been itemized or prioritized;
- key issues to be managed by lower levels in the departments have not been clearly identified or prioritized;
- the contribution and accountability of lower levels in the departments are largely undefined;
- training requirements have not been assessed; and
- practices, procedures and work instructions for strategy implementation, monitoring and control are lacking.

Planning

1.51 The process of developing the 1997 sustainable development strategies provided an opportunity for departments to identify the significant environmental aspects of their policies, programs and activities and key opportunities for sustainable development. As part of the planning process, we would expect departments to have documented, by means of a review, their legislative and regulatory requirements and their significant environmental aspects. We would also expect them to have conducted an examination of how existing management practices and procedures would be applied to strategy implementation.

1.52 All of the six departments that we looked at established objectives for sustainable development in their 1997 strategies and have since assigned responsibility for strategy implementation at the corporate level.

1.53 However, the six departments did not present evidence to demonstrate that regulatory and other applicable requirements (such as past government policy directives on the environment, non–regulatory guidelines and codes of practice, and international environmental agreements) have been clearly identified, assessed or prioritized for management purposes. Similarly, we were not presented with evidence to demonstrate that the departments had formally assessed their key policies, programs and activities as a basis for establishing management objectives and accountabilities at various levels within the organization or with identified partner organizations.

1.54 Perhaps most significant, we saw no documentation to indicate that departments had assessed the degree of practical control they may have over the objectives set out in their strategies or established their current or baseline position with respect to those objectives. For example, many departments set far–reaching strategic objectives for sustainable development and noted that progress would require the co–operation of other organizations. But we saw no evidence that the co–operation of other organizations had been secured or that respective contributions to achieving shared objectives had been defined.

Implementation and operation

1.55 The development and use of a management process including procedures and work instructions are key steps in successfully implementing an action plan. We would expect departments to have established procedures and work instructions describing how and when their objectives and targets for sustainable development would be achieved. We would also expect the roles and responsibilities of personnel responsible for contributing to the achievement of strategy objectives to be clearly defined at all relevant branches and levels in the departments.

1.56 While responsibility for strategy implementation had been assigned at the corporate level, most of the six departments have yet to establish roles, responsibilities and accountability for contributing to the achievement of the strategy objectives at lower levels in the organizations. These departments have not yet "operationalized" their strategies. One department produced clear evidence that it had established accountability for results and the capacity to track and report progress toward its sustainable development strategy objectives. Exhibit 1.8 provides a description of the process used by Health Canada to monitor and report its sustainable development strategy progress.

Exhibit 1.8

Monitoring and Reporting on Progress - Health Canada

As part of its commitment to sustainable development, Health Canada has established a process for monitoring and reporting on progress toward the goals set out in its 1997 strategy.

The Department has established an Oversight Committee, comprised of the Assistant Deputy Ministers of the Health Protection Branch and the Policy & Consultation Branch. The Oversight Committee develops the overall strategic direction for the Department and reports to the Department's Executive Committee. Based on the overall strategic direction received from the Oversight Committee the Department's Office of Sustainable Development (located within the Policy, Planning & Coordination Directorate of the Health Protection Branch) develops guiding principles and provides policy direction to the branches via the Departmental Sustainable Development Committee. The Committee, comprised of representatives from all branches, is responsible for coordinating sustainable development implementation activities throughout the Department. The Committee and the Office of Sustainable Development are jointly responsible for department–wide sustainable development monitoring and reporting. The Oversight and Executive Committees review and approve final reports prior to publication and distribution to Parliament and other stakeholders.

Each branch within Health Canada has taken on responsibilities for sustainable development strategy implementation. Branch Heads are required to approve their branches' commitments and associated progress updates. Each branch has designated individuals and, in some instances, branches have established committees responsible for leading sustainable development efforts and integrating these responsibilities into routine planning and decision–making processes.

Health Canada uses a working tool loosely called the Branch Input Document to monitor, control and report on progress toward its sustainable development strategy commitments. The Document identifies the detailed plans, including strategic priorities for the planning period and key milestones to be achieved by the branches in support of the four themes of the Health Canada strategy. In this planning period, the Document will be updated to reflect the recommendation of the Commissioner of Environment and Sustainable Development that departments establish a clear set of targets. The Branch Input Document is updated on an annual basis before preparing the Department's Report on Plans and Priorities.

Progress reporting on sustainable development takes place in conjunction with preparing the Department's annual Performance Report. A summary of progress is included in the Report. A more detailed ''Report on Progress", organized according to the four themes set out in the Department's sustainable development strategy, provides information on progress relative to each of the Department's sustainable development objectives and targets. Health Canada's 1997-1998 "Report on Progress" is available on the Health Canada Web site.

Source: Health Canada

1.57 In the six departments that we looked at in–depth, management processes and procedures required to achieve intended results are in very early stages of development. Most have not yet established a structured process with practices and procedures to ensure that their work is conducted in accordance with relevant professional standards, regulatory requirements and other responsibilities.

1.58 Documented practices and procedures are not always necessary for effective management but they do serve a number of important purposes. They help to ensure that the organization's policies are implemented consistently over time and to reduce risks such as the loss of corporate memory, associated with staff turnover. They may also prove helpful in demonstrating that due diligence was exercised in addressing an issue or preventing a problem — a key test in determining legal liability.

1.59 The documented practices and procedures we looked at had generally been established in response to past government policy direction (for example, procedures for environmental assessment of new policies and programs). Several departments described processes and procedures they were following to implement their strategies but they were unable to provide documentation for review.

1.60 A key aspect of good practice is continual improvement to processes, procedures and performance. Departments will find it difficult to systematically improve practices and procedures that have not been documented.

1.61 We noted that training needs relative to the environment and sustainable development have not been systematically assessed. None of the six departments presented evidence that key staff assigned to implementation have received training relative to the environmental aspects or the sustainable development objectives for which they are responsible. For example, while each of the six departments committed to implementing an environmental management system in its sustainable development strategy, they have not recognized a need for management systems training.

Checking and corrective action

1.62 Internal audits or self–assessments are an essential component of effective management. They are an effective tool for identifying gaps relative to good management practice, and opportunities for improvement. Self–assessments provide the feedback necessary to give assurance to top management and other stakeholders that the management control processes are producing results and operating as designed. In the early stages of strategy implementation, we would expect management to make frequent use of self–assessment to ensure that their strategies remain on track.

1.63 In the six departments that we looked at in–depth, the management system elements required to monitor and report performance (relative to sustainable development objectives) and take corrective actions are in the early stages of development. None of the six departments has established a procedure for periodically assessing the adequacy of its management and control systems for sustainable development and determining the need for improvements.

Management review

1.64 A review of the management control system by senior management is intended to identify weaknesses in existing practices and, ideally, to identify solutions and take corrective action before performance problems arise. While such a review may include an assessment of progress relative to performance objectives, its focus is on identifying root causes of performance problems, opportunities for improvement and corrective action.

1.65 Regular review of the adequacy of the departments' management system in supporting implementation efforts would also demonstrate the commitment of senior management to the departments' sustainable development strategy and diligence in managing these issues.

1.66 During our interviews with the six departments, we noted that senior management had been provided with briefings on various sustainable development strategy initiatives. However, the departments had not established a

mechanism for gathering the information necessary to periodically review the adequacy of the management and control system in supporting sustainable development strategy implementation.

1.67 Existing management review processes were generally ad hoc and focussed on producing outputs in response to the *Auditor General Act* (1995) and other government directives rather than on opportunities for improved management practice.

Closing the Gaps

1.68 Since departments are just beginning to implement their strategies we focussed on their capacity to get the job done. It is important that departments lay a solid foundation for making and reporting progress.

1.69 Departments should make better use of the reporting format presented in the Treasury Board Secretariat's Guideline for the Preparation of Departmental Performance Reports to Parliament.

1.70 The sustainable development strategy progress reports need to clearly communicate to members of Parliament and Canadians the results achieved relative to key strategy goals, targets and indicators, including an explanation of variances and necessary corrective actions. Departments also need to ensure that their reports are consistent, allowing for some comparability from one year to the next.

1.71 Departments should accelerate their plans to implement the management systems necessary to support implementation of their strategies. In implementing their management systems, departments should give priority to training needs and to adopting periodic self–assessment and management review practices.

1.72 Individuals responsible for strategy implementation, including those responsible for internal audit and management review, need to receive appropriate training on the issues for which they are responsible and on the purpose and key requirements of a management system.

1.73 With respect to self–assessment and management review, Departments need to perform regular self–assessments of their management system to identify gaps relative to good management practice. It is important that senior management regularly review the adequacy of the management system in supporting achievement of the departments' sustainable development objectives and ensure that necessary corrective actions are promptly implemented.

1.74 It should not be necessary to "re–invent the wheel." Departments ought to consider adapting their existing Planning, Reporting and Accountability Structure or applying similar good management practices such as those reflected in ISO 14001.

Conclusion

1.75 In 1997, 28 federal government departments and agencies tabled their first sustainable development strategies in the House of Commons. These organizations are now in the early stages of strategy implementation. This chapter provides our first annual assessment of their progress.

1.76 Departments are required to report annually to Parliament on strategy implementation. According to their first progress reports and related information, departments have so far completed about 11 percent of what they said they would do in their strategies. Departments are making progress on their action plans.

1.77 However, the information that departments provided varied widely. For most departments, it fell well short of the Treasury Board Secretariat's Guideline for the Preparation of Departmental Performance Reports to Parliament, making it difficult to judge whether the strategies are on track or whether corrective action is required. We expect that the quality of reporting will improve substantially as departments establish clear and measurable targets as we recommended last year and make better use of the Guideline.

1.78 Departments are just beginning to establish practices to support strategy implementation and key gaps exist relative to the ISO 14001 benchmark. Departments have not yet adopted a systematic approach to identifying their priorities, defining management expectations, assigning accountability for results, identifying related training needs at lower levels in the organization, and performing the self–assessments that would facilitate steady improvement.

1.79 As a consequence, the current management control practices that departments are applying to strategy implementation do not provide assurance that their action plans will be consistently implemented or that the intended results of the strategies will be achieved. To remedy that deficiency, we have recommended that departments accelerate their plans to put appropriate management systems in place, giving priority to training needs and implementing the self–assessment and management review practices required to facilitate corrective action.

1.80 A well–functioning management system can help to "operationalize" a strategy. It can provide reasonable assurance that the organization has established the capacity to meet and continue to meet its obligations and commitments and improve confidence among stakeholders that intended results will be achieved.

About the Audit

Objectives

A key duty of the Commissioner of the Environment and Sustainable Development is to monitor the progress of departments in implementing their action plans and achieving their objectives for sustainable development. The long–term goal of this work is to promote understanding, accountability and best practices in the management of environmental and sustainable development issues in federal government departments.

The objectives of our audit are to influence departmental performance in the management of environmental and sustainable development issues, through better parliamentary understanding and oversight of departmental performance and better understanding among departments of their obligations and best practices in meeting them.

Approach and Scope

The Commissioner's first audit of the implementation of departmental sustainable development strategies consisted of two complementary components:

1. An examination of Departmental Performance Reports focussed on the extent to which the 28 departments and agencies that tabled sustainable development strategies in December 1997 had reported progress on the action plans and commitments set out in their strategies.

   For all 28 departments and agencies, we reviewed the sustainable development content of their Performance Reports and supporting documentation referenced therein or that was provided in response to our request for information. To facilitate our examination, we developed an electronic database containing all of the "commitments" made by each department in its strategy. The database allowed us to compare the accomplishments reported by the 28 departments in their progress reports with the goals, objectives, targets and actions contained in their sustainable development strategies. We did not audit departmental accomplishments to validate the accuracy of reported results; this will be the subject of future work.

   Relying on the information contained in the Performance Reports and supplementary progress reports provided by the departments, we assessed the extent to which the departments had done what they said they would do in their strategies. We also assessed the extent to which departments provided the performance information specified by the Treasury Board Secretariat's Guideline for the Preparation of Departmental Performance Reports to Parliament.

2. The capacity audit component of our work focussed on the management practices being applied to implementing sustainable development strategies in six departments relative to established standards for effective management and control.

To facilitate this work, we developed an audit program based on the International Organization for Standardization (ISO) 14001 standard. ISO 14001 has received unanimous approval from the standards bodies of 67 countries including the Standards Council of Canada and is becoming established as the standard of due diligence with respect to managing environmental and sustainable development issues. We cross–referenced criteria with the Canadian Institute of Chartered Accountants criteria of control and with Treasury Board Secretariat's draft Planning, Reporting and Accountability Structure.

We provided our audit program, including a list of suggested documentary evidence, to the six departments approximately two months before our examination. We scheduled and conducted on–site interviews and document reviews at each of the six departments to conclude whether they have established the capacity to consistently and reliably implement the action plans set out in their sustainable development strategies.

Audit Team

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Appendix A

Canadian Institute of Chartered Accountants Criteria of Control

Purpose

A1 Objectives should be established and communicated

A2 The significant internal and external risks faced by an organization in the achievement of its objectives should be identified and assessed.

A3 Policies designed to support the achievement of an organization's objectives and the management of its risks should be established, communicated and practiced so that people understand what is expected of them and the scope of their freedom to act.

A4 Plans to guide efforts in achieving the organization's objectives should be established and communicated.

A5 Objectives and related plans should include measurable performance targets and indicators.

Commitment

B1 Shared ethical values, including integrity, should be established, communicated and practiced throughout the organization.

B2 Human resource policies and practices should be consistent with an organization's ethical values and with the achievement of its objectives.

B3 Authority, responsibility and accountability should be clearly defined and consistent with an organization's objectives so that decisions and actions are taken by the appropriate people.

B4 An atmosphere of mutual trust should be fostered to support the flow of information between people and their effective performance toward achieving the organization's objectives.

Capability

C1 People should have the necessary knowledge, skills and tools to support the achievement of the organization's objectives.

C2 Communication processes should support the organization's values and the achievement of its objectives.

C3 Sufficient and relevant information should be identified and communicated in a timely manner to enable people to perform their assigned responsibilities.

C4 The decisions and actions of different parts of the organization should be co–ordinated.

C5 Control activities should be designed as an integral part of the organization, taking into consideration its objectives, the risks to their achievement, and the inter–relatedness of control elements.

Monitoring and Learning

D1 External and internal environments should be monitored to obtain information that may signal a need to re–evaluate the organization's objectives or control.

D2 Performance should be monitored against the targets and indicators identified in the organization's objectives and plans.

D3 The assumptions behind an organization's objectives should be periodically challenged.

D4 Information needs and related information systems should be reassessed as objectives change or as reporting deficiencies are identified.

D5 Follow–up procedures should be established and performed to ensure appropriate change or action occurs.

D6 Management should periodically assess the effectiveness of control in its organization and communicate the results to those to whom it is accountable.

Appendix B

Public Sector Organizations Outside Canada Committed to Applying the ISO 14001 Standard or the European Eco–Management and Audit Scheme (EMAS)

To get a sense of the approaches being applied to managing environmental issues and sustainable development in other countries, we examined submissions to the Organization for Economic Cooperation and Development (OECD) Council on Improving Environmental Performance in Government. We also interviewed officials from standards setting bodies, contacted environmental officials in several countries and reviewed relevant literature. While we are still receiving responses to our inquiries, we are able to conclude that many public sector organizations have formally committed to applying a management systems approach that conforms with either the ISO 14001 or the EMAS standard. The results of our research to date are indicated in the following table:

Country	Number of Public Sector Organizations Committed to ISO 14001 or the EMAS	
	Federal Departments/Agencies	Local/Municipal
1. Australia		1
2. China	2	11
3. Finland	5	3
4. France	3	
5. Holland	14*	636**
6. Japan	4	2
7. Sweden	66*	
8. Switzerland	7*	
9. United Kingdom	5	45
10. United States	1	

* All departments/government–wide; ** All municipal governments

In addition, we identified a number of quasi–public sector electrical utilities that have committed to bringing their management systems into conformance with ISO 14001, including 27 in the United States and all 22 members of the Canadian Electricity Association. We also identified more than 60 additional public sector organizations with pilot studies under way to assess the feasibility of adopting ISO 14001.

Controlling the direct effects of government buildings and routine activities is a good first step toward environmental management. Most organizations initially apply ISO 14001 or EMAS to controlling their direct effects such as energy consumption and waste generation. However, given the important and far–reaching influence that government policies and programs have, assessing and effectively managing their environmental impacts is essential for sustainable development. A few countries, including Sweden, Switzerland and the United Kingdom, have extended the application of their environmental management systems to encompass the effects of policies and programs. Twenty–five of the sixty–six Swedish agencies have completed a review of their direct and indirect environmental impacts and have established policy, goals and action plans. In the guidance published for local United Kingdom governments, managing indirect environmental effects is an essential component of the management system.

Chapter 2

Sustainable Development Strategy Consultations

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Appendices

Sustainable Development Strategy Consultations

Main Points

2.1 Overall, among both participants and departments, we found a high level of satisfaction with the consultations conducted by departments in preparing their first sustainable development strategies. Most participants felt that departments were listening to them and that their comments would be taken into account in the final strategy. Departments believed that the consultations broadened their own perspective on the issues they faced, and increased the awareness of those issues among clients, partners and employees. The result, from the departments' point of view, was better strategies and more "buy–in" for them.

2.2 However, a number of opportunities for improvement were identified that should be reflected in the consultations leading to the sustainable development strategy revisions due in December 2000. The three most significant weaknesses were the following:

- **Limited feedback.** Participants were given uneven feedback on what had been heard and how their views were reflected in the strategy. While most participants believed they were listened to, they were not sure to what extent they influenced the result. Following the consultations, many departments did not provide participants with sufficient information to make that judgment.

- **Limited co–ordination among departments.** Both departments and participants noted that many sustainable development issues, such as sustainable transportation, involve a number of departments, and that there is a need for joint consultations on those issues to complement department–specific consultations.

- **Limited involvement of senior management.** The choice of who represents the department in the consultation process sends an important signal about the priority the department attaches to consultation and to the subject. Some departments involved department representatives who were senior enough to have some authority in conveying participants' comments and in integrating them into the strategy; other departments delegated representation significantly downward. Participants noticed the difference.

Background and other observations

2.3 Over the last decade, the need for more and better citizen involvement in government decision making has been a recurring theme. The public — both as individuals and as members or representatives of particular groups — want to influence decisions that interest and affect them. Governments are looking for ways to make decisions that are well informed and widely accepted.

2.4 This chapter presents our assessment of one major exercise — the consultations conducted by 28 federal government departments and agencies when preparing their first sustainable development strategies. Across Canada, more than 1,600 organizations and Aboriginal communities were consulted on departmental sustainable development issues, objectives and priorities and on the action plans and strategies to achieve them.

2.5 We also noted that most of the guidance provided to departments on the conduct and evaluation of consultations was developed in the early 1990s, and much of it exists only in draft form. Given the federal government's re–emerging interest in public involvement, we believe these consultation "building blocks" need to be updated.

Introduction

Citizens want a direct, substantive and influential role in shaping policies and decisions that affect them. They want to be heard. And they want a commitment that leaders will take citizens' views into account when making decisions.

Jocelyne Bourgon,
then Clerk of the Privy Council and Secretary to the Cabinet,
A Voice for All: Engaging Canadians for Change,
October 1998

2.6 Over the last decade, the need for more and better citizen involvement in government decision making has been a recurring public policy theme. Governments are looking for ways to make decisions that are well informed and widely accepted. Groups and individuals are seeking to influence decisions that interest and affect them. The shared interest is in better decisions; consultation is a means toward that end.

What Is Consultation?

A two–way communication, linked to decision making

2.7 Taken narrowly, to consult means to seek information, advice or opinion from someone. More broadly, it means to exchange ideas and to talk things over in order to make a better decision. It is this latter meaning, with its emphasis on two–way communication and its link to decision making, that captures more fully what consultation is about.

2.8 In a public policy context, the word "consultation" is sometimes used to describe processes with quite different objectives and implications for public involvement and influence. Citizen involvement can range from participating in national debates aimed at achieving consensus on complex public policy issues to exchanging information at the local level. Exhibit 2.1 illustrates some of the distinctions among informing, consulting and consensus building.

Exhibit 2.1

Types of Public Involvement in Government Decision Making

	Government Objective	**Nature of the Relationship Between the Government and the Public**
Information	Making decisions known to the public and explaining them	The government retains authority to make the decision, and has made it
Consultation	Receiving public input into the decision–making process	The government is willing to be influenced by the public on a decision to be made, but retains authority for the decision
Consensus building	Identifying an acceptable course of action	The government is willing to share its decision–making authority

Source: Adapted from *Evaluation of Consultation: An Introduction*, Office of the Comptroller General, 1991

2.9 Information is a central element of any consultation process. Participants cannot provide informed comments without adequate information on the issues, options and alternatives. Proponents make use of what they have heard in order to make better decisions. A consultation process, therefore, both informs the public and solicits response.

2.10 **Involving multiple "publics".** There is a range of "publics" that could be represented in a consultation process on the sustainable development strategies. Outside the federal government, they include experts, stakeholders — those who represent a particular interest or group likely to be affected by a decision — other levels of government, Aboriginal people and the public at large. Internally, they include departmental employees, who will be called upon to implement the strategy, and other departments.

2.11 Newer terms like "citizen engagement" focus on citizens as civic–minded individuals rather than as experts or stakeholders. When choosing who should be "at the table", departments need to balance issues of representation, time and resources. To date, most of the federal consultation processes have not been aimed at the general public, although there are some notable exceptions.

Building Blocks for a "Consultative Culture"

2.12 **Consulting people is not a new idea.** As one group of authors wrote in a 1992 report for the Canadian Centre for Management Development, "What is new is the growing prominence and frequency of consultation activities, particularly those that involve large numbers of participants. People are being consulted more often, in more ways and on more subjects than ever before."

2.13 Some federal departments have a long history of consulting with the public on policy development. Environment Canada, for example, was one of the first federal government departments to make public consultation a routine part of its approach to doing business. Traditionally, the government's policy–making process has been largely an internal one. During the 1980s, however, there was a trend toward opening up the process in response to a better–educated public, a wider dissemination of information and a greater emphasis on partnerships for problem resolution.

2.14 In 1990, the Service to the Public Task Force (Public Service 2000) identified improved consultation as essential for providing policy advice to ministers, for regulatory processes, for program development and for service delivery. The Task Force concluded that "a shift toward a substantially more active and open consultative relationship with the public is singularly important for the future effectiveness of the public service." It made a series of recommendations aimed at developing a "consultative culture" within the public service (see Appendix A).

2.15 The Task Force was the catalyst for a series of actions during the early 1990s that together provided a framework for planning, conducting and assessing consultation processes. Those actions included guidelines on consultations prepared by the Privy Council Office, training and development in public consultation provided by the Canadian Centre for Management Development and Training and Development Canada, and a discussion paper exploring some aspects of the evaluation of consultation activities by the Office of the Comptroller General. Appendix B presents roles and responsibilities for consultation in the federal government as they were defined in 1992.

2.16 The Privy Council Office provides advice and support to departments in the development of their consultation strategies and policies. It established an Interdepartmental Co–ordinating Committee on Consultation (now called the Federal Consultation Network) to exchange information among departments on consultation policies, activities and good practices. In November 1997, it issued a directive to departments regarding a new "Consultations and Perspectives" section in memoranda to Cabinet, with a view to fostering a more collaborative approach to policy making. In addition, 8 departments, of the 28 that tabled a sustainable development strategy, now have their own internal consultation groups providing advice and support for consultations.

2.17 At the time of our audit, the Privy Council Office estimated that there were more than 300 public consultation exercises under way across the Public Service of Canada. They included such diverse initiatives as Canada's national climate change process, which currently involves stakeholders in 16 issue roundtables, and a dialogue with rural Canadians on the priorities and challenges that they face in order to shape future federal programs and services around their needs. Some of these consultation processes are short–term and focussed on a single issue, while others are of a more ongoing, advisory nature.

The sustainable development strategy consultations

2.18 When designing the sustainable development strategy process, the Government of Canada highlighted the importance of public involvement in strategy preparation. Consultation was intended to assist departments in identifying their sustainable development issues, goals and targets, and the actions required to meet them (see Exhibit 2.2).

Exhibit 2.2

Sustainable Development Strategy Consultations: What Departments Were Asked to Do

"Consultations involve obtaining the perspectives of clients, partners and other stakeholders on departmental priorities and how to achieve them. Sustainable development is a shared responsibility requiring the co–operation and involvement of federal, provincial and territorial governments, Aboriginal people and other stakeholders. In recognition of this shared responsibility, the federal government is committed to open and transparent policy and program development on sustainable development.

The departmental profile (the identification of what the department does and how it does it) and issue scan (an assessment of the department's activities in terms of their impact on sustainable development) would provide a good basis for departmental consultations on their sustainable development strategies. These consultations should assist the departments in identifying their sustainable development goals and targets, and the actions required to meet them. Depending on the issues, departments may also wish to consult their stakeholders and partners during the development of their more detailed action plans.

A brief report on the nature of the consultations and how views contributed to the final product would be useful for partners and stakeholders, and contribute to openness and transparency in the preparation of departmental strategies on sustainable development."

Source: *A Guide to Green Government*, Government of Canada, 1995, p. 20

2.19 Our first review of the sustainable development strategies in May 1998 concluded that most departments were conscientious in their consultation efforts. They used a variety of consultation techniques, including focus groups, personal interviews, Internet sites, internal newsletters and mail solicitations to selected groups. Most departments concluded that consultation resulted in a better sustainable development strategy; however, some of the departments that attempted to consult widely were disappointed by the limited response they received.

What Constitutes Good Consultation Practice?

2.20 A recurrent theme from our discussions with practitioners was that there was no single recipe for successful consultation. A consultation process needs to be tailored to different publics, and to meet departmental objectives within the time and resources available.

2.21 Nevertheless, there are some key ingredients. Our reviews of a number of consultation guides prepared within the federal government and externally suggest that there are certain characteristics or principles underpinning a good consultation process. Appendix C provides an example. The characteristics are grouped into five areas:

- planning the consultation process;

- managing the process;
- using the results to improve the strategies;
- providing feedback to participants; and
- learning and improving.

Focus of the Audit

2.22 The focus of our audit was on the consultations conducted by departments in preparing their first sustainable development strategies. The chapter builds upon our first review of the sustainable development strategies reported in May 1998, and provides a more detailed assessment of the consultations relative to standards for good consultation practice and to the expectations of both departments and participants.

2.23 During the audit, we addressed six main questions:

- What is consultation?
- What constitutes good consultation practice?
- What were the expectations of departments and participants regarding consultations?
- Were departments' and participants' expectations met?
- How did departmental consultations compare with good practices, departmental expectations and participant expectations?
- What lessons were learned from the consultations?

2.24 The audit focussed on consultation with stakeholders, clients and partners outside the federal government. We reviewed the consultations conducted by the 28 departments and agencies (hereinafter referred to as departments) that prepared a sustainable development strategy, and did a more in–depth assessment of six of them. We also completed a survey and interviews with participants. We did not attempt to evaluate the quality of the documentation that was circulated to participants by departments or to verify to what extent the strategies had been modified by the integration of stakeholder input. More details on our audit scope and approach are included at the end of the chapter in **About the Audit**.

Observations and Recommendations

Who Did Departments Consult?

2.25 We first asked departments which groups they considered to be most important to consult. Overwhelmingly, they viewed internal audiences — departmental employees and other federal departments — as the primary ones (see Exhibit 2.3). This does not mean that consultation with external stakeholders was considered unimportant; indeed, all but eight departments consulted both internally and externally. Rather, departments recognized the importance of internal discussion and "buy–in", particularly for their first sustainable development strategy.

Exhibit 2.3 is not available, see the Report.

2.26 We then asked departments who they actually did consult. Overall, more than 1,600 organizations and Aboriginal communities participated in the consultations (see Exhibit 2.4). Organizations representing business interests were the largest single category, followed by Aboriginal communities, experts, other federal departments and levels of government, social groups and environmental groups. Departments also made an effort to involve people from across the country. A description of the consultations conducted by the six departments for which we did a more in–depth review is provided in Appendix D.

Exhibit 2.4 is not available, see the Report.

What Did Departments and Participants Expect From the Consultations?

2.27 Exhibit 2.5 summarizes departments' and participants' expectations for the consultations. Most participants understood the resource and time constraints that departments were facing, and welcomed the opportunity to contribute to a broad planning exercise such as the sustainable development strategies. But the conditions for their participation were the expectation that they would be listened to, that they could influence the strategies and that strategy development would lead to action.

Exhibit 2.5

Departments' and Participants' Expectations for Consultations

Departments Expectations	Participants' Expectations
• Obtain participants' perspectives on key sustainable development issues for the department. • Get feedback on whether the department has found workable ways to put sustainable development into practice. • Raise awareness of sustainable development and inform on the department's approach for sustainable development. • Confirm the appropriateness of the department's strategy. • Ensure "buy–in" by department's staff and stakeholders. • Increase the transparency and credibility of the department's decision–making and policy formulation process.	• Provide insight and feedback. • Hear about sustainable development and how it would be incorporated into federal government activities. • Relay specific concerns. • Identify potential areas for working as partners with departments. • Get a clear, firm commitment to action from departments. • Hear what other participants have to say.

Listed in order of importance.

Source: Interviews and surveys of departments and participants, Office of the Auditor General of Canada

2.28 Departments viewed the consultation as two–way communication. They had information to present and wanted to hear the views of participants. They viewed the consultation as a means of raising awareness of sustainable development and the department's approach to it, both within and outside the department. They were also looking for "buy–in" for their strategies. Departments' and participants' expectations were relatively compatible. Participants, however, put more emphasis than departments on the need for a "firm commitment to action" and showed more interest in "working as partners".

Were Participants' and Departments' Expectations Met?

2.29 Most participants and departments were satisfied with the consultation process. Overall, among both participants and departments, we found a high level of satisfaction with the way departments conducted consultations. As shown in Exhibit 2.6, 81 percent of participants sampled said they were satisfied or very satisfied with the consultation process.

Exhibit 2.6 is not available, see the Report.

2.30 Most participants felt departments were listening. The majority of participants (70 percent) felt that departments were listening to what they had to say, and were willing to make changes to their strategies. This is directly related to the percentage of participants who were satisfied or very satisfied with the way departments considered their comments (71 percent). Exhibit 2.7 highlights the main factors that explain why participants felt they could — or could not — influence the strategies.

Exhibit 2.7

Why Participants Felt They Could - or Could Not - Influence the Department's Strategy

Participants felt they could influence the department's strategy when the following conditions were met:	What happened when these conditions were not met? (quotes from participants)
Department representatives had been listening.	Why are they coming to talk to us? They don't want to hear what we have to say. They have already decided what road they are going down.
They were consulted early in the process of preparing the strategy.	I felt that the department was consulting because they had to, not necessarily because they believed they would get anything interesting out of it. I had that impression mainly because I had not been contacted earlier to contribute to the draft.
They had enough time to prepare for the consultation activities and/or send their comments.	Documents were provided during the meeting and not prior so it was not clear whether comments were needed!
The department's representatives at the consultation gave credibility to the consultation process.	I got the impression that things were already "frozen" and that the department representatives were not listening. I got that impression from the document first and then from the absence of leaders at the workshop.
They received feedback from the department on what the department heard during the consultation process.	I felt that the panel was listening at the meeting. However, I was still not sure whether they had really listened because I didn't get any feedback. I didn't get the final strategy, so I couldn't judge whether they had integrated comments.

Source: Interviews and survey of participants, Office of the Auditor General of Canada

2.31 The lack of feedback made some participants unsure of their influence on the strategy. Because a number of participants did not get a revised version of the document on which they had made comments, they could not judge whether their comments had been considered. Depending on the level of trust between the participants and the department, this lack of feedback was interpreted differently by participants. When the relationship with the department was good, and when the participants felt that the department representatives had really been listening, they often gave the department the benefit of the doubt and assumed that their comments had been considered. When this was not the case, the absence of evidence was usually construed as proof that their comments had not been taken into account.

2.32 Departments felt that consultations led to better strategies. For departments, one of the main benefits of the consultations was that they enabled them to get meaningful input from stakeholders, partners and clients, to learn from them and to better understand their different perspectives and concerns. This, in turn, gave a broader perspective to the strategies and helped confirm whether the departments were heading in the right direction and whether they could get support for the proposed priorities. All this contributed to making better departmental strategies, tuned to the realities of the people whose lives could be impacted, positively or negatively, by the departments' activities.

2.33 Consultations helped departments get "buy–in" for their strategies. The consultations increased support for the strategies internally and externally, and helped departments to build relationships with stakeholders. For participants, consultations were also viewed as a way to establish or maintain contact with important partners, the departments. Some departments and participants mentioned that consultations raised the departments' profile and credibility and enabled departments to better understand their leadership role in promoting sustainable development.

2.34 The lack of information on the implementation of the strategies left participants questioning whether action was being taken. When they engage in a consultation activity, participants not only expect to influence the immediate output of the consultation, in this case the sustainable development strategies, but also want to see departments do what they said they would do. Less than one fifth of participants said that they received some kind of update on the implementation of the strategies within the first year of strategy implementation. This lack of information left many participants questioning whether action was being taken. Departments that did provide some information to participants, using whatever means was available — newsletters, letters, phone calls, e–mail, presentations to standing committees — showed that action was being taken and gained credibility with participants.

How Did the Consultation Process Compare With Good Practices?

2.35 While overall there was a high level of satisfaction with the processes that departments used, we also identified a number of opportunities for improvement. These need to be dealt with in the consultations leading to the sustainable development strategy revisions due in December 2000.

2.36 There are a number of guides for public consultation prepared within the federal government and externally, with many common features. For our purposes, we drew on the main characteristics of a consultation process identified by the Canadian Standards Association. These characteristics, as well as the criteria we used to evaluate the consultation processes of the departments, are presented in Appendix C. We have grouped the characteristics according to the consultation process phase.

2.37 Based on these criteria, we concluded that seven departments had particularly good consultation processes for the preparation of their sustainable development strategies. Exhibit 2.8 highlights what distinguishes their consultation processes from those of other departments.

Exhibit 2.8

What Distinguishes Departments With Good Consultation Processes?

The seven departments with the best consultation processes	What distinguishes them from other departments?
• Agriculture and Agri–Food • Citizenship and Immigration • Environment	• Most had pre–consultation activities with stakeholders. • They all had good consultation plans. • They all consulted early in the process (all but one department had a two–phase consultation process and all but

• Indian and Northern Affairs • Industry • Natural Resources • Transport	one completed their consultations at least two months prior to tabling). • A majority participated in joint consultation activities. • They all provided financial help to participants, where needed. • All of them prepared summaries of comments received during consultations. • All but one department provided some feedback to participants on the results of the consultations.

Source: Survey of departments, Office of the Auditor General of Canada

Planning the consultation process

2.38 Most departments prepared a consultation plan. Three quarters of the departments (21 of 28) prepared a plan to guide their consultation; however, the quality and comprehensiveness of those plans varied greatly. About half the departments (15) had plans covering the main elements: the objectives of the consultation, the people who will be consulted, the consultation techniques that will be used, and the schedule for consultation. The most complete consultation plans also discussed costs, how the information collected would be analyzed and how feedback would be provided to participants. Very few departments mentioned that they intended to conduct an evaluation at the end of the consultation process.

2.39 The consultation plans were used mainly as internal documents by a small group of people directly involved in the consultations. In most cases, neither the plans nor the schedule of consultation activities were made available to participants in advance so that they could better understand the whole consultation process and how their own participation fit into it.

2.40 Fewer than half of the departments (12 of 28) have internal policies or guidelines for departmental consultation. Of those, only five produced what we considered to be reasonably complete plans for their sustainable development strategy consultations. Four did not prepare a consultation plan at all. Similarly, departments with an existing consultation policy or guideline did not fare any better with their consultation process than departments without these guiding documents.

2.41 Only five departments involved stakeholders in the design of the strategy consultation process. Pre–consultations usually involved a small group of stakeholders (for example, an existing advisory group) chosen for their representativeness. Discussions focussed on the validity and practicality of the proposed consultation process — the main issues to be discussed, and whether the objectives were clear, the right people were invited, the mode of consulting was appropriate, and the schedule was realistic. Exhibit 2.9 presents an example of one department's approach to pre–consultation.

Exhibit 2.9

Transport Canada: The Benefits of Pre–Consultations

The National Advisory Group is a committee of stakeholders that was put in place by Transport Canada to provide general guidance and advice on its strategy. The Advisory Group was used to discuss Transport's consultation process, including who should be consulted, how, and on which issues. One of the benefits of testing the consultation process with the committee is that it led to broadening significantly the pool of stakeholders consulted on the strategy. In its consultation plan dated July 1996, Transport presented a grid of the stakeholder community that it intended to consult. This initial grid was limited to transportation stakeholders (road, rail, marine, air). As a result of discussions with the committee, the list of stakeholders was modified to include environmental organizations, consumer associations and experts.

Source: Interviews and survey of departments, Office of the Auditor General of Canada

2.42 The objectives of the consultation were usually clearly stated. The majority of participants (76 percent) said that departments clearly defined the purpose of the consultation — what was open for discussion and what was not. Departments were very careful not to raise expectations that they could not meet. For some participants, however, the scope of the sustainable development strategy was not always clear. For example, was Transport Canada's strategy a strategy for the Department or for a national sustainable transportation system?

2.43 Participants were provided sufficient information. Most of the participants (86 percent) indicated that they were provided sufficient information to participate effectively in the consultation. The nine departments that had a two–phase consultation process first provided participants with a discussion paper on sustainable development issues, dimensions and departmental priorities. For the second phase, they circulated their draft strategy, which is also what departments with a one–phase consultation process did. Some departments included questionnaires with their discussion papers. By focussing on the main issues, these questionnaires probably helped participants better understand how they could contribute to the process.

2.44 Many departments consulted too late. Twelve of the twenty–eight departments had not completed their consultation process two months before tabling their strategies in the House of Commons. The Canadian International Development Agency, for example, organized one workshop with stakeholders on 10 November 1997. The Treasury Board Secretariat sent its draft strategy to other federal departments on 27 November, asking for comments by 5 December 1997 (tabling was on 10 December 1997). Participants questioned whether comments received at those late dates could realistically be incorporated into the strategy document in other than a cosmetic fashion.

2.45 It is important for participants to be consulted early enough in the preparation of the strategy so they can influence its orientation. Seventy–five percent of the participants who were consulted by departments early in the process said that they were satisfied with the way their comments had been considered. This satisfaction rate fell to 63 percent for participants who were consulted late in the process.

2.46 A good cross–section of participants. All participants interviewed said that departments consulted a broad cross–section of clients, stakeholders and partners. Departments reached outside their group of traditional clients and partners and opened up to new categories of stakeholders. They also consulted Canada–wide and quite extensively with their provincial counterparts. Seventy–two percent of the organizations consulted were based outside the National Capital Region, and had provincial or regional mandates.

2.47 Some participants and department representatives mentioned that some groups might be under–represented, particularly youth, "grass roots" stakeholders and Aboriginal people. Other than Indian and Northern Affairs Canada and the five departments that participated in the joint consultations with Northerners (north of the 60th parallel), most departments did not consult native people. As well, except for use of the Internet, there was no consultation with the public at large.

2.48 Ten of the fifteen departments that organized workshops with clients and stakeholders provided financial assistance to participants who needed it, mostly by reimbursing travel expenses.

2.49 **A good mix of consultation techniques.** Departments used a range of consultation techniques, including workshops, mail–outs, one–on–one meetings, phone calls, advisory committees and the Internet. Workshops and mail responses were the primary means of participation, involving 56 percent and 44 percent respectively of the organizations consulted. Workshops were used with Aboriginal communities.

2.50 The participation rate was higher for those who were invited to participate in a workshop (one of four invited did participate) than for those who were invited to provide comments by mail. The participation rate for mail–outs was one in eight on average, excluding one very large mail–out with a much lower response rate. The satisfaction rate was also higher for participants in workshops than for participants in mail–outs, especially regarding the way their comments had been considered. A number of participants who provided comments by mail mentioned that they would have preferred a more personal approach, in the form of a workshop or a follow–up phone call.

2.51 Departments attempted to tailor their consultation to their client and stakeholder needs and available resources. For example, Indian and Northern Affairs Canada engaged in extensive dialogue with Aboriginal people and Northern communities. Canadian Heritage used a targeted mail–out given its limited resources and the diversified profiles and geographic origins of its clients and stakeholders.

2.52 The Internet is a relatively new tool that was used by almost all departments, but usually in a passive way. Most departments put their draft strategies on their Internet sites, soliciting comments, but did not actively promote the Internet as a consultation vehicle and few comments were received.

2.53 One exception is Foreign Affairs and International Trade. It sent 600 postcards to its clients and stakeholders informing them that the draft strategy was on its Internet site and that hard copies were available upon request. An informal phone survey showed that 70 percent of the people who received the postcard had looked at the Internet site, 14 percent requested a printed copy of the strategy and less than 2 percent made comments. All departments put their final strategies on their Internet sites and many mentioned this in the letters they sent to stakeholders.

Managing the process

2.54 **Limited co–ordination among departments.** Over an 18–month period, 28 departments attempted to consult on their sustainable development strategies, quite often consulting the same people on the same issues. Thirty–eight percent of the participants in the process received invitations from more than one department. With one notable exception — consultations on sustainable development with the communities north of the 60th parallel (see Exhibit 2.10) — departments did not co–ordinate their consultation activities with other federal departments.

Exhibit 2.10

Indian and Northern Affairs Canada's Co–ordination of Consultations North of the 60th Parallel

Because of the nature of its mandate, Indian and Northern Affairs Canada planned early to conduct two–phase consultations on its sustainable development strategy in the Yukon and NorthWest Territories. To help other departments obtain input from Northerners for the development of their own strategies, the Department invited them to participate in joint consultations. Five departments (Fisheries and Oceans, National Defence, Environment Canada, Canadian Heritage and Natural Resources Canada) joined in phase 1 or phase 2 of the consultations in the North. Co–ordination proved to be challenging for Indian and Northern Affairs because departments were at different stages of strategy preparation and had different views on the consultation process. However, joint consultation made it possible

for Northerners to provide input into other departments' strategies, and responded to a request often expressed by Native communities that federal departments should come together when they want to hear their views .

Source: Interviews and survey of departments, Office of the Auditor General of Canada

2.55 The Interdepartmental Network on Sustainable Development Strategies — a group that includes representatives from each of the departments — discussed the possibility of co–ordinating consultations early in the process. Departments decided, however, that they would work in accordance with their own strategy agendas and schedules. Many department representatives we interviewed acknowledged the need for and interest in some form of joint consultation on common issues. Participants in the consultations shared that perspective.

2.56 **Limited involvement of senior management.** The decision on who represents the department in the consultation process sends an important signal about the priority the department attaches to consultation and to the subject. Some departments involved their senior officials directly in the consultation process. Other departments delegated representation significantly downward.

2.57 Participants do not expect to have ministers attend all consultation activities. However, they do expect to see department representatives who are senior enough to have some authority in conveying participants' comments and in integrating them into the strategy. Departmental contact persons also need to have a good knowledge of the department's core business, including policy aspects.

2.58 Participants expect continuity in departmental representation, from consultation through implementation. A high turnover of contact persons is detrimental to building mutual trust and to efficient implementation. Of the six departments for which we did a more in–depth review, three had changed their strategy and consultation co–ordinators just prior to or right after tabling the strategy.

2.59 **A number of departments lost control over all or part of their schedules.** Consultation schedules need to be flexible to accommodate stakeholders or to take into account some important aspects that were overlooked when the process was designed. However, there are numerous and important minimum and maximum time frames that need to be respected throughout the consultation process.

2.60 One of the most important examples is the time given to participants to prepare for consultation activities or to send comments. Seventy–eight percent of participants sampled said they had enough time. However, time requirements differ among participants. For example, co–ordinators of associations need time to circulate the information to their members and receive their input. They need to receive discussion papers well in advance of a workshop — at least three weeks before. We found many examples where participants received the information for the consultation just a few days before the meeting or at the meeting itself. In almost all cases, the department had initially planned to send the documentation much earlier but was unable to keep to its schedule.

2.61 Some departments also saw their overall consultation schedule slip dangerously. Departments that had planned a two–phase process, with four or five months between the two phases, ended up with a gap of eight months or one year between the two phases. This long delay made it very difficult for participants to see the consultations as a continuous process, with the second phase of consultations building on the first. Other departments started their consultations later than planned - so late that the time to incorporate comments was extremely limited.

2.62 Although some departments did very well in providing feedback to participants, most departments found it difficult to provide feedback quickly and systematically after workshops, after receiving mailed comments or after the strategy was tabled. Participants want to receive some kind of feedback soon after the consultation, whether in the form of minutes, a summary of comments or a follow–up phone call. If they receive this feedback much later, it is of less interest to them.

Using the results to improve the strategies

2.63 Departments summarized the comments received. Twenty departments made summaries of comments received during consultations. These included minutes of workshops, detailed logs of comments received by mail or e–mail, and summaries of comments. Those participants who read them generally considered the minutes or summaries to be a good record of the discussions.

2.64 Indian and Northern Affairs Canada is one of the departments that prepared an extensive summary of comments made by participants. In an annex to its sustainable development strategy, the Department provided a report on the consultations conducted with Northern communities. It included a description of the consultation process, the main messages that the Department heard and an overview of suggestions that were not explicitly written into the strategy and the reasons for not including them. In a separate volume, the Department summarized the results of discussions with First Nations communities south of the 60th parallel.

Providing feedback to participants

2.65 Uneven feedback to participants on how their comments were considered. One of the key weaknesses of the sustainable development strategy consultations was the uneven feedback provided to participants. Most departments did provide some feedback to participants but few were able to do it systematically throughout the consultation process and with all participants. As a consequence, while most participants believed they were listened to, they were not sure to what extent they influenced the result because they did not always have enough information to make that judgment. A review of the different steps in the consultation process where some form of feedback is required found the following deficiencies:

- **Uneven feedback following workshops.** Most departments did not systematically send out minutes of workshops or revised versions of the strategies.

- **Uneven feedback following individual comments.** Departments were not always able to reply to individual comments sent by mail or e–mail. Agriculture and Agri–Food Canada, for example, prepared very detailed logs summarizing the comments received during the first phase and showing that a reply had been sent. For the second phase of the consultations, however, records are incomplete and do not document whether replies were sent.

- **Uneven feedback on the consultation results.** Many of the departments that prepared summaries of comments made during consultations did not provide these summaries to all participants. Only 38 percent of participants said that they received some feedback on what the department heard during the consultation process.

- **The final strategy reports were not sent to all participants.** The Canadian International Development Agency, for example, had planned to send the final strategy to all the participants consulted, right after tabling (December 1997). The Agency began to send out strategies in April 1998; by September 1998, the mailing had not been completed. Exhibit 2.11 shows a similar case with Indian and Northern Affairs Canada and highlights the damage that incomplete feedback can cause.

- **Almost no feedback on how the comments were integrated into the strategies.** Only 14 percent of participants said that departments provided them with feedback on how the information from the consultations had been used. Indian and Northern Affairs Canada (see paragraph 2.64) was the only department that included in its strategy an annex showing specifically which comments from their consultations with Northern communities had not been addressed in the strategy and why. No other department produced a document clearly specifying what was said throughout the consultations and what was done with the comments.

Exhibit 2.11

The Damage That Incomplete Feedback to Participants Can Cause

Indian and Northern Affairs Canada prepared a thorough summary of the consultations in each of the provinces and presented it as volume II of its strategy, showing the importance it attached to participants' input. Unfortunately, some of the participants did not see this summary. In British Columbia - the one province where we conducted audit work - the Department did not systematically send the final strategy report to the participants or to the 65 different First Nations involved in the eight workshops conducted by the Department. Only a few select band councils and participants were sent a copy. More than one year after the consultations, none of the participants interviewed had seen the strategy. They told us that the absence of feedback had left them with the impression that their comments had not been listened to. They were surprised to see that the strategy included a summary of their comments that appeared to be quite faithful to what they had said.

Source: Interviews with departments and participants and survey of departments, Office of the Auditor General of Canada

2.66 Limited information on how departments are implementing their strategies. Participants are also unaware of how departments are implementing their sustainable development strategies. While most departments told us they would provide this type of information in the future, only 19 percent of participants had received it at the time of our survey (one year after tabling). Although participants want to be kept informed, most do not want extensive reports on implementation. The words of one participant summarized the point of view of many participants interviewed: "What we'd like to have is a one–page fact sheet that says what the departments have done and what didn't work, and that keeps things alive. It doesn't have to be fancy."

Learning and improving

2.67 Few departments have evaluated their consultation process. Only four of the departments conducted an assessment of their consultation process (Exhibit 2.12 summarizes Health Canada's assessment). None have done a formal cost–benefit evaluation of consultations. Nevertheless, all the department representatives we interviewed were able to highlight the lessons learned from the exercise — what worked well and what they would do differently next time. The failure to document this information, however, places the learning at risk.

Exhibit 2.12

Health Canada: Evaluating the Consultation Process

Health Canada's involvement in the preparation of its sustainable development strategy did not stop when the strategy was tabled. The Department prepared an evaluation report of the whole exercise, including the consultations. In a very concise manner, the report highlights what was useful and what should be done differently next time. Regarding the consultation process, the report raises some critical issues concerning management support, timing, need for pre–consultation and appropriate consultation approaches and techniques. These lessons learned will be useful to the Department when the time comes to consult on the updated version of its strategy.

Source: Survey of departments, Office of the Auditor General of Canada

Lessons Learned

2.68 The majority of participants that we interviewed expressed a willingness to participate in the next round of sustainable development strategy consultations. However, they expect departments to have learned from the first round and not to repeat their mistakes.

2.69 Both participants and departments have views on what should be done differently next time around. Those views are summarized in Exhibit 2.13 and presented in more depth in the next few paragraphs.

Exhibit 2.13

What Do Departments and Participants Think Should Be Done Differently Next Time?

Departments	Participants
Departments should: • Give more time to participants • Co–ordinate with other departments • Consult more widely • Simplify language, translate sustainable development into something that means something to people • Start the process earlier • Provide more feedback • Get support from senior management sooner	Departments should: • Give more feedback • Provide more information on sustainable development and the consultation process prior to consultation • Consult earlier in the process • Give more time • Co–ordinate with each other • Involve a broader constituency • Be more open on what can and cannot be done • Ensure greater participation by key senior decision makers in the departments • Provide information on what has been achieved with the first strategies

Listed in order of importance.

Source: Interviews and surveys of departments and participants, Office of the Auditor General of Canada

The need for a client–based approach in designing the consultation process

2.70 Adopting a client–based approach in designing the consultation process means taking into account the participants' needs and constraints as well as those of the department. Some form of pre–consultation with selected participants is a practical way to discuss and, if necessary, revise the preliminary consultation plan. Adopting a client–based approach also means making available to participants, as soon as possible, the proposed schedule of consultation activities. This would enable participants to better understand the consultation process and to plan their involvement accordingly. Ideally, the information on the consultation schedules of all departments should be available on a central government Internet site.

Asking more from participants

2.71 The sustainable development strategy consultations engaged a large and diverse group of Canadians. However, departments do not always make the best use of their expertise and talents. As one participant said, "Most consultation processes require too little from the participants rather than too much. I would have liked to see the department set out the main problems it faced and the main decisions it needed to make in order to make sustainable development operational, and to have challenged participants to develop solutions." Departments need to be more selective and specific in identifying areas or issues where they want input, taking into account what is of interest to their different clients, partners or stakeholders. By being more specific, they could ask more from participants and expect to get better input.

Co–ordination on cross–cutting issues

2.72 Both departments and participants noted that many sustainable development issues involve a number of departments, and that there is a need for joint consultations on those issues to complement department–specific consultations. Many participants would also like this co–ordination effort to involve provincial departments that are primary players in many of these issues. A two–phase model was suggested during our interviews. The first phase could involve cross–cutting issues, and involve those departments most directly concerned. The results of those consultations would feed into the draft departmental strategies that could be discussed separately in the second phase of the consultations.

Clear commitment from senior management

2.73 The choice of who represents the department in the consultation process sends an important signal to others about the priority the department attaches to consultation and to the subject. Clear commitment from senior management is as essential to fruitful consultation as it is to the development of a meaningful strategy. Indeed, participants often see it as the best indicator of the credibility of a consultation exercise.

Consulting early in the process

2.74 Exhibit 2.14 provides an example of a consultation process and highlights the main hurdles, such as the important time frames that need to be respected. These include consulting early enough in the process of preparing the strategy, providing sufficient time for participant preparation and for departments to integrate comments into their strategies, providing quick feedback to participants throughout the process, and avoiding lengthy delays between process phases.

Exhibit 2.14 is not available, see the Report.

The importance of a continuous, iterative consultation process

2.75 Many participants saw consultations as “a staged–step iterative process, not as a one–shot deal.” Two–phase consultations, moving from broad issues to more specific ones, best convey the notion of a continuous and iterative process and ensure that consultations are initiated early in the process. Departments need to link their different consultation, information and feedback activities, during the preparation as well as the implementation of their strategies. Departments also need to try to link their consultations on sustainable development strategies with their other consultations.

Closing the “feedback loop”

2.76 The limited feedback provided to participants — what the department heard and how participants’ comments influenced the strategy — was one of the main failings of the first round of sustainable development strategies consultations. While participants believed they were listened to and influenced the result, they were not sure. Following the consultations, many departments did not provide participants with sufficient information to make that judgment. Feedback is critical for maintaining the confidence and good will of participants. Keeping them informed on strategy implementation is a good place to start.

The importance of evaluation

2.77 A Guide to Green Government characterizes sustainable development as a continuous improvement process. Most departments did not do an assessment of their strategy consultation process. As a result, there is a danger of losing the lessons learned and repeating the mistakes of the first round.

Strengthening consultation

2.78 Application of the lessons learned from this audit would go a long way toward strengthening the sustainable development strategy consultation process.

2.79 For the next round of strategy consultations, departments should pay particular attention to the issues of participant feedback, interdepartmental co–ordination and involvement of senior management.

Agriculture and Agri–Food Canada, Canadian Heritage, Canadian International Development Agency, Human Resources Development Canada, Indian and Northern Affairs Canada, Transport Canada and Environment Canada's response: *The Commissioner's recommendations respecting the processes used by departments in developing their first sustainable development strategies (SDS) are sound and the chapter includes many helpful observations and suggestions for improving consultations in the future.*

It is essential that citizens, clients, stakeholders and Aboriginal peoples have real opportunities to shape the many decisions that will impact on their health and well–being, environment and prosperity. In this vein, departments remain committed to effective consultation and engagement of these partners in the development of major policy initiatives, programs and services.

Departments intend to use the lessons learned from the first round of consultations on SDSs to improve their consultation processes when updating their SDSs. In particular, departments will be examining, in the coming months, options available for better co–ordinating their respective consultation efforts and will explore new and innovative means of engaging partners through, for example, new information technology.

It is important for senior departmental managers to be informed at all stages of the consultation process and departments are committed to senior management participation, where appropriate, in consultations to renew their SDSs. In addition, departments concur with the Commissioner's view that providing feedback to participants on how their comments are taken into account in the SDS renewal process is a beneficial undertaking and will help to strengthen relations.

Sustainable development is everyone's business. This makes it all the more important to effectively involve citizens, clients, stakeholders and Aboriginal peoples in shaping their future so that it is an environmentally, economically and socially sustainable one.

2.80 We also found that most of the guidance provided to departments on the conduct and evaluation of consultations was developed in the early 1990s, and much of it exists only in draft form.

2.81 Given the federal government's re–emerging interest in public involvement, we believe that the Privy Council Office should take the lead in updating the guidelines provided to departments on the conduct and evaluation of consultations.

Privy Council Office's response: *The Government of Canada is committed to involving Canadians in the development of policies, programs and services that have an impact on their lives. While considerable progress has been made in this area since the 1990 Task Force on Service to the Public report, significant changes in the past*

decade - both in and outside of government - call for new ways of thinking and new approaches to engaging Canadians in public decision making.

A solid foundation of "building blocks" - i.e. strong policy guidance, effective co–ordination mechanisms, a range of training and developmental opportunities, and a framework for assessing our performance in this area - is essential to establishing a strong consultative culture in the federal public service. As the lead central agency responsible for public consultation in the federal public service, the Privy Council Office (PCO) will continue to work closely with other central agencies to this end.

In this regard, the Privy Council Office, in collaboration with federal departments and agencies, is updating the 1992 federal consultation guidelines. The PCO continues to provide strategic advice to departments in the development of their consultation strategies and support to horizontal co–ordination of federal consultation processes. The Treasury Board Secretariat is establishing an interdepartmental working group to develop practical guidelines for the evaluation of federal consultation activities. The Public Service Commission (PSC) and the Canadian Centre for Management Development (CCMD) continue to address public consultation in their training and development programs. To respond to the renewed interest in public consultation across the government, the PSC has updated its existing public consultation course and will continue to ensure the relevancy of this program. The CCMD is including public consultation as part of a current review of management training needs and priorities.

These initiatives reflect a collaborative effort on the part of central agencies to support public servants with the necessary "building blocks" for effectively planning, implementing and assessing federal consultation processes.

Conclusion

2.82 By December 1997, 28 federal departments had tabled their first sustainable development strategies in the House of Commons. When designing the sustainable development strategy process, the Government of Canada highlighted the importance of public involvement in strategy preparation. Consultation was intended to assist departments to identify their sustainable development issues, goals and targets, and the actions required to meet them.

2.83 Our audit examined the consultations conducted by departments in the light of established practices, departmental expectations and the expectations of participants. Overall, we found a high level of satisfaction with the consultations, both among participants and among departments.

2.84 However, we also identified a number of opportunities for improvement that should be applied to the consultations for the next round of strategies due in December 2000. The majority of participants that we interviewed expressed a willingness to participate in further consultations. But they also expect departments to have learned from the first round and to not repeat their mistakes. Furthermore, they expect the strategies to lead to action.

About the Audit

Objective

Our audit objective was to assess departmental strategy consultations against standards for good consultation practice and against departmental and participant expectations, and to document lessons learned.

Scope

To provide a government–wide perspective on the consultations used in the first round of sustainable development strategy preparation, we reviewed the consultations of all 28 federal government organizations. That review was supplemented by a more in–depth assessment of the consultations conducted by six departments: Agriculture and Agri–Food Canada, Canadian Heritage, Canadian International Development Agency, Human Resources Development Canada, Indian and Northern Affairs Canada and Transport Canada.

Approach

The audit approach consisted of:

- a review of the literature to establish criteria for good consultation practice (see Appendix C);
- a survey of all 28 departments and a review of documents to identify departmental expectations and approaches. A database of all organizations and Aboriginal communities consulted was built using the lists provided by 27 departments;
- a sample survey of 276 participants in the consultations to obtain a participant perspective on expectations and approaches. The response rate to our survey was 53% or 146 participants. The profile of the participants who answered our questionnaire was very similar to the profile of the 1,300 organizations consulted by departments. This survey did not include Aboriginal communities;
- interviews with 15 officials in six departments, in Ottawa, British Columbia and Quebec, to gather more in–depth information on expectations, approaches and lessons learned; and
- interviews with 36 participants in the consultations of the same six departments, in Ottawa, British Columbia (including two workshops with native people) and Quebec, to obtain a more in–depth participant perspective on expectations, approaches and lessons learned.

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Appendix A

Setting the Stage: The 1990 Service to the Public Task Force Report

In 1989, the Government of Canada launched Public Service 2000 to "renew the public service of Canada" to bring it into line with the requirements of the next two decades. A key feature of the Task Force's approach was the attention paid to the issue of consultation between the public service and the public. The Task Force was struck by the intensity of the demand for public participation in policy development.

The Task Force found:

- a high degree of support from public servants for consultation with the public;
- little or no institutional support for consultation, including training in consultation and guidance to staff on how they were expected to relate to the public;
- a significant gap between public servants' generally positive perceptions of their own consultative performance (effectiveness, commitment, technique) and the negative perceptions among those being consulted;
- consultation inside the public service was lacking just as much as consultation outside;
- the perception that most consultation was "window dressing", with the main purpose being to legitimize decisions already taken rather than to reflect the results of the consultation in policy recommendations or operational decisions; and
- the perception that too many public servants view consultation as "talking to your friends or your clients" rather than engaging the broader public who may be affected by policy or program changes.

The Task Force concluded that "a shift toward a substantially more active and open consultative relationship with the public is singularly important for the future effectiveness of the public service." It recommended:

- adoption of a set of principles for consultation by public servants, along the lines proposed in the Task Force report;
- the appointment of a senior official to help develop a new consultative culture within the public service, guided by a private sector advisory council;
- that deputy ministers be held accountable for their departments' consultative performance; and
- training and development to enhance public servants' consultation skills.

Source: *Service to the Public Task Force Report*, Public Service 2000, 1990

Appendix B

Roles and Responsibilities for Consultation, 1992

Ministers determine government priorities for consultation and provide leadership for consultation through their respective departments and agencies. Ministers ensure that their clear responsibilities for determining public policy are not compromised and that public servants are not drawn into partisan political controversy. Ministers define the consultation responsibilities and authority of ministerial staff and establish procedures for liaison with ministerial staff and deputy ministers.

Deputy Heads identify and implement systematic means by which effective consultation becomes part of the department's routine practices. In so doing, deputies devise departmental consultation policies or other appropriate administrative mechanisms that reflect the government's consultation guidelines. Deputies are accountable for ensuring that consultation is an integral part of program design and delivery. Deputies are accountable for ensuring that consultative skills receive full consideration in staff hiring, training and development decisions.

The Privy Council Office provides advice and guidance on developing and implementing consultation, and support to promote effective consultation by and among departments, through the collection and exchange of information on organizations' consultation policies, strategies and activities, on innovations and on exemplary consultative practices.

The Treasury Board Secretariat supports the creation and maintenance of a consultative culture by developing ways of promoting easy public access to information about government services (thus enhancing public awareness and interest in government policies, programs and services) and by helping organizations develop consultation policies and evaluate and learn from their consultation experience.

The Canadian Centre for Management Development and the **Public Service Commission**, through its Special Operating Agency for Training and Development, develop appropriate training methods to ensure that public servants both in the National Capital Region and in the regions have access to training and development in consultation.

The Committee of Senior Officials assesses the performance and commitment of deputy heads with respect to consultation and improved service to the public, both within departments and agencies and with clients and stakeholders.

Source: *Consultation Guidelines for Managers in the Federal Public Service*, Privy Council Office, December 21, 1992.

Appendix C

Evaluation Criteria - Consultation Process (External Audiences)

- In the course of preparing its sustainable development strategy, did the department consult with clients, partners and other stakeholders (other than federal departments)?

Planning the Consultation Process

1. The purpose of the process is clearly defined and understood by everyone.

    - Did the department hold a pre–consultation meeting(s) involving stakeholders (other than other federal departments) in the design of the sustainable development strategy (SDS) consultation process?

    - Did the department prepare a consultation plan for the SDS?

    - Did it contain the main elements of a consultation plan? (WHAT — objective of consultation; WHO was to be consulted; HOW — description of activities; WHEN — schedule)

2. The process is clearly linked to when and how decisions are made.

    - Did the department consult early enough in the preparation of the strategy (earlier than final strategy draft) for participants to be able to influence the orientations of the strategy?

3. All relevant interests are represented in the process.

    - Has the department solicited the views of stakeholders with a significant interest?

    - Has the department solicited the views of stakeholders across the country?

4. The process is designed to meet the circumstances and needs of the specific situation.

    - Was a dedicated budget established for the SDS consultation?

    - Did the department co–ordinate its consultations (or part of its consultations) with other government departments for the benefit of participants?

Managing the Process

5. Flexibility is designed into the process.

6. Appropriate measures are in place to support stakeholder participation.

    - Did the department provide financial assistance to any of the participants in the SDS consultation?

7. All relevant information is accessible to stakeholders in a timely and understandable manner.

    - Did the department release a discussion or issues paper to participants in preparation for the SDS consultation?

8. The diverse values, interests and knowledge of stakeholders are recognized and respected.

9. Roles and responsibilities are clearly defined and understood by everyone associated with the process.

10. A reasonable and clear time frame for the process is established.

    - Was the consultation exercise carried out early enough (at least two months before tabling of the strategy) for participants to be able to significantly influence the strategy?

Using the Results to Improve the Strategies/Providing Feedback to Participants

11. The results are communicated and implemented.

    - Did the department produce a summary of the participants' comments?

    - Did the department provide feedback to participants on the consultation results?

Learning and Improving

12. The success and results of the process are measured.

    - Was an evaluation of the consultation exercise carried out?

Source: The 12 main criteria are derived from the Canadian Standards Association, *Z764–96 A Guide to Public Involvement*, March 1996. We developed the sub–criteria that were used to evaluate the consultation process for the 28 federal departments that tabled a sustainable development strategy.

Appendix D

Consultations on the Sustainable Development Strategies (External Audiences)

Consultations on Agriculture and Agri–Food Canada's Strategy

Steps in the preparation of the sustainable development strategy	Consultation activities
Planning	Consultation plan: preliminary schedule in January 1996, plan in June 1996 Pre–consultations with stakeholders on the design of the consultation process: none
Identification of sustainable development strategic directions	Phase 1 workshops: spring–summer 1996
Preparation of draft strategy	Phase 2 workshops: October– November 1996

Tabling of strategy: April 1997
Agriculture and Agri–Food Canada (AAFC) prepared a very detailed consultation plan that discussed, among other things, two possible options for consultation with provincial officials, in order to provide them with the opportunity to respond to the federal strategy. AAFC decided to organize one workshop for provincial officials and one workshop for stakeholders in each province or group of provinces. AAFC held two phases of workshops across Canada. An issue paper looking at the sustainable development strategic directions (phase 1) and the draft strategy (phase 2) were sent to all the organizations and provincial representatives invited to the workshops. In addition to the 149 organizations that participated in the workshops, 41 other organizations sent comments. A summary of phase 2 comments was prepared but not sent to participants. Minutes of workshops and the strategy report were distributed, but not systematically. No evaluation of the consultation process was done.

Consultations on Canadian Heritage's Strategy

Steps in the preparation of the sustainable development strategy	Consultation activities
Planning	Consultation plan: May 1997 Pre–consultations with stakeholders on the design of the consultation process: none
Identification of sustainable development guiding principles, issues and priorities	Participation in Indian and Northern Affairs' joint consultations north of the 60th parallel: December 1996 Phase 1 mail–out: June–July 1997
Preparation of draft strategy	Phase 2 mail–out: October–November 1997

Tabling of strategy: 10 December 1997
Canadian Heritage is an amalgam of sectors with very diversified clienteles and mandates. The Department prepared a comprehensive consultation plan and chose to do a consultation based primarily on a two–phase mail–out. The department's sectors and regions were involved in selecting the organizations for the mail–out. For phase 1, a Canadian Heritage consultation paper on the issue scan and on priorities was sent by mail, with a companion paper for Parks Canada. For phase 2, the draft strategy was mailed out. A total of 65 organizations provided comments. The Department did a partial summary of comments received. This summary was not sent to participants. The final strategy was sent to all the organizations that sent comments back in response to the mail–outs. A letter indicating that the strategy could be found on the Department's Internet site was sent to the organizations who had been contacted but had not responded. No evaluation of the consultation process was done.

Consultations on the Canadian International Development Agency (CIDA)'s Strategy

Steps in the preparation of the sustainable development strategy	**Consultation activities**
Planning	Consultation plan: September 1997 Pre–consultations with stakeholders on the design of the consultation process: none
Preparation of draft strategy	Mail–out: October 1997 Workshop: November 1997

Tabling of strategy: 10 December 1997
CIDA did not produce a formal consultation plan. However, a late September 1997 note includes a short section on consultations. The draft strategy and a questionnaire were sent out to 1200 stakeholders; 137 sent comments back. A workshop was also held in Hull with key stakeholders, in November 1997, to discuss the draft. The minutes sent to workshop participants soon after the workshop highlighted which comments had been considered in the strategy. CIDA initially planned to send the strategy report to all participants. The Department did mail the report, but late (spring and summer 1998), and not to all participants. An evaluation of the consultation process was done.

Consultations on Human Resources Development Canada (HRDC)'s Strategy

Steps in the preparation of the Sustainable development strategy	**Consultation activities**
Planning	Consultation plan: August 1997 Pre–consultations with stakeholders on the design of the consultation process: none
Preparation of draft strategy	One–on–one meeting with one external stakeholder: November 1997

Tabling of strategy: 10 December 1997
HRDC prepared a one–page consultation plan. Consultations were conducted with representatives of the Canadian Labour Force Development Board, HRDC Commissioners, and regional officials. In addition to other federal departments, only one external stakeholder organization was consulted. An issues summary as well as the draft strategy were discussed. A summary of comments made was included in the strategy report that was sent to the organization consulted.

No evaluation of the consultation process was done.

Consultations on Indian and Northern Affairs Canada's Strategy

Indian and Northern Affairs Canada conducted two separate consultation exercises on its sustainable development strategy: consultations with the communities north of the 60th parallel and consultations with the First Nations and Inuit in the provinces.

Consultations with the First Nations and Inuit in the provinces

Steps in the preparation of the sustainable development strategy	**Consultation activities**
Planning	Pre–consultations with Aboriginal communities on the design of the consultation process: spring 1996 Consultation plans for each region: most in October 1996
Identification of sustainable development guiding principles	Phase 1 workshops: October 1996 – January 1997
Preparation of draft strategy	Phase 2 workshops: July – September 1997 Three–day synthesis workshop in Ottawa: September 1997

Tabling of strategy: 10 December 1997

Indian and Northern Affairs followed a decentralized approach to consultations. Each regional office planned and co–ordinated consultations in its region. The central co–ordinator integrated the results of the overall consultations into the strategy. Accordingly, regional offices for each province or group of provinces prepared consultation plans. The central team in Ottawa provided them with guidelines to prepare their plans.

Pre–consultations were not done in all the regions. In British Columbia, a letter was sent to all chiefs in May 1996, asking for comments on the proposed consultation process. Phase 1 and phase 2 workshops were held at the community level. For phase 1, an issue paper on sustainable development guiding principles was distributed to participants prior to the meeting and discussed at the workshop. An extensive summary of comments made in phase I was prepared and distributed to participants before the phase 2 workshop.

Phase 2 dealt with the draft version of the strategy. After phase 2, a three–day synthesis workshop with participants from each of the regions was held in Ottawa to work on a revised version of the strategy. Overall, 273 Aboriginal communities and groups were consulted. In British Columbia alone, a total of more than 250 native people, from 65 different First Nations, were consulted during the eight workshops held in phases 1 and 2. A detailed summary of the consultations was presented in volume II of the strategy but it was not systematically sent to all participants (see Exhibit 2.11 of the chapter).

No evaluation of the consultation process was done.

Consultations North of the 60th Parallel

Steps in the preparation of the sustainable development strategy	**Consultation activities**
Planning	Consultation plan phase 1 : June 1996 Co–ordination with other federal departments: summer–fall 1996 Consultation plan phase 2 : April 1997

Identification of sustainable development guiding principles	Phase 1 workshops: December 1996
Preparation of draft strategy	Phase 2 workshops: June–July 1997

Tabling of strategy: 10 December 1997
Indian and Northern Affairs co–ordinated its consultations with five other federal departments (see Exhibit 2.10 of the chapter). For phase 1 workshops, held in three Northern communities, the five participating departments produced a common issue paper on sustainable development guiding principles, plus annexes pertaining to the challenges facing each department. The draft strategies of five departments were discussed during the phase 2 workshops held in six communities. Overall, 55 Inuit and Northern communities and groups were consulted. Summaries of comments were prepared for both phases. Consultation results were presented in an appendix of the strategy as well as a detailed explanation of why some suggestions had not been addressed in the strategy. No evaluation of the consultation process was done.

Consultations on Transport Canada's Strategy

Steps in the preparation of the sustainable development strategy	**Consultation activities**
Planning	Consultation plan: July 1996 Pre–consultation with the National Advisory Group: summer 1996
Identification of sustainable transportation issues	Phase 1 workshops: November – December 1996
Preparation of draft strategy	Phase 2 one–on–one meetings: August – September 1997

Tabling of strategy: 10 December 1997
Transport Canada discussed its consultation plan and process with its National Advisory Group, a group of transportation stakeholders, before actually beginning the consultations. Consultations were divided in two phases. The purpose of the first phase, consisting of six workshops held across Canada in the fall of 1996, was to obtain early stakeholder input into Transport's strategy. Consultations were based on eight discussion papers on different sustainable transportation issues. The second phase of consultations was held eight months later and consisted mainly of one–on–one meetings. The purpose of that second phase was to get input on the draft strategy itself. A total of 81 participants were consulted during the two phases, a number of them in both phases. Discussion papers and draft strategies were sent to participants a few days prior to meetings. Minutes of workshops, revised versions and the final strategy were not sent systematically to all participants. The Department produced a summary of the phase 1 comments. This summary was not sent to participants. The Department included a summary of the comments made by participants in part 3 of the strategy report. No evaluation of the consultation process was done.

Source: Interviews and survey of departments, Office of the Auditor General of Canada

Chapter 3

Understanding the Risks From Toxic Substances

Cracks in the Foundation of the Federal House

Table of Contents

Understanding the Risks From Toxic Substances

Cracks in the Foundation of the Federal House

Main Points

3.1 The federal government's ability to detect and understand the effects of toxic substances on Canadians and our ecosystems is seriously threatened. There is a growing gap between the demands placed on federal departments to provide scientific information on toxic substances and their ability to meet existing obligations and respond to emerging issues.

3.2 Co–ordination and collaboration among departments in research and monitoring lacks strategic leadership. There are also significant shortcomings in the federal government's environmental monitoring activities and programs. These deficiencies impact the government's ability to assess the risks of toxic substances.

3.3 Many pesticides used in Canada today were evaluated against previous and less stringent human health and environmental standards. The federal government has not met its long–standing commitment to implement a program to re–evaluate those existing pesticides against the newer standards. Re–evaluations of three groups of pesticides, under way now for close to 20 years, have not been concluded.

3.4 Federal departments are divided on the degree and significance of risks posed by some individual toxic substances, the interpretation and application of legislation and the nature of their respective roles and authorities. This has led to indecision, inaction and strained relations among departments.

Background and other observations

3.5 Canadians use many types of chemical substances every day. They have a vital role in modern society, enhancing our quality of life, economic well–being and industrial competitiveness. However, when released in sufficient amounts into the air, water or land, some of these substances can threaten human health and ecosystems.

3.6 A complicated infrastructure of research and monitoring, regulations, policies and voluntary programs has been established to protect the health of Canadians and their environment from threats posed by the most dangerous toxic substances. Scientific information developed through research, monitoring and assessment is the essential first step toward understanding the risks and making informed decisions. Environment Canada, Fisheries and Oceans, Health Canada and Natural Resources Canada each undertake scientific research on toxic substances, and have collaborated on individual programs and projects. Federal scientists are well recognized domestically and internationally for their work on toxic substances.

3.7 There are over 23,000 chemical substances in industrial, agricultural and commercial use in Canada. Information about these substances is incomplete, in particular about the risks they pose, if any, to human or environmental health. While many are not considered to pose risks, some have been linked to respiratory illnesses, birth defects, reproductive disorders, lowered resistance to disease, and cancer. Based on what is known, and considering what is not yet known, their release and exposure remain a cause for concern.

3.8 To date, only 31 substances or groups of substances have been conclusively assessed for toxicity and risk under the *Canadian Environmental Protection Act*. Risk assessments have taken five years to complete.

Assessments of 13 substances identified in 1989 as priorities are still inconclusive; assessments of 25 additional substances identified in 1995 as priorities are expected to conclude in 2000.

3.9 We have significant concerns about the lack of effective co–operation between the Pest Management Regulatory Agency, which is responsible for regulatory decisions, and Environment Canada and Fisheries and Oceans, which undertake scientific research on the effects of pesticides. The full expertise of the federal departments is not being brought to bear on research and management of pesticides.

3.10 In this chapter, we make 12 recommendations addressed to five federal departments and one federal agency. If they are implemented, we believe the federal activities related to the collection and use of scientific information on toxic substances will be substantially improved.

The departments have responded that they are committed to working co–operatively to carefully assess the recommendations. They are also committed to ensuring continuous improvement in managing releases of toxic substances in Canada, relying on the principles of sustainable development and risk management as well as the precautionary principle to achieve this. To ensure continuous improvement, they are committed to working co–operatively to develop an appropriate course of action.

Introduction

3.11 Canadians use large quantities of chemical substances every day, in pharmaceutical drugs, food preservatives, household products, industrial chemicals, agricultural and household pesticides, fuels and more. These substances play a vital role in modern society: they have reduced the incidence of disease, increased food production and food safety, revolutionized manufacturing processes and provided consumers with many modern conveniences. But substances that are released into the environment can ultimately find their way back to us in various amounts and combinations through our air, water, soil and food, and can affect our health and the health of ecosystems.

3.12 There are many types and definitions of toxic substances. In this chapter, "toxic substances" include industrial and commercial chemicals, heavy metals, manufacturing byproducts and pesticides that, when released into the environment, have the potential to harm human health or environmental quality. According to Canada's "Domestic Substances List", there are over 23,000 chemical substances in industrial and commercial use in Canada. In addition, there are 500 active ingredients (the component with pesticidal activity) in registered pesticides products in Canada. Many of these are not considered to pose a risk to human or ecosystem health. But some do. Exhibit 3.1 identifies some common groups of toxic substances, their sources of release and the potential health effects associated with them.

Exhibit 3.1

Selected Listing of Toxic Substances, Their Sources of Release and Related Health Concerns

Toxic Substances	Sources of Release	Potential Human Health Concerns
Heavy Metals (and Related Compounds): Lead, Cadmium, Mercury	Mining, hydro–reservoirs, coal–fired emissions, industrial chemicals, batteries, paint, ceramics, plumbing, electrical supplies	Behavioural and neurological disorders, brain and kidney damage and bone disease
Contaminants and By–Products: PCBs, Chlorinated Dioxins and Furans, Chlorinated Naphthalenes	Pulp and paper, incineration, manufacturing, electrical insulation	Decreased fertility, prostate and testicular cancer, reproductive disorders, breast cancer, acute toxicity, hormone disruption, chloracne, liver damage
Poly–Aromatic Hydrocarbons (PAHs): Benzo[a]pyrene and related compounds	Incomplete combustion of fossil fuels, vehicle emissions, incineration of organic matter (wood smoke) or garbage, coke production	Bronchitis, dermatitis, lung and skin cancer
Trihalomethanes	Chlorination of drinking water	Associated with bladder and possibly colon cancer
Pesticides: DDE*, DDT*, Hexachlorobenzene*, Toxaphene*, Aldrin*, Dieldrin*, Endrin*, Chlordane*, Lindane, Chlorophenoxy Herbicides (2,4–D)	Agriculture, agri–food, forestry, residential and municipal use	Cancer, reproductive disorders, irritations of skin, membrane and respiratory tract, acute toxicity
Common Air Pollutants: Respirable particulate matter (PM_{10} and $PM_{2.5}$) Volatile Organic Compounds (VOCs), Nitrogen Oxides (NO_x), Ground–level Ozone,	Vehicle emissions, incineration, industrial processes, construction, smelting, power plant emissions	Bronchitis, dermatitis, respiratory disease, decreased lung and pulmonary function (cardiovascular challenge), inflammation and irritation of respiratory tract, induced asthmatic attacks

Sulphur Dioxide (SO_2)		
Other Toxic Substances: Benzene	Vehicle emissions, chemical manufacturing	Cancer, liver damage, central nervous system damage, degenerative bone changes
Perchloroethylene/PCE/ Tetrachloroethylene	Dry cleaning	
Vinyl chloride/Polyvinyl chloride	Manufacturing of plastics	

* Denotes pesticides that are no longer used in Canada but are still present in the environment.

Note: Many of the above health concerns were initially observed in wildlife (including fish). In addition to sharing many of the potential human health endpoints (like cancer), wildlife populations are also vulnerable to other endpoints, including wasting, failure to thrive, eggshell thinning, skewed sex ratios, alterations in recruitment to breeding populations and population decline.

A Complex Sustainable Development Issue

3.13 Addressing the problem of toxic substances is complex, for several reasons. It is not a single problem: there are thousands of potentially toxic substances that can affect people and ecosystems. Some substances are concerns in themselves; others are part of larger environmental and health issues such as urban smog, water quality, ozone layer depletion and Arctic contamination. Substances can be released from "point sources" (for example, specific industrial plants) and from "non–point sources" (for example, vehicle exhaust and agricultural run–off). Many substances enter the environment from local sources, but others originate beyond Canada's borders. Other substances occur naturally in the environment (like heavy metals) or are released through natural processes but also through human activity.

3.14 **Diverse views in Canadian society.** The subject of toxic substances is also complex because of the large number of players involved, each with its own perspective and interest. In addition to the federal government, they include industry associations and individual companies; health, consumer and environmental interest groups; academic and scientific organizations; and territorial and provincial governments. While they share many areas of common ground, there are other areas and issues on which their respective positions are highly polarized and deeply divided. Decision making in this context involves integrating diverse and legitimate economic, social, environmental and health considerations and balancing often–competing views and values. Some of the issues on which opinions are divided include:

- the notion of acceptable and unacceptable risk versus "zero" risk and, indeed, whether risk should be used at all as a basis for decision making;
- the contribution and significance of human–made versus natural releases of toxic substances;
- the benefits of internationally harmonized decisions versus the need for made–in–Canada solutions;
- the scientific burden of proof for regulatory decision making, the treatment of uncertainty and the precautionary principle.

3.15 In Canada, a complicated infrastructure of scientific research and monitoring, regulations, policies and voluntary programs has been established to protect the health of Canadians and their environment from threats posed by the most dangerous toxic substances. The ultimate aim of these activities is to permit the safe and productive use of chemical substances while safeguarding Canadians and their environment from unacceptable risks.

3.16 One group of these activities entails the collection and use of scientific information to decide which substances pose the greatest risk to human health and environmental quality and thus ought to be managed. Our

audit observations and recommendations on selected scientific and risk assessment activities are reported in this chapter. Another set of activities involves the use of scientific, technological and economic information to decide what controls, if any, are needed to achieve acceptable levels of risk. Our observations and recommendations on selected risk management activities are reported in Chapter 4, Managing the Risks of Toxic Substances: Obstacles to Progress. The links between these chapters are illustrated in Exhibit 3.2.

Exhibit 3.2 is not available, see the Report.

Threats to Our Health and Well–Being

Risk and health

3.17 **Potential effects.** Some industrial chemicals and pesticides in the environment have been linked to lung diseases, reproductive problems and birth defects, developmental disorders, allergic reactions, lowered resistance to disease in humans and cancer. In wildlife, eggshell thinning, deformities, reproductive dysfunction, tumors, embryo and adult mortality have been linked to toxic substances.

3.18 **Toxicity and risk.** Generally, toxicity refers to the capability of a substance to injure humans and ecosystems. In this sense, all substances — both natural and synthetic — are potentially toxic. But it is the dose that makes the poison: even highly toxic substances will not cause harm unless people or wildlife are exposed to them in air, water, soil or food.

3.19 The concept of risk is central to federal decision making on toxic substances and, by extension, was central to this audit. In simple terms, risk refers to the probability of experiencing harm combined with the extent of that harm. It is a function of the hazard presented by a substance and of our exposure to it. Estimating risk is not simple, and risk assessment is almost a scientific discipline unto itself. In theory, scientific calculations of the risk posed by some industrial chemicals and pesticides can be compared with levels considered to be acceptable and with the risk posed by other activities or conditions. The relative priority of the substances can then be established, and the environmental, social and economic costs and benefits of reducing the associated risk can be evaluated.

3.20 **We live in a world full of risk.** Driving a car, taking medication, smoking, and sunbathing are all activities that have a risk associated with them. Some risks result from personal choices; others are imposed on us. The extent to which toxic substances in the environment pose significant risks to human health and ecosystems is not a matter of scientific consensus. Some believe that the risks posed are insignificant — or at least acceptable — especially compared with other risks encountered and tolerated every day. Others disagree.

3.21 We are often faced with choices involving trade–offs between risks and benefits. Modern chemicals provide important economic, health and social benefits. Therefore, actions to reduce risks by eliminating exposure can have significant economic and social implications. For this reason, stakeholders often debate whether the costs of reducing the risks, including lost uses of the substance, are worth the benefits.

3.22 The use of chlorine to disinfect drinking water is an example of the complexity of risk as it pertains to toxic substances. The use of chlorine has been heralded as one of the most successful public health initiatives ever and is believed to prevent thousands of potentially fatal infections each year. Recently, however, chlorination by–products in drinking water have been linked to cases of bladder cancer, illustrating that there are benefits and risks associated with the same activity.

Isolating cause and effect

3.23 A variety of factors make it difficult to isolate the effect of an individual toxic substance on people and the environment from the effects of other substances and influences. Among other things, Canadians and their ecosystems are exposed to thousands of chemical substances at the same time. This can make it difficult to link cause and effect to a specific substance.

3.24 **Many factors affect health.** Exposure to toxic substances is only one of many factors that affect the health of Canadians. Nutrition, alcohol consumption, smoking, genetics, exposure to diseases, even economic status contribute to our health. Some groups of people are at greater risk than others, through higher exposure, increased susceptibility, or a combination of both. Occupation, diet (fish and game), or proximity to industrialized areas can increase exposure. Factors that contribute to susceptibility include weakened immune systems, genetics and age. Children are considered especially susceptible to the effects of toxic substances. This fact prompted the federal government and seven other countries to sign a Declaration on Children's Environmental Health in 1997 in which they affirm their commitment to improve levels of protection from industrial chemicals and pesticides for children.

3.25 Toxic substances are only one of many stresses on ecosystems. Other environmental stresses such as climate change, increased ultraviolet radiation and acid rain interact with toxic substances in ecosystems and can affect their potential to cause harm.

3.26 **Basis of priorities.** Different attributes are used to determine risk and set priorities for the management of organic and inorganic substances. These include persistence, bioaccumulation, bioavailability, transformation, mobility and toxicity. Generally, substances that are persistent, mobile and toxic are of greatest concern for the environment and to human health. Substances that have low persistence and low toxicity and that do not bioaccumulate are less likely to pose risks.

A legacy for the next generation

3.27 **Progress is being made.** Since the 1970s, releases of many toxic substances into the environment are reported to have been reduced. This may be attributable to the combined effects of federal and provincial regulatory programs as well as voluntary efforts by Canadian industry. As noted in Chapter 4, approximately 160 industrial chemicals are subject to risk management activities at the federal level. Concentrations of some toxic substances (for example, DDT, PCBs, etc.) continue to decline in bodies of water and airsheds due to the fact that their use has been severely restricted or banned. There are signs that wildlife populations are recovering in some places, like the Great Lakes and the St. Lawrence Seaway.

3.28 In the Great Lakes, however, concentrations of contaminants that decreased significantly when pollutant releases were first reduced are no longer declining at the expected rate, despite continuing reductions in releases. This has been characterized as a "plateau" effect, which may reflect an ecosystem response that can also be expected in other regions. Possible explanations for this effect are being debated in the scientific community. In addition, reduction trends do not extend to all habitats or all species. For example, there are fisheries that remain closed as a result of the presence of toxic substances. Furthermore, other ecosystems such as the Arctic continue to be vulnerable, predominantly due to long–range atmospheric transport and longer residence times of toxic substances due to the cold climate.

3.29 **Shift in focus of attention.** Historically, the testing of substances for toxicity has focussed on their potential to cause cancer as well as acute effects, which are sudden and severe. This focus continues, but attention has broadened to other end points such as reproductive disorders, behavioural problems and respiratory illnesses. These effects are harder to detect and may result from long–term, continuous, low–dose exposure. We now know that even small amounts of some toxic substances can have serious negative impacts when exposure occurs over a long period of time. There is also growing concern about exposure to mixtures of substances that can have cumulative effects.

3.30 An example of this shifting focus is endocrine–disrupting chemicals (EDCs), which are chemicals that alter the activities of hormones. Hormones help control growth, development, reproduction and behaviour, and interfering with any of these functions can have a significant effect. While field studies show that EDCs have such effects on wildlife, they have not been directly linked to the same effects in humans, although research is continuing. EDCs have many sources, including pesticides and effluent from sewage treatment plants. Scientists have studied EDCs for over 25 years, but the issue has gained new prominence in recent years.

3.31 **An incomplete knowledge base.** Our knowledge base of the toxicity, effects and risks of toxic substances is incomplete and still evolving. We have good information on relatively few substances. For many individual substances, we have little data about toxicity, persistence and exposure and there are many unknowns about their effects. The risks may be significant. The risks may be insignificant. Based on what is known, and considering what is not yet known, the use and release of toxic substances remain a cause for concern.

Use of scientific information in decision making

3.32 Scientific investigation comprises research, monitoring and assessment. Research and monitoring are closely related; together they attempt to determine what substances are present in the environment, what effects and changes are occurring in the environment, and why. Assessments are judgments based on a synthesis of data on toxicity, incidence of diseases, human and ecosystem effects and ambient and effects monitoring. Exhibit 3.3 illustrates how scientific information is used in decision making.

Exhibit 3.3 is not available, see the Report.

3.33 Because scientific uncertainties will always remain, the Canadian government and other governments worldwide subscribed to Principle 15 of the Rio Declaration at the 1992 United Nations Conference on Environment and Development (UNCED). More commonly known as the **precautionary principle,** it states:

> Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost–effective measures to prevent environmental degradation.

The Federal Infrastructure for Understanding Risks

3.34 Federal departments report collectively spending more than $100 million each year to assess the toxicity and effects of toxic substances, determine if they are present in our environment, characterize the risks they pose, develop and implement controls on their use and release, and ensure that the controls are working.

3.35 We attempted to determine the resources spent by departments, individually and collectively, on scientific assessment and risk management activities. We were unable to do so, due to wide variations in the completeness and specificity of the information provided by departments. This is partly because departmental expenditure management systems are designed to meet other requirements (and do not necessarily capture information in the way we requested for our audit) and partly because activities related to toxic substances are not always easily distinguished from other associated activities or environmental and health issues.

3.36 **Links to other jurisdictions and organizations.** Many federal departments and research institutions are engaged in activities to understand and assess the effects of toxic substances. But the federal government does not act alone in this regard. Departments participate in and rely upon the work of many domestic and international organizations. Scientific data on the toxicity and effects of toxic substances, for example, are often developed by private industry, according to internationally established testing protocols, and are shared (harmonized) by several governments. Internationally co–ordinated scientific assessments are used to support treaties such as the Great Lakes Water Quality Agreement, the Montreal Protocol on Substances that Deplete the Ozone Layer, and the United

Nations Economic Commission for Europe (ECE) Heavy Metals Protocol. Domestically, some environmental monitoring information is collected by provincial governments.

Key legislation

3.37 Nine separate federal pieces of legislation govern the assessment, production, use, transportation and disposal of toxic substances. Our audit scope included three that have a major influence on the assessment and management of toxic substances released into the environment: the *Canadian Environmental Protection Act*, the *Fisheries Act*, and the *Pest Control Products Act*. Each of these pieces of legislation reflects our evolving understanding and concerns about protection of human health and the environment. The main features of these three Acts are profiled in Exhibit 3.4.

Exhibit 3.4

Profile of Key Legislation

The *Canadian Environmental Protection Act (CEPA)*

- Part II of *CEPA* specifically addresses toxic substances, covering their manufacture, import and use in Canada. The ministers of Environment and Health are jointly accountable for most Part II decisions.
- A substance is defined as "toxic" if it enters or may enter the environment in amounts or under conditions that pose a risk to the environment, to the environment that supports human life, or to human health.
- The Domestic Substances List, a list of 23,000 industrial chemicals in commercial use, is used to determine whether a substance is classified as new to Canada or as an existing substance.
- Substances that are new to Canada are assessed under the New Substances Notification Regulations.
- An existing substance does not require assessment, unless it appears on the Priority Substances List (PSL). The PSL, published by the ministers of Health and Environment, lists the substances to be given priority for assessment to determine whether or not the substance is "toxic" as defined by *CEPA*.
- If a substance is found to be toxic, consultations are used to determine the best means of managing and reducing the associated risks.
- The *CEPA* "tool box" for managing toxic substances contains regulations and enforcement practices and non–regulatory approaches, including codes of practice and memoranda of understanding.
- *CEPA* is applicable where another piece of federal legislation does not provide for environmental protection.

The *Pest Control Products Act (PCPA)*

- The *PCPA* requires the registration and regulation of the import, manufacture and use of pesticides in Canada, referred to as "control products". The *PCPA* is under the jurisdiction of the Minister of Health and administered through the Pest Management Regulatory Agency.
- Pesticides include fungicides, insecticides and plant growth regulators, as well as antimicrobials such as disinfectants, swimming pool chemicals and wood preservatives.
- Most pesticides are intentionally toxic to the target organisms. Pesticides are formed of the "active" ingredient (the part with the pesticidal effect) and other ingredients such as surfactants, adjuvants, etc. used to augment the effects of the active ingredient. These, too, can be harmful to human health or the environment.
- The *PCPA* and regulations provide for the evaluation of detailed information on all pesticides prior to their registration and sale.

Pesticides are approved based on their "safety, value and merit".

- Risk assessment and risk management are blended during product registration. The risks of a pesticide are managed by means of the instructions on the pesticide label.

- A product must be denied registration in Canada if the Minister of Health finds there to be, "an unacceptable risk of harm to public health, plants, animals or the environment". "Unacceptable risk" is not defined in the legislation, regulations, or any formal document.

The *Fisheries Act*

- The *Fisheries Act* is intended to protect fish and fish habitat.

- The Act places a general prohibition on placing deleterious substances in waters frequented by fish, unless under conditions specifically authorized by regulation .

- Deleterious substances are defined as substances deposited directly into water or that are under conditions where they may enter water and affect fish and fish habitat in a negative way. Deleterious substances may include substances considered toxic, including industrial chemicals and pesticides.

- This is a "zero tolerance" approach to deleterious substances in waters frequented by fish, since it does not allow for any "safe" level of a substance to enter these waters.

- Regulations set standards for discharge of effluent into water bodies for six different sectors such as pulp and paper and mining.

3.38 The *Canadian Environmental Protection Act* (*CEPA)* is important federal legislation for controlling industrial and commercial chemicals and wastes. The Act gives the federal government authority to regulate, throughout their life cycle, substances that are determined to be toxic. To date, 46 substances have been declared toxic under the Act.

3.39 Since its introduction in 1988, *CEPA* has been the subject of extensive study and critique. In 1994, the House of Commons Standing Committee on Environment and Sustainable Development initiated a major review of the Act. The Committee's report, "It's About Our Health! Towards Pollution Prevention", led to the introduction of a Bill to amend *CEPA*. At the time of this audit, the Committee was considering hundreds of amendments. Because the new legislation will, when passed, result in many changes, our audit did not address specific regulations and processes under the current *CEPA*.

3.40 The *Fisheries Act* is also important to the control of toxic substances because it prohibits the release of any deleterious substance into waters frequented by fish, unless permitted by regulation. Section 36 of the *Fisheries Act* is administered by Environment Canada, based on a 1978 Prime Ministerial directive, although the Minister of Fisheries and Oceans retains overall responsibility for all sections of the *Fisheries Act*.

3.41 The *Pest Control Products Act* (*PCPA*) controls pesticides by means of detailed pre–market assessment and registration. It is administered by the Pest Management Regulatory Agency (PMRA), an agency within Health Canada. The PMRA was formed in 1995 to consolidate, under a single agency, the pesticide regulatory functions previously carried out by Agriculture and Agri–Food Canada, Environment Canada, Health Canada, and Natural Resources Canada. Decision–making authority over pesticide registration resides entirely with the PMRA. At the time of the Agency's formation, the government committed itself to introducing amendments to the *PCPA* that would modernize pesticide regulation in Canada and contribute to the goals of environmental sustainability. To date, no amendments have been introduced.

Focus of the Audit

3.42 This chapter focusses on the gathering of scientific information and its use by the federal government in deciding which substances pose significant risks to human health and environmental quality and therefore ought to be controlled. We chose to focus on substances that already exist in industrial, commercial and consumer applications, including both industrial chemicals and pesticides.

3.43 Some components of the overall federal infrastructure for the assessment of toxic substances were excluded from the scope of this audit — for instance, the assessment and regulation of new pesticides and industrial chemicals, legislation dealing with hazardous chemicals in foods such as the *Food and Drugs Act* or in consumer products such as the *Hazardous Products Act*, and human health surveillance programs conducted by Health Canada (currently undergoing an audit by the Auditor General of Canada).

3.44 Our observations first summarize overarching issues that emerged in the audit. We discuss the ability of federal departments to meet the growing demands for scientific information; the co–ordination of research among federal departments; the state of the federal government's environmental monitoring networks; and procedures in place to incorporate new information into decision making. As many of these activities involve more than one federal department, we also report on interdepartmental co–operation and collaboration.

3.45 Our observations and recommendations on the government's risk management programs for existing industrial chemicals and pesticides are reported in Chapter 4, Managing the Risks of Toxic Substances: Obstacles to Progress. **About the Audit** at the end of Chapter 4 provides details on the objectives, scope, approach and criteria of the audit that was the basis for this chapter and Chapter 4.

Observations and Recommendations

Cracks in the Foundation of the Federal House — Overarching Concerns

3.46 Exposure to toxic substances such as industrial chemicals and pesticides poses actual and potential risks to the health of Canadians and our ecosystems. Yet our understanding of the effects of toxic substances is incomplete. Many questions remain unanswered. What substances are present in our environment, homes and consumer products and at what levels? Where do they come from? What do they do to people and ecosystems? How significant are the risks? What can we do about them?

3.47 Scientific information produced through ongoing research, monitoring and assessment is used to answer these questions and is the foundation for understanding risks and making informed decisions.

3.48 **Good scientific information is essential for many reasons.** First, Canadians' health depends on it: unless we identify which substances pose a risk, we cannot act to reduce it. Second, together with economic, technological and social information, it supports informed decisions on how risks are to be managed. Third, after measures have been put in place to reduce risks, good scientific information can tell us whether the measures are achieving the desired result. The federal government's commitment to base its decisions on sound scientific information is reflected and repeated in legislation, departmental mandates and sustainable development strategies, and in government–wide strategies and policies.

3.49 **Government failures could affect health.** Our audit identified many weaknesses in the federal government's collection and use of scientific information on toxic substances. We found weaknesses in interdepartmental co–ordination of research efforts, incomplete monitoring networks, a lack of re–evaluation of pesticides, conflicting departmental agendas and priorities, and a growing gap between the demands placed on departments and the availability of resources to meet those demands. Cumulatively, we believe these cracks in the

foundation threaten the federal government's ability to detect, understand and prevent the harmful effects of toxic substances on the health of Canadians and their environment.

Fragmentation in the federal house

3.50 Federal activities and responsibilities to assess and make decisions about the risks posed by toxic substances are highly fragmented. These activities are carried out through several different pieces of legislation, research institutions and programs, environmental monitoring networks, international agreements, and major regional programs. They involve many different departments, each with its own mandate, interests and areas of expertise.

3.51 Some level of fragmentation in the overall federal infrastructure is unavoidable and, in itself, is unimportant. But it underscores the need for federal departments to work co–operatively together to ensure that the full expertise of the federal government — and other partners — is brought to bear for the benefit of human health and environmental protection.

3.52 The audit identified several examples of discord among various aspects of the federal infrastructure. We had expected that departments would be able to identify and resolve such conflicts and we were struck on many occasions by their inability to do so.

3.53 **Differences in legislation.** Differences in the provisions and interpretation of legislation that governs toxic substances are at the root of some conflicts among departments. The *Canadian Environmental Protection Act* (*CEPA*), the *Pest Control Products Act* (*PCPA*) and the *Fisheries Act* each have different thresholds of acceptable risk. The *Fisheries Act*, for example, is based on "zero tolerance". No deleterious substance may be deposited in waters frequented by fish unless under conditions authorized by regulation. The *PCPA,* however, allows for some level of acceptable risk associated with the use of pesticides. Even though a pesticide may be legally registered for use under the *PCPA*, its use in waters frequented by fish could be in contravention of the *Fisheries Act*. The herbicidal use of acrolein in irrigation canals presents one example of the conflict between the *PCPA* and the *Fisheries Act*, as illustrated in Exhibit 3.5. The practice of aquaculture, discussed in Chapter 4, is another example.

Exhibit 3.5

The Case of Acrolein: Which Is the Federal Position?

This case study illustrates the inability of Fisheries and Oceans and the Pest Management Regulatory Agency to resolve their differences and come to a united federal position on the application of a herbicide.

Acrolein is the active ingredient in an aquatic herbicide applied to irrigation canals for weed control in Saskatchewan and Alberta. It is considered an effective method to control weeds without disrupting water delivery to farmers. It was registered under the *Pest Control Products Act* in 1971.

In 1994, the Alberta Environmental Protection department asked the federal Department of Fisheries and Oceans for information on the impact of Magnacide–H on fish and fish habitat, which it needed to reissue permits under provincial law. Its concern was due to fish kills that had been observed in irrigation canals after deposition of acrolein, many miles from where it had been applied .

Following investigation of the effects of this herbicide on fish and fish habitat, Fisheries and Oceans took the position in 1996 that it did not support the use of acrolein for aquatic weed control. Its position was based on the fish kills that had been observed as a result of using the product at the recommended rates. As a result, use of acrolein in irrigation canals would be placing a deleterious substance in waters frequented by fish and, therefore, would be in contravention of the *Fisheries Act*. Fisheries and Oceans considers irrigation canals to be covered by the *Fisheries Act* because they are used as a recreational fishery in southern Alberta and Saskatchewan.. The Pest Management Regulatory Agency (PMRA) took the position that irrigation canals are not fisheries under the *Fisheries Act* and, therefore, the use of acrolein was not a violation of the *Fisheries Act.*

Despite attempts to resolve their differing positions, Fisheries and Oceans and the PMRA were unable to come to an agreement. The difference between the positions of the two departments caused confusion for the Province. In 1997, Alberta Environmental Protection sought a unified federal response and clear direction on the use of the product.

In 1998, the PMRA and Fisheries and Oceans responded individually, each reiterating its previous position. The issue remains unresolved, and the use of acrolein continues.

3.54 The residual nature of *CEPA* means that it does not apply to the use of substances that are covered by another piece of legislation. For example, if a particular substance has both industrial and pesticidal uses, *CEPA* provides for assessment of only the effects of the industrial use. This has led to the need to clearly delineate the scope and boundaries of risk assessments and risk management processes under *CEPA*.

3.55 **Divisions among departments.** The diverse and polarized perspectives within Canadian society at large are also manifest to an extent in the mandates of departments and the positions adopted by them. This has led to conflict among departments. Some conflicts relate to long–standing scientific disagreement about the specific risks posed by some individual toxic substances; this has had significant implications for the risk management activities addressed in Chapter 4. There are also differences of opinion on the interpretation and application of legislation and the nature of departmental roles and authorities.

3.56 Differences over industrial chemicals are most marked between Environment Canada, Fisheries and Oceans and Health Canada on the one hand and Industry Canada and Natural Resources Canada on the other. Differences over pesticides are most marked between Environment Canada and Fisheries and Oceans on the one hand and the Pest Management Regulatory Agency on the other.

3.57 We recognize that debate among scientists is a normal and important feature of scientific investigation, when it occurs in a process that is open and transparent. As well, recognition and accommodation of diverse views and opinions in society is a necessary part of public policy development and implementation. However, we believe that conflicts between departments have in many cases surpassed a healthy level of debate and have led to strained relations, indecision and inaction, inefficient use of federal resources and expertise and, in at least one case, Canada's international embarrassment.

3.58 The economic importance of many modern chemicals — let alone the potential costs of reducing or eliminating the risks associated with their emission or use — causes all departments to strive for scientific certainty. Those who will bear the costs want proof of cause and effect, and evidence that the risks are real and significant. Yet, as we have noted, scientific certainty is often not possible to achieve. Departments sometimes disagree on how to deal with uncertainty, and the federal government has failed to develop a clear and consistent interpretation and application of the precautionary principle as it relates to toxic substances.

The growing gap between demand and supply

3.59 Our audit identified a growing gap between the demands placed on federal departments to provide and use needed scientific information and a federal infrastructure that is increasingly ill–equipped to supply it.

3.60 **Declining scientific resources.** A decline in resources devoted to overall scientific investigation in the federal government has been well documented, including by previous reports of the Auditor General. In order to meet the government's fiscal objectives established in its 1994 Program Review, departments reduced many areas of programming. From 1994 to 1998, four science–based departments — Environment, Fisheries and Oceans, Health and Natural Resources — reduced their total scientific personnel by 17 percent.

3.61 These departments report that resources dedicated to the scientific investigation and assessment of toxic substances have also been reduced. We were unable to identify specific levels of reduction, however, due to variations in the completeness and specificity of information provided by departments.

3.62 **Weakened morale.** In Chapters 1 and 2 of his April 1998 Report, the Auditor General examined the implementation of Program Review and its impacts on the public service work force. During our audit, many scientists from all departments expressed to us their serious concerns about impacts of Program Review on people.

These concerns were consistent with those noted in the Auditor General's Report: increased workload, significant loss of key senior scientists and skilled employees, and generally low employee morale.

3.63 Existing demands not being met. Within existing budgets, departments are struggling to meet legislated responsibilities, policy commitments and international treaty obligations and, in many cases, are failing to do so. Some assessments of priority substances under the *Canadian Environmental Protection Act* began in 1989 and remain inconclusive today. Re–evaluations of pesticides under the *Pest Control Products Act* have not been undertaken due, in part, to lack of resources. As illustrated by Exhibit 3.6, budget reductions have substantially curtailed health and environmental research in the Great Lakes region of Canada, and some international commitments for this region are not being fully met.

Exhibit 3.6

Impacts of Declining Resources in the Great Lakes Region

This case study illustrates the impacts of resource cuts on research and monitoring programs in the Great Lakes. Historically, the Great Lakes Basin has been a particular focus of study because of evidence that contaminants there harm the health of many Canadians and Americans.

In 1972, Canada and the United States signed the Great Lakes Water Quality Agreement (GLWQA). "Great Lakes 2000", the federal component, was signed in 1994 as a $125 million, six–year program involving Health Canada, Fisheries and Oceans, Environment Canada and Agriculture and Agri–Food Canada, among others. After the first year, however, only Environment Canada and Health Canada allocated money from their departmental budgets for this program and even these two departments had to reduce their funding from the planned levels.

Environment Canada's budget for Great Lakes 2000 was reduced by 35 percent between 1994 and 1998. Health Canada now estimates that it will provide no more than 60 percent of the promised funding by 2001 and will meet less than 75 percent of its public commitments under Great Lakes 2000. Moreover, its internal funding mechanisms mean that existing funding is not secure.

Although Fisheries and Oceans is not allocating funding to the Great Lakes 2000 program, its activities support the GLWQA. At its Great Lakes Laboratory for Fisheries and Aquatic Science, research is conducted on the impacts of toxic contaminants on freshwater fisheries in the region. Notwithstanding these activities, since 1994 the Laboratory's research staff has been cut by 40 percent and its Ecotoxicology Division by 70 percent. As a result, Fisheries and Oceans is not meeting all of its research and monitoring commitments.

Agriculture and Agri–Food Canada is no longer a partner in Great Lakes 2000 because of funding constraints.

These cuts have resulted in wasted resources, because research projects that were undertaken could not be completed. Departments are not able to fully meet international commitments, resulting in a perception by their domestic and international partners that they are unreliable. This perception may hamper their ability to establish essential collaborative, longer–term projects to address ecosystem issues.

3.64 Demands are growing. The demands placed on departments for scientific investigation and assessment related to toxic substances continue to change and are expected to increase. For example:

- The number of substances of potential concern continues to grow.

- Many substances have yet to be assessed. For instance, by 2000, after ten years of effort, fewer than 70 substances will have been assessed by the *CEPA* Priority Substances Assessment Program. Proposed amendments to *CEPA* may create many new demands, including a requirement that within seven years Environment Canada and Health Canada categorize approximately 23,000 substances on the Domestic Substances List.

- Concerns about issues such as endocrine disruption and the cumulative effects of exposure to mixtures of toxic substances have triggered demands for new research and may ultimately require that some substances be reassessed. Such issues will also require the development of new and more sophisticated research methods and analytical techniques.

- There is a backlog of existing pesticides requiring re–evaluation.

3.65 **Who will take up the slack?** The government has long been viewed as the provider of research to promote public and environmental health and well–being. As noted earlier, scientific data can also be obtained from universities, the private sector and international sources. Yet Canadian organizations performing research outside the federal system also face financial challenges. This is particularly true of those that rely on government funding, because the level of that funding has been reduced. For example, the Canadian Network of Toxicology Centres, established to carry out research on behalf of federal departments, has indicated that reduced funding from government threatens the critical mass of the Network and its ability to attract leveraged funding.

3.66 Budget reductions have also affected the ability of federal departments to leverage their resources with outside organizations and to enter into new partnerships. If the federal government does not have sufficient resources, potential collaborators may not view the effort as mutually beneficial.

3.67 **The influence of external partners.** Partnerships are frequently used in scientific research and can provide benefits for all parties. Budget reductions have necessitated an emphasis on partnerships and have led federal departments to augment their research budgets from private sector and other outside sources. As a result, departmental projects have become more aligned with the priorities of the funders. These priorities may differ from those established by the department. Senior scientists expressed to us concern about the impact these new priorities may have on the ability of departments to undertake research for the public good.

3.68 Determining whether the federal government is spending the right amount of money on research and monitoring of toxic substances is inherently elusive and beyond our mandate. Nevertheless, we were alarmed by the level of concern among senior scientists in all departments and associated scientific organizations about the government's declining ability to respond to new demands and emerging issues.

An uncertain future?

3.69 Based on what we observed in the course of our audit, we are concerned that scientific capacity in the federal government has been reduced to the extent that its capability to support informed decision making and deliver on core departmental mandates is threatened. As a result, the federal government's ability to assess and prevent the harmful effects of toxic substances is uncertain.

3.70 **Environment Canada, Health Canada, Natural Resources Canada and Fisheries and Oceans should each conduct an analysis of gaps between projected demands for scientific research on toxic substances (including the need for new scientific methods, skills and expertise) and existing departmental capacity, and subsequently use this information to assess federal gaps overall.**

Mobilizing Capacity: Weak Interdepartmental Co–ordination of Research

3.71 Notwithstanding the impact of budget reductions, scientific research in the government is ongoing and is carried out by a variety of departments and research institutes (see the Appendix to this chapter). They reported collectively spending at least $35 million in 1997-98 on research into toxic substances and related environmental and health issues (we did not audit that information). This work is important and has contributed substantially to society's understanding of the effects of toxic substances. Federal scientists are well recognized domestically and internationally for their work in many areas.

3.72 We observed that these scientific research, monitoring and assessment programs are compartmentalized both among and within departments. Departmental research programs are distinguished by the substances, species and media (air, water, land) they address and by the diverse scientific disciplines of their staff and their facilities. In some departments, this research is organized under a single program like Fisheries and Oceans' Toxics Chemicals

Program, while in other departments it is dispersed among different branches. Research priorities are generally developed separately by departments, in accordance with their mandates, legislative responsibilities and client interests.

3.73 We had expected that departments would identify common needs and priorities, share research findings and undertake collaborative and integrated projects where warranted. The need for effective co–ordination is stressed in the federal government's 1996 Science and Technology Strategy, and co–ordination is essential if taxpayers are to receive best value for tax dollars.

3.74 The need for co–ordination is especially pronounced in the area of toxic substances. First, given the sheer number of projects under way at any given time, there is an ongoing need to ensure that the left hand knows what the right hand is doing. Second, toxic substances require an interdisciplinary approach, combining the knowledge and expertise of various departments and scientists. Like pieces of a puzzle, the combined federal capacity can fit together to produce a more complete picture and answer important questions.

Managing the trees, not the forest

3.75 **Mixed reviews.** Our audit observations about the level of interdepartmental co–ordination are mixed. On one hand, for example, we observed long–standing scientific controversy and disagreement between Environment Canada and Natural Resources Canada that has resulted in an inability to present a unified Canadian position in international negotiations (see Exhibit 3.7 on mercury) and, in our opinion, inefficient use of federal resources. We also noted disagreements over assessments of priority substances conducted under the *Canadian Environmental Protection Act* and the assessment of impacts of pesticides under the *Pest Control Products Act.*

Exhibit 3.7

Strained Relations on the Issue of Mercury

This case study illustrates the impacts of a long–standing scientific disagreement between federal departments on heavy metals, particularly mercury, and the efforts that have been made to resolve the issue.

Mercury occurs naturally in the environment and is also released as the result of human activities. In certain forms it can be toxic to both humans and wildlife and can cause neurological damage. Despite long–standing regulations under the *Canadian Environmental Protection Act* and the *Fisheries Act* to curb emissions from specific sectors, mercury deposition continues to be a problem in many ecosystems. For example, five Canadian provinces and 39 American states have issued consumption advisories for freshwater sport fish because of mercury contamination. Common loons breeding in the Maritimes have the highest blood mercury levels in North America, which is affecting their ability to nest and raise their young. These concerns have elevated the issue of mercury to the international level with the North American Commission for Environmental Co–operation and the recent negotiation of a heavy metals protocol under the United Nations Economic Commission for Europe (UNECE).

Scientists do not dispute mercury's impacts, but there is disagreement about the relative contribution of natural versus human–made releases present in the environment. Natural Resources Canada has argued for greater recognition of the contribution of natural emissions of mercury. This has been the subject of considerable scientific controversy and disagreement with other federal departments and international scientists. These differences have resulted in Canada's presenting a divided opinion on the issue to the European and North American communities and, in effect, "airing Canada's dirty linen in public". The situation has also strained relations in domestic discussions with Canadian stakeholders.

Efforts to resolve these scientific differences of opinion and to develop a federal position were initiated under the Memorandum of Understanding among the Four Natural Resources Departments in 1995. The Metals in the Environment initiative has resulted in scientific studies both as co–operative efforts and as individual departmental projects. After three years of work the debate remains; however, the departments have identified and agreed on the scientific and policy questions that must be addressed.

Disagreement notwithstanding, there is growing evidence of the environmental impacts of present levels of mercury in the environment. This has led Environment Canada's Atlantic Region to conclude that "any steps to prevent and reduce mercury pollution would be valuable."

3.76 On the other hand, we observed several examples of positive co–operation and good working relations between departments. This occurs formally through major research programs and individual projects as well as more informally, between researchers who maintain links with their colleagues in other departments. Such co–ordination often occurs in reaction to specific problems or issues.

3.77 **Collaboration is possible.** Experience demonstrates that interdepartmental co–operation on complex environmental issues is possible. Departments identified scientific assessments under the Northern Contaminants Program (administered by Indian and Northern Affairs Canada - see Chapter 6 of this Report) and on acid rain as examples of joint priority setting and positive collaboration. When specific funding was provided, departments worked co–operatively on research projects. These projects produced good results and Canada is well regarded for some of the outcomes of this work. The National Dioxin Sampling Program, a monitoring program, was also identified as an example of interdepartmental collaboration.

3.78 Further, the departments of Environment, Fisheries and Oceans, Natural Resources, Agriculture and Agri–Food and Health have agreed through a memorandum of understanding (MOU) to co–ordinate environmental research. There is no working group that addresses toxic substances overall at a strategic level, although working groups have been established to address two specific types of toxic substances: metals in the environment and endocrine disrupting chemicals.

3.79 Through the recently announced $40 million Toxic Substances Research Initiative (TSRI), departments have also demonstrated that they can collaborate on defining research priorities. These include research on persistent organic pollutants, toxic forms of metals, endocrine–disrupting chemicals, air pollutants and cumulative effects of toxic substances. We note that the initiative proposes an entirely new structure to administer funding and to review and approve research proposals, perhaps indicating that existing mechanisms for interdepartmental collaboration require improvement.

3.80 **Overall integration is lacking.** Our major concern is a lack of integration and management of the research agenda on toxic substances at the strategic level, that is, above the level of individual departments and research programs. Collectively, departments are not “managing the forest”, only the trees. Data and findings from ongoing individual research programs in areas of mutual interest are not routinely combined and compared. We are concerned that departments may be missing opportunities for sharing information, establishing government–wide priorities, or engaging in long–term planning that mobilizes their respective expertise and resources.

3.81 We believe that where issues transcend departmental mandates—such as toxic industrial chemicals and pesticides—strategic leadership is essential to achieve results. Although the above–noted MOU could provide a forum for improved integration, no department has stepped forward to lead such integration, despite opportunities to do so. The working group on metals in the environment has identified scientific and policy questions that departments will address through individual and joint research projects. Some projects, however, have suffered or stalled because they lacked a departmental champion, and there appears to be little incentive for individual departments to pool resources or to take ownership of issues and projects.

3.82 We recognize that strategic management of research on industrial chemicals and pesticides is a challenge. There are many different substances to deal with. Moreover, research on toxic substances must be considered alongside research on other environmental stresses and issues. In our view, however, these challenges are not insurmountable.

Two–way communication is essential

3.83 The need for effective communication between scientific and policy–making communities has long been recognized by departments. A lack of communication can have potentially serious implications for decision making, including impediments to the development of regulations and an inability to identify and react to emerging issues.

3.84 Departments noted various internal and ongoing efforts to foster links between science and policy. Still, we were struck by the extent to which both scientists and policy makers identified the need to improve communication between them. The challenge for policy makers is to clearly articulate the issues that require scientific answers. In turn, scientists need to identify the capabilities, limits and timelines of their research and to identify emerging issues that could require policy action.

3.85 The evolving issue of endocrine–disrupting chemicals (EDCs) illustrates the need for a co–ordinated research plan by federal departments as well as effective two–way communication. We observed that Environment Canada, Health Canada and Fisheries and Oceans have initiated research and information–sharing activities on EDCs, in accordance with their own mandates. Despite the existence of a working group on EDCs under the interdepartmental MOU, these departments do not yet appear to have developed an integrated research program that combines their respective capacities and expertise. Nor have the departments jointly identified government–wide policy and regulatory questions that would guide research activities.

3.86 Environment Canada, Health Canada, Agriculture and Agri–Food Canada, Natural Resources Canada and Fisheries and Oceans should better integrate and collaborate on research related to toxic substances at a strategic, interdepartmental level. For collaborative work, departments should identify common needs and priorities, define their respective roles, accountabilities and resources, implement action plans and report results. Departments should take into account the need to integrate such work with other research activities related to health and the environment and to ensure effective communication between science and policy sectors.

Co–ordination of research on pesticides

3.87 When the Pest Management Regulatory Agency (PMRA) was formed in 1995, decision–making authority for pesticide registration was vested in the Agency; responsibility for research and monitoring activities related to pesticides was retained in departments that undertake scientific research, such as Environment Canada and Fisheries and Oceans. Although the PMRA relies extensively on data provided by pesticide manufacturers when deciding on pesticide registration, ongoing federal research on the fate and effects of pesticides can be an important source of information to support pesticide re–evaluations and special reviews, and to guide risk reduction activities. We had expected to find that the PMRA and these departments had defined their respective roles and established a mechanism for joint priority setting and planning.

3.88 Weak links to other departments. Overall, we have significant concerns about the lack of effective co–operation between the PMRA and the departments that undertake scientific research activities. There is little evidence that the departments and the PMRA, on a routine or regular basis, discuss their work or share their findings and set priorities for subsequent work. The PMRA has gained a reputation as a “closed shop” and is perceived not to welcome input from other federal departments. Despite this, pesticides–related research is ongoing in departments such as Fisheries and Oceans and Environment Canada.

3.89 Lack of information sharing. To properly target research into the environmental effects of pesticides, departments first need basic information on the composition of pesticides. The PMRA possesses this type of information and Environment Canada has asked for it. Because the *PCPA* is silent on the sharing of such information, the legislation that applies is the *Access to Information Act*. However, the Agency has indicated that the confidentiality provisions of that Act preclude the sharing of the information with other departments. Proposed amendments to the *PCPA* would allow the Agency to do so.

3.90 Further obstacles. Information on known or reported adverse effects is also crucial to departments’ ability to determine the full range of a pesticide’s effects. As noted in paragraph 3.133, the *PCPA* does not currently provide for the reporting of adverse effects. In some cases, departments obtained this type of information from U.S. sources.

3.91 Recognition that improvements are needed. Following years of protracted negotiations, in 1998 the PMRA and Environment Canada signed a memorandum of understanding (MOU) to improve communication and clarify their respective roles and responsibilities in the exchange and use of scientific information. Effective implementation of the MOU provisions for such exchange has barely begun. Environment Canada spent approximately $1.3 million on pesticide research and monitoring in 1997-98, but it is not clear how either the Agency or the Department intends to use and align this work to support the intent of the MOU.

3.92 Environment Canada and the Pest Management Regulatory Agency should forthwith implement the provisions of their memorandum of understanding. They should plan and set priorities for research and monitoring, exchange results, consider these results during regulatory decision–making processes and report the results of these actions on a scheduled basis.

3.93 Fisheries and Oceans also conducts research that has relevance to the management of pesticides. Fisheries and Oceans and the PMRA have also developed an MOU, although it remains unsigned because of the unresolved conflict between the *PCPA* and the *Fisheries Act* on the use of pesticides in aquaculture.

3.94 Fisheries and Oceans and the Pest Management Regulatory Agency should proceed forthwith to plan and set priorities for research and monitoring, exchange results, consider these results during regulatory decision–making processes and report the results of these actions on a scheduled basis.

Shortfalls in Monitoring

3.95 Monitoring is an essential complement to research. Monitoring generally involves the collection of data or observations from specific sites and regions over a long period of time. “Ambient” monitoring measures the presence of toxic substances in the environment (air, water, land). ‘‘Effects” monitoring measures changes in organisms, populations or entire ecosystems that may be caused by various stresses, including toxic substances. Both types of monitoring are crucial to determine exposure to toxic substances, detect changes over time, and determine whether risk management activities are effective. Monitoring is most effective when linked to well–defined research objectives and priorities.

3.96 Historically, federal, provincial and territorial governments have shared responsibility for some monitoring of toxic substances. At the federal level, Environment Canada has the primary responsibility for monitoring air, water and ecosystems. Fisheries and Oceans monitors fish and fish habitat in fresh and marine waters, and Natural Resources Canada monitors forests.

3.97 Surveillance is similar to monitoring except that it is conducted on a shorter–term basis. Natural Resources Canada undertakes geoscience surveys to establish national baseline levels of naturally occurring metals. While these activities do not produce long–term monitoring data, they can provide valuable information to scientists and policy makers.

3.98 Repeated calls for an effective monitoring system. There is no substitute for Canadian–based monitoring information. Well–designed and well–equipped monitoring sites can—and must—serve multiple environmental and health issues. Time after time, federal departments and other organizations have stressed the importance of and need for effective monitoring, and so have various studies, assessments and international agreements. Despite this, Environment Canada’s resources for monitoring have been declining steadily since 1990. We expected to find that Environment Canada, together with other departments, had established clear priorities and co–ordinated existing national programs and monitoring networks, including provisions for data assessment, to meet established objectives.

3.99 Weaknesses in interdepartmental co–ordination. Many of our comments on the lack of interdepartmental co–ordination of research apply equally to monitoring. This is because research makes use of data

on ambient and effects monitoring, and vice versa. Research and monitoring are often conducted together, in some cases at the same site.

Weak networks for ambient monitoring

3.100 Incomplete, inconsistent ambient coverage. It is not reasonable to expect that ambient monitoring would be done for every toxic substance; there are simply too many. We expected, however, that departments would be monitoring for toxic substances considered to be priorities. This is not being done consistently. There are some regions of Canada in which extensive ambient monitoring is conducted. In most parts of Canada, however, there is little ambient monitoring of most industrial chemicals. Nor does Environment Canada conduct any systematic monitoring of priority pesticide residues in the Canadian environment, even in regions of heavy use such as Western Canada. In many parts of Canada there are no monitoring stations for industrial chemicals or pesticides.

3.101 Environment Canada operates a national air–monitoring network known as National Air Pollution Surveillance. Although the Department has identified industrial chemicals and pesticides that should be monitored under domestic and international initiatives, this network tracks only half of them and even those are not monitored at every site in the network.

3.102 There is no national network for water–based ambient monitoring. Monitoring of individual watersheds in regional initiatives such as the Atlantic Coastal Action Program or Great Lakes 2000, while important, is tailored to only specific issues and substances. The regional data that do exist are not integrated or synthesized to form a national picture.

3.103 Need for co–ordinated monitoring. Environment Canada's responsibilities for various types of monitoring are dispersed among different services and institutes of the Department; there is therefore a strong need for co–ordination and for someone to be accountable for the "big picture". Currently, there is no overall focus and little horizontal co–ordination or integration of data across the groups. Accountability, even for co–ordination between the existing networks, is unclear.

Monitoring for effects of toxic substances

3.104 Effects monitoring is the complement of ambient monitoring. It seeks first to observe effects and changes in species, populations or entire ecosystems, and then to establish their causes, including the role of toxic substances. Departments recognize the importance of effects monitoring because it can provide, for example, field evidence about whether risk reduction controls are working. In the 1970s, environmental effects monitoring of birds and fish in the Great Lakes region provided an impetus for action on toxic substances such as PCBs and DDT.

3.105 In our view, the federal government's approach to effects monitoring is disorganized and lacks focus. We observed a patchwork of initiatives that have been implemented under the banner of "effects monitoring". Each of these is important in its own right. There is no evidence, however, that Environment Canada, Fisheries and Oceans or other departments have, either individually or collectively, established a strategic, co–ordinated approach to implementing a national program of environmental effects monitoring based on research and other priorities. As with ambient monitoring, accountability is decentralized and unclear.

3.106 Monitoring for effects in industrial sectors. The federal government has applied one type of effects monitoring to industrial activities. In 1992, a national program of environmental effects monitoring (EEM) for the pulp and paper sector was established under the *Fisheries Act*. It is the first Canadian example of a legislated requirement for environmental monitoring that involves the collection of data on fish and other aquatic species, toxicity, and levels of contaminants in living organisms, water and sediment. The cost is borne by industry, requiring mills to install, maintain and operate calibrated equipment. Similar regulations are currently being developed for the mining sector.

3.107 The "polluter pays" principle has also been applied to monitoring activities in other jurisdictions in Canada. British Columbia and Alberta have each implemented programs in which industrial and other sources of air contaminants pay annual fees related to monitoring of ambient air quality in some areas of these provinces.

3.108 Support for a long–term ecosystem approach. Federal departments, led by Environment Canada, have repeatedly stated their intention to support an "ecosystem approach" to environmental management. Ecosystems are living laboratories in which the long–term effects of environmental stresses, including toxic substances, can be measured in living things and in the surrounding environment. Changes in ecosystems can be subtle and hard to detect or predict; an ecosystem approach demands a long–term perspective. This is well illustrated by Exhibit 3.8, which describes the benefits of the ecosystem approach in Kejimkujik National Park, Nova Scotia.

Exhibit 3.8

An Ecosystem Approach to Research, Monitoring and Assessment

This case study illustrates the benefits of adopting an ecosystem approach to managing environmental issues that cut across departments and mandates.

Continuous monitoring at Kejimkujik National Park in Nova Scotia dates back to the 1970s, when the Canadian Wildlife Service and Parks Canada initiated monitoring of physical, chemical and biological parameters. Based on their data, which identified the site as highly sensitive, the Park was selected in 1978 to be monitored for acid rain and its effects as part of the Long Range Transport of Atmospheric Pollutants (LRTAP) program. Since then, monitoring and research programs have been initiated on the impacts of mercury, effects of climate change and ultraviolet radiation (UV–B) as well as biodiversity and forest ecology dynamics. This site is also part of the Ecological Monitoring and Assessment Network.

Although this project began with a focus on acid rain, the interconnectedness of stressors and impacts in the Kejimkujik ecosystem and the usefulness of the LRTAP data to related studies have led to the project's expansion to include other environmental components and other toxic substances. For instance, mercury levels in loons have been measured over the last 10 years and the information compared with data on reproductive success.

Many agencies have been involved since the inception of LRTAP studies, including all three services of Environment Canada, Parks Canada, Natural Resources Canada (Canadian Forest Service and the Geological Survey of Canada) and Fisheries and Oceans. Ongoing co–ordinated management of activities at the site and regular scientific workshops have provided means for researchers to exchange ideas and data, assess progress and identify research and monitoring needs.

The information generated from this multi–agency work has led to the development of a Regional Action Plan for Mercury (1996) and the New England Governors/Eastern Canadian Premiers Mercury Action Plan (1998). The long–term nature of these closely linked studies and the resulting ability to assess impacts and provide a scientific basis for emission reduction continue to justify the ecosystem approach.

3.109 Regional initiatives in Canada. Many issues are regional in scope and are best dealt with at that level. Environment Canada initiated and leads so–called "flagship" regional ecosystem initiatives in the Great Lakes, St. Lawrence River, Atlantic Coastal Region, Northern River Basin, Fraser River and Georgia Basin. The Great Lakes program is the oldest, dating back to 1989. Ambient and effects monitoring are combined in these regions. No other Canadian regions or ecosystems are being monitored.

3.110 A federal inventory is missing. A national effort to incorporate and collate regional data is missing. There is no collective inventory of the substances, locations and species presently being monitored by federal departments. Different types of initiatives exist in individual departments, however. For example, Fisheries and Oceans has a National Contaminants Information System, a computerized database of information on toxic chemicals in fish, other aquatic life and their habitats. In addition, Environment Canada's Atlantic Region has developed a CD–ROM that catalogues regional environmental monitoring networks. These examples are a starting point toward documenting and understanding the capacity for monitoring, and could help in identifying gaps and implementing programs to fill them.

3.111 Toward a national network? Environment Canada has attempted to promote co–ordination within the existing national infrastructure of monitoring sites and organizations, through the creation in 1994 of the Ecological Monitoring and Assessment Network (EMAN). EMAN includes over 100 sites operated by a multitude of agencies, including federal departments, provincial governments and universities.

3.112 EMAN has faced — and still faces — significant challenges in integrating data from sites that predate its creation. The result has been a potpourri of data and information that is not always comparable and hence is not widely used. Environment Canada's own review of EMAN indicates that its resources are not sufficient, given the magnitude of the task; its efforts are unfocussed; and it is not well known or supported even within Environment Canada. We believe that the intent of EMAN is important and could help stitch together Canada's patchwork of monitoring systems.

3.113 Ignored for too long. Federal departments have repeatedly stressed the need for effective monitoring. Departments appear to be well aware of the shortcomings of existing networks and programs, based on the numerous departmental reviews and studies we examined during this audit. Their recommendations have invariably called for a revitalization of monitoring toward a more integrated, effective national system. Yet shortcomings persist. We believe weaknesses in the federal government's environmental monitoring are impeding the government's ability to detect the presence of toxic substances in our environment, to determine their effects on species, ecosystems and humans, and to measure the effectiveness of risk management initiatives on a long–term basis.

3.114 Environment Canada, Fisheries and Oceans, Health Canada (including the Pest Management Regulatory Agency) and Natural Resources Canada should, together with other partners, identify current and projected needs regionally and nationally for ambient and effects monitoring of priority industrial chemicals and pesticides, based on program and policy objectives.

3.115 The departments should develop and maintain a co–ordinated inventory of current ambient and effects monitoring programs, including existing sites, species, substances and parameters measured. The inventory should be used to determine gaps relative to identified needs and objectives.

3.116 The departments should collaborate on establishing and maintaining a nationally integrated ambient monitoring system for air and water that is based on identified needs and program and policy objectives. They should also develop and implement a long–term strategy for a nationally co–ordinated environmental effects monitoring program, building upon current industry sector and regional initiatives.

3.117 The departments should consider and evaluate options to extend the "polluter pays" principle to ambient and effects monitoring.

Using Information to Assess Risks

3.118 Scientific assessments help to determine which substances ought to be managed. They synthesize many different types of data and research results. Some assessments target individual substances (such as those under *CEPA* and the *PCPA*), others target environmental or health issues (such as acid rain or ozone layer depletion), and a few have a regional focus (such as those under the Great Lakes and Northern Contaminants programs).

Priority substances assessments under the *Canadian Environmental Protection Act*

3.119 The *Canadian Environmental Protection Act* (*CEPA*) includes provisions for assessment of new substances (we did not audit this aspect) and substances that were not assessed prior to their market use. For existing substances, *CEPA* uses risk assessments under the Priority Substances Assessment Program led by Environment Canada and Health Canada.

3.120 Many of the 23,000 chemical substances in industrial and commercial use in Canada are not considered to pose a risk to human or ecosystem health. However, some can. The Priority Substances Assessment Program was created to fill the gaps in knowledge about these substances, including information on their toxicity, the extent to which people and ecosystems are exposed to them, and the risks they pose to human or environmental health. In this program, the ministers of Health and Environment identify substances that will undergo priority assessment to determine if they are toxic according to the Act.

3.121 Under *CEPA*, a substance can be declared toxic if it meets one or more of three criteria: if it poses or may pose a risk to the environment, to the environment that supports human life, or to human health. The designation of a substance as ''*CEPA* toxic" has important implications for the options available to federal authorities in implementing risk management programs.

3.122 In 1989, 44 substances or groups of substances were selected for priority assessment. These assessments were completed within five years. By 1994, 25 of the assessed substances were declared to be *CEPA* toxic. Risk management for these substances is addressed in Chapter 4. Assessments of 25 more substances or groups of substances on a second priority list began in 1995 and are scheduled for completion in December 2000.

3.123 The process used to select and assess the first priority substances was new to Environment Canada, Health Canada and other participants. The process was criticized, due in part to weaknesses in the selection of the substances to be assessed (some had very limited use in commerce) and in the characterization of risks and sources of exposure. These weaknesses have affected the risk management of the substances, as discussed in Chapter 4. A variety of changes were subsequently introduced to improve the process for the second list of priority substances.

3.124 Data gaps precluded decisions. Assessments of the first group of substances were made on the basis of available data; new research was not commissioned. For 13 of the 44 substances originally identified, Environment Canada and Health Canada were unable to reach a conclusion about toxicity against all three criteria under *CEPA*. This was primarily because they lacked sufficient information about the extent of exposure to these substances. The substances were, by definition, high priorities and therefore we had expected that the departments would identify and fill the gaps in information and complete the assessment process.

3.125 No formal decision taken. A research plan was developed to gather the missing data on 7 of the 13 substances. No additional work was conducted on the other 6 substances, in part because existing resources had already been allocated to assessing the second list of priority substances and in part because exposure was considered negligible. Although four years have passed since completion of the initial assessments, no formal decision under *CEPA* has been made or announced on these 13 substances, and the results and conclusions of the additional research have not been published. Yet these 13 substances are officially listed as "non–toxic" on Environment Canada's and Health Canada's Internet sites.

3.126 In 1994, a Notice of Objection was filed under the *Canadian Environmental Protection Act,* demanding that the departments reach a conclusion on the toxicity of these substances. The government took the position that it was not legally obliged under the Act to reach a conclusion. We believe that given the substantial public funds that were spent to conduct these assessments, the federal government is accountable for "closing the files" and providing Canadians with a clear rationale for the listing of these substances as non–toxic.

3.127 Lessons for the precautionary principle? Experience with the *CEPA* priority assessments illustrates the challenges of dealing with scientific uncertainty and applying the precautionary principle. The precautionary principle suggests that a lack of full scientific certainty should not be used as a reason to postpone cost–effective action. In this instance, in the face of uncertainty the substances were treated as non–toxic under *CEPA* and were thus not formally targeted for any risk management activity. Yet over half of these substances were identified as "substances of concern" under other risk management activities, as described in Chapter 4. This demonstrates a lack of consistency in applying the precautionary principle.

3.128 Environment Canada and Health Canada should forthwith reach a formal conclusion on the toxicity of the 13 substances for which they have not yet done so. The results should be made available to the Canadian public and should provide a clear rationale for the designation of the substances as either toxic or non–toxic under the *Canadian Environmental Protection Act*, bearing in mind the government's commitment to the precautionary principle.

Incorporating new scientific research under *CEPA*

3.129 Scientific information is not static. As the standards for testing toxicity change (as they have in the case of endocrine–disrupting chemicals) and as research and monitoring activities continue, new scientific information can be expected to come to light. Such new information could warrant changing the status of a substance from non–toxic to toxic, or vice versa. Departments need a way to deal with this information for substances that have already been assessed and their status decided. We expected that Environment Canada and Health Canada would have established a clear process for considering new scientific information and for revisiting earlier decisions.

3.130 Formal procedures not yet developed. Currently, Environment Canada and Health Canada react to new information on an informal, ad hoc basis. We found no specific procedures for incorporating such information into decisions. Ground rules governing specific roles, accountabilities, decision criteria and procedural steps have not been defined or documented. The absence of a formal process for revisiting a decision may lead to confusion among all participants in the future and leave the government open to legal challenge.

3.131 Environment Canada and Health Canada should develop a process for incorporating new information and reconsidering decisions taken on substances previously assessed under the *Canadian Environmental Protection Act*. This process should define roles, accountabilities, timelines, decision criteria and procedural steps.

Pesticides rarely re–evaluated

3.132 Before any pesticide product is registered for use, risks are assessed under the *Pest Control Products Act (PCPA)* to determine whether the product presents an unacceptable risk of harm. Special reviews and re–evaluations of pesticides are used to consider new information on previously assessed and registered pesticides.

3.133 Of the 500 active ingredients contained in registered pesticides, over 300 were approved before 1981 and over 150 before 1960. Many pesticides were approved when the standards were much less stringent than they are today. The changes in pesticide registration include new health and environmental standards, and more consistent and reliable methods of testing. Ongoing scientific research may discover unintended harmful effects of pesticides registered many years ago. In addition, reports of adverse effects of pesticidal use (also known as incident reports) are another source of new information about previously assessed pesticides. Legislation in the United States requires that manufacturers provide the government with reports of any unexpected adverse effects that it receives; however, the *PCPA* has no such requirement.

3.134 Regulations under the *PCPA* allow for the cancellation or suspension of a pesticide's registration if new information indicates that the product does not meet current safety standards. The Pest Management Regulatory Agency uses re–evaluations to systematically review all aspects of the active ingredient and end–use products. The need to re–evaluate pesticides has been formally recognized by the federal government for over 13 years, and we expected that it would have developed a program to do so. We found Canada's track record to be one of inaction and unfulfilled commitments.

3.135 No program for re–evaluations. In 1986, priorities for re–evaluation were developed by Agriculture Canada, which at that time was responsible for pesticide registration. The re–evaluations were not implemented. This major shortcoming has been underscored by a number of organizations, including the Auditor General of Canada in his 1988 Report.

3.136 Upon its creation in 1995, the Pest Management Regulatory Agency was directed to develop and implement a pesticide re–evaluation program. It has not yet done so. Although a program is being developed, the PMRA's budget has allocated no funds specifically to re–evaluation activities. The PMRA is funded partially by annual appropriations and partially by cost recovery. Actual revenues from cost recovery have been well below expectations and, according to the PMRA, this has delayed implementation of the re–evaluation program. The absence of an effective re–evaluation program means there is no assurance that Canadians are not being exposed to unacceptable risk.

3.137 Canada is lagging behind other countries. An international benchmarking study commissioned by the PMRA ranked Canada behind the U.S., the United Kingdom and Australia in the ratio of spending on re–evaluation of existing pesticides to spending on registration of new pesticides. In the U.S. the re–evaluation of pesticides became a legislated requirement in 1988. Since then, many specific uses of pesticides have been de–registered. The U.S. Environmental Protection Agency has a program of ongoing re–evaluation. In 1997-98, it spent 25 percent more on re–evaluation activities than on the registration of new pesticides.

3.138 Few re–evaluations undertaken in Canada. When re–evaluation priorities were established in 1986, three groups of pesticides were already being re–evaluated. Those re–evaluations have been under way now for close to 20 years; none have been concluded. Decisions have been continually deferred, although incremental actions were taken to reduce the use and risks of some pesticides. The re–evaluation of pentachlorophenol, for example, began in 1980 and the PMRA has committed to its completion in 1999.

3.139 The process of special reviews. A second way of examining a previously registered pesticide in light of new information is through the special review process. A special review is initiated in response to a specific concern about a pesticide. For example, after scientists had for several years expressed concerns about the effects of carbofuran on wildlife, a special review was started in 1990 and concluded in 1998 (see Exhibit 3.9). The PMRA has initiated no other special reviews since its creation.

Exhibit 3.9

Special Review of Carbofuran

This case study illustrates the lack of a clear process, criteria for determining what constitutes "unacceptable risk" as specified by the legislation, and timelines for the special review of pesticides.

Carbofuran is an insecticide, first registered in Canada in 1969. It is popular and economical, and is used in granular and liquid forms on a wide variety of crops. Birds are killed by carbofuran when they eat the granular form (mistaking it for dietary grit) and when they eat insects or small animals that have been exposed to carbofuran. Carbofuran is classified as extremely hazardous to humans and its application requires use of protective equipment and measures.

The Canadian Wildlife Service (CWS) first raised concerns in 1987 about the effect of carbofuran on birds, and especially the burrowing owl, an endangered species. Following deliberations, in 1989 Canadian regulators put in place mitigation measures intended to protect the burrows of burrowing owls. The use of carbofuran otherwise continued.

The CWS remained concerned about the effects of carbofuran on other birds and wildlife. There were reports of major bird kills in both Canada and the U.S. in fields that had been sprayed with carbofuran. For example, in 1984 more than 2,000 Lapland longspurs were killed after ingesting carbofuran as they were crossing the prairies at canola–seeding time.

In 1990, Agriculture Canada (responsible at the time for pesticide regulation) announced a special review of carbofuran, to be concluded in 1992. The expected completion date was subsequently moved to 1994, and then to 1995.

As part of the special review process, in 1991 the CWS completed an assessment of the effects of carbofuran on birds and other wildlife. In 1993, an Agriculture Canada report acknowledged the assessment's conclusion on the extreme hazard to wildlife, especially birds. It said that adequate mitigation of the hazard did not appear possible and that the extensive impact on birds would continue if granular

formulations remained on the market. However, the Department did not withdraw approval for any of the carbofuran formulations. It debated with CWS over reductions in the use of carbofuran on a crop–by–crop and product–by–product basis.

By December 1995, the newly created Pest Management Regulatory Agency had negotiated with the manufacturer the removal of two of three granular formulations and certain uses of the liquid formulation. The PMRA required that the manufacturer conduct a bird monitoring study for the remaining granular formulation. Based on that study, the PMRA estimated that 109,000 to 958,000 birds in Canada were killed by carbofuran each year.

A decision was announced in December 1998 that all uses of carbofuran in granular formulation would be de–registered in 1999. Use of the liquid formulation on corn and other produce continues.

3.140 Lack of a clear process. There is no clearly delineated process that identifies steps to be followed in undertaking re–evaluations or special reviews, the roles of each of the various participants, the criteria to be used in making decisions, and the respective accountabilities. In 1986 a re–evaluation process was developed in draft form but it has not been updated since. We are particularly concerned by the lack of clarity about the role of federal science–based departments, such as Fisheries and Oceans and Environment Canada. We believe that the lack of a clear process contributes to the unacceptably long timelines for both re–evaluations and special reviews of pesticides.

3.141 The Pest Management Regulatory Agency should develop and implement a program of re–evaluation of pesticides presently registered for use in Canada. This program should identify priorities and a schedule for completion. Priorities should be determined in consultation with other government departments, including Environment Canada, Health Canada, Natural Resources Canada and Fisheries and Oceans, as well as other stakeholders.

3.142 The Pest Management Regulatory Agency should develop and document the processes to be followed for pesticide re–evaluations and special reviews. The processes should include a clear definition of responsibilities, timelines and reporting, and should clarify the roles of federal science–based departments in ensuring that the findings of ongoing Canadian research and monitoring are reflected in regulatory assessments. The process for special reviews in particular should identify the conditions that will trigger a review.

Conclusion

3.143 Industrial chemicals and pesticides are among the essential building blocks of modern society. Some of them can have adverse effects on human health and the health of ecosystems. Scientific understanding of the effects of toxic substances is incomplete and is the subject of ongoing scientific investigation, debate and controversy.

3.144 Scientific research, monitoring and assessment, taken together, are the foundation for our understanding of these risks and for federal decision–making processes. Our audit focussed on selected aspects of the state of this foundation — the activities under way in federal departments to collect and use scientific information in deciding which toxic substances pose significant risks and therefore ought to be managed. We identified significant concerns about scientific capacity and decision–making processes.

3.145 Several federal departments conduct scientific research and monitoring of toxic substances. Each of these organizations has its own research emphasis and its own priorities, shaped in part by its mandate and by stakeholder interests. In many cases, departments are deeply divided on the risks posed by toxic substances and this has led to considerable conflict. The audit found weaknesses in the overall strategic management of the research agenda. To mobilize the collective expertise of federal departments, there is a need to improve interdepartmental co–operation in establishing government–wide, long–term priorities and in designing and implementing collaborative projects.

3.146 The audit also examined the implementation of selected assessment programs under the *Canadian Environmental Protection Act* and the *Pest Control Products Act*. Risk assessments of priority substances, required under *CEPA,* have taken five years to complete and in some cases have been inconclusive. Plans for assessments of close to 23,000 other substances are in their formative stages. The audit also identified significant problems with the re–evaluation of existing pesticides under *PCPA*. The need for such re–evaluations has been formally recognized for over 13 years, yet insufficient action has been taken by successive regulatory agencies, including the Pest Management Regulatory Agency.

3.147 We found significant weaknesses in the federal government's environmental monitoring. Such weaknesses impede the government's ability to detect the presence of toxic substances in our environment, to determine their effects on Canadians' health and on wildlife and ecosystems, and to measure the effectiveness of risk management initiatives. Despite long–standing recognition of the need for a robust monitoring program, and repeated commitments to establish one, existing monitoring networks have been in decline.

3.148 Federal resources dedicated to scientific research and monitoring have declined since 1994. These declines have affected research, monitoring and assessment activities for toxic substances. We identified specific examples of the impact of these reductions. There is a significant and growing gap between the demands placed on departments to provide and use scientific information and a federal infrastructure that is increasingly ill–equipped to do so. We were struck by the extent to which senior scientists from all departments consistently expressed deep concern about the government's declining ability to react to new demands and emerging issues and to undertake research for the public good.

3.149 We are concerned that scientific capacity in the federal government has been reduced to the extent that its capability to support informed decision–making and to deliver on core departmental mandates is threatened. We conclude that the federal government's ability to detect, understand and prevent the harmful effects of toxic substances on Canadians and their environment is seriously undermined.

A single, joint response to Chapter 3 and Chapter 4 was prepared by Agriculture and Agri–Food Canada, Environment Canada, Fisheries and Oceans, Health Canada (including the Pest Management Regulatory Agency), Industry Canada and Natural Resources Canada. The response is published at the end of Chapter 4.

Appendix

Toxic Substances Research Infrastructure at the Federal Level

Environment Canada

Atmospheric Environment Service

- Air Quality Research Branch
  - Hazardous air pollutants program

    Study the role of the atmosphere as a pathway for toxic chemicals.

Regional Ecosystem Initiatives

Respond to the unique problems of targeted areas and communities to address environmental, economic and social concerns of which toxic substances are a part.

- Great Lakes 2000
- Saint–Laurent Action Plan vision 2000
- Atlantic Coastal Action Program
- Fraser River Action Plan
- Georgia Basin Ecosystem Initiative
- Northern River Ecosystem Initiative

Research Institutes

National Water Research Institute (Burlington, Ont.)

Identify and communicate the occurrence, persistence, fate and effects of toxic substances in Canadian aquatic ecosystem under the following branches.

- Aquatic Ecosystem Protection Branch
- Aquatic Ecosystem Conservation Branch
- Aquatic Ecosystem Restoration Branch
- Aquatic Ecosystem Impacts Branch (Saskatoon)

National Wildlife Research Centre (Hull, Que.)

- Wildlife Toxicology Division

  Provide information and advice on the impacts of toxic substances on wildlife and their ecosystem.

Centre Saint–Laurent (Montréal, Que.)

Conduct research to support the St–Laurent Action Plan and have the two following sections related to toxics.

- Contamination of the aquatic environment section
- Ecotoxicology and environmental chemistry section

Environmental Technology Centre (Ottawa, Ont.)

Support pollution assessment by undertaking research and development.

- Co–ordinate the federal–provincial National Air Pollution Surveillance (NAPS) network

Wastewater Technology Centre (Burlington, Ont.)

Evaluate technologies and other control options applicable to the potential releases of priority substances under CEPA.

Fisheries and Oceans

Habitat and Management & Environmental Science directorate

- Environmental Science Branch

  Undertake research to support activities related to toxic substances and the Habitat Management and Marine Ecosystem Conservation Branches.

Research Centres

Great Lakes Laboratory for Fisheries and Aquatic Sciences (GLLFAS) (Burlington, Ont.)

- Ecotoxicology Division

  Undertake toxicology research to freshwater fisheries resources.

- Fish Habitat Studies Division

  Undertake research related to fish habitat

Freshwater Institute (Winnipeg, Man.)

- Experimental Lakes Area (ELA)

  Undertake monitoring and research to demonstrate the impacts of human activities on lakes and watersheds (e.g. toxic substances).

- Arctic studies

Bedford Institute of Oceanography (N.S.)

- Centre for Marine Contaminants and Toxicology

St. Andrews Biological Station (N.B.)

Conduct contaminant studies in Atlantic marine ecosystems

Gulf Fisheries Centre (Moncton, N.B.)

Conduct contaminant studies in Atlantic marine ecosystems

Northwest Atlantic Fisheries Centre (St. John's, Nfld.)

Conduct contaminant studies in Atlantic marine ecosystems

The Maurice Lamontagne Institute (MLI) (Mont–Joli, Que.)

Identify contaminants, study their distribution, and determine their toxic effects on marine on the marine environment of the St–Lawrence.

Institute of Oceans Sciences (Sydney, B.C.)

Conduct contaminant studies in Pacific marine ecosystems and the Arctic.

West Vancouver Laboratory (B.C.)

Conduct contaminant studies in Pacific marine ecosystems and the Arctic.

Natural Resources Canada

Geological Survey of Canada (GSC)

- Metals in the Environment Initiative (MITE)

Conduct science projects on the source, transport and fate of metals in the surface environment.

Minerals and Metals Sector: Canada Centre for Mineral & Energy Technology (CANMET)

- Mine Environment Neutral Drainage Program (MEND)

Addresses the environmental challenges associated with acidic mining wastes

- Metals and the Environment Program

Assure that policy and regulatory decision related to minerals and metals are based on sound science.

- Aquatic Effects Technology Evaluation (AETE)

A program to assess the appropriate technology for use in the environmental effects monitoring program for the metal mining sector.

- Mine Effluents and Decommissioning Program

Helps industry meet mine and mill effluents treatment challenges and encourages pro–active technological approaches to effluent management issues.

Canadian Forest Service

- The Atlantic Forestry Centre
  - Forest Health Network

This network does research and monitoring related to the effects of Air Pollution on forests.

- Acid Rain National Early Warning System (ARNEWS)

The Great Lakes Forestry Centre

- Pest Management Methods Network (PMMN)

This network does research on acceptable methods for managing forest pests and contributes to integrated pest management and sustainable forest development.

Health Canada

Health Protection Branch

- Environmental Health Directorate

  Bureau of Chemical Hazards

  - Environmental Substances Division

  Assess and Manage health risks of both new and existing chemicals.

  - Environmental and Occupational Toxicology Division

  Determine the toxic effects of chemical pollutants in the natural environment and indoor environment.

  - Environmental Health Effects Division

  Assess and communicate the risks of environmental pollutants in the major bioregions of Canada and impacts of long–range transport of contaminants into Canada.

- Laboratory Centre for Disease Control

  Identify, investigate, prevent and control human disease.

Agriculture and Agri–Food Canada

Research Centre

- Southern Crop Protection and Food Research Centre

  Conduct research on Pest Management and on Integrated Pest Management.

Indian and Northern Affairs Canada

- Northern Contaminants Program

  Research contributed by Health Canada, Fisheries and Oceans and Environment Canada.

Note: Each department has regional research activities in addition to the above.

Chapter 4

Managing the Risks of Toxic Substances

Obstacles to Progress

Table of Contents

Managing the Risks of Toxic Substances

Obstacles to Progress

Main Points

4.1 The federal Toxic Substances Management Policy is not being implemented as intended. Few federal departments have established implementation plans. Risk management plans for many toxic substances have not yet been developed or implemented.

4.2 The federal government has been slow to take action on some substances assessed and declared toxic under the *Canadian Environmental Protection Act*. The current programs are insufficient to ensure that risks will be adequately addressed in the future. Objectives for the protection of human health and the environment have not been specified, and agreed reductions in the release of toxic substances are not assured.

4.3 The federal government has not met its commitment to develop a risk reduction policy or strategy for pesticides. Governments elsewhere have implemented such policies in order to minimize risks to people and ecosystems.

4.4 The federal government relies on voluntary programs to achieve reductions in the release of toxic industrial chemicals. Existing programs do contribute but lack effective accountability, reporting and monitoring arrangements. We are concerned that existing voluntary programs alone may not be sufficient to effectively manage priority toxic substances.

Background and other observations

4.5 Industrial chemicals and pesticides provide many benefits to Canadian society and are important to our economy. Many of these substances are harmful or potentially harmful to people and ecosystems. Those that are toxic need to be managed so the risks presented by their use do not outweigh the benefits they provide.

4.6 Good management of the risks posed by toxic substances is a complex and daunting challenge. It requires Canadian society to permit and foster productive and safe use of thousands of chemical substances while, at the same time, safeguarding people and the environment from any unacceptable adverse effects. It involves balancing often–polarized expectations of various stakeholders, including the public, federal and provincial governments, large and small industries and public interest groups.

4.7 The federal Toxic Substances Management Policy establishes the policy objective of virtual elimination of certain toxic substances, and prevention or minimization of releases of other substances throughout their life cycles.

4.8 Federal programs to manage toxic substances are numerous and fragmented and federal departments are divided on many key issues. Conflicts between departments result in long periods of inaction and impede risk reduction actions for toxic substances and pesticides.

4.9 The government does not collect data on the release of many toxic substances. There are no reliable data on the levels of sales or use of pesticides. Of 22 countries responding to an OECD survey, only Canada and the Slovak Republic do not collect data on pesticide sales.

4.10 While this chapter identifies several weaknesses in the federal management of toxic substances, there has been some progress: releases of many toxic substances into the environment have reportedly been reduced.

4.11 In this chapter, we make 15 recommendations addressed to five federal departments and one federal agency. If they are implemented, we believe the federal management of toxic substances will be substantially improved.

The departments have responded that they are committed to working co–operatively to carefully assess the recommendations. They are also committed to ensuring continuous improvement in managing releases of toxic substances in Canada, relying on the principles of sustainable development and risk management as well as the precautionary principle to achieve this. To ensure continuous improvement, they are committed to working co–operatively to develop an appropriate course of action.

Introduction

A Complex Sustainable Development Issue

4.12 Industrial chemicals and pesticides provide many benefits to Canadian society and are important to our economy. But many of these substances are harmful or potentially harmful to people and ecosystems. Since the 1960s, the public has increasingly demanded that the federal government reduce the risks presented by toxic substances.

4.13 There are many types and definitions of toxic substances. In this chapter, ‘‘toxic substances” include substances such as industrial and commercial chemicals, by–products and heavy metals (collectively referred to as “industrial chemicals”) and pesticides that, when released into the environment, have the potential to harm human health or environmental quality.

4.14 Chapter 3 of this Report, Understanding the Risks From Toxic Substances: Cracks in the Foundation of the Federal House, provides important background information relevant to this chapter. It focusses on the importance of scientific research and monitoring to decide which substances pose the greatest risk to human health and environmental quality and thus ought to be managed.

4.15 Once a substance is identified as warranting control, a new series of decisions must be made. How can exposure be reduced? By how much should its release into the environment be reduced? Should its use be controlled? Should controls be regulated, are voluntary programs adequate, or are other measures needed? How will reductions in risk be measured and verified? Addressing these sorts of questions is referred to as risk management.

4.16 In theory, risk management assumes that once a substance has been identified as toxic, the risks to human health or the environment can be precisely determined, the costs and benefits of reducing them can be evaluated, and specific actions can be taken to reduce them to acceptable levels. In practice, however, risk management is less straightforward and is by no means simple. It requires government authorities to make decisions that permit the safe and productive use of chemical substances while, at the same time, safeguarding Canadians and their environment from unacceptable risks.

4.17 **A complex process.** As noted in Chapter 3, addressing the problem of toxic substances is complex. There is no “one size fits all” solution. There are potentially thousands of substances to deal with and the degree or significance of the risks they pose is often uncertain. Some toxic substances occur naturally, while others are human–made and released from various sources. Exposure can occur through air, water, soil, food and consumer products. Actions to reduce risks can have significant economic and social implications.

4.18 As also noted in Chapter 3, risk management is complex because of the large number of participants involved and the great diversity — and at times polarity — of the perspectives and positions they hold. Decision making in this context involves integrating varied and legitimate economic, technological, social, environmental and health considerations and balancing often competing views and values. Some of the issues over which opinions are divided include:

- the level of risks considered acceptable;
- the types of measures most effective in managing risk;
- the merits of regulatory versus voluntary policy instruments; and

- whether the costs of reducing risk are worth the benefits.

Risk management at the federal level

4.19 A substantial number of activities are in place in the federal government under a variety of legislation, policies and programs to manage risks posed by toxic substances. Different substances are treated in different ways. Such differences apply to individual industrial chemicals but are especially evident when comparing the management of industrial chemicals with that of pesticides. Terminology is not used consistently; terms such as "pollutants", "contaminants", "substances of concern", "toxic", "controlled substances" and "deleterious substances" are used sometimes interchangeably, sometimes differently, and sometimes in reference to the same substance.

4.20 A wide variety of options are available to reduce exposure to toxic substances and the risks they present. But to a large extent, risk management for industrial chemicals focusses on reducing amounts released into the air, water and on land or removing them from consumer products.

4.21 **A regime for industrial chemicals.** Chapter 3 identified key federal legislation that pertains to industrial chemicals included in the audit. This includes the *Canadian Environmental Protection Act* (*CEPA*), which provides regulatory authority to control the "life cycle" of substances deemed toxic under the Act. Environment Canada and Health Canada share responsibility for the Act, but for many of its aspects Environment Canada is the lead department. *CEPA* identifies approximately 23,000 chemical substances used commercially in Canada, excluding pesticides. Under the Act, 46 of these have been declared toxic (hereinafter referred to as "*CEPA* toxic" substances). *CEPA* regulations are in place for many of them.

4.22 The *Fisheries Act* is also important. Section 36 of the *Fisheries Act* prohibits the deposit of deleterious substances in waters frequented by fish, unless specifically permitted by regulation. Deleterious substances can include toxic substances. Regulations covering six industrial sectors are in place under the Act. Some substances regulated under the Act are also *CEPA* toxic substances. While the Department of Fisheries and Oceans is responsible for all sections of the *Fisheries Act*, Environment Canada is the lead department in administering section 36 of the Act.

4.23 In addition to regulatory controls, the federal government uses two types of initiatives to encourage voluntary reductions in releases of toxic industrial chemicals into the environment. The first is an industry challenge program called the Accelerated Reduction/Elimination of Toxics (ARET), through which companies have been challenged to make voluntary reductions in their releases of 117 toxic substances. The second type consists of negotiated agreements between governments and targeted industry groups or companies, often formalized through memoranda of understanding (MOUs).

4.24 In the list of substances declared *CEPA* toxic, lists in voluntary agreements, and other federal lists, approximately 160 industrial chemicals are identified and managed by the federal government as toxic substances (see the Appendix to this chapter). More than half of these are identified as priority substances on various lists, though not all of these priority substances have been legally declared toxic under *CEPA*. Without such declaration, the federal government does not have regulatory authority and must rely on voluntary initiatives or other means to achieve risk reduction.

4.25 **The regime in place for pesticides is different.** All pesticides in Canada undergo a detailed risk assessment, based largely on data provided by manufacturers prior to sale. Pesticides are known, and indeed designed, to be toxic; risk management focusses on prescribing conditions for their use, such as how much can be applied, where, and under what circumstances to ensure that no unacceptable risks occur.

4.26 Pesticides are regulated through the *Pest Control Products Act* (*PCPA*). The Pest Management Regulatory Agency (PMRA), an agency of Health Canada, is the lead agency for pest control products. Currently, over 7,000 individual pesticide products are registered for use in Canada under the Act, including 500 "active ingredients" (the component with pesticidal activity). Voluntary initiatives are used to a lesser extent to manage pesticides. The PMRA has promoted the use of "integrated pest management" through voluntary partnerships with growers and pesticide users in selected crops and sectors. Integrated pest management refers to a process of managing sites to prevent or control pest problems using a combination of crop rotation, cultivation, and biological and chemical controls.

4.27 **Government–wide policies.** The 1995 Toxic Substances Management Policy (TSMP) is the cornerstone federal policy, providing the basis for a preventative and precautionary approach to substances that could harm human health or the environment. Both industrial chemicals and pesticides are subject to the provisions of the TSMP. It divides toxic substances into two categories and establishes different risk management objectives for each. The objective for "Track 1" substances — those that are toxic, persistent, bio–accumulative, and created through human activity — is their virtual elimination (see paragraph 4.48). For other toxic substances, known as ''Track 2", the TSMP objective is to prevent or minimize emissions throughout their life cycle, hereinafter referred to as "life cycle management". TSMP objectives were also endorsed by provinces through the Canadian Council of Ministers of the Environment (CCME) national Policy Statement for the Management of Toxic Substances.

4.28 The 1995 federal Pollution Prevention Strategy is also important to the management of toxic substances as well as other environmental pollutants. Industrial efforts to control pollution have historically focussed on "end–of–pipe" treatment. Pollution prevention is an alternative approach aimed at preventing the creation of pollutants in the first place. This federal strategy was intended to shift the focus of federal risk management efforts. Elements of the federal strategy were also adopted through the CCME's national Pollution Prevention Strategy.

4.29 Together, pollution prevention and life cycle management are important tools for effective risk management. Companies in Canada and throughout the world have demonstrated that they can help to achieve environmental and human health goals while also serving their business needs.

4.30 **The importance of partnerships.** The federal government does not — and arguably cannot—act alone in the management of toxic substances. Many aspects of federal programs are linked and undertaken collaboratively with other partners. Such partners include other levels of government, particularly provincial governments who have regulatory authority over many aspects of managing both industrial chemicals and pesticides. The federal government also works actively with other national governments on the development of harmonized programs and international treaties and protocols. Other partners include industry—where technological and managerial changes are ultimately made—and the public, to whom governments are accountable.

4.31 **Progress has been made.** Since the 1980s, releases of many toxic substances into the environment have reportedly been reduced. This has occurred as a result of a wide variety of initiatives, many of which are led or supported by federal departments. The federal government has introduced regulations; implemented regional action plans for the Fraser River, the Great Lakes, the St. Lawrence River, the Atlantic Coastal Region and the Northern River Basin; entered into various international agreements and protocols; and encouraged voluntary efforts by Canadian industry — all with the aim of reducing emissions of toxic substances. Reductions have also occurred as a result of provincial regulatory and other programs.

Focus of the Audit

4.32 This chapter focusses on the implementation of federal programs of risk management for existing industrial chemicals and pesticides. As there are scores of separate but related initiatives, this is a complex story. Many of these initiatives could themselves have been the subject of a detailed audit.

4.33 Some components of the overall federal infrastructure for the assessment of toxic substances were excluded from the scope of this audit. For instance, we did not include the registration of new pesticides under the *PCPA* and the regulation of new industrial chemicals under *CEPA*; and legislation dealing with hazardous chemicals in foods, such as the *Food and Drugs Act*, or in consumer products, such as the *Hazardous Products Act*.

4.34 Our observations first summarize overarching issues that emerged from our audit. We then examine the extent to which federal policies have been implemented, how departments are dealing with *CEPA* toxic substances (particularly those recently declared toxic through the Priority Substances Assessment Program), the role of voluntary initiatives, overall stewardship for pesticide management and the reliability of current reporting mechanisms. As many of these substances and programs concern more than one department, throughout the chapter we discuss the current state of interdepartmental co–operation. **About the Audit** at the end of the chapter provides details on the objectives, scope, approach and criteria of the audit that was the basis for this chapter and Chapter 3.

Observations and Recommendations

Obstacles to Progress — Overarching Concerns

4.35 **A complex federal infrastructure.** The sheer breadth, number and complexity of federal programs to manage the risks associated with toxic substances is both striking and confusing. Environment Canada, Health Canada (including the Pest Management Regulatory Agency) and Fisheries and Oceans have direct responsibility for the protection of human health and the environment. Other departments, such as Industry Canada and Natural Resources Canada, have substantial influence on programs to control toxic substances. The diverse legislative and policy perspectives of the numerous departments have accentuated the complexity. This complex infrastructure continues to evolve.

4.36 Risk management programs are fragmented according to departmental mandates and legislative responsibilities. Individual industrial chemicals and pesticides are subject to different legislative and regulatory requirements, decision–making processes, public policy instruments and reporting mechanisms. Some of these are not connected or linked and, in fact, some components conflict. While such conflicts are not unexpected, they emphasize the need for federal departments to work together to ensure that the collective federal expertise is brought to bear consistently and effectively to support sustainable development objectives.

4.37 Throughout the audit we observed examples of positive interdepartmental co–operation and partnering in risk management projects or programs. These are aptly described by departments themselves in numerous publications, progress reports and other information products.

4.38 **Departments not rowing in the same direction.** However, we also observed that federal departments are deeply divided on many key issues and do not always share a common vision about the extent to which federal intervention is necessary to manage toxic substances. There are ongoing debates over many key issues, such as the amount of risk that is acceptable, the interpretation of legislation and policies, the reliance that should be placed on voluntary initiatives, and the relative weight that should be given to environmental and health concerns alongside economic and social ones.

4.39 While reconciling competing expectations is part of the process of policy implementation, we observed cases of interdepartmental relationships marked by acrimony and combativeness that, in our view, surpassed a healthy and constructive level of debate. We believe the conflicts we observed have impeded the development of risk management actions; if the same energy were to be invested in positive action, the environment, our health and industry would benefit. With no arbitrator, it remains unclear how or when departments will work together to manage the risks posed by toxic substances.

4.40 **Rising demand, shrinking supply.** Over the past several decades, there has been a dramatic growth in the number and scope of federal programs related to toxic substances. Federal departments can expect demands on them to continue increasing. At the same time, their available resources continue to shrink. Departments consistently cited the lack of resources as a major impediment to effective risk management programs. Through Program Review and expenditure reduction, some departments lost 30 percent or more of their budgets. Some of the risk management initiatives begun in the late 1980s and early 1990s remain uncompleted.

4.41 **The net result is a vexing lack of action.** At the outset, we expected to find that risks to the public from potential exposure to toxic substances were being managed in accordance with federal policy and expectations. Instead, we found that action on many fronts has been slow. While we acknowledge that progress has been made, in our view the risks to the public and environmental health are not being managed effectively. We observed many obstacles that inhibit effective federal management of toxic substances.

Implementing the Key Policies

4.42 In this chapter, we emphasize the importance of the Toxic Substances Management Policy and the principles of pollution prevention—not only because they are federal policy but also because, in our view, they offer a potentially potent and pragmatic approach to the management of toxic substances. As Exhibit 4.1 illustrates, the concept of life cycle management, embedded in the TSMP, recognizes that releases into the environment and human exposure can be reduced at many stages in industrial operations, not just at the end of the pipe.

Exhibit 4.1 is not available, see the Report.

4.43 For pesticide products, life cycle management includes pre–market assessment, activities related to use, and monitoring of compliance. Federal departments must work with their provincial counterparts to implement life cycle management for all toxic substances, as provinces have jurisdiction over industry sectors and agricultural practices.

4.44 The 1995 Federal Pollution Prevention Strategy explicitly recognizes its application to the management of toxic substances. Through it, the federal government committed itself to extending the strategy across all federal legislation, programs and policies. It stresses eliminating the causes of pollution rather than treating the symptoms, reflecting a major shift in emphasis from control to prevention. The strategy seeks to "achieve a climate in which pollution prevention is a major consideration in industrial activities."

4.45 Pollution prevention is not unique to Canada. Companies around the world are embracing pollution prevention techniques because they combine environmental objectives with successful business practices. Recognizing that producing, treating and disposing of waste entails both immediate costs and downstream liabilities, many companies have embraced life cycle management and pollution prevention. Exhibit 4.2 highlights one example of a company that has used pollution prevention to improve both its environmental and business performance. Chapter 7 of this Report provides many others.

Exhibit 4.2

Embracing Pollution Prevention at Interface Flooring System

This case illustrates an example of a company that has embraced pollution prevention, improving both the environment and the company's bottom line.

Interface Flooring System (IFS) is the world's largest supplier of carpet tile. Carpeting systems and the process of making them involve many toxic substances, including heavy metal stabilizers, cadmium–based dyes and others. Recognizing that landfill is the fate of most carpets today, IFS is systematically trying to eliminate the use of toxic substances in its operations and is encouraging its suppliers to do the same.

IFS has a toxic substances team working on the elimination of all toxic substances throughout the company and has eliminated the use of heavy metals in all its firms. A key strategy for IFS is to redesign the product using the same technology, either by substituting a toxic substance with one that is not toxic or by increasing the use of existing non–toxic materials. Where these are not possible, it conducts research and development activities. IFS also works with suppliers to ensure that toxic substances are eliminated. In one case, it identified a compound in a supplier's material, which led to the identification of a leak in the supplier's operations.

IFS has found that the programs put in place to eliminate toxic substances has increased company performance and product quality. Customers often respond that they want to be associated with an environmental leader. While the investment IFS Canada has made to reduce toxic substances has been relatively modest, it has contributed to sales increases of close to 100 percent over the past two years. Also, off–quality production has been reduced from 5.3 percent to 0.4 percent since it began this initiative four years ago.

Departments not fully implementing the Toxic Substances Management Policy

4.46 Implementation plans not in place. An interdepartmental co–ordinating committee was established to implement the TSMP. While ideas about the policy are shared and debated at committee meetings, there has been little discussion related to implementation. Environment Canada released its Final Draft Implementation Strategy in December 1996 and the Pest Management Regulatory Agency released its completed strategy in March 1999. Respective roles and responsibilities of other departments for implementing the policy have not been clearly defined. Fisheries and Oceans, Natural Resources Canada and Industry Canada have not prepared departmental implementation plans. Health Canada has only begun to prepare an implementation plan. There is little evidence that departments have acted on the need to work with each other and to co–ordinate their respective activities.

4.47 Management strategies for substances not developed. The TSMP requires that management strategies be developed for the virtual elimination and life cycle management of toxic substances. We expected to find detailed plans to eventually eliminate substances identified for virtual elimination, and plans to prevent or minimize at every stage of the life cycle emissions of substances identified for life cycle management. Such strategies may differ for individual substances, recognizing the characteristics of the substance, sources of release, risk management actions already in place, and the roles of various partners.

4.48 To date, 12 substances have been identified for virtual elimination. Eight of these are pesticides whose use has not been allowed in Canada in years, and another is PCBs, whose use has been restricted since 1980. The other three substances, dioxins, furans, and hexachlorobenzene, are contained in trace amounts in various products and pesticides and are released into the environment primarily through incineration in various sectors.

4.49 All 12 of the Track 1 substances are currently subject to various management controls or bans that predate the introduction of the TSMP. So far, however, departments have not taken additional action under the policy against these substances. Rather, they have been mired in conflict over the meaning of virtual elimination, how to measure it, and whether substances are to be virtually eliminated from the environment or only from industrial releases. Virtual elimination is presented as a long–term objective, yet departments have failed to define even short–term incremental steps toward this objective.

4.50 Scope of application unclear. On paper, the TSMP is supposed to apply to *CEPA* toxic substances as well as *CEPA* toxic ''equivalents" and other substances of concern. Although life cycle management is being planned for selected *CEPA* toxic substances (see paragraph 4.71), no other substances have yet been identified for inclusion in the policy. Departments cannot agree on other substances that could be considered *CEPA* toxic equivalents or substances of concern. Criteria to identify them have not been established.

4.51 As a consequence, strategies have not been developed to prevent or minimize releases throughout the life cycle of pesticides and the majority of industrial chemicals, including priority substances. The potential of the TSMP to clearly signal to industry the federal government's environmental agenda and commitment to precautionary action has not been realized. The government's stated objectives are not being achieved.

4.52 We believe Environment Canada and Health Canada have an obligation to identify the substances that should be subject to the TSMP. There is no shortage of candidates. Of the 160 industrial chemicals currently identified as toxic, 84 have been identified as high priorities. Any or all of these, as well as others, could be considered substances of concern and therefore subject to the life cycle management provisions of the policy.

4.53 Environment Canada, Health Canada and the Pest Management Regulatory Agency should identify specific substances subject to life cycle management, including *CEPA* toxic equivalents and other substances of concern. Each should develop and apply strategies for life cycle management by substance, sector and/or region.

4.54 Federal departments, including Health Canada, Fisheries and Oceans, Industry Canada and Natural Resources Canada, should each develop a plan for implementing the Toxic Substances Management Policy. Each plan should explicitly recognize and build upon the expertise and capabilities of the department, be consistent with the plans of other departments, and include clear statements of departmental accountability, specific goals and milestones.

Mixed implementation of the principles of pollution prevention

4.55 We did not audit the implementation of the Federal Pollution Prevention Strategy per se but sought evidence of whether or not the principle of eliminating the causes of pollution is being actively encouraged within industry. We found that Environment Canada actively promotes pollution prevention. This is reflected in agreements with industry to manage toxic substances, in various publications, and in guidance provided during government–industry consultations.

4.56 Industry Canada is mandated to promote innovation and competitiveness in the Canadian economy. Through its Report on Plans and Priorities and its Sustainable Development Strategy, Industry Canada commits itself to enhancing the ability of Canadian firms to develop innovative technologies and tools that contribute to sustainable development. This role is key if pollution prevention is to become a reality in Canada, since pollution prevention depends on innovation in product design and production.

4.57 To date, the shift in Industry Canada toward a climate of pollution prevention is not very evident. Industry Canada promotes a range of environmental protection tools, but places little specific emphasis on those that avoid or minimize the creation of pollutants or waste, particularly in industrial sector programs. We are concerned that this lack of emphasis on pollution prevention will not generate the fundamental shift in thinking called for by the strategy.

4.58 Contrast with other countries. In other countries we surveyed during this audit, industry and economic ministries promote pollution prevention and appropriate technologies by providing domestic industries with technical assistance, technology evaluation and funding. Foreign governments integrate pollution prevention into core industrial strategies.

4.59 Industry Canada should ensure that its core industry sector programs related to industrial innovation and technology development reflect the government's commitment to pollution prevention. It should commit itself to specific objectives, activities, and timelines for enhancing the principles of pollution prevention within industry, large and small.

Canada's need to compete in a global context

4.60 A survey of countries. Governments around the world are confronted with the need to balance the benefits that toxic substances provide against the risks they present. As part of the audit, we identified key elements of programs several other countries use to manage toxic substances. These elements are highlighted in Exhibit 4.3.

Exhibit 4.3 is not available, see the Report.

4.61 While these programs have many differences, they share an emphasis on pollution prevention, the use of both regulatory and voluntary measures, and a range of approaches to risk management. Some countries use tools that have not yet been tried to any great extent in Canada. We did not audit their performance or draw conclusions about their merits, but this chapter does refer to the use of these tools.

4.62 Internationally, governments have moved away from end–of–pipe pollution management techniques toward pollution prevention. This could have implications for the ability of Canadian companies to compete in the global marketplace. To succeed, Canadian industry must maintain a competitive edge, and pollution prevention is a means of reducing costs and liabilities and improving productivity. Furthermore, market forces compel Canadian companies to demonstrate that they are environmentally responsible—especially in trade with Europe, where environmental regulations and standards have become an important trade issue.

4.63 Tools in the tool box. There are many tools for incorporating pollution prevention into production, such as "design for the environment", financial instruments, and product stewardship. Design for the environment involves analyzing the environmental impact of products at each step in the production process, and finding environmentally benign replacements. Financial instruments can take the form of taxes levied against companies that generate certain types of waste, or tax breaks given to companies that incorporate clean production technologies.

4.64 Product stewardship requires that the producer be responsible for the environmental impact of the product throughout its life cycle. This responsibility includes recycling and recovering waste materials, including toxic substances. Government requirements for product stewardship encourage industry in the countries surveyed to find innovative ways of reducing pollution while maintaining productivity.

4.65 As shown in Exhibit 4.3, the majority of governments we surveyed have programs that support the use of at least one of these tools. Some tools are voluntary, while others are used in conjunction with legally binding performance standards to achieve targets for pollution prevention in each industrial sector.

4.66 Many foreign governments use financial instruments as an incentive for pollution prevention. Financial instruments also serve to promote pollution prevention in the use of pesticides. For example, the European Union's Common Agricultural Policy provides grants to farmers who use environmentally friendly farming methods. Since 1984, Sweden has imposed a levy on pesticides as an incentive to reduce their use. The U.S. government also provides financial assistance to farmers to undertake sustainable farming practices.

Turning Words into Action: Managing Industrial Chemicals

4.67 In Canada, the federal government has been working for over 25 years with provincial governments, industry, interest groups and others to manage industrial chemicals and, as noted earlier, progress has been made. The current federal infrastructure of regulations, treaties, voluntary programs and regional clean–up programs is a reflection of these past efforts. Collectively, these programs identify over 160 industrial chemicals as toxic, 84 of which the federal government considers to be high–priority substances.

4.68 As Exhibit 4.4 illustrates, these substances are subject to various policy objectives and are managed using a mixture of policy instruments that include *CEPA* and *Fisheries Act* regulations, negotiated agreements and voluntary initiatives. Although not used at present, financial instruments are another possible control instrument. Various decision–making processes are used to identify and select risk management options and the final results are tracked through assorted reporting mechanisms.

Exhibit 4.4 is not available, see the Report.

4.69 We expected to find that departments had established clear objectives and targets for managing toxic substances had developed and implemented risk management activities, and had installed reliable mechanisms to track and report on reductions in toxic releases. We expected to find particularly rigorous activities in place to deal with high–priority substances.

Little action against substances declared toxic under the *Canadian Environmental Protection Act*

4.70 By definition, *CEPA* toxic substances are high priority. The 46 *CEPA* toxic substances include 25 that were declared toxic through assessments from the first Priority Substances List (PSL1) and 21 that had been declared toxic before the advent of the Priority Substances Assessment Program. Each of the latter group of substances is currently subject to regulation in one or more industry sectors. Programs for managing some of these substances have been audited previously by the Office of the Auditor General (see December 1997 Report Chapter 27 and April 1997 Report Chapter 4). In this chapter we focus on the management of PSL 1 substances.

4.71 **Pulling in the stakeholders.** Since 1994, Environment Canada and Health Canada have led consultations with stakeholders from industry, public interest groups, provinces and other federal departments to assess the technological and economical feasibility of various risk management options, and to recommend regulations or other management tools for ministerial approval and subsequent implementation. Fourteen separate consultations have been initiated to address 21 of the 25 PSL substances; each consultation has addressed different substances and involved different participants. These consultations have been major undertakings, typically involving dozens of participants, often with polarized positions and expectations. These consultations considered a life cycle approach. Exhibit 4.5 profiles two of the consultations.

Exhibit 4.5

Profile of Two Stakeholder Consultations

These case studies provide two examples of the sector consultation process.

Steel Manufacturing Sector Consultations

The manufacture of steel generates toxic emissions at various stages of the production process. In fact, 13 of the 25 Priority Substances List (PSL1) toxic substances are emitted in steel manufacturing, three of which are also currently regulated in other industry sectors. There are 18 steel plants in operation in Canada.

The Steel Manufacturing Consultation Process was established in April 1995 and continued until November 1996. Although several of the major steel producers were involved at the beginning of the process, most ended their participation because of a dispute over the federal Toxic Substances Management Policy when it was published in June 1995. Dofasco was the only steel producer involved throughout the process.

The consultation process resulted in a December 1997 report with 12 recommendations, suggesting enhancement of three voluntary programs, development of codes of practice, and a research program. There were no recommendations for the development of regulations. At the completion of our audit, the recommendations had not been accepted by the ministers of Environment and Health. As well, no strategy had been developed to implement the recommendations and funding to do so had not been identified.

Dry–Cleaning Sector Consultations

The dry–cleaning sector uses a toxic solvent, perchloroethylene (PERC), to dry–clean garments. There are over 3,300 dry–cleaning facilities across Canada, which together use about 5,500 tonnes of PERC annually. In fact, the dry–cleaning sector uses approximately half of the PERC imported into Canada. PERC is not produced domestically.

The Dry–Cleaning Consultation Process met several times between December 1994 and November 1995. It involved federal, provincial and municipal officials, industry associations, companies and environmental groups. The report arising from this process was published in February 1996 and recommended regulation to phase out and replace old equipment, application of standards for operator training and waste collection, and assessment of the feasibility of an import levy on PERC. The ministers of Environment and Health approved the recommendations in February 1997. Regulations are currently under development. At the completion of our audit, however, there were no plans to implement the other recommendations.

The Environment Canada official chairing the consultations requested guidance from the Department of Finance about using a levy to encourage the use of substitutes for PERC. There is no record of an official response from the Department of Finance, and federal officials appear to have abandoned this recommendation.

4.72 As noted in Chapter 3 of this Report, PSL risk assessments were criticized by stakeholders in part for a lack of characterization of risks and sources of exposure. These weaknesses impeded the development of management actions for some substances. In some cases, industry participants and federal departments such as Natural Resources Canada questioned whether the proposed management actions were necessary at all or would lead to significant reductions in risk.

4.73 **Some of the consultations lacked a clear sense of direction.** Environment Canada and Health Canada have a responsibility and an obligation to protect our environment and human health. Neither department defined what reductions were needed in releases of toxic substances to bring risks to acceptable levels. This could have been addressed at the beginning of the consultations or later, after more analysis had been completed. Instead, both departments encouraged reductions without stating what reductions were required or what the consequences of not achieving reductions would be. As mentioned in paragraph 4.16, we recognize that in practice it is often difficult to determine the precise risks to human health or the environment.

4.74 In some cases, reaching consensus appears to have been more important than determining what had to be achieved. Environment Canada and Health Canada seek to achieve consensus among stakeholders on the recommendations that will be submitted to ministers. Industry Canada and Natural Resources Canada strongly support a consensus–based approach. Achieving consensus among stakeholders can lead to their buy–in, setting the stage for successful risk reduction in the future. Even though consensus was not achieved by several of the consultations, reflecting the divided opinions of the various stakeholders, the consultations were completed and recommendations were presented to the Ministers of Environment and Health.

4.75 One consultation ran into serious conflict between the industrial chemicals and the pesticide “regimes”. While the Pest Management Regulatory Agency was conducting a re–evaluation of pesticides used as heavy duty wood preservatives, Environment Canada began leading parallel consultations under *CEPA*, concentrating on managing the *CEPA* toxic substances in these same pesticides. Exhibit 4.6 illustrates the difficulty these two departments had working together in an area of mutual interest and clearly delineating the scope of their respective activities, to the dissatisfaction of many participants.

Exhibit 4.6

Re–evaluation of Heavy Duty Wood Preservatives Containing *CEPA* Toxic Substances

This case study illustrates the difficulty the Pest Management Regulatory Agency (PMRA) and Environment Canada had working together to manage pesticides containing *Canadian Environmental Protection Act (CEPA)* toxic substances.

Heavy Duty Wood Preservatives (HDWP) are pesticides applied to lumber, either thermally or under pressure, to protect it from mould and fungal deterioration. Treated lumber is used for many purposes, including decks, railroad ties, plywood, telephone poles, pilings, etc. Nine pesticides were approved for use as HDWP in Canada, including pentachlorophenol.

In 1992, PMRA's predecessor announced the re–evaluation of all HDWP. The re–evaluation was initiated partially out of concern that these pesticides were suspected of causing tumours and that wood products treated with these pesticides were widely used by the public.

Seven substances contained in HDWP were determined to be toxic under the *CEPA*, including dioxins, furans and arsenic. Three of the substances contained in pentachlorophenol were identified as Track 1 substances under *CEPA*. In 1994, Environment Canada initiated a consultation process to discuss ways of reducing the risks associated with these substances. The multi–stakeholder consultation was chaired by Environment Canada and included representatives from the PMRA, industry and an environmental group.

The Minister of Health is responsible for decisions under both *CEPA* and the *Pest Control Products Act (PCPA).* It was recognized initially that many of the activities covered by the consultation process under *CEPA* and the re–evaluation under *PCPA* were complementary and mutually beneficial. However, the spirit of co–operation deteriorated as the debate on the scope of the *CEPA* consultations became heated.

The discussions between Environment Canada and the PMRA became acrimonious. Industry participants repeatedly asked for clarification of the relationship between the two processes and some threatened to withdraw unless the situation was resolved.

Environment Canada decided to postpone the consultations for a full year in order to reach agreement on the scope of the activities to be addressed in the *CEPA* consultation. There were discussions at the senior levels of the two agencies to resolve this issue. In 1996, the PMRA withdrew from direct participation in the consultations and was represented by Health Canada.

Neither the *CEPA* consultation nor the re–evaluation of HDWP was complete at the conclusion of our audit.

The difficulty of the PMRA and Environment Canada in resolving their differences resulted in extreme frustration on the part of both, loss of credibility for both departments, and a two–year delay of the *CEPA* consultation process. Further, in our view, an opportunity to use federal resources more efficiently was missed.

4.76 There has been little action. Although the *CEPA* Priority Substances Assessment Program began 10 years ago, little has been done to reduce the releases into the environment of most of the substances declared toxic. It took five years to complete the assessments of these substances, and some of the consultations were not complete at the end of our audit. As identified in the Appendix to this chapter, however, many of these substances are currently included in various voluntary instruments for reasons unrelated to the *CEPA* options determination process.

4.77 To date, 9 of the 14 consultations have been completed, generating 52 separate recommendations that were submitted to and accepted by the ministers of Health and Environment. Exhibit 4.7 illustrates the nature of these recommendations. More than one third of the recommendations are directed toward obtaining more information, reflecting the participants' concerns about an absence of information needed to make good risk management decisions.

Exhibit 4.7 is not available, see the Report.

4.78 Future implementation is in jeopardy. To date, none of the 52 recommendations have been implemented. Implementation will require Environment Canada and Health Canada to develop regulations, codes of practice and training programs, and to negotiate memoranda of understanding with industry sectors. The resources needed to implement the recommendations had not been assessed when the ministers accepted them. At the time of our audit, the three regulations that had been recommended were being drafted. For most of the remaining 49 recommendations, no resources have been allocated and no implementation plans have been developed. We believe other federal departments could play a role in implementing them, but there was no evidence of joint planning discussions with other departments to capitalize on their expertise and capacities.

4.79 The resources required to implement these recommendations could be even more difficult to secure due to anticipated changes to *CEPA*. Proposals being made for revisions to *CEPA* will allow only two years for Environment Canada to evaluate and implement control options for substances declared toxic under the Act.

4.80 **Lack of performance measures.** We are concerned about the prospects for measuring the impact of implementing many of these recommendations. There are two distinct problems. First, Environment Canada has a reliable mechanism to measure reductions of releases for only 10 of the 25 *CEPA* toxic substances on the Priority Substances List 1, and no data at all on 10 of them. Without release data, Environment Canada cannot assess the impact of its initiatives (see paragraphs 4.129 - 4.133).

4.81 Second, even if release reductions were measured, the levels necessary to bring the risks down to acceptable levels have never been established. Even if all 52 recommendations made so far were fully implemented, it would not be known whether risks to human health and the environment had been sufficiently reduced.

4.82 **Environment Canada and Health Canada should exercise greater leadership by defining objectives for reducing the risk of industrial chemicals to public health and the environment and by ensuring that risk management options are developed to achieve these objectives.**

4.83 **Environment Canada and Health Canada should develop plans to implement recommended risk management measures for substances declared toxic under the *Canadian Environmental Protection Act (CEPA)* before such recommendations are presented to ministers. These plans should include measurable targets, specific timetables, resource estimates and funding sources.**

4.84 **The roles and responsibilities for implementing recommended risk management measures for substances declared toxic under *CEPA* should be clearly defined for Environment Canada, Health Canada, Industry Canada, Natural Resources Canada, and other departments. These roles and responsibilities should capitalize on the expertise and capacities of each department.**

The role of voluntary initiatives

4.85 **The trend toward voluntary initiatives.** Voluntary programs are being used as a core element of the federal management strategy to achieve reductions in toxic substances, not simply to supplement existing regulatory programs. Indeed, the majority of the 160 toxic industrial chemicals are managed through initiatives such as the ARET program and memoranda of understanding between government and industry. Such programs capitalize on the willingness of many Canadian companies to manage their operations responsibly and to support public policy objectives. As Exhibit 4.7 illustrates, the federal government also proposes using voluntary initiatives to manage PSL *CEPA* toxic substances. Six of the nine consultations that were completed at the end of our audit indicated that such initiatives were favoured over regulations. The recommendations proposed new voluntary initiatives in some cases and supported existing ones in others.

4.86 Canada is not alone in using voluntary initiatives. The United States and European countries, among others, also use voluntary programs to manage toxic substances.

4.87 **Divided opinion.** The use of voluntary initiatives in place of regulations is controversial. Supporters argue that they can achieve reductions more quickly and cost–effectively than regulations can. Industry prefers the flexibility of such agreements over prescriptive regulations. Environment Canada is the lead federal authority for several voluntary agreements and both Industry Canada and Natural Resources Canada are strong supporters of voluntary initiatives.

4.88 Critics are concerned that voluntary instruments are displacing regulatory programs rather than simply supplementing them. They fear that industry will volunteer reductions very selectively, will not measure them

accurately, and will suffer no consequence for failure to meet targets. The federal government cannot ensure that all industry members in a given sector will make reductions voluntarily. Fearing that those who do participate may be at a competitive disadvantage, some industry associations have requested that the federal government use regulation to "level the playing field".

4.89 The following paragraphs review the current role of voluntary programs and then assess their reliability for dealing with *CEPA* toxic and other priority substances.

4.90 **Accelerated Reduction/ Elimination of Toxics (ARET).** ARET is the government's widely publicized voluntary challenge program for 117 toxic substances and is an example of collaboration among federal departments and with industry. The substances were selected and agreed to on the basis of their persistence, bio–accumulative properties and toxicity. The ARET Stakeholders Committee, made up of government and industry representatives, challenged participants to reduce releases of 30 high–priority toxic substances by 90 percent and the remaining 87 substances by 50 percent by the year 2000. By the end of 1998, participants included 303 facilities from 162 companies in 9 major industrial sectors. Together, they represent over 40 percent of Canada's total industrial production.

4.91 As of 31 December 1997, ARET participants reported that they had reduced overall emissions from base–year levels by 64 percent. Reductions in overall emissions of the high–priority substances are expected to be 78 percent by the year 2000. Government officials indicate that industry will be unable to achieve the 90 percent reduction target, due mainly to economic and technical difficulties in reducing certain types of emissions in some aluminium production facilities.

4.92 **Memoranda of understanding.** Environment Canada has entered into nine major memoranda of understanding (MOUs) with industry sectors to voluntarily reduce their emissions of toxic and other substances. The Ontario government participates in many of them. Exhibit 4.8 shows the scope of these MOUs.

Exhibit 4.8

Scope of Memoranda of Understanding that Address Toxic Substances

Industry Sector	Substances Included in Agreements		Number of Companies Participating
	Number of Substances	Number of Priority Substances	
Metal Finishing	93	12	20
Chemical Manufacturing	500	51	64
Health Care	1	1	5
Steel Manufacturing	121	31	1
Vehicle Manufacturing	113	67	3
Auto Parts Manufacturing	81	44	11
Dry Cleaning	1	1	6
Printing and Graphics	77	2	43

4.93 Each MOU deals with one industry sector and its specific pollution issues. The MOUs focus on pollution prevention and life cycle management to identify opportunities for reducing releases at different stages of the

production process. Signatories are not exempt from regulatory compliance, and may withdraw from the MOU at any time. New partners may also join. Exhibit 4.9 profiles two such agreements that the federal government has signed.

Exhibit 4.9

Profile of Two Agreements With Industry

These case studies illustrate two different types of negotiated agreements and the contribution they can make toward reducing the release of toxic substances.

The CVMA Memorandum of Understanding

The Canadian Vehicle Manufacturers' Association memorandum of understanding (MOU) is the first voluntary MOU developed between an industry association and the federal government. The Government of Ontario is also an active participant.

This MOU includes the "big three" automobile manufacturers (General Motors, Ford and Chrysler) and its goal is to reduce the use, generation or release of toxic substances as well as other environmental contaminants of concern. As part of the MOU, automotive companies have also made a commitment to promote pollution prevention activities and technology transfer to their supplier community.

The list of substances covered by this MOU has grown from 65 at its inception in 1992 to 113 in 1997. It includes 73 of the 84 federal priority substances, although the inventory conducted by the companies indicates that only 32 of the 113 substances and 18 of the 73 substances are presently used by CVMA members. To date, five annual progress reports have been produced, detailing some 90 case studies of pollution prevention activities. The CVMA reports total accumulated reductions of 330,000 tonnes of these substances. As there are no government financial incentives, the costs to the federal and Ontario governments have been minimal.

Dofasco: A Facility–based Approach to Improving the Environment

In 1997, Dofasco signed an environmental management agreement (EMA) with the federal and Ontario governments, the first facility–based environmental agreement in Canada. This agreement differs from others in that many environmental issues are addressed in the same agreement.

In developing the agreement, Dofasco and the federal and Ontario governments established environmental priorities together. As a result, Dofasco is able to focus its efforts on reducing releases of substances that cause the main environmental impacts created by its steel producing facility.

Through the EMA, Dofasco agrees to more stringent measures than are set out in regulations and in other voluntary programs. Commitments under the EMA include reducing air emissions of two toxic substances (polyaromatic hydrocarbons and benzene) and implementing various initiatives to address climate change, smog, ozone depletion, energy efficiency, and waste management.

Results to date seem encouraging. Dofasco reports that it met the 50 percent reduction target for benzene emissions by the end of 1997, at a cost of approximately $5.7 million. It reports that it is also on track to meet its other reduction targets for benzene and polyaromatic hydrocarbons set for 2000.

4.94 While the MOUs reportedly are leading to reductions in toxic emissions, actual progress is difficult to measure. Most MOUs do not have targets or timelines, and the baseline use and release of a substance is often unknown. Reductions are typically reported through annual case studies submitted voluntarily by industry signatories.

4.95 We believe that in principle, properly designed and implemented voluntary programs can achieve some risk management objectives, perhaps more quickly and cheaply than traditional regulations. The current initiatives claim significant reductions in releases of a range of toxic substances, including many over which the federal government has no regulatory authority. Taken at face value, existing voluntary initiatives have contributed to the public good and will likely continue to do so in the future.

The reliability of voluntary initiatives to manage high–priority substances

4.96 We believe that substances designated both toxic and high priority must be managed with rigour and extreme care. If voluntary initiatives are to be used as a means to manage priority substances—in some cases in place of regulations—the government needs to assure itself and the Canadian public that the MOUs are effective in achieving the desired results. This can be a significant challenge.

4.97 The Office of the Auditor General has developed standards for effective accountability arrangements. Industry Canada and the Treasury Board Secretariat have developed principles for effective voluntary codes. Drawing on these and other sources, we assessed the existing voluntary initiatives against core components that we would expect to be included. The MOUs currently in place were not intended to meet these rigorous criteria. We note, however, that many of these same voluntary programs are recommended as the primary means of addressing PSL 1 *CEPA* toxic substances. Exhibit 4.10 shows the results.

Exhibit 4.10

Important Criteria for Success of Voluntary Initiatives

	Criteria	Number of Voluntary Initiatives* meeting criteria
1	Clear program goals and targets	2
2	Standardized performance measures	1
3	Clearly defined roles and responsibilities	1
4	Consequences if performance objectives not met	0
5	Regular reporting on meeting performance objectives and credible verification of results	
	(e.g. third–party verification, internal audits)	1
6	Continual improvement: corrective actions to be taken where performance objectives have clearly not been met	

* Nine memoranda of understanding and Accelerated Reduction/Elimination of Toxics (ARET)

4.98 **Weaknesses in existing voluntary initiatives.** We recognize that there can be a fine line between encouraging voluntary actions and discouraging them. We do not wish to discourage them. Nevertheless, in our opinion neither ARET nor the existing MOUs, as currently structured, are sufficient to be used as the only tool for achieving and measuring reductions of priority toxic substances.

4.99 Many of the MOUs lack measurable targets for both the agreements overall and the participating companies. We also note that the MOUs lack performance measures that all participating companies in a particular sector are expected to meet. At present, there are no direct consequences for failing to meet reduction targets, and inconsistent and incomplete reporting may lead to a false sense of confidence that releases of a substance are being reduced enough to make additional measures, including regulations, unnecessary. The data reported under all but one of the existing MOUs and through ARET are not subject to any independent verification. Environment Canada officials reviewing reports of significant reductions by companies under one MOU estimate that the claims of more than 75 percent of the reductions are misleading.

4.100 The Netherlands has taken an alternative approach to non–regulatory instruments. The Dutch National Environmental Policy Plan (NEPP) established emission reduction targets for various industry sectors. Through consultation, the government instituted a series of covenants with industry sectors. These are negotiated agreements between governments and industry sector associations and have the status of binding contracts in civil law. Companies in the sector are required to participate and are subject to inspection by government enforcement staff to verify reported data and ensure compliance with the sector agreement.

4.101 Conditions under which to use voluntary initiatives not defined. Industry groups and federal departments recognize that voluntary initiatives have limitations and that they are not appropriate in all circumstances. Their effectiveness will depend, in part, on the overall rate of participation in an industry. The nature of the industry, past experience in co–operative efforts with government and the number and sizes of the companies involved all have a bearing on the likelihood that effective release reductions will be achieved voluntarily.

4.102 Participating in government– industry voluntary initiatives requires a level of commitment from industry participants that is often not possible for small and medium–sized companies. Also, if a given initiative covers only a small proportion of an industry sector, it is unlikely to be effective at achieving desired environmental benefits in that sector. Four of the nine existing MOUs include less than one percent of companies in their sector.

4.103 Environment Canada and other departments have not established the conditions under which voluntary initiatives should be used to manage toxic substances. If the Department is to rely on such initiatives in the future, it needs to develop rules for deciding how and when they are used.

4.104 Voluntary initiatives not assessed before being renewed. Over the past six years, many of the agreements have expired and been renewed, in some cases more than once. We found no evidence that Environment Canada has evaluated the environmental achievements of these agreements or sought to strengthen their potential impact before renewing them. Such evaluations might have shed light on when voluntary agreements work well and when they do not. Negotiations before renewal were typically confined to discussing what additional substances might be added.

4.105 Environment Canada, in consultation with other participating departments, should develop a policy outlining conditions necessary for using voluntary initiatives. Before renewing a voluntary initiative, Environment Canada should evaluate its contribution toward the government policy objectives of pollution prevention and life cycle management.

4.106 If Environment Canada chooses to use voluntary initiatives to manage priority substances, including *CEPA* toxic substances and others, it should establish rigorous requirements for them. At a minimum, these initiatives should include:

- **clearly identified environmental objectives;**
- **the release levels that exist at the beginning of the agreement;**
- **measurable targets with timelines;**
- **release or performance measures;**
- **clearly defined roles and responsibilities;**
- **consequences for failing to meet targets and rewards and recognition for achieving them;**
- **a reporting requirement and provision for credible verification; and**

- **regular evaluation of the initiative to determine progress and consider whether corrective action is necessary.**

4.107 If Environment Canada uses voluntary initiatives to manage toxic substances not identified as priorities, it should encourage industry sectors, associations and individual companies to also adopt the same requirements as indicated above.

Improvements Needed in the Management of Pesticides

4.108 Over 7,000 pesticide products are registered for agricultural, commercial and household applications. Pesticide product labels are one of the main risk management tools in use today. Product labels set conditions of use, such as how much, how often, and where not to apply the product (for example, not close to waterways). When used as directed, pesticides are considered not to pose unacceptable risks to public health, plants, animals or the environment.

4.109 Governments around the world have recognized the need to reduce the risks of pesticide use, due to concerns such as the risk to users, the general population and the environment; contamination of land and water resources; and the potential for targeted pests to become pesticide–resistant.

4.110 When the Pest Management Regulatory Agency was formed in 1995, the government committed itself to supporting the integration of pest management with the broader goals of environmental sustainability. The PMRA was directed to develop a pesticide risk reduction policy for all sectors of use. A risk reduction policy could guide the PMRA's activities such as the registration of new pesticides, the re–evaluation of pesticides, the related definition of "unacceptable risk", integrated pest management, training programs and inspection. The PMRA has recognized the importance of building strong linkages between its decision–making processes and the development and adoption of sustainable pest management strategies. We expected to find a clear policy and strategic plan to guide the Agency's risk reduction activities.

4.111 The PMRA has also recognized the need to develop and implement a national risk reduction strategy for Canada in conjunction with the provinces. This strategy would support the Agency's risk reduction policy and associated activities.

No overall stewardship for managing pesticides

4.112 Some activities under way. The PMRA does have programs that may reduce the risk of pesticide use. For example, the Agency has worked co–operatively with its provincial counterparts to develop a training program for applicators and vendors; the courses address human health and environment issues.

4.113 The Agency also undertakes joint review with the U.S. Environmental Protection Agency (EPA) of biopesticides and those pesticides meeting the U.S. EPA's definition of "reduced risk". The joint review encourages the registration of reduced risk products by providing shorter review times than for other products and access to both the U.S. and Canadian markets at the same time.

4.114 The PMRA has promoted integrated pest management in nine use sectors through discussions and partnerships with stakeholders, including chemical companies that supply pesticides, growers who use them, and other federal government departments. Its integrated pest management initiative does not have an explicit objective of reducing the risks posed by pesticides but rather is focussed on exploring various pest control alternatives. To date, two of these programs have produced information products that illustrate alternative methods of pest control. While these efforts are encouraging, they lack focus and clear goals, and are largely reactive. The PMRA could push further under its mandate but has yet to do so.

4.115 No risk reduction policy to deal with pesticides. Notwithstanding these positive initiatives, they are occurring in the absence of an overall strategic plan to encourage a reduction in the overall risks or use of pesticides. The PMRA has not developed a risk reduction policy. We found that pesticides are dealt with one at a time but are not managed as a class. The PMRA does not monitor which pesticides pose the greatest risk in various regions and, therefore, which ones warrant the greatest management attention.

4.116 The absence of a risk reduction policy is striking in comparison with other countries. Many have enacted specific policies and programs aimed at reducing the use and risks of pesticides. The U.S. Environmental Protection Agency has established a Pesticide Environmental Stewardship Program in which formal voluntary partnerships are established with pesticide users, growers and food processors to adopt safer alternatives. Pesticide manufacturers are excluded from this program. In addition, the U.S. Department of Agriculture has established a national goal to have 75 percent of U.S. agricultural land under integrated pest management by the year 2000.

4.117 Concern about the environmental effects of pesticides led the British government in 1985 to take a precautionary approach to pesticides and to promote their reduced use. Sweden's risk reduction program, started in 1986, uses a variety of measures including technical and financial assistance to farmers to reduce the risks of pesticide use.

4.118 In addition to a risk reduction policy, the PMRA is also responsible for applying government–wide policies such as the Toxic Substances Management Policy and the principles of the Federal Pollution Prevention Strategy. In practice, their application to pesticides has been limited. Pesticides are not managed by the PMRA throughout their life cycle, given the role of provincial governments in their management.

4.119 The Pest Management Regulatory Agency, in consultation with other federal departments including Environment, Health, Fisheries and Oceans, and Natural Resources, should establish a risk reduction policy for managing pesticides. Among other things, the policy should reflect commitments in the federal government's Pollution Prevention Strategy and the Toxic Substances Management Policy. The risk reduction policy's objectives should be reflected in the registration of new pesticides, the re–evaluation and special review of existing pesticides, and all Agency programs for the promotion of alternatives, including integrated pest management.

4.120 The Pest Management Regulatory Agency should develop and implement, in conjunction with the provinces, a national pesticide risk reduction strategy for Canada.

Activities of Pest Management Regulatory Agency not co–ordinated with other government departments

4.121 Co–operation with other departments. As part of its goal to have a pesticide regulatory system that supports environmental sustainability, the government committed the PMRA to considering the advice provided by Agriculture and Agri–Food Canada, Environment Canada, Fisheries and Oceans, Health Canada and Natural Resources Canada on the registration of pesticides and on policies governing their use. While the PMRA retains the responsibility and decision–making authority for pesticide regulation, these other departments (as noted in Chapter 3 of this Report) have expertise and research that is crucial for the PMRA in fulfilling its mandate to integrate pest management into the broader goal of environmental sustainability.

4.122 Co–operation is also necessary to ensure consistency between the Agency's policies and those of other government departments. Lack of collaboration between the PMRA and other departments can result in the Agency's approval of products whose use contravenes other legislation. A co–ordinated approach is especially important when the *Pest Control Products Act* (*PCPA*) overlaps with other legislation such as the *Fisheries Act*, as it does in the case of aquaculture.

4.123 Pesticides in aquaculture. The aquaculture industry has grown rapidly from an estimated value of $7 million in 1984 to $372 million in 1996. The growing importance of aquaculture in Canada has increased the pressure for pesticide use. The aquaculture industry uses pesticides and other products to deal with parasites that infect fish held in pens, including sea lice.

4.124 We had expected the PMRA, Environment Canada and Fisheries and Oceans to ensure that the use of pesticides in aquaculture was consistent with other policies and supported the objective of environmental sustainability.

4.125 Exhibit 4.11 illustrates the inability of the PMRA, Fisheries and Oceans and Environment Canada to take a unified position on the use of pesticides in aquaculture. It also highlights the need for an integrated approach to practices such as aquaculture. The appropriate use of pesticides was identified as one of the issues in the debate surrounding a sustainable aquaculture industry. Departments concur on the need to ensure that this increasingly important industry develops in a sustainable manner.

Exhibit 4.11

Interaction Between the *Fisheries Act* and the *Pest Control Products Act* in Aquaculture

This case study demonstrates the inconsistency between the *Fisheries Act* and the *Pest Control Products Act (PCPA)*, the inability of government officials to resolve it, and complex issues surrounding the appropriate use of pesticides in aquaculture.

Pesticides used in fish pens located in waters frequented by fish have highlighted the problem caused by the conflict between the *Fisheries Act* and the *PCPA*. When products that are approved under the *PCPA* for use in aquaculture are used in waters frequented by fish, their use may contravene the *Fisheries Act*. As the importance of aquaculture has grown, so has the demand for pesticides. Sea lice scar the fish and significantly reduce their market value. The pesticides used to kill the sea lice and protect the fish also kill other invertebrates, including lobster and mussels, which are covered by the *Fisheries Act*.

In 1994, a serious outbreak of sea lice threatened the aquaculture industry in New Brunswick. The following year, the aquaculture industry in New Brunswick lobbied the Pest Management Regulatory Agency (PMRA) for temporary approval of pesticides to treat sea–lice infestations. A number of pesticides were approved for this use. The PMRA received an application for the use of cypermethrin. Based on widespread concern about the effects of cypermethrin on non–target marine organisms, including shrimp and lobster, the PMRA held a federal–provincial workshop to discuss the environmental impacts of the pesticide before making its regulatory decision. The PMRA has not yet made a decision on the use of cypermethrin in aquaculture.

Meanwhile, the larger issue of the conflict between the *Fisheries Act* and the *PCPA* continues. After five years of discussions, the issue has not been resolved. More recently, the PMRA, Environment Canada and Fisheries and Oceans had yet another round of discussions and options analysis. A working group was struck in 1998 and tasked to report to senior management. However, the responsibility for decision making is unspecified. Although the fall of 1998 had been set as a deadline for resolving the issue, at the conclusion of our audit it remained unresolved.

This case study raises questions about pollution prevention and the sustainable use of pesticides which federal departments need to address. These questions include the role of management practices, such as preventing the overcrowding of fish and the close proximity of adjacent fish pens, and the use of integrated pest management to prevent sea lice infestations instead of relying on increasingly toxic pesticides to treat the problem once it has started.

4.126 The standstill caused by the use of pesticides for aquaculture in open waters has also affected co–operation between the PMRA and Fisheries and Oceans on the registration of other pesticides. As noted in Chapter 3 of this Report, a memorandum of understanding intended to facilitate co–operation between the two organizations has been negotiated but will not be signed until they resolve the legal conflict between the application of the *Fisheries Act* and the *PCPA*.

4.127 Fisheries and Oceans, together with Environment Canada and the Pest Management Regulatory Agency, should develop a policy on sustainable aquaculture that addresses, among other things, the use of pesticides and other products in aquaculture as well as the role of integrated pest management.

4.128 The Agency should ensure that its pesticide registration decisions do not create conflicts with other federal legislation, including but not limited to the *Fisheries Act*. Where such conflicts may arise, the Agency should exchange scientific and/or policy advice with other departments before registration decisions are taken.

Inadequate Tracking of Toxic Releases and Pesticides

4.129 The ability to measure toxic releases is critical to guide federal departments at the "front end" of risk management, helping to set priorities for action and to target industry sectors or companies. At the "back end" of risk management, release data can allow departments to measure reductions against established targets. Without this information, the federal government has no means of prioritizing substances for action or confirming the success of risk management activities. We expected that Environment Canada would measure releases into the environment of all *CEPA* toxic and other priority substances as well as many other toxic substances.

4.130 We found that the federal government does not track releases of 10 of the 25 *CEPA* toxic substances on the Priority Substances List, nor releases of many other priority substances. Where data do exist, the principal sources are the *CEPA* National Pollutant Release Inventory (NPRI) and ARET.

Inadequate data sources

4.131 Under the NPRI, regulated companies must report releases to Environment Canada of 176 pollutants. The NPRI is one of only six such reporting mechanisms of countries in the Organization for Economic Co–operation and Development (OECD). The NPRI does not track pesticides. On the 53 toxic substances that it does track, it provides the most complete and reliable data available. The NPRI served as an important source of information for some of the consultations on *CEPA* toxic substances.

4.132 Notwithstanding its importance, the NPRI does have shortcomings. Information is tracked only on companies that have over 10 employees and use 10 tonnes or more of a designated substance in a year, so releases from many small and medium–sized companies are not reported. No new substances have been added to the NPRI since it was established in 1993. NPRI data include only 16 of the 84 priority toxic substances and 10 of the 25 PSL1 toxic substances. In the U.S., many new substances have been recognized as priorities that require surveillance, and its Toxic Release Inventory (TRI) list has risen from about 300 substances in 1986 to over 600 in 1998. Environment Canada has plans to revise and expand the NPRI, guided by a multi–stakeholder working group established by the Department.

4.133 ARET was not established for reporting purposes but is the only source of public data on releases of 68 of the 160 toxic substances and 5 of the 25 PSL toxic substances. It also collects data on 49 of the substances tracked by the NPRI. As a reporting instrument it, too, has several shortcomings. Companies can choose to participate in the program or not, and those that do participate can choose which of the 117 substances to report. Percentage reductions reported for each substance are based on an unspecified number of companies. The data in the reports are inconsistent and incomplete. There are no common protocols to measure and estimate releases of a substance, which means that the results are not comparable. Actual reductions are not verified and may be different from what is reported. The base year against which reductions are measured may vary from company to company. Environment Canada officials believe the NPRI data to be more complete and credible, although ARET data were also used in several of the *CEPA* consultations.

4.134 Environment Canada should ensure that releases of priority toxic substances are reliably monitored and reported through either the National Pollutant Release Inventory or other means, where that would be more appropriate, and should periodically publish progress made toward achieving release reduction targets.

No data on pesticide use

4.135 A national database is missing. Many countries gather data on sales of pesticides to obtain information on the types and volumes being used. Of 22 countries responding to an OECD survey, only Canada and the Slovak Republic do not collect data on pesticide sales. Without such data, Canada has no ability to measure amounts of pesticides used and released into the environment. This information is needed to monitor the risks to health, safety, and the environment and to measure the extent to which lower–risk pesticides and non–pesticide alternatives are being adopted.

4.136 Environment Canada tracked sales of some pesticides in 1987, 1988, 1990 and 1994, before the creation of the Pest Management Regulatory Agency in 1995. Subsequently, the government committed the Agency to developing a national database on pesticide use, and responsibility for tracking sales was transferred to the Agency. It has repeatedly acknowledged the need for credible data on pesticide use in Canada, and has repeatedly committed itself to developing the national database. A multi–stakeholder working group was formed in 1997 and plans are still being developed.

4.137 Monitoring compliance with labels is lacking. The PMRA does not know the extent to which users comply with directions on pesticide labels. We reviewed the extent to which it uses inspections to gather strategic information on pesticide use. The PMRA has the equivalent of 44 officers to inspect farms, food processing plants, commercial application facilities, retail outlets, pest registrants and formulators, lawn care companies and so on. Inspections are not used to systematically monitor compliance but rather are conducted largely in reaction to known or suspected violations. Results of completed inspections are not used to inform program staff about the rate of compliance with pesticide labels.

4.138 The Pest Management Regulatory Agency should meet is commitment to establish a national database of pesticide sales in order to monitor the use of pesticides and gauge the effectiveness of risk reduction activities.

Conclusion

4.139 Industrial chemicals and pesticides are among the essential building blocks of a modern society. Our audit addressed the federal government's environmental management of 160 industrial toxic chemicals and 7,000 pesticide products. We have major concerns about the lack of implementation of key federal policies and programs that provide guidance for the management of toxic substances.

4.140 The federal government's cornerstone policy in this area, the Toxic Substances Management Policy, is not being fully implemented, nor is there a government–wide plan to do so. Strategies for the management of specific substances, although required by the policy, have not been developed or implemented. Established government objectives are not being achieved.

4.141 The audit also found that the federal government has been slow to take action on toxic substances that have been assessed and declared toxic under the *Canadian Environmental Protection Act*. The current programs are insufficient to ensure that risks will be adequately addressed in the future. Substance–specific objectives for the protection of human health and the environment have not been adequately defined, and agreed reductions in the release of toxic substances are not assured. The federal government relies increasingly on voluntary programs instead of regulations to reduce releases of toxic substances.

4.142 We also concluded that the Pest Management Regulatory Agency has not developed a policy or implementation plan for reducing the risk of pesticides and often does not co–ordinate its activities with those of federal departments.

4.143 The federal government's ability to measure the results of its risk management initiatives and to assess their effectiveness is mixed. The government maintains an inventory of releases of pollutants, the National Pollutant Release Inventory. This database allows it to track reductions in releases over time of many, but not all, industrial chemicals that are considered to be toxic substances. Releases of other toxic substances into the environment are tracked through voluntary, non–verified databases. Our audit identified as a key problem the inability to reliably measure whether reduction targets for priority substances are achieved.

4.144 The federal government has no reliable data on the total sales of pesticides and on their release into the Canadian environment. The Pest Management Regulatory Agency has not met its 1995 commitment to develop a national database.

4.145 Overall, we conclude that the federal government is not adequately managing the risks to the public that toxic substances and pesticides create. We are deeply concerned by the degree of conflict among departments, their inertia toward implementing government policies, and the lack of rigour in existing voluntary initiatives. We are also concerned about the absence of a comprehensive strategy to manage the environmental risks posed by pesticides and about inadequate tracking of releases of toxic substances and pesticides into the environment. We believe the federal government is not doing its part to effectively manage the risks posed by toxic substances.

Joint departmental response to Chapter 3 and Chapter 4: *The Commissioner's Office has done an extensive analysis of the challenges of managing toxic substances in the federal system. The report acknowledges the complexity of the Canadian system, with multiple departments having responsibilities for toxic substance management based on different legislative mandates. This complexity underscores the need for departmental co–operation.*

There is more to the system than the federal government's role. The federal government actively works closely and on an ongoing basis with the provinces and territories, industry, non–governmental organizations and Canadians to achieve comprehensive management of toxic substances. Given the scientific and socio–economic complexities of managing toxic substances, there are bound to be debates. In fact, the Canadian system encourages dialogue to ensure that the values of Canadians are reflected in the decision–making process. Nonetheless, departments agree that such discussions should not be so protracted as to impede timely action to protect the health of Canadians and their environment.

Departments are committed to working co–operatively to carefully assess the recommendations of the Commissioner's Office. They are also committed to ensuring continuous improvement within Canada in managing releases of toxic substances, relying upon the principles of sustainable development and risk management, as well as the precautionary principle, to achieve this. To ensure such continuous improvement, they commit to working co–operatively to develop an appropriate course of action.

About the Audit

Objectives

There were three audit objectives:

Objective A: Priorities and Plans

To assess whether priorities and plans for toxic substances are identified, assessed, and adjusted by federal departments in a timely and co–ordinated fashion.

Objective B: Implementing Risk Management

To assess whether federal policies and programs for managing toxic substances are being implemented by departments and are achieving their objectives.

Objective C: Feedback Mechanisms

To assess whether federal departments are measuring results achieved, the effectiveness of implemented actions, and the sustainability of risk management decisions.

Scope and Approach

This audit examined federal programs established to identify, assess and manage the risks of toxic substances. For the purposes of this audit, "toxic substances" included industrial and commercial chemicals, heavy metals, pesticides, and other substances that, when released into the environment, can cause harm to human health or environmental quality. Using this definition, the audit scope excluded substances such as pharmaceutical drugs, food additives, radioactive materials, biological agents, and biotechnology products. Also excluded from the scope of this audit was the application of the Federal Pollution Prevention Strategy in federal departments.

The audit was framed around the fundamentals of good management based on a "Plan – Do – Check and Improve" model.

Chapter 3 assessed the ability of federal departments to provide scientific information in support of decision making; the co–ordination of research among federal departments; the state of environmental monitoring networks; and the procedures in place to incorporate new information into decision making, including the re–evaluation of pesticides.

Chapter 4 assessed the implementation of government–wide policies, including the Toxic Substances Management Policy; and particularly the application of risk management options, including virtual elimination, life cycle management and promotion of pollution prevention within industry. The audit reviewed the non–regulatory (voluntary) initiatives for risk management, including the types of voluntary

instruments used. It also assessed the utility of the National Pollutant Release Inventory, release reporting through Accelerated Reduction/Elimination of Toxics (ARET) and use of data for pesticide management.

The approach consisted of interviews and file review in the departments of Environment, Health (including the Pest Management Regulatory Agency), Natural Resources, Fisheries and Oceans, Industry, Agriculture and Agri–Food and Finance. Outside the federal government, interviews were held with several industry associations and companies, academics, public interest groups, provincial regulators, and scientific research institutions. File review was conducted and written documentation was collected from a variety of sources and reviewed by audit team members.

Criteria

Criteria related to the three audit objectives were communicated to the departments. Minimum baseline criteria for all departments included the expectation that departmental mandates and accountabilities were clearly defined, understood and delivered. Departments were expected to adhere to legislated and regulatory requirements as specified in *the Canadian Environmental Protection Act*, the *Pest Control Products Act* and the *Fisheries Act* and to have met policy and scientific commitments.

We expected departments to identify significant gaps and inconsistencies among mandates, legislation and policies and to have a means of addressing them. We expected that federal departments would co–ordinate their efforts in identifying needs and conducting scientific research and monitoring on toxic substances and that there would be effective two–way communication between the scientific and policy communities.

We also expected federal departments to have developed strategies for either life cycle management or virtual elimination of toxic substances and to have promoted the concept of pollution prevention in industry. We expected that risk management programs would be performance–based, with specific goals, measurable objectives and milestones. We expected the Pest Management Regulatory Agency to have developed a pesticide risk reduction policy as directed by the government in 1995. We also expected departments to have information on releases of toxic substances and pesticide use in order to identify priorities for action and to monitor progress in achieving reduction targets for toxic substance releases.

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Appendix

Summary of Substances Managed by Environment Canada

Priority Substances						
		Management Tools				
		Voluntary Initiatives		Control Measures		
		Industry Challenges				
No.		ARET	MOUs	Codes of Practice	Regulations (Under *CEPA* *Fisheries Act* and *PCPA*)	Reporting Mechanisms
	TSMP Track 1 Substances					
1	Aldrin*		2			
2	Chlordane*		2			
3	DDT** (dichloro–diphenyl–trichloroethane)		2			
4	Dieldrin*		2			
5	Endrin**		1			
6	Heptachlor*		1			
7	Hexachlorobenzene*	x	4			ARET
8	Mirex*		2			
9	Polychlorinated Biphenyls (PCBs)	x	5	1 current	1	ARET
10	Polychlorinated dibenzo–furans		1	1 proposed	2	
11	Polychlorinated dibenzo–para–dioxins		1	1 proposed	2	
12	Toxaphene**		2			
	Other Priority Substances					
13	1,1,1 –trichloroethane (methyl chloroform)		4	2 current	1	
14	1,2-dichloroethane (ethylene dichloride)	x	3			ARET NPRI
15	1,6-dinitropyrene	x	3			ARET
16	1,8-dinitropyrene	x	3			ARET
17	2,3,7,8-tetrachlorodibenzofuran	x	3			ARET
18	2,3,7,8-tetrachlorodibenzo–p–dioxin	x	3			ARET
19	3,3'-Dichlorobenzidine (DCB)	x	4			ARET
20	(4-chlorophenyl)cyclopropylmethanone, 0–[(4–nitrophenyl) methyl]oxime					
21	4,4-methylenebis (2-chloroaniline)	x	4			ARET NPRI
22	7H-dibenzo(c,g)carbazole	x	4			ARET
23	Alkyl–lead					
24	Arsenic and its compounds**	x	5	1 current 1 to revise 2 proposed	2	ARET NPRI
25	Asbestos	x	3		1	ARET NPRI
26	Benz(a)anthracene	x	3			ARET
27	Benzene	x	6	3 current 2 proposed	1	ARET NPRI

* Track 1 substances no longer registered as pesticides under the *Pest Control Products Act*. Mirex was never registered as a pesticide in Canada.

** Only some compounds of these metals were assessed and listed under the ARET program (usually inorganic soluble inhalable compounds).

Priority Substances						
		Management Tools				
		Voluntary Initiatives		Control Measures		
		Industry Challenges				
No.		ARET	MOUs	Codes of Practice	Regulations (Under *CEPA* *Fisheries Act* and *PCPA*)	Reporting Mechanisms
28	Benzidine	x	3		under development	ARET
29	Benzo(a)pyrene	x	4			ARET
30	Benzo(b)fluoranthene	x	4			ARET
31	Benzo(e)pyrene	x	4			ARET
32	Benzo(g,h,i)perylene	x	4			ARET
33	Benzo(j)fluoranthene	x	4			ARET
34	Benzo(k)fluoranthene	x	4			ARET
35	Bis (2-ethylhexyl) phthalate (dioctyl phthalate)	x	4	1 current		ARET NPRI
36	Bis (chloromethyl) ether	x	3		1	ARET
37	Bromochlorodifluoromethane		2		1	
38	Bromofluorocarbons		1		1	
39	Bromotrifluoromethane		2		1	
40	Cadmium and its compounds**	x	5	1 current 1 to revise 2 proposed		ARET NPRI
41	Carbon tetrachloride (tetrachloromethane)	x	4	1 current	1	ARET NPRI
42	Chlorinated wastewater effluents		1			
43	Chlorobiphenyls				1	
44	Chlorofluorocarbon (CFC)		2		1	
45	Chloromethyl methyl ether		1		1	
46	Chrysene	x	4			ARET
47	Creosote–contaminated sites		1		1	
48	Dibenz(a,h)anthracene	x	4			ARET
49	Dibenz(a,j)acridine	x	4			ARET
50	Dibenzo(a,i)pyrene	x	3			ARET
51	Dibenzofuran		1		1	
52	Dibenzo–para–dioxin		1		1	
53	Dibromotetrafluoroethane		2		1	
54	Dichloromethane (methylene chloride)	x	5	2 current 1 proposed		ARET NPRI
55	Dodecachloropentacyclo decane		1		1	
56	Effluents from pulp mills using bleaching		1			
57	Fluoranthene	x	3			ARET
58	Fluorides (inorganic)		1			
59	Fuel containing toxic substances		1		1	
60	Hexachlorocyclohexane (alpha)	x	4			ARET
61	Hexachlorocyclohexane (gamma)	x	4			ARET

** Only some compounds of these metals were assessed and listed under the ARET program (usually inorganic soluble inhalable compounds).

Priority Substances						
		Management Tools				
		Voluntary Initiatives		Control Measures		
		Industry Challenges				
No.		ARET	MOUs	Codes of Practice	Regulations (Under *CEPA* *Fisheries Act* and *PCPA*)	Reporting Mechanisms
62	Hexavalent chromium compounds (Chromium (Cr6+))***		3	1 to revise 2 proposed		ARET NPRI
63	Hydrobromofluorocarbons		1		1	
64	Hydrochlorofluorocarbons				1	
65	Indeno(1,2,3-c,d)pyrene	x	4			ARET
66	Lead and its compounds	x	5	1 current 1 to revise 2 proposed	2	ARET NPRI
67	Mercury and its compounds**	x	1	1 current 1 to revise 2 proposed	3	ARET NPRI
68	Methyl Bromide (Bromomethane)		2		2	
69	Methyl mercury	x	3			ARET
70	Nickel and its compounds**	x	5	1 current 1 to revise 2 proposed	1	ARET NPRI
71	Octachlorostyrene	x	4			ARET
72	Pentachlorophenol	x	4		1	ARET
73	Perylene	x	4			ARET
74	Phenanthrene	x	4			ARET
75	Polybrominated Biphenyls		1		1	
76	Polychlorinated Terphenyls		1		1	
77	Polycyclic aromatic hydrocarbons (PAHs)****		2			ARET
78	Pyrene	x	4			ARET
79	Refractory ceramic fibre		1			
80	Short Chain Chlorinated Paraffins		1			
81	Perchloroethylene (Tetrachloroethylene)	x	6	3 current	under development	ARET NPRI
82	Tributyltin	x	4		1	ARET
83	Trichloroethylene (1,1,2-trichloroethylene)	x	4	1 current	under development	ARET NPRI
84	Vinyl Chloride		2		1	NPRI
Other Toxic Substances						
85	1,2-dibromo-3-chloropropane	x	2			ARET
86	1,2-dichlorobut-3-ene	x	2			ARET
87	1,2-diphenylhydrazine	x	2			ARET
88	1,3-butadiene	x	2			ARET NPRI
89	1,3-dichloropropene	x	2		1	ARET
90	1,4-dichlorobenzene (p–Dichlorobenzene)	x	4			ARET NPRI
91	1,4-dioxane	x	2			ARET NPRI

** Only some compounds of these metals were assessed and listed under the ARET program (usually inorganic soluble inhalable compounds).
*** Addressed as chromium compounds under NPRI.
**** Addressed as a group of substances under ARET

Other Toxic Substances						
		Management Tools				
		Voluntary Initiatives		Control Measures		
		Industry Challenges				
No.		ARET	MOUs	Codes of Practice	Regulations (Under *CEPA* *Fisheries Act* and *PCPA*)	Reporting Mechanisms
92	1-bromo-2-chloroethane	x	2			ARET
93	1-chloro-4-nitrobenzene	x	2			ARET
94	2,3,4,6-tetrachlorophenol	x	2			ARET
95	2,4,6-trichlorophenol	x	3			ARET
96	2,4-dichlorophenol	x	2			ARET NPRI
97	2,4-dinitrotoluene	x	4			ARET NPRI
98	2,6-dimethylphenol	x	1			ARET
99	2,6-dinitrotoluene	x	2			ARET NPRI
100	2-methylpyridine	x	2			ARET
101	2-naphthylamine	x	1			ARET
102	2-nitropropane	x	3	1		ARET NPRI
103	4,6-dinitro–o–cresol	x	2			ARET NPRI
104	4-aminoazobenzene	x	2			ARET
105	4-aminobiphenyl	x	2			ARET
106	4-nitrosomorpholine	x	1			ARET
107	7,12-dimethylbenz(a)anthracene	x	2			ARET
108	Acetaldehyde	x	2			ARET NPRI
109	Acetamide	x	2			ARET
110	Acrolein	x	2		1	ARET
111	Acrylamide	x	2			ARET NPRI
112	Acrylonitrile	x	2			ARET NPRI
113	Alpha–chlorotoluene (Benzyl chloride)	x	2			ARET NPRI
114	Aniline	x	2			ARET NPRI
115	Anthracene	x	4			ARET NPRI
116	Benzo(a)fluorene	x	2			ARET
117	Benzo(b)fluorene	x	2			ARET
118	Beryllium	x	4			ARET
119	Bis (2-chloroethyl) ether	x	2			ARET
120	Bromodichloromethane	x	1			ARET
121	Chlorine dioxide	x	2		1	ARET NPRI
122	Chlorodibromomethane	x	2			ARET

Other Toxic Substances						
		Management Tools				
		Voluntary Initiatives		Control Measures		
		Industry Challenges				
No.		ARET	MOUs	Codes of Practice	Regulations (Under *CEPA* *Fisheries Act* and *PCPA*)	Reporting Mechanisms
123	Chloroform	x	3	1		ARET NPRI
124	Chromium and its compounds**		5	1 current 1 proposed		NPRI
125	Cobalt**	x	4	2		ARET NPRI
126	Copper and its compounds**	x	5	1	2	ARET NPRI
127	Cyanides	x	3	1		ARET NPRI
128	Dibenz(a,h)acridine	x	2			ARET
129	Dimethylnaphthalene	x	2			ARET
130	Dimethylphenol (mixed isomers)	x	2			ARET
131	Dinitropyrene		1			
132	Di–n–octyl phthalate		2	1		NPRI
133	Epichlorohydrin	x	2			ARET NPRI
134	Ethanol	x	2			ARET
135	Ethylene dibromide (1,2-dibromoethane)	x	3			ARET
136	Ethylene oxide	x	2		1	ARET NPRI
137	Ethylene thiourea	x	2			ARET NPRI
138	Formaldehyde	x	4	2	1	ARET NPRI
139	Gamma benzene hexachloride (Lindane)		3			
140	Hexachlorobutadiene (HCBD)		2			
141	Hexachlorocyclopentadiene	x	2			ARET NPRI
142	Hydrazine	x	2			ARET NPRI
143	Hydrogen sulphide	x	2			ARET
144	Methyl isobutyl ketone	x	3	1		ARET NPRI
145	N–Dodecane	x	2			ARET
146	N–Nitrosodimethylamine (NDMA)	x	2			ARET
147	N–nitroso–di–n–propylamine	x	2			ARET
148	N–nitrosodiphenylamine	x	2			ARET NPRI
149	O–anisidine	x	2			ARET
150	Phenol	x	5	1		ARET

						NPRI

** Only some compounds of these metals were assessed and listed under the ARET program (usually inorganic soluble inhalable compounds).

Other Toxic Substances						
		Management Tools				
		Voluntary Initiatives		Control Measures		
		Industry Challenges				
No.		ARET	MOUs	Codes of Practice	Regulations (Under *CEPA* *Fisheries Act* and *PCPA*)	Reporting Mechanisms
151	Quinoline	x	2			ARET NPRI
152	Silver and its compounds**	x	6	2		ARET NPRI
153	Tetraethyl lead*****	x	2			ARET NPRI
154	Tetramethylthiuram disulphide	x	2			ARET
155	Thiourea	x	3	1		ARET NPRI
156	Toluene diisocyanate	x	2			ARET NPRI
157	Uranium (inorganic, inhalable, soluble)	x	2			ARET
158	Vanadium (fume or dust)		2	1		NPRI
159	Vinyl Bromide	x	2			ARET
160	Zinc and its compounds**	x	5	1	2	ARET NPRI

** Only some compounds of these metals were assessed and listed under the ARET program (usually inorganic soluble inhalable compounds).

***** Addressed as lead and its compounds under NPRI.

Chapter 5

Streamlining Environmental Protection Through Federal–Provincial Agreements

Are They Working?

Table of Contents

Streamlining Environmental Protection Through Federal–Provincial Agreements

Are They Working?

Main Points

5.1 Federal–provincial environmental agreements offer potential for increased protection of the environment and the streamlining of the administration and regulatory activities between the two levels of government. The agreements that we audited are not always working as intended. We found that many activities that are essential to implementing these agreements are not working as well as they could.

5.2 Environment Canada was unable to provide us with documents to indicate that before entering into these agreements the federal government had formally analyzed the associated risks to determine, for example, whether both parties could do what they were agreeing to do. Therefore, we have no evidence that such an analysis was done. Furthermore, the federal government does not have a documented plan in place that indicates how it would reassume its responsibilities should a province be unable to carry out its assigned responsibilities, or should it or a province decide to terminate an agreement.

Background and other observations

5.3 We examined seven federal–provincial environmental agreements under the *Canadian Environmental Protection Act* (*CEPA*) and the *Fisheries Act*. Two of the agreements include environmental protection as a stated objective. The other five agreements mention environmental protection in their preambles. There has been no evaluation of environmental performance for any of the agreements that we examined.

5.4 Environment Canada has not formally evaluated or documented the extent to which the agreements have been effective in reducing duplication.

5.5 Several improvements can be made to the design of the agreements, such as including specific reporting requirements that will be meaningful to Parliament, government, the public and industry.

5.6 Parliament has been provided with incomplete and out–of–date information on how well the agreements are working.

5.7 The federal government is planning to enter into more bilateral agreements under the Canada–Wide Accord on Environmental Harmonization. Environment Canada needs to evaluate existing bilateral agreements and incorporate the “lessons learned” into any new agreements.

Environment Canada has committed to incorporate lessons learned from working together with its provincial and territorial partners into any future negotiations. The Department is also committed to ensuring a thorough and complete flow of information to the public and to Parliament.

Fisheries and Oceans has stated that it and Environment Canada will work together to resolve concerns related to the non–designation of provincial enforcement personnel as *Fisheries Act* inspectors. In addition, Fisheries and Oceans has committed to include the reports prepared on the implementation of administrative agreements by Environment Canada in its annual report to Parliament on the administration of the habitat provisions of the *Fisheries Act*.

Introduction

The federal government is planning to enter into more bilateral agreements

5.8 The federal government has explored various collaborative arrangements, such as bilateral agreements with the provinces, aimed primarily at minimizing overlap and duplication of federal and provincial environmental regulations. Environment Canada has promoted the use of these agreements as a tool for improved environmental protection. When existing environmental agreements with provinces were originally signed, for example, the Minister of the Environment informed Canadians that they would result in more efficient government and better protection of the environment.

5.9 These mechanisms have been controversial, and subject to intense debate on both the political and operational fronts. In its December 1997 report to the House of Commons entitled "Harmonization and Environmental Protection: An Analysis of the Harmonization Initiative of the Canadian Council of Ministers of the Environment" (CCME), the House of Commons Standing Committee on Environment and Sustainable Development questioned the effectiveness of bilateral administrative and equivalency agreements under the *Canadian Environmental Protection Act* and the *Fisheries Act.*

5.10 The Committee recommended that the Auditor General of Canada evaluate the federal government's performance under the existing bilateral agreements. The Committee formally recommended that the implementation of the earlier agreements be thoroughly analyzed before the Government of Canada committed itself to a new model of interjurisdictional co–operation through the Canada–Wide Accord on Environmental Harmonization.

5.11 On 29 January 1998, the Accord was signed by all jurisdictions except Quebec. It provides for developing sub–agreements in areas of environmental management that could benefit from Canada–wide co–ordinated action. Bilateral agreements may be negotiated to implement several sub–agreements in such areas as inspection, enforcement and monitoring. (See the Appendix to this chapter for more information on the purpose, objectives and principles of the Accord).

5.12 In February 1998, the Commissioner of the Environment and Sustainable Development agreed to assess whether existing agreements are working and whether the federal government is aware of their impact on environmental quality. We did not attempt to address whether bilateral agreements are the appropriate mechanisms for protecting the environment.

Equivalency and administrative agreements

5.13 The *Canadian Environmental Protection Act (CEPA)* authorizes the Minister of the Environment to sign "equivalency agreements" with the provinces. Equivalency agreements suspend the application of the specified federal *CEPA* regulations in the signing province, so that only the equivalent provincial regulations apply. However, the federal Minister of the Environment remains responsible for reporting annually to Parliament on the administration of the *CEPA* provisions that permit these equivalency agreements.

5.14 The *CEPA* further authorizes the development of ''administrative agreements" with the provinces. These allow the federal and provincial governments to share administration of the specified regulations and provide industry with a "single window" to government. The agreements can cover such activities as inspection, enforcement, monitoring and reporting. However, both levels of government retain their respective responsibilities.

5.15 In addition to the equivalency and administrative agreements provided for under *CEPA*, Environment Canada and the Department of Fisheries and Oceans have also negotiated administrative agreements with the provinces under the pollution prevention provisions of the *Fisheries Act*.

5.16 Based on a 1978 Prime Ministerial directive, Environment Canada is responsible for administering and enforcing the pollution prevention provisions under section 36 of the *Fisheries Act*. Section 36 prohibits the deposit of deleterious substances into waters frequented by fish, except where allowed by regulation. Although the responsibilities for section 36 are assigned to the Minister of the Environment, the Minister of Fisheries and Oceans is ultimately accountable for their implementation.

Focus of the audit

5.17 This audit examined seven bilateral environmental agreements under the *Canadian Environmental Protection Act (CEPA)* and the *Fisheries Act.* Environment Canada administers a total of 32 regulations under these Acts. To date, it has concluded agreements with four provinces (Alberta, British Columbia, Quebec and Saskatchewan) covering 15 regulations under *CEPA* and the *Fisheries Act* that focus largely on pulp and paper. Exhibit 5.1 indicates the type and scope of each agreement we audited.

Exhibit 5.1

Agreements Audited

Province	Federal Regulation(s)	Number of Industry Sites Covered by Agreement
Equivalency - *Canadian Environmental Protection Act (CEPA)*		
Alberta (signed June 1994)	• Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations • Pulp and Paper Mill Defoamer and Wood Chip Regulations (certain sections) • Secondary Lead Smelter Release Regulations • Vinyl Chloride Release Regulations	• Pulp and Paper (7) • Vinyl Chloride (2) • Secondary Lead Smelters (0)
Administrative - *Canadian Environmental Protection Act (CEPA)*		
Saskatchewan (signed Sept. 1994)	• Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations • Pulp and Paper Mill Defoamer and Wood Chip Regulations • Regulations respecting the manufacture, use, sale, offer for sale, import and export of certain ozone–depleting substances • Ozone–depleting substances regulations number 3 (products) • Chlorobiphenyls Regulations • Federal Mobile PCB Treatment and Destruction Regulations • Storage of PCB Material Regulations	• Pulp and Paper (1) • PCB Mobile Treatment and Destruction (0) • PCB Storage (numerous) • Ozone (0 manufacturers, numerous suppliers)
Administrative - *Fisheries Act (FA) - Section 36*		
Alberta (signed Sept. 1994)	• Pulp and Paper Effluent Regulations	• Pulp and Paper (7)
Saskatchewan	• Pulp and Paper Effluent Regulations	• Pulp and Paper (1)

(signed Sept. 1994)	• Petroleum Refinery Liquid Effluent Regulations • Meat and Poultry Products Plant Liquid Effluent Regulations • Metal Mining Liquid Effluent Regulations • Potato Processing Plant Liquid Effluent Regulations	• Petroleum Refinery (1) - indirectly due to deposit to municipal system • Meat and Poultry (0) • Metal Mining (0) • Potato Processing (0)
Administrative - Pulp and Paper - *Canadian Environmental Protection Act (CEPA)* and *Fisheries Act (FA) - Section 36*		
British Columbia (signed Sept. 1994 and expired March 1996)	• Pulp and Paper Effluent Regulations *(FA)* • Port Alberni Pulp and Paper Effluent Regulations *(FA)* • Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations *(CEPA)* • Pulp and Paper Mill Defoamer and Wood Chip Regulations *(CEPA)*	• Pulp and Paper (27)
Quebec (1st agreement signed May 1994 - expired January 1996) (2nd agreement renewed December 1997 - expires March 2000)	• Pulp and Paper Effluent Regulations *(FA)* • Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations *(CEPA)* • Pulp and Paper Mill Defoamer and Wood Chip Regulations *(CEPA)*	• Pulp and Paper (61)

5.18 We focussed only on areas of federal responsibility under each agreement, since our mandate does not permit us to audit provincial responsibilities. The Canada–Yukon Environmental Protection Agreement, an administrative agreement under *CEPA*, was excluded from the scope of our audit because it does not assign specific responsibilities to the federal government at the same level of detail as the other seven agreements.

5.19 Our audit sought to determine whether the agreements provide appropriate accountability, and whether the federal government met its obligations in establishing the agreements and is meeting its own specific obligations under the agreements. We also wanted to know if the federal government is evaluating the effectiveness of the agreements as a means for administering environmental legislation.

5.20 As reflected in our detailed criteria, our general expectations were that the following elements would be part of establishing and implementing a federal–provincial environmental agreement:

- a clear goal of protecting the environment while decreasing the costs to the taxpayer;
- mechanisms designed to hold responsible parties accountable, such as requirements for audit;
- regular reporting to Parliament so that everyone can understand whether the agreements are working;
- an analysis of the associated risks before entering into an agreement;
- a plan in place to reassume federal responsibilities if necessary;
- a clear understanding of who is responsible for what;
- an evaluation of how well the agreements are working, both in improving environmental quality and in streamlining administrative overlap and duplication.

5.21 Our observations are based on a review of relevant documentation and on interviews with federal, provincial and industry officials. Further details on the audit can be found at the end of the chapter in **About the Audit.**

5.22 In addition to our observations common to all agreements, we have presented our implementation findings specific to each agreement in exhibits that identify areas working as intended and those that need improvement. All of the information in the charts represents significant audit observations. The narrative that references each exhibit includes examples of key areas that require improvement and provides a brief overview of issues unique to each agreement.

Observations and Recommendations

Environmental Protection

Limited reference to environmental protection in the agreements' objectives

5.23 All of the agreements we audited focus on the streamlining and co–ordination of administrative and regulatory activities between the federal and provincial levels of government. Although five agreements mention environmental protection in their preamble, only the two administrative agreements with Saskatchewan include environmental protection as a stated objective. Environment Canada is promoting the agreements by citing improved environmental protection as a benefit of the agreements.

Agreements' impact on environmental performance has not been evaluated

5.24 In the five agreements without an environmental protection objective, there is no stated requirement to evaluate whether the agreements have contributed to improved environmental performance. Environment Canada informed us that it does not think it is possible to evaluate the extent to which the agreements have contributed to measured environmental improvements. Nevertheless, under the agreements Environment Canada retains responsibility for environmental protection under the *Canadian Environmental Protection Act (CEPA)* and section 36 of the *Fisheries Act*.

Impact on Industry

Some industries left with an "expectation gap"

5.25 Industries affected by the agreements have informed us that they had believed the agreements would address more of their concerns about dealing with two levels of government. In fact, the impact on industry has been minimal. Some representatives of the pulp and paper industry told us they are disappointed that the agreements have not addressed many important issues of duplication. In many cases, industry expected that the bilateral agreements would resolve regulatory inconsistencies between levels of government. However, the agreements are administrative in nature and cannot resolve all regulatory inconsistencies.

Problems With Design of Agreements

No audit provisions in the agreements

5.26 Without provision for audit, neither level of government is required to independently or jointly verify information supplied by the other level of government. This makes it difficult to properly verify expenditures and, moreover, the federal government cannot be certain that any agreement has been fully implemented and is functioning as intended.

No detailed accounting of federal funds transferred

5.27 Under the pulp and paper administrative agreements with British Columbia and Quebec, federal funds were transferred to the province. However, the agreements did not contain performance standards for provincial activities that received federal funds.

5.28 For example, in British Columbia, during 1995 and 1996 a total of $328,000 was transferred from the federal government to reimburse the province for the incremental costs it incurred in undertaking activities under the agreement on behalf of the federal government. However, the federal government cannot account for the province's spending of this federal money or the results it achieved.

No requirement to report evaluation results

5.29 For each agreement, management committees were to be established to set priorities, define procedures, evaluate the agreement's administration and implementation, and prepare an annual report. However, there is no requirement for the management committees to formally report the results of the evaluations. We believe that reporting their results is necessary to provide feedback to all parties on what is working well and what requires improvement.

Weak guidelines for annual reporting

5.30 The agreements provide limited guidance on the kinds of information and the level of detail that the annual reports should contain. There is therefore no guarantee of consistency in the quantity and quality of the information reported, and little accountability for results achieved. In addition, it is not clear for whom the reports are intended.

5.31 Environment Canada should ensure that future bilateral agreements build in accountability mechanisms including, but not limited to, provisions for audit, performance standards and specific reporting requirements — including reporting on evaluations of the agreements' effectiveness in meeting their objectives.

Implementation Problems Common to All Agreements

Lack of ongoing analysis once an agreement is in place

5.32 Environment Canada has not formally analyzed how provincial activities, including downsizing, could affect the implementation of the agreements and, ultimately, the protection of the environment. The lack of ongoing analysis is of particular concern in the provinces of Alberta and Saskatchewan, where, at the time of our audit, each provincial government was reorganizing its environmental protection services from a centralized to a regional

structure. There is a risk that information sharing with these provinces will be lost or reduced as many of the personal contacts and informal protocols that Environment Canada has established with the provincial governments will change or disappear over time.

5.33 Environment Canada should monitor and analyze provincial activities in those areas that could adversely affect the successful implementation of the agreements.

Duplication not analyzed

5.34 The primary objectives of all of the agreements are to reduce duplication and streamline administration. Environment Canada has not formally evaluated or documented the extent to which the agreements have been effective in reducing duplication. Consequently, the Department was not able to provide us with any documented evidence that such an analysis was done.

Weak annual reporting of meaningful results

5.35 The annual reports required from the management committees under the agreements contain limited information and lack details. Under one agreement, annual reports were never produced. Under another, the report included information not relevant to the agreement. Without proper reporting on the agreements, it is very difficult for the federal government to manage their implementation effectively.

Implementing the Agreements

Alberta equivalency and administrative agreements

5.36 Very good working relationship between the two levels of government. Our interviews indicated that industry and both levels of government are generally satisfied with the way the agreements are working, and the level of co–operation is good. However, as noted in Exhibits 5.2 and 5.3, there are several opportunities for improvement in both the *CEPA* equivalency agreement and the *Fisheries Act* administrative agreement.

Exhibit 5.2

Alberta Equivalency Agreement*: *CEPA*

Areas that work as intended	Areas for improvement
• Front–end equivalency analysis conducted. • Good federal–provincial working relationship (formalized working relationship that had already existed). • Reduction in duplication of federal inspections.	• Insufficient sharing of information. • Lack of ongoing analysis of provincial downsizing/reorganization of provincial government and its potential to cause problems (e.g. loss of communication, contacts). • No evaluation of the agreement. • Annual reporting limited.

* Agreement on the Equivalency of Federal and Alberta Regulations for the Control of Toxic Substances in Alberta

Exhibit 5.3

Alberta Administrative Agreement*: *Fisheries Act*

Areas that work as intended	Areas for improvement
• Monitoring reports forwarded by Regional Authorization Officer (monthly data). • Single window - 24–hour spill line. • Good working relationship (formalized working relationship that had already existed). • Province conducts inspections on behalf of federal government.	• Federal government lacks information on provincial inspections. • Management committee met too infrequently to be fully effective. • Environmental Effects Monitoring (cycle 1) off to a slow start, no meetings of the Technical Advisory Panel. • Lack of ongoing analysis of provincial downsizing/reorganization of provincial government and its potential to cause problems (e.g. loss of communication, contacts). • No evaluation of the agreement. • Annual reporting limited.

* Canada–Alberta Administrative Agreement for the Control of Deposits of Deleterious Substances

5.37 The Alberta equivalency agreement is the only equivalency agreement negotiated to date. The industries currently affected by this agreement include two vinyl chloride plants and seven pulp and paper mills. The secondary lead smelter, which was originally affected by the agreement, is no longer operating.

5.38 Federal government lacks detailed provincial information. The main deficiency in the implementation of the *CEPA* equivalency agreement is that the federal government does not have detailed provincial information, particularly information on related provincial inspections and associated enforcement activities (Exhibit 5.2). Given that federal regulations are suspended in favour of equivalent provincial regulations, it is particularly important that the federal government receive complete information on the provincial activity. Without such information, Environment Canada is not in a position to ensure that the equivalent federal requirements are satisfactorily enforced and that its legislated responsibilities are being carried out.

5.39 Nor does Environment Canada have detailed provincial information on the *Fisheries Act* administrative agreement, particularly information on related provincial inspections and associated enforcement activities (Exhibit 5.3). Environment Canada was unable to provide us with detailed documentation about this activity that would indicate whether the enforcement of federal regulations covered by the agreements is carried out properly.

5.40 Environment Canada should ensure that it receives all the provincial information needed to assess whether the enforcement of federal regulations covered by the agreements is adequate.

British Columbia pulp and paper administrative agreement

5.41 This agreement, covering 27 pulp and paper mills, had not worked as intended when it expired in March 1996. The lack of co–operation between the federal and provincial governments resulted in a failure to implement many aspects of this agreement. At issue in most of the disputes between the two governments was the adequacy of federal funding provided to the province to undertake activities on the federal government's behalf. The province claimed that federal funding of $166,000 per year was insufficient, while Environment Canada claimed that it was too much.

5.42 Many of the important features of the agreement, such as the establishment of a federal–provincial management committee and the development of a joint inspection plan, were never implemented (Exhibit 5.4). Although the management committee was required to report annually on the results of the agreement's implementation, no annual reports were produced. A new agreement has been drafted (not yet concluded) to replace

the first agreement but there is no documented evaluation of what worked well under the first agreement and what did not.

Exhibit 5.4

British Columbia Pulp and Paper Administrative Agreement*:
CEPA* and *Fisheries Act

Areas that worked as intended	Areas for improvement
• Environmental Effects Monitoring at operational level. • Stakeholder review of agreement prior to signing.	• General level of co–operation between the two levels of government. • Management committee never established. • No annual reporting on the agreement. • Not all provincial inspection data covered by the agreement available at Environment Canada. • No joint review of spill response plans. • Problems with training provincial inspectors and conservation officers. • Joint inspection plan not developed. • No documented evaluation of existing agreement. • Lack of ongoing analysis of provincial downsizing.

* Agreement on the Administration of Federal and Provincial Legislation for the Control of Liquid Effluents from Pulp and Paper Mills in the Province of British Columbia

5.43 Environment Canada should formally evaluate the expired British Columbia pulp and paper agreement and integrate lessons learned from our audit into any future agreements.

5.44 Unlike the first agreement, the new draft agreement has not yet been reviewed by stakeholders. In our view, the experience of industry is important feedback to improve future agreements. Environment Canada supports this view; it is currently promoting stakeholder participation as a fundamental principle of the Canada–Wide Accord on Environmental Harmonization (Appendix). In addition, an Annex to the Accord, signed in September 1998, emphasizes the importance of stakeholder involvement.

Quebec pulp and paper administrative agreements

5.45 Implementation has been slow. The implementation of the first pulp and paper administrative agreement was slow and the new agreement continues to present some challenges to the federal government. The first agreement was signed in May 1994 and expired January 1996. Environment Canada and the province then agreed to work co–operatively in the spirit of the agreement until a new agreement was signed. Since the signing of the new agreement in December 1997 (effective until March 2000) there are indications of improvement, for example in the flow of information and validation of data.

5.46 These agreements cover 61 pulp and paper mills -- about 40 percent of all the pulp and paper mills in Canada. Exhibit 5.5 identifies the areas in the two pulp and paper administrative agreements that worked or are working as intended as well as areas for improvement.

Exhibit 5.5

Quebec Pulp and Paper Administrative Agreements*:
CEPA* and *Fisheries Act

Areas that worked or work as intended	Areas for improvement
1st Agreement (expired January 1996)	
• Improved communication between the two levels of government - first step in the process of learning how an agreement works. • Computer system developed for the electronic transmission of data.	• Implementation problems with computer system. • Poor flow of information from province to federal government. • Annual reporting limited. • No formal evaluation of the agreement.
2nd Agreement (renewed December 1997)	
• Federal government receiving electronic data from province, flow of information to federal government improved as of spring 1998. • Improvements in timing of data transfer and data validation. • Management committee now focussing on key areas and mills identified as problematic and requiring immediate attention.	• Legal issues need to be addressed (provincial inspectors not trained as federal fisheries inspectors; access–to–information laws in Quebec). • Environmental Effects Monitoring (Cycle 2) not in new agreement, province embarking on parallel and duplicative program.
Common to Both Agreements	
• Management committee met and is meeting regularly.	• Industry not satisfied with level of consultation. • Need for Environment Canada to exercise its enforcement authority where appropriate. • Lack of ongoing analysis of provincial downsizing.

* Agreement between the Government of Quebec and the Government of Canada in the Context of the Application in Quebec of Federal Pulp and Paper Mill Regulations

5.47 Slow start for electronic data exchange. A central focus of the first agreement was the establishment of a computer system to create a "single window" for electronic data exchange. Although there were many problems with the development of the software and the implementation of the computer system, progress has been made. As of spring 1998, electronic data are sent monthly by each pulp and paper mill to the province and then forwarded to the federal government for analysis.

5.48 The computer system creates more work for industry. Although the system is now functioning under the second agreement, industry officials told us that it has resulted in more work for industry with little benefit. For example, the computer system is not user–friendly and is very inflexible. Industry cannot use the system for its own analyses, so it has to maintain parallel computer systems. This double entry of data means duplication of effort, increased costs to industry and greater opportunity for error.

5.49 Environment Canada informed us that the software was not intended to be designed and developed to meet industry's needs. Instead, it was designed in a way that would prevent each mill from making changes to suit its own needs. Environment Canada believes that revising the software to meet industry's needs would make it unusable for both levels of government.

5.50 In May 1992 the federal government adopted new regulations under the *Fisheries Act* governing the discharge of effluent into water. These new regulations, designed to control the quality of effluent from pulp and paper mills, came into effect on 1 December 1992. Regulatory permits or "transitional authorities" were available from the federal government to allow the pulp and paper mills to delay compliance while they put the necessary treatment equipment in place.

5.51 In Quebec, 42 mills took advantage of the transitional authority and were granted three years to conform to the new federal standards. All mills were to be in compliance with the regulations no later than 31 December 1995. The signing of the first agreement in May 1994 did not relieve industries in the province of their duty to comply with federal regulations.

5.52 Both agreements require that the province collect the information it needs to determine compliance with its regulations under provincial legislation and provide this information to Environment Canada. Environment Canada uses the information to satisfy itself that federal regulations are adequately complied with. The agreement clearly stipulates that the federal government and the province of Quebec would each retain its authority to intervene in the case of alleged violations of its own regulations.

5.53 Environment Canada's Enforcement and Compliance Policy for *CEPA* states that its purpose is to facilitate compliance with the Act. The desired result is compliance with the Act within the shortest possible time frame and with no further violation. Factors to be considered include the violator's history of compliance with the Act and provincial regulations deemed by order–in–council to be equivalent to those under the federal Act, willingness to co–operate with enforcement officials, evidence of corrective action already taken, and the existence of enforcement actions by other federal or provincial authorities as a result of the same activity but brought under other statutes.

5.54 According to the policy, federal enforcement officials are to examine every suspected violation of which they have knowledge, and are to take action consistent with the criteria in the policy. Federal responses available to deal with violations include warnings, written directions by inspectors, orders by the Minister, injunctions and prosecutions. From 1995 to 1997 there were no federal enforcement responses taken against any non–compliant pulp and paper mills in the province of Quebec.

5.55 From 1995 to 1997, Quebec pulp and paper mills experienced some compliance problems. Environment Canada identified 12 mills in 1995 and 13 mills in 1996 as problematic. In 1997 20 mills had problems with compliance.

5.56 According to information obtained from Environment Canada, during those three years the province communicated, met with, or sent warning letters to most of these non–compliant mills and prosecuted one mill. Where none of these interventions were made by the province (four mills in 1995, three mills in 1996, and seven mills in 1997) the province either considered the violations to be isolated incidents or it negotiated a corrective plan with the non–compliant mill.

5.57 Corrective plans negotiated by the province with a mill identify the course of action the mill would follow to comply with provincial regulations. Both levels of government have sent a letter to the mills indicating that these corrective plans are in no way binding on the federal government and do not exempt the Quebec mills from complying with federal regulations.

5.58 Environment Canada considers a corrective plan to be a satisfactory mechanism for the province to address issues of non–compliance. Environment Canada was unable to provide us with any corrective plans. We observed that a corrective plan has not always ensured continued compliance and, in our view, does not preclude a federal enforcement response where appropriate.

5.59 To a large extent, the negotiation of corrective plans reflects a difference between the enforcement philosophies of the federal and provincial governments. The approach in Quebec of working co–operatively with industry to correct non–compliance has been favoured over the federal government's *CEPA* Enforcement and Compliance Policy — to examine every suspected violation and, if it is substantiated, to proceed with an appropriate enforcement response. Nevertheless, under the administrative agreement Environment Canada retains its right to enforce federal regulations should it believe that the province is not ensuring that comparable provincial regulations are adequately complied with.

5.60 Where industry does not comply with federal regulations and there is no provincial interventions under comparable provincial regulations, Environment Canada should exercise its enforcement authority where appropriate.

5.61 Agreements did not involve adequate participation by stakeholders according to industry officials. Although Environment Canada did hold meetings with non–government organizations and industry, industry believes that it was not consulted adequately. Our interviews with representatives of the pulp and paper industry indicate that they are disappointed with the level of their involvement in establishing both of the agreements. They told us they would welcome the opportunity to participate more in determining both the design and the scope of future bilateral agreements.

5.62 Environment Canada should broaden its efforts to solicit the views of all stakeholders prior to signing future bilateral agreements.

5.63 Quebec provincial inspectors have not been designated as inspectors for the purposes of the *Fisheries Act* under either the expired or the recently renewed agreement. Concerns over the non–designation of provincial inspectors for the purposes of the *Fisheries Act* were first raised by the Department of Fisheries and Oceans in late October 1997.

5.64 In order to be designated a *Fisheries Act* inspector, a person must participate in a course provided by the federal government and then successfully complete a federal examination. Given that the provincial inspectors in Quebec have not taken the necessary course and examination, the following concerns were raised by the Department of Fisheries and Oceans:

> Quebec inspectors cannot conduct inspections or investigations under the *Fisheries Act*. Quebec inspectors can only lawfully obtain evidence for alleged violations of the Quebec statute and cannot provide that evidence to the federal government. The only way the federal government could obtain the evidence is through a search warrant, or to conduct an investigation itself.

5.65 Despite these concerns, Fisheries and Oceans recommended that its Minister sign the renewed Quebec agreement. The Department was in contact with Environment Canada to inform it of these concerns. While discussions between Fisheries and Oceans and Environment Canada were still under way, the agreement was signed by all ministers and formally announced to the public on 16 December 1997.

5.66 Approximately three months later, the same issue of non–designated provincial inspectors for the purposes of the *Fisheries Act* under the Quebec pulp and paper agreement was formally communicated by Fisheries and Oceans to the Deputy Minister of Environment Canada. Fisheries and Oceans expressed concern that, through administrative agreements, Environment Canada has created circumstances that have hampered or could hamper the Crown's ability to seek redress through the courts for violations of *Fisheries Act* section 36.

5.67 Before signing more bilateral agreements, the Department of Fisheries and Oceans and Environment Canada should clarify whether the non–designation of provincial enforcement personnel as *Fisheries Act* inspectors would negatively affect the federal government's ability to enforce its own regulations.

Fisheries and Oceans' response: *Fisheries and Oceans and Environment Canada will work together to resolve these concerns.*

5.68 Renewed agreement addresses some problem areas. As of January 1998, initiatives required by the new agreement have been put in place that appear to be addressing some of the past deficiencies. For example, the flow of information from the province to the federal government has greatly improved, and federal money transferred to the province is now targeted toward validation of data. In addition, the federal–provincial management committee set up under both agreements is now beginning to focus on pulp and paper mills that remain problematic.

Saskatchewan administrative agreements

5.69 Limited impact. Both the *CEPA* and *Fisheries Act* administrative agreements in the province of Saskatchewan have had little or no impact on the federal government's environmental protection programs or on industry due to the limited scope of the industries covered by the agreement. For example, only one pulp and paper mill in the province is affected by both agreements. Also, the *CEPA* administrative agreement affects industries that deal with polychlorinated biphenyls (PCBs), the manufacture of ozone–depleting substances (ODS) and the sale of products containing ODS. But, most previously stored PCBs have been shipped out of the province and there are no manufacturers of ODS in the province, although there are many suppliers.

5.70 Exhibits 5.6 and 5.7 identifies areas in the two administrative agreements that are working as intended and areas that need improvement.

Exhibit 5.6

Saskatchewan Administrative Agreement*: *CEPA*

Areas that work as intended	Areas for improvement
• Training of provincial staff to answer spill line.	• Need for review of the relevance of current regulations covered by the agreement. • Management committee no longer meeting. • Due to the limited scope, little impact on industry and federal government. • Problem with flow of information to federal government (e.g. industry circumventing spill line). • Lack of ongoing analysis of provincial downsizing/reorganization of provincial government, and its potential to cause problems (e.g. loss of communication, contacts, capacity, knowledge). • No evaluation of the agreement.

* Canada–Saskatchewan Administrative Agreement for the *Canadian Environmental Protection Act*

Exhibit 5.7

Saskatchewan Administrative Agreement*: *Fisheries Act*

Areas that work as intended	Areas for improvement
• Electronic data exchange with pulp and paper mill. • Pulp and paper data flow from the Regional Authorization	• Environmental Effects Monitoring (Cycle 1) off to a slow start - no meetings of the Technical Advisory Panel.

Officer to the federal government. • On–the–job training of provincial staff, including joint inspections. • Province collecting samples from pulp and paper mill for federal government to assure compliance with federal regulations.	• Spill line problems to resolve (e.g. industry circumventing, reporting protocol not established). • Lack of ongoing analysis of provincial downsizing/reorganization of provincial government and its potential to cause problems (e.g. loss of communications, contacts, capacity, knowledge). • Minimal exchange of information between federal and provincial governments on inspection reports. • No evaluation of agreement.

* Canada–Saskatchewan Administrative Agreement for the Control of Deposits of Deleterious Substances

5.71 Problems with flow of information. The main operational deficiency with the *CEPA* administrative agreement is in the flow of information to the federal government. In particular, the federal government is not receiving the information needed to ensure that federal PCB regulations are administered and enforced if necessary. However, Environment Canada has not attempted to determine whether the breakdown in the flow of information occurs between industry and the province or between the province and the Department, or both.

5.72 Some federal regulations covered in the *CEPA* administrative agreement, such as the Federal Mobile PCB Treatment and Destruction Regulations, no longer regulate industry in the province. Currently there are no mobile PCB treatment and destruction facilities in the province. Other *CEPA* regulations covered by the agreement have minimal impact. For example, the Pulp and Paper Mill Defoamer and Wood Chip Regulations apply to pulp and paper mills that use a defoamer containing either dibenzofuran or dibenzo–para–dioxin. The regulations also state that no mill in Canada shall use woodchips made from wood that has been treated with polychlorinated phenols. The defoaming agent currently used by the one pulp and paper mill covered by the agreement is water–based and contains no mineral oils or other petroleum derived products. Its compliance with the regulations is thus not an ongoing concern. In addition, the mill has guarantees from all of its woodchip suppliers that the woodchips are free of polychlorinated phenols.

5.73 Conversely, several *CEPA* regulations that do apply in Saskatchewan are not covered by the agreement. Inclusion of these regulations could provide opportunities to maximize the effectiveness of each party's resources and to lessen the administrative burden. Environment Canada has suggested the *CEPA* Export and Import of Hazardous Wastes Regulations as a good candidate.

5.74 Environment Canada should review the relevance of the current regulations covered under the *CEPA* administrative agreement with Saskatchewan and consider including other regulations in any future agreements.

5.75 Environment Canada views the establishment of a "single window" for the reporting of spills as one area where both the *CEPA* and the *Fisheries Act* administrative agreements could streamline government interaction with both industry and the general public to one level of government. The spill line is a 24–hour, seven–day–a–week toll–free telephone service that is available to receive reports of all environmental occurrences in Saskatchewan. The responsibility for answering the spill line now rests with the provincial government, and the province is to notify Environment Canada of any spills that violate federal regulations.

5.76 Spill line not always effective. Indications are that the spill line is not always used. For instance, industry sometimes bypasses the "single window" spill line by calling a provincial contact directly. As another example, six days after a spill Environment Canada learned through the media that 1.5 million gallons of raw sewage had been accidentally dumped into the Moose Jaw River.

5.77 Environment Canada has taken some action to address the problems with the spill line. For example, it has recently trained provincial conservation officers who answer the spill line. However, a protocol for notifying Environment Canada has not been documented.

5.78 Environment Canada should work with the province to document and implement a process to ensure that it is promptly notified of all spills violating federal regulations.

Reporting to Parliament

5.79 Effective accountability requires that what has been accomplished be reported. Federal ministers are responsible to Parliament and ultimately to the Canadian people. To demonstrate the performance achieved and the lessons learned, the information reported to Parliament on the agreements needs to be meaningful, complete, timely, reliable and understandable.

5.80 A statutory reporting requirement under *CEPA* requires the Minister of the Environment to lay before Parliament an annual report on the administration and enforcement of the Act. When there are administrative agreements with the provinces, the Act requires that this annual report include a section on *CEPA's* administration under the agreements. When there are equivalency agreements there is a requirement for the Minister to report annually to Parliament on the administration of the provisions of *CEPA* that permit these equivalency agreements.

Parliament has little information on how well *CEPA* agreements are working

5.81 Information related to the agreements under *CEPA* is limited to the *CEPA* annual report and is not found in any other documents tabled in Parliament. When we reviewed the information in the *CEPA* annual reports, we found that it was incomplete and two years out of date. At the time of the audit (1998), the most recent *CEPA* annual report available was for the fiscal year 1995-96.

5.82 In its June 1995 report, "It's About Our Health! Towards Pollution Prevention", the Standing Committee on Environment and Sustainable Development suggested that the *CEPA* annual report should contain information that would allow both the public and parliamentarians to analyze and assess the operation of the agreements. The Committee suggested that:

> at a minimum, the report should contain information on provincial inspection, investigation, verification and enforcement activities, data on spills and releases, and information on disputes that have arisen under the agreements.

5.83 In its reports to Parliament, Environment Canada should include more meaningful, complete, timely, reliable, understandable and results–based information on the *CEPA* equivalency and administrative agreements.

Parliament has no information on the results achieved by the Saskatchewan and Alberta *Fisheries Act* administrative agreements

5.84 The *Fisheries Act* requires annual reports to Parliament on the administration and enforcement of the provisions of the Act related to pollution prevention. However, these reports contain no information on the federal–provincial administrative agreements under the *Fisheries Act.*

5.85 The Department of Fisheries and Oceans should ensure that Parliament receives meaningful, complete, timely, reliable, understandable and results–based information on the *Fisheries Act* administrative agreements.

Fisheries and Oceans' response: *Environment Canada administers section 36 of the* Fisheries Act *and prepares annual reports on the implementation of administrative agreements made pursuant to this section. Fisheries and Oceans will include these reports in its annual report to Parliament on the administration of the habitat provisions of the* Fisheries Act.

Moving Forward: Implications for the Harmonization Accord

5.86 The bilateral agreements examined in this audit were negotiated and signed prior to the harmonization initiative. The Canada–Wide Accord on Environmental Harmonization, signed in January 1998, provides a framework for new bilateral agreements (see Appendix). For example, new bilateral agreements may be negotiated in the areas of inspection, enforcement and monitoring. At the time of the audit, no bilateral implementation agreements had been negotiated and signed under the framework of the Accord.

5.87 The Accord and its annex and the sub–agreements existing at the time of the audit contain a number of provisions that, if implemented through bilateral agreements, may correct many of the deficiencies we have noted in this audit. These include provisions for setting clear objectives; involving stakeholders; sharing information; evaluating the agreements; reporting regularly to the public to demonstrate that obligations have been met; and providing a mechanism to rectify non–performance by a level of government. We note, however, that the Accord and its sub–agreements do not contain provisions for either party to an agreement to conduct independent or joint verification of information supplied by the other party. In addition, it is uncertain to what extent the provisions of the Accord will affect future bilateral agreements with Quebec, as it is not a signatory to the Accord. We are encouraged by the provisions contained in the Accord and its sub–agreements, but until specific bilateral agreements are negotiated and come into force it is not clear to what extent those provisions will address the concerns raised in this chapter.

5.88 Environment Canada should formally evaluate the existing bilateral agreements and take corrective action in the areas that are not working as intended before entering into more bilateral agreements under the Canada–Wide Accord on Environmental Harmonization.

5.89 Our audit determined that the federal government did not conduct a "due diligence" analysis prior to entering into each of the existing bilateral agreements that we audited. A "due diligence" analysis would demonstrate that Environment Canada had taken adequate steps to acquire appropriate knowledge or appropriate professional advice on the potential risks posed by the agreements. Such an analysis would determine whether both parties had the necessary resources and expertise to fulfil their respective roles and responsibilities. Other issues such as technological compatibility, training and any legal implications could also be examined.

5.90 Before renewing an existing bilateral agreement or entering into a new one, Environment Canada should undertake an analysis to assure itself that both parties are able to carry out their responsibilities for properly implementing the agreement.

5.91 We observed that the federal government does not have a documented plan in place that indicates how it would reassume its responsibilities if a province were unable to carry out its assigned responsibilities or if either government decided to terminate an agreement. This raises the question of how the federal government would re–establish its enforcement capabilities, particularly in the case of an equivalency agreement under which federal enforcement had been removed for several years.

5.92 By entering into these bilateral agreements, the federal government has removed itself from day–to–day contact with the regulated community affected by the agreements. In our view, it is important that the federal government maintain a minimal ongoing working knowledge of both the industry and the regulations covered by the agreement. In addition, the federal government needs to identify the human, physical, financial and technological resources it would need to be able to reassume its responsibilities. The annual sharing of work plans that outlined anticipated activities by both parties would assist Environment Canada in reassuming its enforcement responsibilities in the event that a province failed to deliver or either government decided to terminate the agreement.

5.93 Environment Canada should ensure that it would be able to reassume its enforcement responsibilities in the event that a province failed to deliver or either government decided to terminate the agreement.

Conclusion

5.94 This chapter has pointed out several areas where the design and implementation of the agreements can be improved.

5.95 Only two of the seven agreements we audited referred to environmental protection as a stated objective. Environment Canada has not evaluated the impact of any of the agreements on environmental performance.

5.96 Although the agreements have built in some accountability mechanisms, other important ones are absent, such as provisions for audit, accounting for federal funds transferred, and specific requirements for reporting.

5.97 Parliament is receiving incomplete and outdated information on the results of the *CEPA* agreements and no information on the results of the *Fisheries Act* agreements.

5.98 Prior to entering into an agreement, the federal government did not conduct a formal analysis to evaluate whether both parties to the agreement were able to properly carry out their assigned responsibilities.

5.99 The federal government does not have a documented plan in place that indicates how it would reassume its responsibilities if a province were unable to carry out its assigned responsibilities or if either government decided to terminate an agreement.

5.100 The audit identified some areas where the federal government has met its responsibilities under the agreements, and other areas where it has not. Key features of the agreements have not been implemented, which has impeded their success. The agreements have been implemented with varying degrees of success and are not working as well as they could.

5.101 If Environment Canada does not take corrective action, there is a risk that the environment could suffer as a result of deficiencies in both existing and future bilateral environmental agreements.

Environment Canada's response: *The Commissioner's Office has raised a number of management issues related to the design and implementation of these early agreements. It should be noted, however, that they are but one of many tools being used by Environment Canada and other governments to protect the environment. The focus of these agreements, originally signed in 1994, was to develop co–operative, administrative mechanisms to aid governments in delivering regulatory and other programs designed to protect the environment.*

Since the signing of these first–generation agreements, much progress has been achieved. The lessons learned, which are reflected in the recommendations made in this chapter, have been incorporated into the new environmental protection framework negotiated by the Canadian Council of Ministers of the Environment. The Canada–Wide Accord on Environmental Harmonization and its three sub–agreements, signed in January 1998, as well as the Annex to the Accord signed in September 1998, include sound accountability mechanisms and enhanced reporting requirements that are consistent with the recommendations of the Commissioner. The agreements under the Accord serve as the benchmark for all future agreements.

Environment Canada will continue to incorporate into any future negotiations lessons learned from working together with its provincial and territorial partners. The Department is also committed to working with provinces to ensure a thorough and complete flow of information to the public and to Parliament, as required by statute.

About the Audit

In its December 1997 report to the House of Commons entitled “Harmonization and Environmental Protection: An Analysis of the Harmonization Initiative of the Canadian Council of Ministers of the Environment”, the Standing Committee on Environment and Sustainable Development questioned the effectiveness of existing co–operative mechanisms, such as the bilateral administrative and equivalency agreements made possible under the *Canadian Environmental Protection Act (CEPA)* and the *Fisheries Act.*

The Committee considered our Office to be the most appropriate body to evaluate the federal government’s performance under the existing bilateral agreements. It formally recommended that a thorough analysis of the implementation of the earlier agreements be conducted before the Government of Canada committed itself to a new model of interjurisdictional co–operation through the Canada–Wide Accord on Environmental Harmonization and its Sub–Agreements.

On 27 February 1998, the Commissioner of the Environment and Sustainable Development wrote to the Chair of the Committee and agreed to carry out the audit, indicating that the results would be included in his 1999 Report to the House of Commons.

On 25 May 1998, the Standing Committee on Environment and Sustainable Development released its report, “Enforcing Canada’s Pollution Laws: The Public Interest Must Come First!”. The report acknowledged that the Commissioner had agreed to conduct the audit of the bilateral environmental agreements, and recommended that the Minister of the Environment delay the signing of the Sub–agreement on Enforcement until after the tabling of the Commissioner’s Report in the House of Commons.

Scope

The audit examined seven agreements under the *Canadian Environmental Protection Act* (*CEPA)* and the *Fisheries Act.*

Two agreements were developed under *CEPA*:

- Agreement on the Equivalency of Federal and Alberta Regulations for the Control of Toxic Substances in Alberta.
- Canada–Saskatchewan Administrative Agreement for the *Canadian Environmental Protection Act*.

Two agreements were developed under the *Fisheries Act*:

- Canada–Alberta Administrative Agreement for the Control of Deposits of Deleterious Substances.
- Canada–Saskatchewan Administrative Agreement for the Control of Deposits of Deleterious Substances.

Three agreements were developed under both *CEPA* and the *Fisheries Act:*

- Agreement between the Government of Quebec and the Government of Canada in the Context of the Application in Quebec of Federal Pulp and Paper Mill Regulations. (It expired 1 January 1996.)

- Agreement between the Government of Quebec and the Government of Canada in the Context of the Application in Quebec of Federal Pulp and Paper Mill Regulations. (It was renewed 16 December 1997 and remains in force until 31 March 2000.)

- Agreement on the Administration of Federal and Provincial Legislation for the Control of Liquid Effluents from Pulp and Paper Mills in the Province of British Columbia. (It expired 31 March 1996. The provincial and the federal governments have drafted a new agreement to replace the expired one. However it had not yet been finalized or signed at this writing.)

Objectives and Criteria

To determine whether the agreements provide appropriate accountability

We expected that:

- the agreements would have clear objectives that defined their success, both operationally and in terms of environmental impact;

- the federal government would have built in appropriate accountability mechanisms, including audit provisions, redress mechanisms, evaluation, and adequate reporting on the agreement; and

- reporting to Parliament would be relevant, reliable and understandable.

To determine whether the federal government has met its obligations in establishing the agreements

We expected that the federal government would have:

- carried out a “due diligence analysis” to determine whether the provinces were able to carry out their responsibilities, before entering into any agreement with a province; and

- put in place a practical mechanism to take appropriate action if a province is not fulfilling its obligations.

To determine whether the federal government is meeting its own obligations relating to the agreements

We expected that the federal government would have:

- carried out its assigned responsibilities under the agreements;

- monitored the province’s capacity to carry out its assigned responsibilities;

- assured itself that the provinces were fulfilling their obligations under the agreements by requiring or carrying out an appropriate evaluation of the results;

- carried out the appropriate analysis to satisfy itself that the information reported by the provinces was relevant and reliable;

- maintained ongoing liaison with the provinces regarding the status of the agreements;

- reviewed these agreements from time to time to ensure that they remained adequate both operationally and environmentally; and

- reported on a regular basis the extent to which these agreements were operationally and environmentally effective.

To determine if the federal government is evaluating whether the agreements are an effective means to administer federal environmental legislation

We expected that the federal government would have:

- evaluated the effectiveness of the agreements in terms of their administration; and

- evaluated the effectiveness of the agreements in terms of their environmental impact.

Approach

We conducted a detailed analysis of the contents of each agreement. Based on our analysis, we have made observations on the accountability mechanisms addressed and not addressed by the agreements.

The audit work focussed on Environment Canada, and was supported by interviews with officials from Fisheries and Oceans. File review and interviews with Environment Canada officials were conducted at its headquarters and in each regional office where an agreement was in place.

Also, interviews were conducted in Alberta, British Columbia, Quebec and Saskatchewan with provincial officials and representatives of the regulated community to obtain their views on the implementation of the agreements.

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Appendix

A Canada–Wide Accord on Environmental Harmonization

Vision	Governments working in partnership to achieve the highest level of environmental quality for all Canadians.
Purpose	To provide a framework and mechanisms to achieve the vision and to guide the development of sub–agreements pursuant to the Accord.
Objectives	• Enhance environmental protection • Promote sustainable development • Achieve greater effectiveness, efficiency, accountability, predictability and clarity of environmental management for issues of Canada–wide interest
Principles	• Polluter pays • Precautionary principle • Pollution prevention • Environmental measures that are performance–based, results–oriented and science–based • Openness, transparency, accountability and the effective participation of stakeholders • Work in co–operation with Aboriginal people • Flexible implementation to reflect variations in ecosystems and local, regional, provincial and territorial conditions • Consensus–based decisions driven by the commitment to achieve the highest level of environmental quality within the context of sustainable development • Retention of legislative or other authority of the governments • Legislation, regulations, policies and existing agreements that accommodate the implementation of the Accord • No preclusion of a government from introducing more stringent environmental measures • No effect on Aboriginal or treaty rights • Assurance to Canadians that their environment is respected by neighbouring Canadian jurisdictions
Sub–Agreements	• The government will enter into multilateral sub–agreements to implement the commitments set out in the Accord. • These sub–agreements or their implementation agreements will delineate specific roles and responsibilities to provided a one–window approach to the implementation of environmental measures. • Roles and responsibilities will be undertaken by the level of government best situated to effectively discharge them. • Governments may also enter into regional or bilateral implementation agreements on regional or local issues. • A government will assume results–oriented and measurable obligations for the discharge of its

	role, and commit to regular public reporting to demonstrate that its obligations have been met. • When a government has accepted obligations, the other government shall not act in that role for the period of time determined by the sub–agreement. • Where a government is unable to fulfil its obligations under the Accord, the governments shall develop an alternative plan to ensure that no gaps are created within the environmental management regime. • Where there is no Canada–wide approach, each government is free to act within its existing authority. • When roles and responsibilities are assigned to one government, the other government will review and seek to amend as necessary its legislation and other policies to provide for the implementation of the sub–agreement. • Nothing will prevent a government from taking action within its authority to respond to environmental emergencies.

Source: Drawn from the Canada–Wide Accord on Environmental Harmonization

Chapter 6

Making International Environmental Agreements Work

The Canadian Arctic Experience

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Making International Environmental Agreements Work

The Canadian Arctic Experience

Main Points

6.1 To fulfil its domestic and international commitments to protect Arctic ecosystems, Canada must have a solid base of information, much of it derived from scientific research and monitoring. In the areas this study examined — wildlife resource management and transboundary pollutants — Canada has been a world leader in some of its research, despite the challenges posed by a vast and remote territory and the need to balance international commitments with local and regional concerns.

6.2 Notwithstanding the positive efforts we observed, we heard consistently that the overall picture reflects a piecemeal approach to meeting Canada's international commitments in the North. There is no overall Northern strategy or policy to guide federal departments and agencies in carrying out their science, monitoring and other responsibilities effectively and efficiently. This leaves these activities vulnerable to program or funding decisions by individual departments that can have detrimental effects in other areas.

Background and other observations

6.3 While the Arctic plays a key role in the functioning of global environmental systems, it is also particularly vulnerable to changes in those systems. Considering its sparse population and comparative lack of development, the Arctic stands to be disproportionately affected by global change. Environmental contaminants such as pesticides, industrial chemicals and heavy metals transported by air and water currents from industrialized and agricultural regions of the world are one of the main threats to its environmental quality. Contaminants that accumulate in the fatty tissues of fish and wildlife are a health concern for native Arctic peoples who rely on these foods as a significant part of their diet.

6.4 There has been a growing realization internationally that human activities, both in the Arctic and elsewhere in the world, affect the future sustainability of Arctic ecosystems. In turn, changes in the Arctic environment and ecosystems have an effect on other parts of the world. This awareness is reflected in an increasing number of environmental agreements and other arrangements to protect the Arctic, which Canada has signed or endorsed. It has also led Canada and the other circumpolar nations to collaborate in programs of extensive scientific research and monitoring in the North.

6.5 Our study examined three aspects of making international agreements work: building a solid information base, dealing with multiple jurisdictions and developing appropriate domestic regimes. The agreements and programs we reviewed provide lessons for overcoming some of the implementation challenges Canada faces in meeting its international commitments.

Introduction

Global regulator and sink for global pollutants

6.6 The North plays a defining role for Canada as a northern frontier nation. This region accounts for 40 percent of Canada's land mass and two thirds of its coastline, but is home to only one percent of the population. In contrast to the south, where Aboriginal people are a small minority, indigenous peoples make up half the population in the Canadian North. With a climate of long, cold winters, it has less diversity of plant and animal species than southern Canada. But several of the plant, bird and other animal species it supports are unique.

6.7 This region also has global importance. Certain species, especially birds and some marine mammals, migrate long distances and link the Arctic with temperate, tropical and even Antarctic regions. It is a breeding ground for millions of migratory birds.

6.8 Environmental and ecological systems in the Arctic are major contributors to global processes and the balance of life on Earth. Acting as a global climate regulator, they cool the air and absorb the heat transported north from the tropics by air and ocean currents. They also play a role in ensuring the circulation of warm and cold waters between northern and southern regions of the globe. The integrated nature of these global processes means that the Earth's climate and living systems would change if the Arctic's existing capacity to regulate temperature were altered.

6.9 At the same time, the polar regions appear to be particularly vulnerable to global environmental change. Extensive ozone losses have been documented in the Arctic in recent years. It is predicted that temperature increases as a result of global warming will be most pronounced in high northern latitudes, particularly during the winter months. Effects of global warming are already evident in the Canadian North. The average air temperature in the Mackenzie Basin is warmer (a 1.5° C rise since 1860) and the ice canopy covering the Arctic Ocean is thinner than in previous years.

6.10 The interconnectedness of global environmental systems that makes the Arctic so vital to the well–being of the planet also exposes it to environmental contaminants carried by air and water currents from industrialized and agricultural regions of the world. These pollutants — pesticides, industrial chemicals and heavy metals — are one of the main threats to the environmental quality of Canada's North.

6.11 The Arctic and its inhabitants are particularly vulnerable to the effects of these contaminants. The region's cold temperatures make it a "sink" for these pollutants and contribute to the conditions that enable them to persist longer in the Arctic environment. Some of the pollutants accumulate in the fatty tissues of fish and wildlife, particularly marine mammals, thereby attacking a fundamental aspect of Aboriginal culture in the North — its reliance on traditional or "country" foods.

Arctic environmental diplomacy

6.12 As steward of one quarter of the world's northern circumpolar region, Canada has a significant interest in finding solutions to problems such as transboundary pollutants, global environmental change and the conservation of wildlife and their habitat. It does not face these problems in isolation; it shares the Arctic region with seven other countries — Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden and the United States (see Exhibit 6.1). Increasingly, the circumpolar nations have recognized that international co–operation is essential to protect the Arctic environment.

Exhibit 6.1 is not available, see the Report.

6.13 Canada has signed or endorsed over 30 international agreements and instruments (see Appendix A) that affect the quality of the Arctic environment. Some of the agreements are global in scope but have particular relevance to the Arctic (for example, the *United Nations Framework Convention on Climate Change*); others are specific to the Arctic region. Exhibit 6.2 sets out some key milestones in Canada's domestic and international efforts to protect the Arctic. Some of the early international agreements specifically dedicated to the Arctic focussed on wildlife management. More recently, northern countries have turned their attention to pollutants.

Exhibit 6.2

Key Milestones in Canada's Efforts to Protect the Arctic

*International agreements and programs in **bold** are reviewed in this study.*

1916	Convention for the Protection of Migratory Birds in Canada and the United States
1969	Polar Bear Administrative and Technical Committees created by Canada
1970	Arctic Waters Pollution Prevention Act
1973	**Agreement on the Conservation of Polar Bears**
1979	United Nations Economic Commission for Europe Convention on Long–Range Transboundary Air Pollution
1985	Canadian Porcupine Caribou Management Agreement
	Intergovernmental Technical Committee on Contaminants in Northern Ecosystems and Native Diets
1987	**Agreement between Canada and the United States on the Conservation of the Porcupine Caribou Herd**
1989	Northern Contaminants Program
1991	Canada's Arctic Environmental Strategy under the Green Plan
	Declaration on the Protection of the Arctic Environment and Arctic Environmental Protection Strategy (AEPS) adopted by the eight circumpolar countries
	Arctic Monitoring and Assessment Programme established under the AEPS to monitor and assess the effects of pollutants on the Arctic environment and peoples of the Arctic and to report on the state of the Arctic environment
	Canadian Polar Commission created
1994	Position of Ambassador for Circumpolar Affairs established
1996	Arctic Council inaugurated to improve the economic, social and cultural well–being of the Northern peoples in the eight member states: Canada, Denmark/Greenland, Finland, Iceland, Norway, Russia, Sweden and the United States of America. International organizations representing indigenous peoples hold Permanent Participant status on the Council
1997	Standing Committee on Foreign Affairs and International Trade report, "Canada and the Circumpolar World: Meeting the Challenges of Co–operation into the Twenty–First Century"
	Canadian Arctic Contaminants Assessment Report
	Arctic Monitoring and Assessment Programme report: *Arctic Pollution Issues: A State of the Arctic Environment Report*
	Department of Indian Affairs and Northern Development Sustainable Development Strategy
1998	**Protocol on Persistent Organic Pollutants** and Protocol on Heavy Metals, under the United Nations Economic Commission for Europe Convention on Long–Range Transboundary Pollution

6.14 In 1991, the eight circumpolar nations endorsed a ministerial *Declaration on the Protection of the Arctic Environment* and an Arctic Environmental Protection Strategy. The Strategy focussed on four program areas: monitoring and assessment of pollutants; conservation of plants and wildlife; protection of the marine environment; and emergency prevention, preparedness and response.

6.15 One of the Strategy's key components — the Arctic Monitoring and Assessment Programme (AMAP) — involved over 300 Canadian and international scientists. They studied and documented the nature and extent of pollutants in the North as well as their transboundary sources and pathways into the Arctic. This research provided most of the scientific justification of the need for international controls on sources of Arctic pollution. It led to the successful negotiation of international protocols on heavy metals and persistent organic pollutants under the United Nations Economic Commission for Europe *Convention on Long–Range Transboundary Air Pollution*.

6.16 There are ongoing efforts on several fronts to protect and preserve the Arctic's sensitive environment. The eight circumpolar nations that endorsed the Arctic Environmental Protection Strategy formalized their collaboration with the creation of the Arctic Council in 1996; Canada served as its first Chair. Protection of the Arctic environment is also promoted internationally by scientific organizations, Aboriginal groups, Arctic parliamentarians, and subnational governments. In addition to formal agreements among nation states, there are international programs and arrangements among provinces/territories, states and user groups to address environmental issues that cross jurisdictions.

6.17 At home, the Canadian Polar Commission was created in 1991 and the position of Ambassador for Circumpolar Affairs was established in 1994. Three years later, the House of Commons Standing Committee on Foreign Affairs and International Trade released its report, *Canada and the Circumpolar World: Meeting the Challenges of Co–operation into the Twenty–First Century*. The federal government has discussed establishing a Northern science and technology strategy. It is currently developing a Northern foreign policy with key themes of human security and sustainable development, including environmental protection.

Domestic transition

6.18 Much of Canada's North is in a state of political and social transition. The federal government is devolving federal powers to the territories. New governance institutions have been created under land claims settlements. This means a changed role for residents of the North, especially Aboriginal peoples who now hold title to, and have management responsibility for, an area larger than the four Atlantic provinces.

6.19 The political geography of the North changed on 1 April 1999, when the Northwest Territories (NWT) was divided to create the new territory of Nunavut — "our land" in Inuktitut, the Inuit language. Together with the Yukon and NWT, the new territory faces challenges such as high unemployment and a young and rapidly growing population. Outside influences are accelerating change in the North, with its integration into the broader world through new communications technology and the development of its oil, gas and mineral resources for external markets.

Focus of the study

6.20 This study was part of our ongoing work to assess how well Canada is meeting its international environmental commitments, and how it can improve its performance. In our 1998 report (Chapter 2, Working Globally — Canada's International Environmental Commitments) we provided an overview of the international environmental agenda and Canada's role in its development. In past reports we also examined international issues such as climate change, biodiversity and ozone depletion, each of which has implications for the Arctic.

6.21 In this chapter we focus on Canada's efforts under four international agreements and programs of particular relevance to the Arctic. Two deal with wildlife resource management and conservation — the *Agreement on the Conservation of Polar Bears* and the *Canada/US Agreement on the Conservation of the Porcupine Caribou Herd.* The other two deal with transboundary contaminants — the Arctic Monitoring and Assessment Programme and the 1998 *Protocol on Persistent Organic Pollutants* under the United Nations Economic Commission for Europe *Convention on Long–Range Transboundary Air Pollution*.

6.22 Our objective was to identify lessons learned in implementing these agreements and programs that could be applied to other areas. To that end, we examined how Canada has dealt with three challenges:

- **Building a solid information base.** Scientific information is a basis for building the international consensus needed to develop agreements or action plans, to decide what actions are required and put them into place, and to monitor their effectiveness. The agreements and programs in this study provide examples of the important role of science in building the information base and how scientists and program managers are responding to resource constraints on research and monitoring.

- **Managing jurisdictional complexity.** In Canada, implementing international environmental commitments can involve federal, provincial and territorial governments. In addition, land claims settlements in the North provide for numerous co–management boards to manage renewable resources and land use. The study looked at Canada's approach to managing jurisdictional complexity from three perspectives — obtaining the commitment of several players to a common goal, communication, and mechanisms for co–ordination.

- **Developing a strong domestic regime.** Nations need a strong domestic regime governing activities under the agreements to enable them to meet their international commitments. In the Canadian North, land claims agreements have made it particularly important to have local involvement in this governance regime.

6.23 The agreements and programs reviewed in this chapter are only a small sample of the many initiatives for promoting environmental protection and sustainable development in the North. Further information on the objectives, scope and approach of this study can be found at the end of the chapter in **About the Study**.

Observations

Key Features of the Agreements and Programs

Agreement on the Conservation of Polar Bears

6.24 In 1973, five nations — Canada, the United States, Denmark, Norway and the former Union of Soviet Socialist Republics — signed the *Agreement on the Conservation of Polar Bears* (the "Polar Bear Agreement"). The Agreement was a response to international concern that hunting was rapidly depleting the polar bear population and threatening the survival of the species. It prohibits the killing of polar bears except for limited scientific and resource management purposes and Aboriginal hunting.

6.25 Norway and Russia have completely banned polar bear hunting. Canada, Greenland, and the United States allow an Aboriginal polar bear hunt in recognition of the high value that Inuit hunters place on it. In addition to the cash value of polar bear hides, the hunt is important to Aboriginal communities for other reasons, including the social prestige and respect accorded successful polar bear hunters in Inuit society.

6.26 Canada is home to most of the world's polar bears and has a special stewardship role to play. The range of these bears covers three territories and four provinces. It crosses international boundaries into Greenland in the east and Alaska in the west, and extends to the Arctic Ocean beyond the limit of the territorial sea. Exhibit 6.3 gives background information on this northern species.

Exhibit 6.3

Polar Bear Facts

The polar bear, also known as white bear, Nanook, or ice bear, symbolizes more than any other animal the Canadian North. Thought to have originated from coastal populations of grizzly bears, the polar bear has adapted itself to harsh Arctic and sub–Arctic conditions, taking particular advantage of the marine environment.

A true marine mammal. Polar bears, as the scientific name *Ursus maritimus* suggests, depend on the sea for survival. They spend much of the year on the sea ice, where they hunt seals, their primary food source. Because of their dependence on sea ice, polar bears are likely to be one of the first species to feel the effects of global warming.

Canada is home to a majority of the world's polar bears. Polar bears are found only in Canada, Russia, Greenland, the United States and Norway. Over half of the estimated total population of polar bears - between 22,000 and 27,000 - are found in Canada.

Geographic habitat. In Canada, the polar bear habitat range extends over widely varying environments, from James Bay (at the latitude of middle Europe), to within a few hundred miles of the North Pole. They are found in 14 distinct sub–populations.

Low reproductive rate. Females generally do not breed until their fourth year. Young cubs are heavily dependent on their mothers and stay with them in a family group until they are about 2 1/2 years old. Adult female bears give birth only once every three years. Due to their low reproductive rate, polar bear numbers could decline quickly as a result of overhunting or environmental disturbance.

Contaminants. Contaminants such as PCBs (polychlorinated biphenyls) and heavy metals have been detected in polar bear tissue. As a carnivore at the top of the marine food chain, polar bears accumulate the total contaminant loading of the animals on which they prey. The long–term effects of exposure to these pollutants are not yet known. However, it is one of the considerations that prompted the national Committee on the Status of Endangered Wildlife in Canada (COSEWIC) to list polar bears as a "vulnerable" species in Canada.

Critical habitat. Certain kinds of habitat that are critically important to polar bears include maternity denning areas, where females seek shelter to bear and raise their cubs, and offshore feeding sites such as recurring polynas, which are areas of open water surrounded by sea ice.

6.27 **Key commitments.** Canada has made two key commitments under the Polar Bear Agreement:

- to manage polar bear populations in accordance with sound conservation practices based on the best available scientific data; and

- to protect the ecosystems of which polar bears are a part, in particular denning and feeding sites.

6.28 **Population management.** In many respects, the management of polar bears in Canada is a success story. In contrast to earlier years, most polar bear populations in Canada are either stable or increasing. Much of this success is due to a sustained commitment to scientific research.

6.29 Canada has had the most extensive polar bear research program in the world. A research and data collection effort that began over 30 years ago has identified and generated data on 14 distinct sub–populations of polar bears in Canada. It has provided the basis for establishing management zones and harvest quotas for each sub–population. (Exhibit 6.4 shows the geographic range of the polar bear sub–populations in Canada.)

Exhibit 6.4 is not available, see the Report.

6.30 Since the majority of polar bears are found in Nunavut and the NWT, the territorial governments, the Wildlife Management Advisory Council (NWT), the Nunavut Wildlife Management Board and community hunters' and trappers' organizations are the dominant players in polar bear population research and management. Territorial biologists conduct population inventories in the field and co–operate with local hunters, who are responsible for generating harvest statistics. These statistics are essential to ongoing monitoring of the status of polar bear sub–populations.

6.31 The Canadian Wildlife Service (CWS) of Environment Canada was the largest single contributor to polar bear population research in the 1970s and into the 1980s. While CWS scientists continue to do some research on shared populations, their work now focusses on studying the bears and their ecosystems and the effects of human–induced environmental change and disturbance. For example, a 20–year research effort on bears and their habitat in the Churchill area of West Hudson Bay has generated important baseline information. This information is proving to be crucial, now that the bear population in the region is declining. Research to date signals a possible link between this decline and climate change.

6.32 Polar bears are an important species for indicating the effects of long–range contaminants in the North. The presence in the Canadian Arctic of contaminants from distant sources first came to light in the late 1960s, when scientists found pesticides in polar bear fat tissue. In 1988, federal wildlife toxicologists spearheaded a circumpolar study on contaminants in polar bears, and they maintain a tissue bank to track changes over time.

6.33 In Canada, two consultative committees have helped in the co–ordination of polar bear management and research. The Polar Bear Administrative Committee comprises senior managers from the provincial and territorial governments, federal government scientists and representatives of wildlife co–management bodies created under land claims agreements. The Polar Bear Technical Committee (PBTC) includes federal scientists, provincial and territorial biologists, university specialists and U.S. researchers based in Alaska. The PBTC reviews research results, co–ordinates joint research projects and makes recommendations to the Polar Bear Administrative Committee. It is currently chaired by a senior Canadian Wildlife Service polar bear scientist.

6.34 **Habitat protection.** The second important commitment under the Polar Bear Agreement — to protect habitat — also requires solid scientific information to identify important maternity denning and marine feeding sites.

6.35 In Canada, some maternity denning areas are protected from development in provincial wilderness parks or wildlife management areas, national parks, national park reserves and national wildlife areas. Other important maternity denning areas have been identified, but currently they do not benefit from any permanent protection. Although recent federal legislative changes provide for the creation of protected marine areas, no significant offshore feeding sites have been so designated.

6.36 Although federal, territorial and provincial scientists have identified areas that are important for polar bears, Canada has not made a systematic or sustained effort to compile habitat information from field work or local knowledge. It is not in a position to say whether current knowledge about maternity denning or feeding habitat is sufficient or whether the present habitat protection regime is adequate. Development pressures are making habitat protection more critical now; population management alone may not be sufficient to protect the species.

Canada/US Agreement on the Conservation of the Porcupine Caribou Herd

6.37 The Porcupine Caribou herd, which regularly migrates between Canada and the United States, has received considerable attention because of its importance to hunters in both countries who depend on it for subsistence and because of concerns about potential negative effects of development within its range. Exhibit 6.5 provides background information on this species.

Exhibit 6.5

Porcupine Caribou Herd Facts

The Porcupine Caribou herd is the seventh largest caribou herd in North America and at present the only major international caribou herd on this continent. The herd's range covers 249,000 square kilometres throughout the northern Yukon, the Northwest Territories west of the Mackenzie River and northeastern Alaska (see Exhibit 6.6). The herd is named after the Porcupine River, a tributary of the Yukon River that flows out of the northern Yukon Territory into Alaska. This river is regularly forded by portions of the herd during seasonal migrations.

Caribou are a mainstay for the people who reside in the range of the Porcupine Caribou herd. This area has been used by ancestors of the Gwich'in, Northern Tutchone, Han, Inuvialuit and Inupiat peoples for over 20,000 years. Today these people live in 16 communities: 8 in Alaska and 8 in the Yukon and Northwest Territories. Caribou are an integral part of their culture and tradition and an important food source. For isolated communities, many of which have no road access, caribou provides a nutritious and affordable food staple.

Source: Photo courtesy of the Porcupine Caribou Management Board

6.38 In 1987, *The Agreement between Canada and the United States of America on the Conservation of the Porcupine Caribou Herd* (the "International Porcupine Caribou Agreement") was signed. Its purpose is to facilitate co–operation and co–ordination among wildlife management agencies, users of the herd, and other land users and landowners in the herd's range.

6.39 **Canada's commitments.** Within the co–operative framework of the Agreement, Canada has committed to conserving the herd and its habitat. Implementing this international commitment requires the federal government to ensure that adequate information is collected for herd management and that a domestic regime encompassing multiple jurisdictions and players is created and maintained.

6.40 **Information base.** Scientific research and information gathering, with the co–operation of local hunters, underlies much of what is done to manage the Porcupine Caribou herd. In Canada, research responsibilities are generally shared between the federal and territorial governments. With new land claims agreements, Aboriginal groups may become more directly involved in information gathering.

6.41 Science has also contributed to protecting the herd's habitat. Canadian researchers participated in a 1993 study of sensitive habitats to identify areas of particular significance to caribou during their seasonal migration. That study helped confirm the importance of the herd's prime calving grounds in the Arctic National Wildlife Refuge, located in Alaska along a narrow strip of coastal plain on the Beaufort Sea known as the "1002 Lands" (see Exhibit 6.6). The study provides baseline data against which to evaluate the impact of proposals for development in the herd's range. It has been used to support ongoing efforts in Canada and the United States to protect the calving area in Alaska from disturbance by oil and gas development. The study has also been used for environmental reviews of the herd's winter range in Canada. Canadians involved in the management of the Porcupine Caribou herd see the continuing uncertainty over protection of the calving grounds in Alaska as one of the major conservation issues facing the herd.

Exhibit 6.6 is not available, see the Report.

6.42 **Many jurisdictions.** The Porcupine Caribou herd migrates through a complex array of regimes governing its management. Its range includes two countries with federal lawmaking powers, three state and territorial governments with jurisdiction over wildlife, and several land claims groups, some of which have the power to enact bylaws on caribou hunting and to screen development proposals that could affect caribou. In addition, Canada's federal government must recognize the guaranteed rights of Aboriginal communities to participate in the management of wildlife resources. This complex interplay of affected parties has led to the creation of the management regimes discussed here.

6.43 International management. The International Porcupine Caribou Board (the "International Board") is the administrative body created to oversee implementation of the International Porcupine Caribou Agreement and the associated International Conservation Plan. Canada and the U.S. have four members each on the International Board, representing the federal and state/territorial governments and user communities. A Technical Committee of biologists and agency representatives from both countries advises the International Board. The Board has the power to make recommendations only; commitments under the Agreement are implemented through each country's domestic regime.

6.44 Canadian management. In Canada, the management of the herd is overseen by the Porcupine Caribou Management Board (PCMB), set up in 1985. It includes representatives from the governments of Canada, the Yukon and the Northwest Territories, and from Aboriginal groups who use the herd (the Council of Yukon First Nations, the Inuvialuit Game Council and the Dene Nation and the Metis Association of the Northwest Territories). The PCMB provides the domestic framework for managing the herd across several jurisdictions and enabling Canada to fulfil its commitments under the International Porcupine Caribou Agreement.

6.45 The PCMB is one example of a regime known as co–management, which has come into widespread use in Canada, Alaska and elsewhere during the past decade. Although co–management structures vary, generally they are commissions or boards of government and community representatives who share responsibility for activities such as resource management and environmental assessment. In the Canadian North, co–management institutions have been formed largely as a result of land claims settlements. Co–management attempts to bridge the cultural differences between agency managers and local resource users by committing to consensus decision making and by considering local or traditional knowledge alongside conventional scientific research.

Arctic Monitoring and Assessment Programme

6.46 In 1991, the ministers of the eight circumpolar countries endorsed the *Declaration on the Protection of the Arctic Environment* and its related Arctic Environmental Protection Strategy. The Declaration and the Strategy are examples of "soft law" instruments that are not legally binding on their signatories, in contrast with the wildlife resource agreements we have described. Nevertheless, they are a channel for national and circumpolar efforts to deal with threats to the Arctic environment. Initiatives under the Declaration and Strategy are now overseen by the Arctic Council (Exhibit 6.7).

Exhibit 6.7

Major Arctic Council Programs

The five major program areas under Arctic Council supervision are as follows:

Arctic Monitoring and Assessment Programme

Objective: to measure levels of human–made pollutants and to assess their effects on the components of the Arctic environment

Accomplishments:

- research and monitoring that have played a significant role in developing the scientific justification for international controls on contaminants, including binding protocols on persistent organic pollutants (POPs) and heavy metals
- research that supports current negotiations for a global agreement on POPs
- two significant reports: *Arctic Pollution Issues: A State of the Arctic Environment Report* and *AMAP Assessment Report: Arctic Pollution Issues*

Conservation of Arctic Flora and Fauna

Objectives: to enhance the conservation of species, habitat and ecosystems; to integrate sustainable use into conservation work; to integrate indigenous peoples and their traditional knowledge into that work

Accomplishments:

- work to develop the Circumpolar Protected Area Network
- preparation of the Strategic Plan for the Conservation of Arctic Biological Diversity
- Murre and Eider Duck Conservation Strategies
- Atlas of Rare Endemic Vascular Plants of the Arctic

Protection of the Arctic Marine Environment

Objectives: to address policy and non–emergency response measures related to the protection of the Arctic marine environment from land and sea–based activities; and to co–ordinate action programs and guidelines that complement existing international arrangements.

Accomplishments:

- information gathered on current and planned shipping activities and their effects on the environment
- completion of the Regional Plan of Action for the Protection of the Arctic Marine Environment from Land–based Activities

Emergency Prevention, Preparedness, and Response

Objectives: to provide a framework for the Arctic countries to co–operate in responding to environmental emergencies; to review existing arrangements and recommend improved systems

Accomplishments:

- completion of the Field Guide for Oil Spill Response in Arctic Waters

Sustainable Development (established September 1998)

Objectives: to advance sustainable development in the Arctic and to improve the environmental, economic and social conditions of Arctic communities as a whole

6.47 **AMAP commitments.** Under the Declaration, Canada and the other circumpolar nations committed to implementing the components of the Arctic Environmental Protection Strategy, including the Arctic Monitoring and Assessment Programme (AMAP). Under this program, the circumpolar nations have undertaken to "monitor the levels of, and assess the effects of, anthropogenic [human–made] pollutants in all components of the Arctic environment".

6.48 AMAP is a science–driven initiative. Initially it focussed on key pollutants identified for priority treatment, such as persistent organic pollutants (POPs) and heavy metals. In co–operation with other programs under the Arctic Environmental Protection Strategy, the scope of the monitoring and assessment program has covered the entire Arctic ecosystem: the atmospheric, marine, freshwater and terrestrial environments, including interaction with humans. AMAP was built as much as possible on existing national and international programs in order to allow for comparative analysis, to be more cost–effective, and to tie it to domestic legislation and scientific work.

6.49 The results of the initial AMAP assessment have been published in two reports. Issued in 1997, *Arctic Pollution Issues: A State of the Arctic Environment Report* is a comprehensive summary of the AMAP assessment work to date. It is based on the *AMAP Assessment Report: Arctic Pollution Issues,* a fully referenced scientific report. These reports have attracted wide attention in Canada and internationally. They identify transboundary sources and pathways of pollutants to the Arctic and confirm that the accumulation of contaminants is widespread in

Arctic ecosystems and food chains. These reports identify POPs as one of the contaminants of particular concern for the Arctic. Exhibit 6.8 gives further details on these pollutants.

Exhibit 6.8

Persistent Organic Pollutants

What are they and why are they a concern?

Persistent Organic Pollutants (POPs) are toxic substances that are released into the environment through a variety of human activities. They include pesticides, industrial chemicals and unintended by–products and contaminants. Many of them are familiar to us: DDT, PCBs (polychlorinated biphenyls), dioxins and furans.

The following characteristics make POPs a threat to human and ecosystem health:

Global travelers. Their chemical nature makes them mobile. They can hitchhike on air and water currents over long distances, resulting in widespread distribution around the earth. They tend to concentrate in colder regions such as Canada's North and also pose a problem in the Great Lakes Basin.

Persistence. They are highly stable compounds and break down slowly in the environment, especially at low temperatures. Their persistence allows them to accumulate in wildlife and pass through food chains.

Build–up in animal and human tissue. POPs accumulate in the fatty tissue of living organisms. They increase in concentration at progressively higher levels of the food chain. Some POPs can be passed from mother to child through the placenta or in breast milk.

Risks. Exposure to these substances at high levels has been associated with a number of health effects, including cancer. However, there is a growing body of evidence showing that more subtle health effects may result from chronic exposure to low levels of these contaminants. Those effects include immune suppression, reproductive impairment, and learning and behavioural problems.

6.50 Canada's actions. Much of Canada's commitment to AMAP was carried out through its domestic Northern Contaminants Program. As Canada had begun to address the issue of northern contaminants prior to AMAP, it was one of the countries better prepared to contribute to the international program.

6.51 Building an information base. As early as the late 1960s, Canadian scientific studies began to find contaminants in the air, water, animals, plants and peoples of the North at higher levels than would be expected in a non–industrial region. Of particular concern was the presence of contaminants in traditional foods that form a major part of the diet of many northerners, particularly Aboriginal peoples. There are no viable alternatives to these food sources — food from the south is costly, often unobtainable and does not always meet the nutritional needs of northerners. Research has shown that a change in diet to less nutritious purchased foods has a negative impact on health and lifestyle.

6.52 Action was clearly needed. In 1985, faced with the problem of advising communities about the risks of consuming even moderately contaminated "country" food, the federal government created the interagency Technical Committee on Contaminants in Northern Ecosystems and Native Diets. The activities developed to deal with contaminant issues in the Canadian North became known as the Northern Contaminants Program (NCP), an interdepartmental initiative led by Indian and Northern Affairs Canada.

6.53 The Northern Contaminants Program. The goals of the interdepartmental and multi–disciplinary NCP were to reduce and, where possible, eliminate contaminants in traditionally harvested foods and to provide information that communities and individuals need to decide on their use of the foods. From 1991 to 1997, the NCP funded approximately $30 million for research on northern contaminant issues and support to the McGill Centre for Indigenous Peoples Nutrition and Environment, and for participation of Aboriginal organizations in the Northern Contaminants Program.

6.54 **Management structure.** From 1991 to 1997, the NCP was managed by two main committees: the Science Managers' Committee and the Technical Committee on Contaminants in Northern Ecosystems and Native Diets. Both were chaired by Indian and Northern Affairs Canada and included representatives of other participating federal departments (Health Canada, Environment Canada, Fisheries and Oceans) and five northern Aboriginal organizations (Council for Yukon First Nations, Dene Nation, Inuit Circumpolar Conference, Inuit Tapirisat of Canada and the Metis Nation-NWT), as well as health and wildlife officials of the territorial governments.

6.55 The Technical Committee's role was to annually review all research proposals, establish priorities and make recommendations on funding. The Science Managers' Committee had responsibility for overall policy direction, priority setting and program delivery. It reviewed the recommendations of the Technical Committee and made the final decisions on resource allocation. The five Aboriginal groups participated as equal partners in the consensual decision–making process. The NCP recently modified its procedures for scientific and technical review of proposals, while maintaining partnership with northern Aboriginal organizations in this aspect and on the management committee.

6.56 In 1997, the federal government released the *Canadian Arctic Contaminants Assessment Report*. It summarizes the results of six years of Canadian research on the North, and provides a picture of pollution pathways into the Canadian Arctic and levels of contaminants in northern wildlife and humans (see Exhibit 6.9 for selected highlights on persistent organic pollutants). This Canadian research was also reflected in the AMAP report released the same year, and was Canada's primary contribution to that report. The findings in these reports resolved some of the scientific uncertainties about sources and pathways of pollutants to the Arctic, and provided much of the scientific evidence to underpin Canada's push for international controls on certain pollutants.

Exhibit 6.9

Canadian Arctic Contaminants Assessment Report - Selected Highlights

Highlights on Persistent Organic Pollutants (POPs)

1. Contaminants such as POPs have been detected throughout Arctic ecosystems at unexpectedly high levels.

2. Long–range transport from distant foreign regions via the atmosphere, oceans and rivers is the dominant source of these pollutants to the Canadian North. POPs come from as far afield as Latin America, Eastern Europe and Asia.

3. High levels of certain POPs have been found in some Arctic biota, such as fish, seals and whales, that make up a significant part of the diet of many Arctic residents.

4. Fish and wildlife ("country" foods) are widely consumed within northern communities, especially by Aboriginal peoples, thereby making them susceptible to the potentially adverse effects of these contaminants. People in southern Canada generally have lower contaminant levels in their bodies than northerners with a country food diet. For example, the concentrations of POPs in mothers milk of Inuit from Nunavik, northern Quebec, are two to ten times higher than the levels in the southern non–Aboriginal population.

5. POPs levels in Arctic wildlife are generally lower than in more populated areas of the world and do not appear to be causing any obvious harmful effects. However, animals at the top of the food chain, such as polar bears, have contaminant burdens that may be within a range where effects can occur.

6. Pesticides such as toxaphene and chlordane and the industrial chemical PCB (polychlorinated biphenyl) are some of the main POPs that are a concern for northern food chains and human health.

7. Very little is known about the human health effects of exposure to levels of POPs currently found in northern traditional/country foods. They are not thought to pose an immediate threat to the health of adult humans. However, the developing fetus and breast–fed infants are likely to be more sensitive to the effects of POPs than adults, and are the age group in the Arctic most at risk.

8. At present, the benefits of consuming country foods are thought to outweigh the possible risks of long–term, subtle effects that may be associated with current levels of contaminants in Arctic foods.

6.57 **Future work.** Scientific uncertainty remains, especially about effects on human health and the combined effects of multiple stressors. In 1997 the circumpolar nations extended the AMAP mandate, endorsing the continuation of monitoring, data collection and assessment of contaminants. In Canada, the federal government has committed to a second phase of the NCP that will continue to contribute to the Arctic Monitoring and Assessment Programme.

6.58 This new phase will emphasize assessing risks, providing advice to communities and reducing contaminants at their sources through international efforts. The international component of the next phase of the NCP provides for scientific research and environmental monitoring in support of international agreements to control the entry of contaminants into the Arctic environment. Maintenance of Canadian scientific and monitoring capability and credibility over the longer term is recognized as essential to determine the effectiveness of international controls and to identify and assess any new areas of concern.

United Nations Economic Commission for Europe 1998 Protocol on Persistent Organic Pollutants

6.59 A recent concrete result of Canada's push for international controls on transboundary pollutants was the June 1998 signing of the *Protocol on Persistent Organic Pollutants* (the POPs Protocol) under the United Nations Economic Commission for Europe *Convention on Long–Range Transboundary Air Pollution*. The POPs Protocol was signed by Canada, the United States and over 30 European countries. Some of the European states are significant sources of airborne pollutants to Canada's Arctic region.

6.60 With POPs identified as one of the main classes of contaminants that threaten human and ecosystem health in the Arctic, this first regional agreement to control them internationally is particularly significant to Canada. Canada was the first country to ratify the POPs Protocol on 18 December 1998. The Protocol will come into effect only when 16 countries have ratified it, which may happen by the year 2000.

6.61 Under the POPs Protocol, 16 substances are targeted for elimination, restricted use or reduced emissions. These substances fall into three groups: pesticides, commercial chemicals and by–products (see Appendix B).

6.62 **Building the information base.** Canadian research has generated strong evidence that the majority of POPs in the Canadian Arctic come from sources outside the region. This has played a large role in convincing the international community to take action on these contaminants regionally and internationally.

6.63 **Future work.** The POPs Protocol is only the first step toward achieving global controls on these contaminants. Sources are not confined to the area covered by the regional POPs Protocol. They also include Latin America and Asia. As demonstrated in Exhibit 6.10, Canada has been at the forefront of other initiatives to push for international controls on POPs, including a global treaty on POPs under the auspices of the United Nations Environment Programme.

Exhibit 6.10

Canada's Initiatives on Persistent Organic Pollutants (POPs)

Late 1960s	Specialists detected pesticides in Canada's northern wildlife.
1985	The Department of Indian Affairs and Northern Development formed an Intergovernmental Technical Committee on Contaminants in Northern Ecosystems and Native Diets.
1989	The Northern Contaminants Program's Strategic Action Plan was adopted. In 1991, this program became part of Canada's Green Plan.

1991	Canada and the other circumpolar nations endorsed the Declaration on the Protection of the Arctic Environment and its related Arctic Environmental Protection Strategy (AEPS). One of its components, the Arctic Monitoring and Assessment Programme (AMAP), and its research on POPs received strong support from Canada.
	A Task Force on POPs, led by Canada and Sweden, was established under the United Nations Economic Commission for Europe Convention on Long–Range Transboundary Air Pollution (LRTAP Convention). A 1994 report by this Task Force benefited greatly from Canadian research and served as the basis for authorization by the LRTAP Executive Body to negotiate the regional POPs Protocol. The text of the Protocol was prepared by a working group led by a Canadian.
1995	In Vancouver, Canada and the Philippines hosted a meeting of international experts on the global control of POPs. The statement issued after the meeting identified key components and opportunities for global action.
	Through the Commission for Environmental Co–operation, Canada, the U.S. and Mexico launched the Sound Management of Chemicals project. Regional action plans to deal with PCBs, DDT and chlordane were adopted in 1997.
1996	An assessment report covering the 12 substances to be targeted in a global POPs treaty was submitted to the Intergovernmental Forum on Chemical Safety. This report was prepared by a Canadian consulting team.
1997	The *Canadian Arctic Contaminants Assessment Report* and AMAP's *Arctic Pollution Issues: A State of the Arctic Environment Report* were published.
	The United Nations Environment Programme authorized the preparation of a global POPs treaty. A Canadian chaired the working group that recommended this initiative.
	Negotiations commenced for the regional POPs Protocol under the LRTAP Convention.
1998	The POPs Protocol was signed.
	Montreal was the location of the first negotiating session for a global POPs treaty. A Canadian was elected to chair the negotiations until their completion, anticipated in the year 2000.
	The detailed *AMAP Assessment Report*: *Arctic Pollution Issues* was released.

6.64 Although POPs pose significant risks to human and ecosystem health in other parts of the world besides the Arctic, achieving consensus and establishing global controls will be problematic. To protect human health from insect–borne diseases such as malaria and to protect food from destruction by insects, many developing countries continue to rely on chemicals that give rise to persistent organic pollutants. These countries face serious constraints on human, technological, scientific and financial resources to control toxic chemicals. Less harmful alternatives, when available, are often too costly.

Lessons Learned

6.65 This section of the chapter summarizes some lessons from the implementation or development of each of the four agreements and programs we reviewed. They illustrate how Canada has handled the challenges of making the agreements work.

Building a solid information base

6.66 Information gathering helps governments deal with the growing complexity of issues that require environmental research and monitoring. It also helps them meet their domestic and international commitments. For some of the agreements and programs in our study, scientific research and monitoring provided the knowledge base to build a convincing case that international controls are needed. They also furnished the information needed to

make sound decisions in fulfilling commitments. Monitoring plays an essential role in ensuring that international controls are achieving their desired objectives.

6.67 **Scientific information is at the core of good management.** Canada's research efforts for polar bear management provide a good example. The information gathered from sustained research has enabled territorial and provincial authorities, together with communities, to manage polar bears using sound conservation practices, through harvest quotas and other measures. Ongoing research and information gathering allow for any needed adjustments to these quotas to ensure the sustainability and health of the populations. Most polar bear populations in Canada are stable or increasing. In some cases where populations are in trouble, quotas have been reduced, generally with the agreement of local Inuit communities.

6.68 The Polar Bear Technical and Administrative committees have devoted much attention to assessing and reporting on the health of polar bear populations in order to monitor progress and identify gaps in knowledge. This commitment to ongoing reporting and assessing of results contributes to the strength of Canada's polar bear management program. One challenge will be to find ways to apply the same information–gathering effort and systems that have worked for population management to habitat protection, another of Canada's commitments under the Polar Bear Agreement.

6.69 **Scientific knowledge as a springboard for international agreements.** The Arctic Monitoring and Assessment Programme (AMAP) was geared toward using international research to get the full picture on contaminant sources and exposure levels in Arctic wildlife and humans. The scientific information produced by Canada under the Northern Contaminants Program (NCP) and, on a circumpolar level, through AMAP has been a cornerstone of policy decisions and action both domestically and internationally. It has provided the scientific substantiation for Canada and others to take action internationally on contaminants, and it led to the conclusion of the 1998 regional POPs Protocol.

6.70 **Monitoring is essential to ensure effectiveness.** The NCP has identified air monitoring as one priority of its ongoing international science component in order to determine whether atmospheric deposits of pollutants are increasing, or are decreasing as a result of national and international control initiatives such as the POPs Protocol.

6.71 The air monitoring strategy under the first phase of the NCP provided for continuous air monitoring for POPs and heavy metals at Alert in Nunavut, and episodic sampling at stations in Tagish in the Yukon and Cape Dorset on Baffin Island. This monitoring has generated a database of global importance, unique in its scope and depth and central to understanding the global impact of long–range atmospheric transport of POPs. With this baseline work, Canada is able to monitor the effectiveness of the international controls it worked hard to put into place.

6.72 Resources for this atmospheric monitoring are a mixture of NCP funding and allocations from Environment Canada's departmental budget. However, cost–cutting measures by National Defence, which runs the Alert station, may mean increased costs to Environment Canada for its monitoring operations at Alert. Any resulting cutback in these monitoring activities could reduce Canada's capacity to collect and analyze Arctic atmospheric data, making it difficult to assess whether international controls on POPs are working. The monitoring programs at Alert show that such activities depend on adequate resourcing and that federal departments contributing to northern scientific research and monitoring need to collaborate in setting priorities for northern activities.

6.73 **Responding to fiscal constraints.** Departments are struggling within existing budgets to meet domestic legislative and policy requirements as well as international treaty obligations. With respect to the wildlife agreements in this study, fiscal restraints have caused caribou and polar bear scientists and researchers to seek outside funding, work with other national and international agencies and find other means to allow them to continue their research and monitoring.

6.74 **Outside funding.** Federal research on the Porcupine Caribou herd depends primarily on funding sources outside the federal government. Two major U.S. research projects are currently under way in the Porcupine Caribou herd's range. The United States National Science Foundation is conducting research on the sustainability of Arctic communities in Alaska and Canada. Another initiative, under the U.S. Man and the Biosphere Program, is examining the population dynamics of the Porcupine Caribou herd and the role of hunting. Both federal and territorial officials in Canada report a high level of co–operation among Canadian and U.S. agency scientists in these and other initiatives.

6.75 Federal research on polar bears presents a similar picture. Faced with a limited budget for research, polar bear scientists at the Canadian Wildlife Service must seek out and rely on funding from a variety of outside sources for about 80 percent of their project research costs.

6.76 Although outside funding allows federal scientists to carry out needed research, having to rely on it has other costs. Researchers have said they devote much time and effort to soliciting and administering funding grants, time they would otherwise spend on research. Some scientists are concerned that research priorities may be aligned to suit the funder and that reliance on piecemeal funding sources is not conducive to long–term environmental baseline research or to training and education for Arctic research.

6.77 **Co–operation in research.** By identifying common needs and priorities and sharing research findings, scientists from different agencies are able to undertake collaborative and integrated projects together with local participants. Canadian and U.S. government agencies co–ordinate their work on the Porcupine Caribou herd through the Porcupine Caribou Technical Committee and the International Porcupine Caribou Board. Close co–operation with their U.S. counterparts has allowed the Canadian managers to benefit from U.S. resources for such activities as herd population surveys. In Canada, government agencies and local Aboriginal communities co–operate through the Porcupine Caribou Management Board.

6.78 Seeking opportunities for co–operative and cost–effective polar bear research is a major emphasis of the Canadian Polar Bear Technical Committee. Obtaining tissue samples to study contaminants in polar bears across the North requires collaboration among federal and territorial scientists, wildlife officials and local hunters. Sharing the work on scientific research projects and the resulting information allows for combined expertise and more effective use of scarce resources.

6.79 **Use of traditional environmental knowledge.** Scarcity of research dollars also restricts the amount of time that federal scientists can spend in the field. New approaches to gathering data and a growing respect for local or traditional knowledge can help to fill gaps in information (see Exhibit 6.11). Local hunters and residents have knowledge that can be a valuable supplement to scientific data.

Exhibit 6.11

Use of Local or Traditional Environmental Knowledge

"Traditional environmental knowledge" (TEK) or "local knowledge" are only two of the many terms used to describe the body of expertise and knowledge acquired by indigenous or local people through direct contact with the land. One category of this system of knowledge is the understanding of ecological relationships and changes observed over time. It is based on the experience of individuals and the community at large as well as on knowledge passed down from elders and incorporated in indigenous languages.

The importance of this kind of knowledge is reflected in land claims agreements in Canada and in international instruments such as the Declaration on the Protection of the Arctic Environment and the Declaration on the Establishment of the Arctic Council. A major study using TEK was carried out by the Canadian Arctic Resources Committee and the Municipality of Sanikiluaq, as part of a research program on the impacts in Hudson Bay of development occurring within its watershed. The Inuit Circumpolar Conference conducted a two–year project on traditional ecological knowledge of Beluga whales in the Chukchi and Northern Bering Seas, under the joint lead of Canada and the United States. This project was to help demonstrate how TEK could be incorporated into conservation work under the Arctic Environmental Protection Strategy. Other TEK studies, such as that carried out by the Gwich'in Renewable Resource Board, are continuing.

Although researchers are already using TEK to supplement scientific knowledge on wildlife distribution, abundance and behaviour, more needs to be done to determine how best to apply it to complex resource management issues. Local knowledge has the potential to contribute greatly to resource planning and decision making by providing indicators and early warning signs of environmental change.

6.80 Efforts to involve communities in caribou research have increased, especially in monitoring the condition of the animals, the amount of vegetation for forage, and weather, snow and ice conditions throughout the range. Through the Arctic Borderlands Ecological Knowledge Co–operative, for example, scientists, governments and community organizations collaborate to collect, interpret and communicate ecological information. Among other activities, they gather reports from observers in Canadian and U.S. communities on movements, timing of migration and body condition of the Porcupine Caribou herd.

6.81 **Community involvement.** Involving local communities in information gathering is another way to help build a solid information base. It is a key element in polar bear management, for example. The territorial government and local communities sign co–management agreements for each of the polar bear management zones north of 60° latitude. These agreements allocate quotas to individual communities in each zone and require local hunters to collect comprehensive harvest information (sex, age, and condition of bears hunted). These data supplement the information acquired through expensive field research by territorial/provincial authorities and are a means for ongoing monitoring of the health of polar bear populations.

6.82 In gathering harvest statistics for the Porcupine Caribou herd, the Yukon government operates a hunter check station on the Dempster Highway. It also incorporates information from harvest studies conducted by the Inuvialuit Joint Secretariat and the Gwich'in Renewable Resource Board, co–management bodies set up under land claims agreements. This involvement gives local communities and residents a sense of ownership of the process and increases their confidence in this information and its use in decisions on herd management.

Managing jurisdictional complexity

6.83 Several mechanisms have been used to overcome the obstacles inherent in the involvement of multiple jurisdictions or interests. These mechanisms include obtaining commitment from all parties to work toward a common goal, having good communication and ensuring co–ordination among the various players.

6.84 **Commitment to a common goal.** The NCP uses a partnership structure involving other federal departments, territorial governments and Aboriginal groups in working to achieve their common objectives — eliminating contaminants from traditionally harvested foods and providing information that communities need to decide on their use of the foods. Involving Aboriginal organizations in setting priorities for research, reviewing study proposals, allocating funds for research and reviewing the results is seen as a way to increase the credibility of the research and community trust and participation. It has made it much easier to get reliable and meaningful scientific data needed for research and to obtain a grass–roots perspective on the research needs of communities.

6.85 Notwithstanding the achievements of the Northern Contaminant Program, its partnership structure means that in spending program funds it has had to balance the partners' differing priorities. Federal science–based departments generally favour more scientific efforts, while Aboriginal organizations promote more community–based initiatives and communications programs. Given the NCP research showing contaminant exposure levels and the attendant human health concerns, Aboriginal groups have pushed for improved communication at the community level. Guidelines for Responsible Research were adopted in 1993 to ensure that communities participating in studies were appropriately consulted, involved, and informed about study results. By 1995, the NCP's focus had shifted to more emphasis on balanced information and communication with local communities, in order to ensure that past misunderstandings about contaminants in country foods would not be repeated.

6.86 Although a significant amount of funding has been available for the NCP, its increased emphasis on communications has left less money available for scientific research. There are still mixed views on the shifting of funds from science to communications. While the importance of linking scientists' work to the needs of

communities is undeniable, it is a challenge within available funding to appropriately balance basic scientific research with communication and education about its results. This typifies one of the dilemmas for Northern programs faced with constrained or declining resources: the need to balance international obligations with local needs and priorities.

6.87 Good communication is essential for managing across jurisdictions. The Porcupine Caribou Management Board (PCMB) has recognized the importance of communication, and views it as a priority. Communication among board members with different backgrounds and across a large and isolated territory with complex and overlapping jurisdictions poses logistical and financial challenges. It requires that a co–management body invest considerable time to develop the necessary foundation of respect and trust and to keep open lines of communication with the user communities and government agencies it represents. The PCMB attempts to facilitate community involvement and communication by rotating its meetings among the eight user communities in the Canadian section of the herd's range. It supplements face–to–face meetings with other methods of communication, including radio bulletins, annual reports, newspaper articles, school programs, its own Web site and community information sheets. Communication not only keeps participants committed to a common goal but also serves to gain trust and acceptance for ongoing work.

6.88 Need for co–ordinating mechanisms. The agreements and programs canvassed in this study provide examples of different co–ordinating mechanisms: national bodies, an identified co–ordinator agency and agreement on roles and responsibilities.

6.89 National mechanisms for polar bear management. A wide–roaming species with 14 sub–populations throughout the Canadian North creates an interjurisdictional management puzzle (see Exhibit 6.4). In Canada, the Polar Bear Administrative and Technical committees have taken a co–ordinated approach to polar bear management and research. They have devoted much attention to assessing and reporting on the health of polar bear populations in order to evaluate progress, identify gaps in knowledge and set research priorities. Key to the functioning of these committees is the cohesive role played by Canadian Wildlife Service polar bear researchers who perform committee secretariat duties. These scientists also maintain the National Polar Bear Database, with 35,000 records spanning 30 years. It serves as a central resource to support research, monitor harvesting and set quotas for hunting.

6.90 Lead agency as co–ordinator. In contrast to the compartmentalized research on toxics noted in Chapter 3 of this Report, the Northern Contaminants Program has been upheld as a model for scientific collaboration. Under the lead of Indian and Northern Affairs Canada, research efforts carried out by federal and other scientists were co–ordinated through the NCP. Those efforts resulted in the publication of a substantial report on contaminants in the Canadian Arctic. This type of collaboration is expected to continue in the next phase of the NCP, albeit with lower funding, and is supported by a memorandum of understanding signed by Environment Canada, Indian and Northern Affairs Canada, Health Canada and Fisheries and Oceans.

6.91 Clear roles and responsibilities. The Porcupine Caribou Management Board publishes a detailed multi–year management plan that clearly assigns responsibility for management activities to each level of government as well as to the Board itself. The interagency work plan is organized in a clear and understandable way, and other northern resource management boards have copied its format. Accountability for assigned tasks is ensured through the Board's annual reports, which use the plan to show each party's accomplishments during that year.

6.92 These examples of co–ordinating mechanisms all draw on broad–based collaborative efforts rather than a "top down" management approach. What is notable is that each of the mechanisms we have mentioned has achieved results. Using appropriate mechanisms is a challenge for Canada in meeting its other international commitments, such as the *United Nations Framework Convention for Climate Change* and its *Kyoto Protocol*, both of which require several jurisdictions to work together.

6.93 The federal government has recognized that the integrated nature of social, health, environmental, resource and economic issues in the North requires multi–disciplinary knowledge, and co–ordinating mechanisms for

gathering and exchanging that knowledge. In 1996, discussions began on a Northern Science and Technology Strategy to provide a framework for identifying common objectives, improving interdepartmental co–operation and involving Northern residents. At the time of our study, there were plans for renewed efforts on this initiative.

Developing a strong domestic regime

6.94 Carrying out international commitments requires an appropriate domestic institutional framework. In the wildlife resource agreements in this study as well as the NCP, government agencies and local communities share management. Although this has particular significance for land claims governance systems in the North, in other parts of Canada local involvement can also play a part in implementing international environmental agreements that have a strong regional focus. For example, the North American Waterfowl Management Plan works through partnerships of stakeholders from Canada, the United States and Mexico, in the form of regionally based joint ventures in habitat and species management. Chapter 11 of the 1997 Auditor General's Report used the Plan as a case study to illustrate how a system of joint ventures involving government agencies, non–government organizations, the private sector and landowners successfully used co–operative habitat management for results.

6.95 **Shared management between government agencies and local communities.** The creation of agreements to jointly manage shared wildlife populations can be a building block in a solid domestic regime. The agreement creating Canada's Porcupine Caribou Management Board (PCMB) provides for equal representation between government and user communities, as well as balanced representation among native user communities in both the Yukon and Northwest Territories. The PCMB is an evolving effort in co–operative management. A process ensuring that all concerned parties are involved in decisions on herd management takes more time than a top–down management system, and stretches limited resources. However, there is a consensus that it has generated more confidence in the PCMB than might otherwise have been the case.

6.96 **Management agreements on shared populations between user groups and jurisdictions.** The 1988 agreement between the Inuvialuit in Canada and the Inupiat in Alaska on the shared polar bear population in the southern Beaufort area is an early example of an agreement between user communities. In this case, the users on both sides of the border agreed to establish joint quotas based on scientifically sound population information in order to ensure a sustainable hunt. User groups in different jurisdictions are discussing similar agreements on other shared species, such as beluga whales.

6.97 Not all polar bear populations shared between jurisdictions benefit from this co–ordinated approach. In the absence of any controls agreed upon by all parties, the quota set by one jurisdiction provides no assurance against the other's over–harvesting of the shared bear population. Nunavut has a co–management agreement with Manitoba but is still negotiating with Ontario, Quebec and Greenland, with whom it also shares bear populations. The fact that negotiation efforts continue is a recognition of the utility of this approach to overall management of the species.

A piecemeal approach to implementation

6.98 This chapter cites positive examples of Canada's efforts in implementing some of its international commitments that are important to its Arctic region. However, the examples do not give the complete picture. Repeatedly in the course of our study, we were made aware of concerns about the piecemeal approach to implementing our international commitments in the North. Federal efforts often appear to depend on the vision and work of individual field scientists and program managers, operating within the limits of their own programs. Moreover, there is no overall Northern strategy to guide federal departments and agencies in fulfilling their science, monitoring and other responsibilities more effectively and efficiently. The absence of a co–ordinating strategy leaves these activities vulnerable to decisions by individual departments that could have detrimental effects in other areas.

6.99 The draft Northern Science and Technology Strategy, which has been under discussion since 1996, remains an unfulfilled possibility for co–ordinating Northern science efforts and realizing possible synergies among government programs and with university research activities. Recent efforts to revitalize the Canadian Polar Commission may enable that body to recommend policy direction on polar science to the federal government.

6.100 Government and university scientists have expressed concern that current funding may not be enough for the monitoring and the science research that are critical to Canada's leadership in research on contaminants in the North. The decline in spending on federal scientific investigation over the past few years (discussed in Chapter 3) extends to science in the North. For example, the Polar Continental Shelf Project that provides crucial logistics support for government and non–government research in the North and has been seen as a model by other countries, including the United States, now has only half of its previous resources. As a result, fewer research projects are receiving support from this program.

6.101 The framework used for management of Arctic research in the United States is a useful point of comparison. The 1984 *Arctic Research and Policy Act* established the Interagency Arctic Research Policy Committee as the mechanism to develop and co–ordinate U.S. Arctic research activities. It assigned a clear leadership role to the National Science Foundation. The Committee prepares an Arctic Research Plan, updated biennially, which serves as a framework to develop multi–agency research programs and address logistical and operational support needs. The Foundation's budget for Arctic research is also being increased.

6.102 Other nations are signalling a sustained commitment to Arctic environmental research. In recent years, the Danish government and the Greenland Home Rule government unveiled the Zackenberg Ecological Research Operations (ZERO), featuring a new ecological research station in northeastern Greenland and comprehensive long–term environmental monitoring programs. A commitment to long–term financing of these research activities was obtained in 1997.

6.103 In our view, a strong science program is required in order to implement many of the international environmental agreements affecting Canada's Arctic. Aside from the subject areas canvassed in this study, Arctic research also contributes to the knowledge base on such issues as climate change, ozone–depleting substances, biodiversity and migratory birds, all subject to international conventions. This underlines the need for an interdisciplinary approach to combine the knowledge, expertise and resources of various federal departments and scientists. A national policy on Arctic research could be a significant step in ensuring that due consideration is given on a consistent basis to the science and other elements needed to implement all international environmental agreements.

Conclusion

6.104 The two categories of international agreements and programs reviewed in this study — wildlife resource management and transboundary pollution — illustrate some successes as well as a need for further improvement in three key areas: building an information base, managing jurisdictional complexity and developing a strong domestic regime.

6.105 Building a solid information base for managing wildlife resources or assessing contaminant sources and levels has required a considerable investment in scientific research and monitoring. This investment has shaped the approach to wildlife population management and conservation, although efforts to identify and protect polar bear habitat have been less systematic. For transboundary pollution agreements and programs, strong federal support for research on northern contaminants has led to success on several fronts: a major contribution to the science–based circumpolar Arctic Monitoring and Assessment Programme; a better understanding of the sources and pathways of foreign pollutants to the Canadian North; and the scientific evidence needed to push for international controls on POPs and heavy metals.

6.106 The demand for federal resources directed toward environmental assessment and monitoring in the North has increased at the same time as budgets for these activities have declined. Canadian scientists and researchers have responded to fiscal constraints by seeking outside funding, working with other agencies, and using local knowledge to supplement conventional science. However, the short–term nature of these solutions may not be conducive to the long–term research needed to build and maintain a solid information base.

6.107 The implementation of commitments under the wildlife resource agreements and transboundary pollutants programs provide successful examples of managing multiple jurisdictions and interests in a vast and remote territory, one with new types of governance systems that are different in many ways from those in southern Canada.

6.108 The integrated nature of social, environmental, resource and economic issues in the North requires scientific knowledge from several disciplines. Researchers from many departments and agencies contribute to this knowledge alongside Aboriginal peoples. The Northern Contaminants Program (NCP), for example, is a collaborative, multi–disciplinary, participatory research program dealing with sensitive health and social issues. It meets distinctive needs in Canada's North and contributes to fulfilling Canada's international commitments under the Arctic Monitoring and Assessment Programme.

6.109 There are growing efforts to involve local communities in decisions on wildlife resource management as well as research on contaminants and their effects on health. Wildlife resource co–management bodies such as the Porcupine Caribou Management Board and the decision–making structure of the Northern Contaminants Program have given Aboriginal communities an equal voice with government authorities in how resources and research are to be managed. This inclusive participation provides for acceptance of the domestic regime and allows input from the people most affected by its decisions.

6.110 Despite the positive examples we observed in the course of this study, we consistently heard concerns about the piecemeal approach to meeting Canada's international commitments in the North. There is no overall Northern strategy to guide federal departments and agencies in carrying out their science, monitoring and other responsibilities effectively and efficiently. This creates a risk that decisions by individual departments can have detrimental effects on activities in other areas. A national policy on Arctic research could make a significant difference by providing for a consistent and co–ordinated approach to making international environmental agreements work.

6.111 Canada's recent efforts to develop a Northern foreign policy suggest a greater recognition of the role the Arctic plays domestically and internationally. The North's continued vulnerability to environmental change agents largely outside Canada's domestic control makes sustainable development a particular challenge for a rapidly growing human population that still depends in large measure on the region's wildlife resources for its economic, cultural and social well–being. How Canada meets this challenge will test its ability to learn from past experience and keep its commitments to protect this environment for future generations.

About the Study

Objectives

The objectives of this study were to:

- provide an overview of certain international environmental issues affecting Canada's North; and
- identify lessons learned from the implementation of international environmental agreements and programs affecting the Canadian Arctic that could be applied to other areas.

Scope

This study was part of an ongoing work program to assess how Canada is doing at meeting its international environmental commitments, and how it can improve its performance. Last year we provided an overview of the international environmental agenda and Canada's role in its development. In this second phase we took a regional perspective by focussing on international obligations that are significant for the Canadian Arctic.

We looked at Canada's efforts under four international agreements and programs that are directly relevant to the Canadian Arctic. These fit into two subject categories:

- protection of wildlife and their habitat
  - *Agreement on the Conservation of Polar Bears*
  - *Agreement between Canada and the United States on the Conservation of the Porcupine Caribou Herd*
- transboundary pollution
  - United Nations Economic Commission for Europe *Protocol on Persistent Organic Pollutants* (new agreement — not yet in force)
  - Arctic Monitoring and Assessment Programme (AMAP).

All but AMAP are legally binding agreements; AMAP is a program of the non–binding circumpolar Arctic Environmental Protection Strategy, now under the Arctic Council. The wildlife resource management agreements were chosen because they represent the importance of the sustainable use of wildlife resources to the residents of the Arctic. The agreement and program dealing with pollutants are of particular concern to a region whose ecosystems are vulnerable to the effects of contaminants transported from distant sources.

We chose these four examples to illustrate the challenges of meeting various types of international commitments. We imply no judgment about their relative importance or merit. We did not cover major areas such as marine protection, for example, or look at international agreements, programs or arrangements established at the subnational level involving provinces, territories and user communities.

Our past reports have already examined issues such as biodiversity, climate change and ozone depletion, all of which have implications for the Arctic. As a result, those issues were not examined in this study.

Approach

The information for this study was drawn from a review of the relevant literature and from documents and publications of federal and territorial government departments and outside sources. We also conducted a series of interviews with selected federal departments (such as Indian and Northern Affairs Canada and Environment Canada), territorial government agencies, and Aboriginal and environmental non–government organizations.

Study Team

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Appendix A

International Environmental Agreements and Instruments Relevant to the Canadian Arctic

Legally Binding International Agreements

Prevention of Pollution

Protection of the Seas:

1972 - Convention on the Prevention of Marine Pollution by Dumping of Waste and other Matter (London Convention)

1973/78 - International Convention for the Prevention of Pollution from Ships (MARPOL)

1974 - Canada/US Exchange of Notes Concerning a Joint Marine Pollution Contingency Plan

1982 - United Nations Convention on the Law of the Sea (Canada has not ratified)

1983 - Canada/Denmark Agreement on Co–operation Relating to the Marine Environment

1990 - International Convention on Oil Pollution Preparedness, Response and Cooperation

Air Pollution/Climate Change:

1979 - Convention on Long–Range Transboundary Air Pollution (LRTAP) and Protocols:

- Reduction of Sulphur Emissions or their Transboundary Fluxes by at Least 30 percent (1985)
- Further Reduction of Sulphur Emissions (1994)
- Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes (1988)
- Heavy Metals (1998) - (not yet in force)
- Persistent Organic Pollutants (1998) - (not yet in force)

1985 - Vienna Convention for the Protection of the Ozone Layer

1987 - Montreal Protocol on Substances that Deplete the Ozone Layer

1992 - United Nations Framework Convention on Climate Change

Radioactive Pollution:

1986 - Convention on Early Notification of a Nuclear Accident

1994 - Convention on Nuclear Safety

1997 - Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

Co–operation:

1988 - Canada/US Agreement on Arctic Co–operation

1992 - Canada/Russia Agreement on Co–operation in the Arctic and the North

1992 - Convention on Environmental Impact Assessment in a Transboundary Context

Protection of Wildlife and Habitats

1916 - Convention for the Protection of Migratory Birds in Canada and The United States

1946 - The International Convention for the Regulation of Whaling (Canada withdrew)

1971 - Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR)

1973 - Agreement on the Conservation of Polar Bears

1973 - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

1987 - Agreement between Canada and the United States on the Conservation of the Porcupine Caribou Herd (1987)

1992 - Convention on Biological Diversity

1997 - Agreement on International Humane Trapping Standards (Canada has not ratified)

International Instruments

In addition to "hard law" or legally binding agreements, an increasing number of "soft law" instruments have relevance to the Arctic, particularly:

1986 - North American Waterfowl Management Plan (renewed in 1994)

1991 - Declaration on The Protection of the Arctic Environment

1991 - Arctic Environmental Protection Strategy

1992 - Rio Declaration on Environment and Development, and Agenda 21

1995 - UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

1996 - Declaration on the Establishment of the Arctic Council

1998 - Regional Programme of Action for the Protection of the Arctic Marine Environment from Land–based Activities

Appendix B

Substances Targeted by the POPs Protocol

Substance	Its Principal Uses	Situation in Canada
Pesticides		
Aldrin	Kills termites, grasshoppers and other insect pests	**X***
Chlordane	Crops, lawns and gardens	**X***
Chlordecone	Controls leaf–eating insects, ants and other insects	**X**
DDT	Malaria control	**X***
Dieldrin	Controls termites, textile pests and other insects living in agricultural soils	**X***
Endrin	On cotton and grains as well as against mice	**X***
Heptachlor	On cotton and crops	**X***
Hexachlorocyclohexane (HCH)	Lindane is the most widely used form of HCH. Used mainly in seed treatment	HCH as a pesticide (excluding lindane): **X** lindane: ✓
Mirex	Combats fire ants and termites. Also used as fire retardant in plastics	**X***
Toxaphene	On crops and livestock to control ticks	**X***
Commercial chemicals		
Hexabromobiphenyl	Flame retardant	✓
Hexachlorobenzene (HCB)	In fireworks and synthetic rubber. Also used as a pesticide	Pesticide: **X*** Other uses: ✓*
Polychlorinated Biphenyls (PCBs)	In electric transformers, in paint and plastics	✓*
By–products or contaminants		
Dioxins	Produced unintentionally due to incomplete combustion, as well as during the manufacture of pesticides and other chlorinated substances	✓*
Furans	Formed along with dioxins	✓*
Polycyclic Aromatic Hydrocarbons (PAHs)	Produced unintentionally due to incomplete combustion	✓

X Use is prohibited
✓ Use or emission is currently allowed, subject to federal or provincial regulations or other pollution prevention initiatives.

* Targeted for virtual elimination from the environment under federal policy (see Chapter 4 for details). Many of these substances have long been banned in Canada (e.g. DDT), but are still targeted for virtual elimination as part of Canada's commitment to take action on these substances domestically and internationally.

Chapter 7

Building a Sustainable Organization

The View From the Top

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Building a Sustainable Organization

The View From the Top

Main Points

7.1 Virtually all of the executives and senior managers interviewed in both the public and private sectors said they understand and accept the importance of considering the environmental impacts of their decisions. Environmental issues are moving from being only operational concerns related to emissions, wastes and resource consumption. Increasingly, environmental impacts present strategic challenges for organizations, with global climate change being one of the most significant challenges to date for both corporations and governments.

7.2 Many of the senior managers told us that while their organizations are building environmental considerations into how they do their business, the social implications of their activities are attracting increasing attention. They are being asked to respond to a wide range of issues that vary considerably across organizations. Senior managers highlighted the need to integrate values alongside hard data or scientific evidence when considering the social dimension of sustainable development.

7.3 During our interviews, senior managers consistently drew to our attention the opportunities that they see in proactively responding to such concerns. Time and again we heard from both corporate and government senior managers that achieving and maintaining competitive advantage is a key motivator and significant benefit of addressing sustainable development.

7.4 The view from the top is that building strategies, and hence organizations, that deliver economic, environmental and social value is essential to securing the future success of both corporations and government departments.

Background and other observations

7.5 This study discusses how 17 organizations in North America and Europe are working to build environmental and sustainable development considerations into the way they do business. These organizations face pressures from a range of sources: regulators, customers, employees, interest groups, shareholders, and the public at large.

7.6 The focus of the study is on the role of senior management in building a sustainable organization. We present lessons learned from senior managers in both the public and private sectors on why and how their organizations are changing in response to the challenges and opportunities that sustainable development presents.

7.7 In addition, we found that organizations are using a variety of approaches to make progress toward sustainable development. They are thinking in terms of "sustainable systems" — such as sustainable building design and construction, energy, and distribution — and situating their organizations within them. They are addressing complexity by engaging outside experts and stakeholders to work with their organizations to help them better understand the issues and their implications. They are building alliances to combine their individual efforts and promote new solutions. They are using research and education to overcome resistance to change. They are

developing new tools to support decision making, education and performance measurement. And they are implementing the management systems needed to monitor actions and support continuous improvement.

Introduction

7.8 Both public and private sector organizations are under mounting pressure to strengthen their environmental performance and to contribute to the social well–being of their communities. In our 1998 Report Chapter 5, we described efforts of organizations to respond to these pressures as the "journey toward sustainable development" and identified the four stages in this journey, and their characteristics (see Exhibit 7.1). We noted that this journey is an exploration of new ways of thinking and acting. It is a process of change that is focussed on better integration of economic, environmental and social considerations into decision making.

Exhibit 7.1 is not available, see the Report.

7.9 Chapter 5 looked at seven organizations recognized for their efforts in moving toward sustainable development. Our focus was on how those organizations were integrating sustainable development into their management practices. We found that they were broadening their perspectives on corporate strategy by expanding their time horizons, the field of contributors and the range of options they considered. They also applied sound management practices to strategy implementation: setting clear and measurable goals and targets; monitoring progress; and making modifications where necessary.

7.10 As in any significant organizational change, senior management plays a key and active role in developing and implementing strategy. Our case studies last year showed that chief executive officers, ministers and/or boards of directors were actively involved in designing their organizations' environmental and social strategies and guiding their implementation. They communicated the importance of the change effort clearly and consistently to both internal and external audiences. And they committed the resources necessary to achieve progress and deliver tangible benefits to their organization.

Focus of the study

7.11 This chapter builds on our earlier work by focussing directly on senior management. In our 1998 Report, our objective was to learn how organizations are managing for sustainable development. In this study, our primary objective was to learn from senior managers why their organizations are changing in response to the challenges and opportunities presented by sustainable development.

7.12 The study is based on interviews with 51 executives and senior managers in 17 organizations. Eleven of the organizations are in the public sector and six are in the private sector. They were drawn from the agriculture, building design and construction, energy, health, industry and transportation sectors in North America and Europe.

7.13 The study participants are listed in Exhibit 7.2 and background information on them is presented in the Appendix. Further details on the study can be found in **About the Study** at the end of the chapter.

Exhibit 7.2

Study Participants

These organizations were drawn from the agriculture, building design and construction, energy, health, industry and transportation sectors in North America and Europe.

Study Participants

Private Sector Companies

ASG
British Petroleum
Electrolux
William McDonough + Partners
Novartis
J Sainsbury

Public Sector Organizations

Department of the Environment, Transport and the Regions, United Kingdom
Health Canada
Ministry of Economic Affairs, the Netherlands
Ministry of Food, Agriculture and Fisheries, Denmark
Ministry of Health, Welfare and Sport, the Netherlands
Ministry of Transport, Building and Housing, Germany
Ministry of Industry and Trade, Sweden
Ministry of the Environment, Sweden
Natural Resources Canada
Swedish National Energy Administration
Swedish Environmental Protection Agency

Observations

Why Organizations Are Changing

Shifting focus: From operations to the boardroom

7.14 From our discussions with senior managers, we noted a discernible shift in attention to sustainable development by both public and private sector organizations. Environmental issues are moving from being only operational concerns about emissions, wastes and resource consumption. Increasingly, environmental impacts present strategic challenges for both corporations and governments, one of the most significant to date being global climate change. Further, senior executives are focussing more on social issues as they seek to respond to the emerging requirements of socially responsible management. These developments illustrate the shift in attention from environmental management of operations to strategic consideration of sustainable development in the boardroom.

Environmental considerations are a necessary part of decision making

7.15 **Acknowledging environmental trends and impacts.** Virtually all senior managers interviewed said they understand and accept the importance of considering the environmental impacts of their decisions. While private and public sector organizations have responded to a range of specific environmental issues in the past, there is general recognition that population growth and increasing use of resources will lead to new environmental concerns in the future. Generally, the organizations we spoke with agree that environmental considerations are here to stay and that their role as driving forces of innovation and strategy will continue to increase.

7.16 Exhibit 7.3 shows global trends and related environmental impacts as presented by Electrolux in its 1997 corporate environmental report. The company sees these trends and environmental problems translated by society into regulations, a general need to limit resource consumption and increased market demand for products with

reduced environmental impact. For Electrolux, these driving forces are simply part of its business context. As such, they are a stimulus to the company's strategic direction.

Exhibit 7.3 is not available, see the Report.

7.17 Senior managers in the public sector identified numerous environmental issues and specific incidents that have required public policy responses in recent years. Some of these are local, such as contaminated industrial lands, air and water pollution and food safety and quality. Others are global such as climate change. Many of the public sector organizations we met with find the pressures of growing populations, increasing resource use and the resulting environmental impacts reflected in public opinion. This has led to strong support for environmental issues and to increased demand for government action to address environmental concerns.

7.18 **Improving environmental efficiency.** The private sector corporations we spoke with have integrated environmental considerations into their operational decision making. They are reducing their impact on the environment and the associated costs and liabilities. They have undertaken extensive efforts to minimize waste and emissions to air, land and water, and to reduce their use of raw materials, energy and other resources.

7.19 In the public sector, the same global trends and their resulting environmental impacts are leading government managers to recognize a need to encourage and support better management of environmental resources. The departments we spoke with have taken action to:

- promote pollution prevention;
- develop programs to increase public awareness and education about environmental issues;
- use procurement programs to support environmentally preferable options;
- provide incentives for development of new, more environmentally friendly technologies; and
- provide specific guidelines and planning tools to help clients minimize their impacts on the environment.

7.20 **Developing more sustainable solutions.** Senior managers stressed the importance of finding efficient and effective solutions to environmental problems. In the companies we spoke to, the focus has shifted from the bottom–line goal of reducing expenses to the top–line strategic objective of enhancing business opportunities. As one corporate executive noted, "Responding to environmental issues is the biggest strategy change ever in Electrolux's history. It's a massive change. We need to change the mindset of business and our company and to change the minds of the consumers."

7.21 These companies are changing their business strategies by:

- supplying products that reduce customers' operating costs;
- creating demand for products that are more environmentally efficient;
- moving from selling products to providing services with fewer environmental impacts; and
- developing new, more sustainable solutions to customer needs.

7.22 Novartis is working on a number of alternatives in its agribusiness. In its 1997 Health, Safety and Environment Report, the company states:

> We believe that our Crop Protection products will play an important role in achieving sustainable agriculture. As the world's population is growing, its food needs are also increasing. Ploughing under more land is not the best solution from an environmental perspective. Crop Protection products help to intensify the agricultural yield on available land, as do our Seeds products. Our nutrition business is also exploring ways to increase nutritional yields.

7.23 Senior managers realize that the benefits of this shift in focus include increased revenues and stronger customer relationships. The ultimate objective is to provide enhanced value to their shareholders. They see minimizing the negative environmental impacts of their products and processes and delivering products and services that provide more sustainable solutions as compatible and, in fact, necessary components of improved shareholder value.

7.24 In the public sector, environmental impacts also are acknowledged to be a major consideration in policy making. For example, the Ministry of Economic Affairs in the Netherlands recognizes the importance of integrating economic and environmental factors. As expressed in its *Policy Document on Environment and Economy — Towards a Sustainable Economy*, the Ministry wants to make resource use throughout the country far more efficient and to translate this into economic advantage.

> The aim is to achieve an *absolute decoupling* of environmental pressure and economic growth, in other words to generate economic *growth* combined with a *reduction* in environmental pressure. Production, consumption and vehicle use will therefore have to be made far more efficient than they are at present.... This challenge can and must go hand–in–hand with a strengthening of the Dutch economy and job creation. Gains in environmental efficiency will then be translated into economic gains, partly due to a more efficient use of scarce resources.

7.25 While legislation and regulation are the primary tools of government, we heard considerable discussion of the need to assess the potential contribution to sustainable development of a variety of policy options, including voluntary agreements, economic instruments and "greening" the fiscal system. Senior managers in government communicated to us the significance of providing both short–term and long–term goals, objectives and programs to minimize environmental damage. They also discussed the need to provide a long–term policy framework to support industry's development of more sustainable technologies. In this way, government decisions can effect necessary immediate action while providing a consistent policy and regulatory framework to support innovation.

7.26 The Swedish government has produced a strategy to develop a sustainable energy supply, in response mainly to public opinion. The strategy addresses the dual goals of improving energy efficiency and developing more sustainable long term–solutions. It is described in a government bill on a sustainable energy supply as follows:

> A new energy policy programme is introduced to promote the transformation of the energy system. The programme includes measures aimed at, in a cost–efficient manner:
>
> - decreasing the consumption of electricity for heating purposes,
> - utilizing the existing electricity system more efficiently, and
> - increasing the supply of electricity and heating from renewable energy sources....
>
> The main direction of the energy policy programme involves energetic long–term support to research, development and demonstration of new energy technology. The object is to increase substantially, over the next

ten to fifteen years, the production of electricity and heating from renewable energy sources and to develop commercially profitable technology for greater energy efficiency.

Social impacts are attracting increasing attention

7.27 The social dimension is an emerging challenge. Many of the senior managers told us that while their organizations are building environmental considerations into how they do their business, the social implications of their activities are attracting increasing attention. They are being asked to respond to a wide range of issues that vary considerably across organizations.

- For example, senior managers at British Petroleum told us that an important area for the company is dealing with its broad social responsibilities in developing countries. The company makes significant capital investments in those countries and it wants the investments to produce a return over their economic life. It believes that a continued economic return on these assets will be easier to obtain if stable social structures are in place, but the company is struggling with the appropriate contribution to those social structures.

- At Health Canada, senior managers told us that they are exploring the relationship between population health and sustainable development. A wide range of factors are recognized to contribute to population health: income and social status, social support networks, education, employment and working conditions, social environments, physical environments, personal health practices and coping skills, healthy childhood development, biology and genetic endowment, health services, gender and culture. Health Canada is studying the interactions among these determinants to be better placed in the future to advance its work in areas that support both population health and sustainable development objectives.

7.28 The social dimension is being considered within the broad context of socially responsible management. Organizations in both the public and private sectors are struggling to understand what the social dimension of sustainable development means for them and what they consider to be their social responsibilities. When considering the social dimension, many organizations are framing their discussions in terms of "socially responsible management".

7.29 Senior managers highlighted the need to integrate values alongside hard data or scientific evidence when considering the social dimension of sustainable development. According to a senior manager at J Sainsbury: "It is an issue of trust and expectations. Not just being legally compliant, not just doing what is scientifically correct, but being cognizant of societal values, your customers' values and those of others with an interest in your business, such as suppliers and local communities."

7.30 For example, British Petroleum, in its first social report, developed a set of policies that includes health, safety and environmental performance, business ethics, finance and control, employees and the company's relationships. The report also presents the work the company is doing with "people and communities where [it] operate[s] as a fundamental part of [its] contribution; an expression of belonging, but also of a wider responsibility." This wider responsibility includes being aware of the social impact of its activities; engaging positively with governments, community leaders and others to manage its impact on the basis of dialogue and partnership; and ensuring an overall beneficial impact to communities.

7.31 British Petroleum has learned that commercial success and a highly competitive performance are essential but not sufficient. "What we are learning... is that enduring success requires something more, and that the ability to make a positive contribution to society and to bring positive energy to the solution of its problems is the key to the development of genuine trust and to all the opportunities which flow from that trust."

7.32 While corporations are at a very early stage in understanding and responding to the emerging social agenda, they are clear in identifying their objectives and the anticipated benefits. Senior managers told us that they are taking

the social dimension of sustainable development into account for the same reason that they consider the environmental dimension to be important: it makes good economic sense. Specific objectives include:

- building strong relationships with customers;
- responding to public pressure for greater social accountability;
- protecting corporate reputations and brand image;
- working with suppliers and contractors to ensure commitment to social values; and
- being recognized as legitimate contributors to the evolving social agenda.

7.33 They also told us that the socially responsible company is better able to withstand the intense scrutiny of customers, the public, shareholders and the media. Further, it is better positioned to broaden its investor base to include a new type of investor — the "ethical" investor. For global corporations in particular, responding to these issues is seen as part of their responsibilities as a "world citizen".

7.34 **Links are being drawn between environmental and social issues.** Environmental and social issues are increasingly seen as interrelated. Senior managers are trying to understand the links between the quality of the physical and social environments, human well–being and community health. The types of issues that government managers are looking at include:

- promoting health, nutrition and education for individuals;
- promoting access to economic opportunity and social services for all citizens;
- maintaining the health of communities by addressing physical and social infrastructure needs, including social housing, transportation and community safety; and
- addressing social equity and human rights.

7.35 The Department of the Environment, Transport and the Regions in the United Kingdom has developed a policy framework to create a better, more integrated transport system to tackle transportation problems. From a health perspective, the Department's policy framework focusses on reducing pollution from transport, improving air quality, encouraging healthy lifestyles by reducing reliance on cars, reducing noise and vibration, and improving transport safety. Other social issues include better access to transportation for people living on low incomes, for those without regular access to a car, and for people with disabilities; reducing the fear of, and level of, crime on the transport system and promoting better working conditions for transport employees.

7.36 One component of this work has been the development of a strategy that would build a sustainable distribution system better able to deal with a wide range of distribution problems (see Exhibit 7.4). In addition to the environmental and economic challenges facing the distribution system, the Department has identified social issues such as safety, health, disturbance, access and equity as core elements of its sustainable distribution strategy. (See paragraphs 7.52 and 7.53 for more information.)

Exhibit 7.4 is not available, see the Report.

7.37 **Organizations are in the early stages of addressing the social dimension.** The overall impression we got from our interviews is that even leading organizations are in the early stages of thinking and acting on the social dimension of sustainable development. Unlike the environmental dimension, where there is more consensus on the

issues and approaches to dealing with them, the social dimension remains in its infancy; it is closer to the "coping" stage of the sustainable development journey (see Exhibit 7.1).

7.38 However, the organizations we spoke with are drawing on the lessons learned in their journey along the environmental dimension to guide their thinking about social considerations. They are communicating more openly and engaging with stakeholders to understand their concerns and identify solutions. They are anticipating emerging challenges in order not only to minimize costs but also to maximize the benefits of early action.

Turning challenges into opportunities

7.39 Senior managers talked about the many issues they are being asked to address as part of building environmental and social considerations into the way they do business. These issues are being raised by a wide range of their stakeholders: customers, suppliers, interest groups and the general public.

7.40 Senior managers recognize the opportunities in responding proactively to these issues. These opportunities include reinventing the organization, creating new products, developing new skills, establishing new relationships and providing solutions to the challenges of sustainable development.

Seeking competitive advantage

7.41 One overarching message repeated by most of the study participants — both corporate and government senior managers — was that achieving and maintaining competitive advantage is a key motivator and significant benefit of addressing sustainable development. Competitive advantage is being considered from a number of different levels: an individual company, an industry, and the economy as a whole.

7.42 Corporations are seeking competitive advantage by:

- adding environmental and social dimensions to their brand image;
- increasing their market share with new product and service offerings;
- attracting the best talent to their organization;
- addressing the social and environmental concerns of their stakeholders; and
- establishing a socially and environmentally responsible corporate reputation.

7.43 Electrolux, for example, is securing new markets and customer loyalty with products that minimize environmental impacts. The company's most recent corporate environmental report presents data on the increasing sales of products with the best environmental performance. In addition to increasing sales, the report notes that these products also are providing a higher profit margin to the company.

7.44 In the public sector, departments are looking to support competitiveness of their economies in the global marketplace. Policies and programs that encourage reductions in negative environmental impacts stimulate business to innovate. The benefit is that industries are better positioned to supply new technologies and products to satisfy growing markets for environmentally responsible goods and services.

7.45 In Denmark, policies and regulations that promote food safety and better environmental attributes have helped secure and expand export opportunities for the Danish agricultural industry. By providing tools to better

manage the use of pesticides and fertilizer and to develop an organic farming industry, the Ministry of Food, Agriculture and Fisheries is helping farmers capitalize on a growing European market for food products with enhanced environmental characteristics.

How Organizations Are Changing

7.46 The organizations we spoke to shared many insights on how they are changing. In this section, we highlight the major challenges identified by our interview participants. We have linked these with the approaches that senior managers discussed most often and the opportunities and benefits that are the result. We draw on examples from the organizations to illustrate specific initiatives and successes.

Situating the organization within a sustainable system

7.47 **Organizations are thinking through their role in a sustainable system.** Some organizations told us that they are thinking through what sustainable systems would look like and what part they should play in them. They said that the work they have done to date on sustainable development has changed their thinking about what their company or department will be doing in the future. It has encouraged them to take a much broader and longer–term view of what they do.

7.48 **Sustainable building design and construction.** The firm William McDonough + Partners told us about its efforts to build sustainable buildings. One of the firm's objectives is to design a building that will "purify the air, accrue solar income, produce more energy than it consumes, create shade and habitat, enrich soil and change with the seasons." This objective is in addition to designing buildings that address traditional bottom–line considerations such as enhancing the productivity of the buildings' occupants.

7.49 During the firm's work, a significant problem was identified. The materials needed to build a sustainable building were not available and existing materials were not designed in accordance with sustainable design principles. This encouraged the firm's founder to broaden his role in the system and form a company that designs sustainable products. The new firm, McDonough Braungart Design Chemistry, began by designing a line of fabrics that are free of toxic substances and decompose naturally. It is now receiving requests to use the design protocol for a range of applications "from molecules to transportation systems."

7.50 The firm designs according to the "cycles of the natural world, where nothing is wasted and everything old becomes food for something new." It uses three design principles that are outlined in Exhibit 7.5.

Exhibit 7.5

Sustainable Design Principles

Waste equals food. Each product must be designed to enter either a biological system, where it can decompose and become food for other living systems, or a technical system, a closed–loop industrial cycle in which technical materials continually circulate.

Use current solar income. Nature does not mine the past or borrow from the future to fuel its activities: it operates on current income in the form of solar power. It does not make good economic sense for humans to work out of capital reserves - for instance, to fuel operations with toxin–bearing petrochemicals extracted from deep under the earth's surface, or to use energy from incineration processes and nuclear reactors that create additional problems for present and future generations. As much as possible, designs should work with current income.

Respect diversity. Currently, a prevailing design agenda is to seek "universal" design solutions. In the field of architecture, for example, it is considered modern to build and operate the same building in vastly different ecosystems (for example, heating one building and cooling the other). This is what is known as the "International Style". But one size does not fit all. Material flows, spiritual flows, character flows, cultural flows and energy flows are all different in different places. To respect diversity means not only to protect and

preserve biodiversity and ecosystems, but also to solve local problems with local solutions that emphasize and maximize the regional, cultural and historical uniqueness of a place.

Source: McDonough Braungart Design Chemistry

7.51 Governments are thinking about "sustainable systems" and what their role would be in those systems. They are envisioning systems that would, to a large degree, maintain themselves, require minimum government intervention and be environmentally efficient.

7.52 **Sustainable distribution.** The Department of the Environment, Transport and the Regions in the United Kingdom is planning a sustainable transportation system. One component of this system is sustainable distribution. The Department is looking at how to deliver goods efficiently and with the least harm to the environment and the health of people. It has released a strategy document on sustainable distribution that examines the freight distribution system from a sustainable development perspective.

7.53 We were told the Department had changed its way of thinking about freight distribution, traditionally viewed as vehicles and movement divided by mode of transport. It is now considered an integrated component of supply chain management. The Freight Distribution and Logistics Group took a bottom–up approach to gather information from across departments on the various policies that affect freight distribution and logistics, their objectives and their effectiveness. Next, the Group took a ''big picture" approach to assess which policies were promoting an effective freight system and to identify gaps that needed to be filled. It consulted widely to learn the views of many stakeholders and developed a market failure framework to guide the analysis and consultations. Economic, social and environmental market failures were identified and used to develop a framework for a more sustainable distribution system. The objective of the framework is to provide solutions and give industry clear direction on the way ahead.

Addressing complexity

7.54 Sustainable development encompasses a myriad of complex, interrelated issues. It is a concept that can be difficult to translate into practice. Participants talked about the increasing demands placed on them to address multiple issues simultaneously, such as reducing resource consumption and waste generation while developing new products and being a constructive member of the community. They are seeking to understand the complex links between issues — for example, expanding urbanization and encroachment on rural areas and the need for transportation systems that minimize negative health impacts and support the development of strong communities. Exhibit 7.6 illustrates the challenges, approaches and opportunities related to addressing complexity.

Exhibit 7.6 is not available, see the Report.

7.55 **Engaging stakeholders and experts.** Most executives noted the value of engaging outside experts and other stakeholders to work with their organization to help it better understand the issues and their implications.

7.56 The 1997 Health, Safety and Environment Report of Novartis presents a multi–page overview of a one–day workshop that brought together 12 internal and external experts to answer the question, "What is the role of a forward–looking Health, Safety and Environment organization in a Life Sciences Company?" One of the key topics of discussion was how the company contributes to sustainable development. This is but one step in an ongoing engagement of stakeholders to help Novartis anticipate and respond to the challenges for its industry and the company.

7.57 British Petroleum's 1997 Social Report presents a one–page summary of environmental forums held during the year with representatives from government, environmental non–government organizations, the oil industry, universities and others. The 1997 London forum included a debate on what sustainable development means for British Petroleum. Participants' comments encouraged the company to plan to become an energy business rather

than a petroleum business and, through support for new technologies, help reduce demand for energy. They also encouraged the company to ‘‘think beyond the factory gate” and seek to influence consumer choice by adding value through services and not merely products.

7.58 **Redesigning the organization.** We took particular note of the number of senior managers who made references to redesigning their own organizations. While such efforts require considerable dedication by all personnel, the opportunities realized can be significant. These organizations are better able to integrate the knowledge already residing in their people. They are able to develop new, multidisciplinary understandings and perspectives that are essential to responding successfully to the complexity of sustainable development. Two overarching benefits are the creation of novel solutions and building commitment and enthusiasm on the part of employees.

7.59 Senior managers talked about redesign efforts that changed the nature of the discussion within their organizations. For example, the government of the United Kingdom faced a significant challenge in developing its policy framework on transportation. It wanted to develop a framework that integrated economic, social and environmental factors, cut across horizontal departmental boundaries, included all types of transportation, and linked national, regional and local plans; the framework would thereby give local people and business a real say and influence. The fact that the departments of Environment and Transport had recently been combined and given a strengthened regional policy mandate enabled the new department (the Department of the Environment, Transport and the Regions) to connect policies more easily. Managers found that the discussions around the boardroom table focussed more on the interrelationships between the various dimensions of sustainable development.

7.60 Natural Resources Canada told us that a change in organizational reporting structure led to the integration of scientific and policy expertise throughout the organization. The Department was forced to recognize and integrate the short–term time horizons of policy development with the long–term time horizons of scientific research. Reconciling these two time horizons is central to progressing toward sustainable development. This change is credited with helping to build sustainable development into the organizational culture of Natural Resources Canada.

Building collaborative relationships

7.61 The organizations we interviewed emphasized that the pursuit of sustainable development requires input and collaboration from all sectors of society. The global nature of sustainable development issues reinforces the need for and the challenge of building co–operative, collaborative relationships in order to make progress on the journey. Exhibit 7.7 illustrates the challenges, approaches and opportunities related to building collaborative relationships.

Exhibit 7.7 is not available, see the Report.

7.62 **Creating alliances and partnerships.** Senior managers recognize that their organizations cannot achieve sustainable development in isolation. Increasingly, corporations, governments and non–governmental organizations are seeking to establish alliances with strategic partners and sometimes former adversaries in order to realize their common objectives. Such relationships allow all parties to benefit by combining their individual efforts and building a critical mass for change. The credibility, influence and resources of the partners become mutually reinforcing. New options and innovative solutions can be the result.

7.63 The German government recognizes the concepts of innovation and partnership as crucial to sustainable development. As stated in its publication *The Concept of Sustainability: Prerequisites for Tomorrow’s Society*:

> An important key to solving problems which are associated with the objectives of sustainability are innovations at all levels of society in general, and technological innovations and optimisations in particular. The likelihood

of innovations which support sustainability increases with the number of groups in society that are willing to let themselves be guided by the shared model of sustainable development.

This means that the willingness and ability of politicians, business leaders and society as a whole to foster innovations in the broadest sense are indispensable for the necessary integration of the various dimensions of sustainability.

7.64 Many organizations see a need to take a holistic or life cycle approach to sustainable development. By examining the entire value chain of a product from raw material suppliers through processors and distributors to the use of the product by the customer, the key leverage points for improving environmental and social performance become apparent. Partners are then identified to develop solutions and bring about the necessary changes in products or processes.

7.65 J Sainsbury uses partnerships extensively to support environmentally responsible practices. In its Integrated Crop Management program, the company worked with farmers to develop crop protocols that use pesticides responsibly and use alternative biological and natural methods for the selective control of pests and diseases. The objective of their Living Landscape program is to develop ways of conserving and enhancing biodiversity on the farm in conjunction with the Farming and Wildlife Advisory Group. In this way, J Sainsbury works with its partner suppliers of livestock and produce to encourage them to implement Farm Biodiversity Action Plans. The motivation for the company is simple: "Future generations will need sustainable food production from a living countryside." Also, the company is involved with suppliers in three certification pilot projects under the Marine Stewardship Council to promote sustainable fishing practices.

7.66 **Horizontal management.** Sustainable development issues, by definition, are multidisciplinary and consequently cut across the activities of many groups within an organization and the mandates of many different organizations. This presents a particular challenge for governments where many departments may have some responsibility for a particular policy area. In that case, there is a need to break down the silos of departmental mandates in order to effectively collaborate and progress toward sustainable development. Our interview participants could identify no particular formula for building co–operation between departments. However, they did note the necessity for leadership from the top. Further, establishing a common, overarching goal with a specific timetable provides incentive to develop creative solutions that have widespread benefits for the organizations or country concerned.

7.67 In the Netherlands, early resistance by the Ministry of Economic Affairs to the first National Environmental Policy Plan waned as evidence of the win–win situation of economic development and environmental protection began to accumulate. Subsequently, the publication titled *Policy Document on Environment and Economy — Towards a Sustainable Economy* was produced jointly by the ministries of Housing, Spatial Planning and the Environment; Economic Affairs; Agriculture, Nature Management and Fisheries; and Transport, Public Works and Water Management. As we were conducting our research, discussions had begun with a group representing the ministries responsible for environment, social affairs and economic affairs to address the social dimension of sustainable development.

Learning for change

7.68 Senior managers highlight the need to overcome resistance to change and to develop positive responses to the changes that are needed to make development more sustainable. Organizations note that sustainable development itself is an agenda that is evolving as knowledge is gained about the environmental and social impacts of growing economic activity.

7.69 Senior managers recognize that resistance to change exists on many fronts. There is resistance within industry to new ideas, new technologies and new regulatory and market requirements. There is resistance within

government to getting too far ahead of public opinion on issues with wide–ranging ramifications. There is resistance by consumers to new methods of product and service delivery. And there is organizational resistance to new approaches, new structures and new demands on limited resources, both human and capital.

7.70 At the same time, senior managers also realize that they must develop organizations that are responsive to change and use a variety of approaches to achieve this. Exhibit 7.8 illustrates the challenges, approaches and opportunities related to learning for change.

Exhibit 7.8 is not available, see the Report.

7.71 **Research and development.** Investments in research and development support corporations as they seek to reposition and reinvent themselves and their services in order to secure their position in a sustainability–driven marketplace.

7.72 British Petroleum is investing in research and development for solar power as part of its efforts to move from being a fossil fuel company to an energy company and to move from delivering products to delivering services.

7.73 **Education**. Education raises awareness within an organization of environmental and social concerns as competitiveness–building opportunities. Sharing knowledge with clients and customers builds stronger relationships and supports collaborative efforts toward sustainable development.

7.74 Electrolux has placed part of its Eco Know How database and training program on its web site. Information is now available to consumers around the world that encourages the selection of products with the best environmental performance.

7.75 Training for employees contributes to the development of new skills and leads to improved employee engagement and enthusiasm. In the United Kingdom, the government, including the Department of the Environment, Transport and the Regions, is building employee expertise in the "softer" disciplines such as communications, consultation and social issues. The development of such skills is essential to decision making focussed on sustainable development. Employees report increased job satisfaction and motivation.

7.76 **Developing new tools.** Much of the knowledge and many of the tools needed to progress toward sustainable development still are being identified and developed. Some senior managers told us that the theoretical models of sustainable development and the linkages among the three dimensions are not well understood. They also said that data on the linkages between the social, environmental and economic impacts are sometimes unavailable for use in presenting an effective business case within their organization.

7.77 In order to fill this knowledge void, many of the organizations we spoke with undertake the development of new tools and information to support decision making, education and performance measurement.

7.78 Electrolux collaborates on its holistic approach to environmental management with The Natural Step Foundation. The Natural Step has developed a set of four system conditions as a compass to guide decision makers toward more sustainable alternatives. The company supports research at the Center for Environmental Assessment of Product and Material Systems in Sweden and the International Institute for Management Development in Switzerland.

7.79 ASG is participating with the Swedish Society for the Conservation of Nature to develop concrete tools such as "the transport buyer's environmental handbook".

7.80 **Sharing information.** Many organizations have a wealth of knowledge within their walls that covers a range of subjects, from the development of new technologies and more efficient processes and products to information databases on the relationships between environmental conditions and health impacts. The senior managers we met with appealed for a sharing of information and success stories among all organizations seeking progress toward sustainable development.

7.81 The Swedish government has recognized, in its policy for a sustainable energy supply, the importance of continuous and relevant information on price and market developments to create better conditions for well–founded decisions relating to investments and the purchase of equipment. It also recognizes that consumer knowledge about energy use and greater efficiency should be improved. The Swedish National Energy Administration is developing information programs aimed at specific consumer groups, industry, and regional and local organizations.

7.82 The National Institute of Public Health and the Environment in the Netherlands has produced a research document *Public Health Status and Forecasts 1997: Health, prevention and health care in the Netherlands until 2015*. It presents data on health, disease and health care and provides support for the development of a long–term vision of Dutch health care. It also includes data on life expectancy, quality of life, health inequalities and the determinants of these inequalities. The vision potentially affects many ministries, provincial and local governments, municipal and regional health services and others. Two purposes of the research document are to stimulate discussion and to contribute to evidence–based policy making.

Turning talk into action

7.83 Turning talk into action requires the engagement and commitment of all employees. Achievement of action requires clear and measurable objectives, goals and targets and a management system that monitors progress and reinforces continuous improvement. For example, J Sainsbury took such a systematic and comprehensive approach to turning talk into action.

7.84 J Sainsbury has an environment committee of the parent company's board of directors, to which each subsidiary company sends a board level representative. The company has six goals that have been set based on key issues for its business. There are 25 targets that translate the goals into measurable activities. The goals and targets were established at the corporate level, with the retail subsidiaries in the United Kingdom adopting the relevant ones. Each target has a divisional director–owner who has been identified and briefed on what is expected. The goals and targets are referred to in divisional business plans, and cascade into the personal agendas of individual staff. Three times a year, each individual's performance is subject to an appraisal that includes any environmental targets. The corporate goals are thus translated into the performance appraisal mechanism, so that monitoring of target achievements is integrated into standard business practice. Accountability under this system is completed with the publishing of a corporate environmental report that is subjected to external verification.

Conclusion

7.85 We undertook this study to learn from senior managers in both the private and public sectors why and how their organizations are responding to the evolving agenda of sustainable development.

7.86 We heard from both sectors that the environmental dimension of sustainable development is understood and accepted as a driving force of innovation and strategy. Environmental considerations are perceived as sources of competitive advantage motivating both public and private sector organizations.

7.87 The social dimension of sustainable development, while still emerging, is increasingly joining the environmental dimension as a strategic consideration. The issues are many and varied. Organizations are looking broadly at their contribution in this area.

7.88 A number of organizations are looking beyond environmental efficiency to think in terms of sustainable systems and their place in such systems. Environmental, social and economic impacts of transportation, energy, food and health systems are being examined by organizations in both the private and public sectors.

7.89 The organizations we spoke with are seeking to turn challenges into opportunities. Time and again we heard from both corporate and government senior managers that achieving and maintaining competitive advantage is a key motivator and a significant benefit of their activities to address sustainable development issues.

7.90 Senior managers consistently drew to our attention the complexity of the sustainable development agenda: the need to address multiple issues simultaneously and the need to understand the complex linkages between issues. They are engaging experts and other stakeholders to assist in identifying and understanding the issues. And they are redesigning their organizations to stimulate new knowledge, new perspectives and novel solutions while building commitment from all personnel.

7.91 Participants emphasized that the pursuit of sustainable development requires input and collaboration from all sectors of society. The global nature of sustainable development issues reinforces the need to build co–operative, collaborative relationships in order to make progress on the journey. Through alliances and partnerships, organizations are able to combine their individual efforts and promote solutions that focus on the most significant aspects of their product chain, industry or mandate.

7.92 Both corporate and government senior managers highlight the need to overcome resistance to change and to develop positive responses to the changes that are needed to make development more sustainable. Through education and research, they are able to raise awareness, build relationships, develop new skills and reposition their organizations to embrace and adapt to change. The journey toward sustainable development is still in its early stages. As a result, the needed knowledge and tools are still being identified and developed. But there are many efforts under way to address these needs.

7.93 The view from the top is that building strategies, and hence organizations, that deliver economic, environmental and social value is essential to securing the future success of both corporations and government departments.

About the Study

Objectives

The study was undertaken to draw Parliament's attention to approaches currently being used to manage for sustainable development. This information is valuable to assist parliamentarians in assessing the sustainable development strategies of departments.

The objectives of this study were:

- to describe the perceptions and understanding of senior managers about managing for sustainable development;
- to identify management practices, including tools and approaches, used to manage for sustainable development;
- to identify opportunities and constraints to improve managing for sustainable development; and
- to identify the drivers and barriers affecting the integration of sustainable development into decision making.

Scope and Approach

This study builds on our 1998 Report Chapter 5, Expanding Horizons - A Strategic Approach to Sustainable Development. That study described the stages of the journey toward sustainable development and provided examples of good practices of managing for sustainable development.

This study is based on interviews with 51 executives and senior managers in 17 organizations. Eleven of them are in the public sector and six are in the private sector. They were drawn from the agriculture, building design and construction, energy, health, transportation and industry sectors in North America and Europe. Interviews were conducted with up to five senior managers in each of the organizations. In addition, we reviewed documents provided by the participants. For each sector, we invited a Canadian federal department, a private sector corporation and a department in another country to participate.

Of the six Canadian federal departments invited to participate, three departments accepted our invitation: Health Canada, Natural Resources Canada and Transport Canada. Interviews with senior managers in Health Canada and Natural Resources Canada were conducted and have contributed to this report. We were unable to schedule interviews with Transport Canada on a timely basis. Agriculture and Agri–Food Canada, Industry Canada and Public Works and Government Services Canada declined our invitation.

Study Team

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Appendix

Study Participants — Background Information

Private Sector

ASG

The vision of ASG, based in Sweden, is ‘‘to be the Nordic region’s leading transport and logistics company.” The company develops, markets and produces efficient transportation and logistics services. According to its 1997 Environmental Performance Report, “its overall business objectives include financial targets, satisfied customers and satisfied staff. The environmental work which supports these objectives is conducted in accordance with a strategy called ‘Resource–based management’. The concept means that the company’s production resources, i.e. priced resources, free natural resources, and ethical values, shall be managed in an integrated way. The introduction of resource–based management is based on two stages, the first of which aims at greater resource efficiency and thereby greater profitability along with reduced environmental impact.... The second stage entails a changeover to renewable raw materials and means of production.”

British Petroleum

British Petroleum is one of the world’s largest petroleum and petrochemicals groups. Its main activities are exploration and production of crude oil and natural gas; refining, marketing, supply and transportation; and manufacturing and marketing of petrochemicals. It has a growing activity in solar power generation. The company publishes reports on financial and environmental performance and released its first social report in 1997. The company’s environmental goal is ‘‘no damage to the environment,” and it has made a commitment ‘‘to drive down the environmental and health impact of [its] operations by reducing waste, emissions and discharges, and using energy efficiently.” Looking to the future, it sees that ‘‘making the transition to sustainable development is one of the key challenges facing the world in the new millennium. The part [it plays] in this transition will be a key aspect of [its] social performance in the years ahead.... [Its] challenge ... is to *position* itself so that all [its] businesses and operations are equipped to play a positive role in bringing about the transition to sustainable development.”

Electrolux

With its headquarters in Sweden, Electrolux is one of the world’s leading manufacturers of indoor and outdoor household appliances, and of corresponding products for professional users. In its environmental vision, it states, “Protection of the environment is a key to long–term survival for the individual, for corporations and for society, in general. All our activities must be adapted with regard to the limits that nature can accept in the form of resource consumption and pollution. Care for the environment will be a continuous component of our operations, as well as the hallmark of our daily work.” Electrolux’s strategy is to “lead the development of environmentally sound products and processes [and] work to create demand for environmentally sound products.”

William McDonough + Partners

William McDonough founded his architecture firm in 1981, and in 1994 was appointed Dean of the School of Architecture at the University of Virginia. Mr. McDonough is the leading conceptualizing force and client contact on all projects. The firm's approach to architecture "is designed to accommodate complex aesthetic, economic and performance criteria into buildings, which embody ecological intelligence and intergenerational justice: elegant, affordable, safe and sustainable architecture." The firm has won the Business Week/Architectural Record Award for the past two years, and in 1996 won the U.S. Presidential Award for Sustainable Development.

In 1995, William McDonough and Michael Braungart founded McDonough Braungart Design Chemistry. This firm partners with companies on in–depth, multifaceted analysis and synthesis of products and processes to comply with a series of protocols for ''sustainable design". With its industrial partners, it is improving comprehensive design, product distribution, and recovery protocols utilizing the McDonough Braungart Design Protocol( ).

Novartis

Novartis is a global leader in the life sciences, and is committed to improving health and well–being through innovative products and services. Its core businesses include healthcare, agribusiness and nutrition. Its Health, Safety and Environment Policy states that "we conduct our activities in harmony with society and nature and without compromising the health and safety of our stakeholders." Novartis is also exploring how it can contribute to sustainable development: ''Sustainable Development is a goal we want to approach by continuously improving our internal production performance and by offering innovative products and services that contribute to greater eco–efficiency. We also want to increase our scientific know–how in this field and take steps toward refining measurements so that they reflect our progress towards sustainability.... We believe that our Crop Protection products will play an important role in achieving sustainable agriculture.... Our nutrition business is also exploring ways to increase nutritional yields."

The company has established the Novartis Foundation for Sustainable Development, which is dedicated to helping the world's poorest communities through developmental projects in agriculture, health and social work.

J Sainsbury

J Sainsbury is one of the world's leading retailers, operating three separate store chains and a bank in the United Kingdom and one store chain in the United States. The company's environment policy states, "We recognize that virtually all the activities of an organisation or individual have some impact on the environment. Our aim is to reduce the impact of our own organisation through a programme of continuous improvement." The policy goes on to elaborate nine key components, including quantifying and monitoring all environmental impacts, integrating environmental objectives into business decisions, influencing suppliers, enhancing awareness of customers, staff and others and regularly publishing information on environmental performance.

Public Sector

Department of the Environment, Transport and the Regions, United Kingdom

The aim of the Department of the Environment, Transport and the Regions is "to improve the quality of life by promoting sustainable development at home and abroad, fostering economic prosperity and supporting local democracy." Some of the main policy areas the Department is pursuing are implementing an integrated transport

policy to fight congestion and pollution; developing policies to tackle climate change, to improve the quality of air and water and to improve the management of waste; and a review of planning for housing in the light of forward projections of housing needs.

Health Canada

The mission of Health Canada is "to help the people of Canada maintain and improve their health." In its first sustainable development strategy, the Department "begins to explore the relationship between sustainable development and health." The strategic themes include the following:

- Promoting and Supporting Population Health: Opportunities to contribute to sustainable development through a population health approach and through our intention to more fully explore the linkages between population health and sustainable development.

- Identifying and Reducing Health Risks from the Environment: Opportunities to address health risks of environmental origin.

- Strengthening Partnerships on Health, Environment and Sustainable Development: Opportunities for collaboration with other federal departments, provincial and territorial governments, First Nations and Inuit communities and organizations, as well as health professionals, health advocates, consumers and researchers.

Ministry of Economic Affairs, the Netherlands

The main task of the Ministry of Economic Affairs is to ensure an efficient Dutch economy with a strong, dynamic private sector capable of competing with the rest of Europe. The Ministry's position on environment and economy is that economic growth "must not be allowed to compromise environmental interests, nor should environmental considerations be allowed to restrict economic progress. The Ministry of Economic Affairs is working to achieve sustainable economic growth, combined wherever possible with environmental improvements. It is, for example, encouraging companies to develop and use environmentally friendly technologies, and is concluding agreements with industry to keep harmful emissions to a minimum."

Ministry of Food, Agriculture and Fisheries, Denmark

The Ministry of Food, Agriculture and Fisheries was established to provide "for co–ordinated food production, from its origins in the soil or sea and until it ends on the tables of the consumers. The co–ordinated approach is seen as a clear advantage for consumers, the retail sector, the processing industry, farmers and fishermen." The objectives of the Ministry are to:

- ensure that the food produced and marketed is healthy and of high quality;

- ensure a high degree of consumer awareness;

- promote production conditions that preserve the resources of agriculture and fisheries, protect the environment, and encourage animal welfare and good working conditions; and

- promote economically viable production and marketing within the ministry's mandate.

Ministry of Health, Welfare and Sport, the Netherlands

The Ministry of Health, Welfare and Sport promotes the health and independence of citizens and their participation in society, thereby contributing to the quality and stability of society. The Ministry promotes special attention for those who are unable to support themselves, either temporarily or permanently. The aim of Dutch health policy is to extend the healthy life expectancy of the population, to avoid untimely death and to improve the quality of life for people with a disease or disability. Prevention is directed toward the early recognition and prevention of disease; the policy is additionally aimed at improving conditions that may give rise to diseases, such as lifestyle, environmental pollution, traffic hazards and poor working conditions.

Ministry of Transport, Building and Housing, Germany

In the building and housing component of the Ministry, sustainable development means that it is necessary to find compromises between the need for dwelling units and workplaces, the desire for leisure and recreational areas and the preservation of natural resources. The Ministry gives priority to the following policies: rely on the existing housing stock and make flexible use of that housing stock, rather than focussing on new housing construction; encourage urban renewal over urban expansion; redevelop industrial wasteland rather than erecting new buildings on greenfield sites; and encourage energy conservation in the existing housing stock over the construction of new minimum energy buildings.

Ministry of the Environment, Ministry of Industry and Trade, Swedish Environmental Protection Agency, Swedish National Energy Administration, Energy Sector

Sweden has been working for the last 25 years on environmental protection and has made significant improvements. For example, industrial emissions have declined, air and water are cleaner, and animal populations are recovering. The Ministry of the Environment submitted a document to Parliament in 1997 entitled “Towards an ecologically sustainable society”. An ecologically sustainable society is defined as “a society in which human activity does not damage health, climate or ecosystems. It is a society geared to renewable resources and conserving the resources available so that there will be enough of them for everybody, today and in the future.” The Swedish Environmental Protection Agency works with ministries and agencies to establish long–term goals and short–term targets. The Swedish government has a long–term goal of establishing a sustainable energy system. The objective is to increase the use of renewable energy sources and make energy use more efficient. The Ministry of Industry and Trade has established short–term and long–term programs to meet those objectives. These programs include grants for investment in combined heat and power systems using bio–fuels, wind power, and small–scale hydroelectric power, and long–term research and development on more efficient energy technologies. The Swedish National Energy Administration is in the process of implementing these programs.

Natural Resources Canada, Energy Sector

Natural Resources Canada has sustainable development in its legislative mandate. It has a general duty to “have regard to the sustainable development of Canada’s natural resources and the integrated management thereof.” The mission of its Energy Sector is “A Better Energy Future for Canada.” Its aim is “to enhance the economic and environmental well–being of Canada by fostering the sustainable development and use of the nation’s energy resources to meet the present and future needs of Canadians. Through our science and technology, policies, programs and international work, we promote better environmental and consumer choices, contribute to job creation and economic growth, facilitate environmental protection and increased public health and safety, and help to ensure secure and reliable energy supply for Canadians.”

Chapter 8

Greening Government Operations

Measuring Progress

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Greening Government Operations

Measuring Progress

Main Points

8.1 Departments are modifying their management systems to measure and report on the environmental and financial performance of their internal operations. While the key objective of greening operations is to reduce environmental impacts, departments may obtain large potential financial and environmental benefits from collecting, combining and using such information. Based on only one aspect of departmental operations, energy use in buildings, the net present value of the net savings is likely to exceed $300 million over 20 years.

8.2 We are concerned that most departments are not yet in a position to collect the necessary information to track their environmental performance and realize the potential benefits. We are also concerned that there is no basis for reporting progress to Parliament in a consistent and comparable form across departments. In addition, we have no assurance of central leadership to ensure that comparable measurements are made. As a result, Parliament does not possess sufficient information to exercise its oversight role. The capacity of individual departments, and the government as a whole, to effectively manage the environmental effects of their operations is at risk.

Background and other observations

8.3 We examined the experiences of two departments, Agriculture and Agri–Food Canada and Public Works and Government Services Canada, with implementing environmental performance measurement. These two departments have made significant progress. They are now facing the continuing challenges presented by incomplete data, and the need to implement new information systems and to sustain management support. Public sector organizations in other jurisdictions are also making progress in breaking down the barriers to effective measurement of their environmental performance.

8.4 We found that measuring environmental performance is practical and feasible for government departments. Collecting baseline information demands a flexible approach and strong and sustained commitment by senior management. Better measurement promotes due diligence, helps manage costs and supports progress on government–wide environmental objectives. Departments have several options for integrating financial and environmental information to identify and capture the potential financial savings.

8.5 Next year, in the third phase of this five–year project on accounting for sustainable development, we will provide Parliament with a status report for all departments, describing progress toward better environmental performance information.

The two departments we worked most closely with this year, Public Works and Government Services Canada and Agriculture and Agri–Food Canada, provided responses to this study. Public Works and Government Services Canada made a commitment to evaluate and report on its environmental performance annually. In addition, it stated that it will continue to support interdepartmental efforts to develop common environmental performance measures for operations. Agriculture and Agri–Food Canada will continue to develop an approach to managing its environmental information. The Treasury Board Secretariat also responded to the study, indicating that it will continue to participate in interdepartmental efforts to develop common environmental performance measures.

Introduction

Departments need to measure their contribution to sustainable development

8.6 How do Canada's federal departments and agencies contribute to sustainable development? Some contribute by rethinking how they operate their buildings, run their vehicles and manage the land they occupy. This chapter is about the efforts of some departments to measure, and then reduce, the environmental impacts from their operations.

8.7 As departments go through the process of organizational change, shifting toward sustainable development, they need good information. They need to know the broad policy directions they are taking — the goals and objectives — as well as the more detailed targets. And they need information to measure their progress against their goals, objectives and targets. For example, the government has set targets for the use of alternative fuels in its motor vehicles, and needs accurate information to assess its progress against the targets.

8.8 There are three different audiences for information on progress toward sustainable development. For departmental managers, tracking progress and delivering good results is part of their job. At a broader level, the Canadian public wants to know whether the federal government is meeting its commitments, both domestically and internationally. For example, has the government met its target for reducing solid waste? Between these two is Parliament, with its essential oversight role for government activity. Parliament needs useful reports to hold the government to account on its promise to implement sustainable development throughout its extensive physical operations.

This study is part of a long–term project

8.9 The Commissioner of the Environment and Sustainable Development is committed to a long–term effort to improve the information available for departmental decision makers, to help them make better decisions. Last year, we began a five–year project on accounting for sustainable development (see Appendix A - Glossary). The main emphasis of the project is on building the capacity of departments and agencies to implement some key elements of sustainable development. The two project objectives relevant to the work reported in this chapter are:

- to help departments with custodial responsibilities to build the tools necessary to integrate considerations of environmental and social effects into capital and operating decisions; and

- to help departments create the baseline reference information necessary for credible, relevant and consistent measures of their sustainable development performance.

8.10 The first chapter for this project was tabled in the House of Commons in May 1998 as part of the Report of the Commissioner of the Environment and Sustainable Development (Chapter 7 — Counting the Environment In). Chapter 9 of this year's Report (Greening Policies and Programs: Supporting Sustainable Development Decisions) is a companion to this chapter and reports on our work during the past year on integrated decision making for policies and programs.

Focus of the study

8.11 Building on the successful approach we took in the first year of the project with Agriculture and Agri–Food Canada, we have emphasized the internal operations of departments and agencies. We have also focussed on the

environmental and financial aspects of their performance. The social dimension will receive more attention in future chapters.

8.12 We undertook two detailed case studies in co–operation with two departments. Public Works and Government Services Canada, the major custodian of federal buildings, was implementing an environmental management system. While each branch of the Department is expected to develop its own environmental management system, Real Property Services Branch has the primary custodial responsibilities. Thus it is a key player in improving the federal government's overall environmental performance and is the subject of our first case study.

8.13 The second case study continued our collaboration with Agriculture and Agri–Food Canada. Our work centred on the implementation of its environmental management system. The first step in the implementation process, as identified in last year's Commissioner's Report, was to gather and consolidate baseline environmental information across the Department's decentralized operations.

8.14 We believe that the two departments involved in the case studies have had relevant experiences that other departments could use to advantage. We have therefore identified some of the practical lessons, for Parliament and for other departments. To put the experience of Canadian departments in perspective, we interviewed five public sector organizations from other jurisdictions that have been working on environmental performance measures.

8.15 We continued our work with several other Canadian custodial departments, in particular through a workshop held in the spring of 1998 to address the issues of common performance measures for operations. We also maintained our involvement with the interdepartmental Committee on Performance Measurement for Sustainable Government Operations and with the Federal Committee on Environmental Management Systems.

8.16 For more information on the overall project and this study, see **About the Study** at the end of the chapter.

Observations

The Stakes Are High

The government could obtain significant benefits

8.17 **Current direct costs.** A recent study prepared for Environment Canada estimated the federal government's annual expenditures in several aspects of their operations — aspects with potentially adverse effects on the environment. These include:

- procurement — $11.6 billion spent on goods and services;
- building energy consumption — 64,000 buildings and facilities spending $800 million on energy;
- water — $100 million spent on water supply and disposal;
- fleet — 25,000 vehicles using $21 million in fuel; and
- waste — 95,000 tons of office waste costing $6.5 million for disposal.

These crude estimates cover only ongoing operations; they do not include capital costs (associated with, for example, purchase of new vehicles or construction of new facilities). The Treasury Board Secretariat has since estimated fuel costs to be double the earlier figure.

8.18 **Potential direct financial benefits.** There are significant opportunities for both cost savings and reduced environmental impacts. In our 1998 Report, we cited an estimate that net savings from implementing energy conservation measures across the government could be $29 million per year by 2005. We concluded that the magnitude of those expenditures was sufficient to warrant further study of the potential for cost reduction opportunities.

8.19 This year, we developed an estimate for one aspect of departmental performance — energy use in buildings. Savings could result from such measures as lighting retrofits and changes to heating and cooling systems. Based on updated information, we estimate that, for building energy costs, the potential savings are likely to be substantially higher — between $60 million and $120 million per year. We estimate a net present value for the net savings of between $300 million and $600 million (1999 dollars) over the next 20 years. Appendix B provides further details of this rough estimate. Without good environmental performance information, it is not possible to develop accurate estimates of the potential cost reductions or to track progress toward them.

8.20 **Potential environmental benefits.** Environmental stewardship or compliance with regulations that lead to improved environmental quality may result in higher expenditures for the federal government. Such expenditures may, however, reduce the total costs inside and outside government. For example, federal contaminated sites require money for clean–up (some estimates put the figure at $2.8 billion). If the problems are not addressed, people using adjacent land, or future generations may bear potentially large costs, in the form of financial, health or environmental impacts. In our opinion, federal departments, unlike private sector organizations, have a higher stewardship responsibility to the Canadian public, and ought to include the costs of inaction when they evaluate their activities.

8.21 **Need for better information.** The fact that we had to prepare our own estimate of potential savings, and the considerable uncertainty in the estimates summarized above, highlights the need for good and consistent measurements by departments. Measurements are needed for better estimates of the baseline situation, for setting achievable targets and for monitoring progress on both the environmental and financial dimensions.

Accounting for sustainable development can provide crucial information

8.22 Departments need mechanisms to track information on the effects of their operations. In the first year of this project, we concluded that accounts for sustainable development could be built on a base of traditional financial information systems and environmental management systems (Exhibit 8.1). Such accounting systems may be linked to, but go beyond, the usual scope for environmental management systems. Environment Canada, among others, has documented the advantages to organizations of environmental accounting. These include promoting sound management, reducing environmental costs, and fostering greater awareness and accountability among managers. Accounting for sustainable development goes further; it will include the social impacts of departmental activities.

Exhibit 8.1 is not available, see the Report.

Better Environmental Management of Operations

Public Works and Government Services Canada is building a performance measurement system

8.23 **Extensive operational responsibilities.** Through Real Property Services Branch, Public Works and Government Services Canada provides working environments for 160,000 public servants in approximately 2,500

locations on behalf of the Government of Canada. As custodian of $6.8 billion worth of real property holdings and administrator of 2,000 leases with annual rents exceeding $500 million, Real Property Services manages a diverse portfolio of office and other general–purpose space, ranging from water–testing laboratories to the Parliament Buildings.

8.24 Development of an environmental management system. Since 1996, Real Property Services Branch has been developing and implementing its environmental management system (Exhibit 8.2).

Exhibit 8.2

Environmental Management System Implementation — Public Works and Government Services Canada

This time line summarizes some of the key steps that Real Property Services Branch in Public Works and Government Services Canada has followed so far to implement its environmental management system (EMS).

June 1996	Management Committee approved strategy for development of EMS framework.
30 September - 2 October 1996	National co–ordinators met and: • reviewed the status of EMS work; • conducted and compiled the EMS Issue Scans of several operational issues; and • identified actions to address EMS weaknesses, and to improve communications, employee awareness and motivation to practise environmental ‘‘green” principles.
December 1996	Management Committee approved sustainable development commitments.
June 1996 to December 1997	Status review and analysis of gaps in the existing EMS. EMS framework was developed covering: • environmental roles, responsibilities and accountabilities; • an EMS development action plan; • sustainable development targets; and • environmental performance indicators.
April 1997	Departmental Sustainable Development Strategy was tabled.
25-26 September 1997	Performance Measurement Workshop. Participants reviewed and improved the existing draft targets and performance indicators for 17 operational issues.
December 1997	Management Committee approved the review and gap analysis of the EMS and the framework for the new EMS.
January 1998 to June 1998	Guidance and tools were developed for collecting and reporting environmental performance baseline information for 1997-98, including: • a guide for the regional co–ordinators to help them compile and report the baseline data; and • a database to collect data on a building–by–building basis and to generate regional summary performance reports for each operational issue.

July 1998 to September 1998	Regional environmental co–ordinators collected baseline environmental performance information for 1997-98. This was combined into a national summary.
July 1998	Real Property Services submitted its input to the Departmental Performance Report for the period ended 31 March 1998.
November 1998	Draft of National Sustainable Development Performance Report, 1997-98 was produced.
December 1998	Environmental targets were revised.

8.25 In 1997, Real Property Services compared its existing environmental management system with the requirements of the ISO 14004 management principles: commitment and policy; planning; implementation; measurement and evaluation; and review and improvement. It observed that several elements of the ISO 14004 requirements were in place, but some gaps remained in the areas of accountability, data availability, funding and environmental policy coverage.

8.26 The status review and analysis of gaps provided the basis for the current Real Property Services' Environmental Management System Framework and Action Plan. With the new environmental management system, the Branch is tackling these gaps. The new framework includes Real Property Services' key environmental roles, responsibilities and accountabilities, as well as performance indicators and sustainable development targets.

8.27 To address performance measurement issues, targets and indicators for 17 operational issues were developed and approved by the end of 1997. In 1998, the Branch collected and reported environmental baseline data against its commitments related to environmental management, environmental leadership, and greening operations for fiscal year 1997-98. Real Property Services laid the foundation for a system to measure its progress in meeting its sustainable development commitments.

Agriculture and Agri–Food Canada has focussed on baseline information

8.28 In Chapter 7 of our 1998 Report, we documented the progress that Agriculture and Agri–Food Canada had made on implementing its environmental management system. We noted senior management's commitment to establishing an environmental management system. The Department had also achieved some early successes in managing its environmental agenda. In that chapter, we also described how the co–generation facility at Vineland Research Station will reduce energy costs as well as emissions of atmospheric pollutants.

8.29 In the April 1998 Action Plan for its environmental management system, Agriculture and Agri–Food Canada commented on the importance of a system: "Because [Agriculture and Agri–Food Canada] lacks a systematic approach to environmental management, results–oriented reporting will not be possible until an [environmental management system] is in place." The Department's intent was "...to have a strong and effective [environmental management system] by December 1998 and to complete a full management review process by November 1999."

8.30 Agriculture and Agri–Food Canada planned to collect baseline data as part of its Environmental Management Review of all its facilities. The Review process was designed to collect information on diverse aspects of the Department's environmental performance: water consumption, effluent, energy use, storage tanks, ozone–depleting substances, solid waste, hazardous waste, emergency response systems, fleet management and procurement. The Review was intended to:

- identify environmental liabilities and risks;
- assess departmental health and safety and environmental performance and identify gaps;

- facilitate the establishment of concrete action plans for improvement;
- monitor the implementation of corrective action already taken; and
- report on the Department's environmental performance compared with original targets.

8.31 To reflect the highly decentralized nature of the Department, senior managers adopted a "bottom–up" approach to implementation by allowing facility managers to set their own environmental agendas for improvement, tailored to the needs and available resources of each facility. From the Environmental Management Review, the Department would have a snapshot of its facilities to help it assess compliance with applicable federal, provincial and municipal environmental regulations. We describe the progress on this Review in the next section.

Lessons for Other Departments

8.32 Drawing on the efforts by Public Works and Government Services Canada and Agriculture and Agri–Food Canada over this last year, we have identified several lessons that may be applicable to other federal departments. To complement the perspective from the two case study departments, we documented the experience of public sector organizations in other jurisdictions.

Environmental performance measures are feasible and practical for government operations

8.33 Last year we described how both public and private sector organizations are tracking their environmental performance. This year we observed that both case study departments are developing indicators to help them do the same thing. Through its Environmental Performance Management Framework, Real Property Services in Public Works and Government Services Canada is collecting and reporting information for many aspects of its environmental performance. Its first detailed internal performance report is being used as a base for decisions and, in the spirit of continuous improvement, for re–evaluating its environmental targets. Agriculture and Agri–Food Canada has identified possible performance measures and is collecting the necessary baseline information. Several sites are using the resulting data to improve the management of the environmental aspects of their operations.

8.34 As a basis for comparison, we observed that the five public sector organizations with mandates comparable to those of federal departments are also using performance measures to track progress on environmental issues. Every environmental aspect we considered was being measured by at least one of the organizations. This was true despite the variety of management approaches and reporting requirements in the different jurisdictions.

Collecting baseline information requires a flexible approach

8.35 Once measures have been selected, the next step is collecting baseline information. For this step, Public Works and Government Services Canada faced tight time constraints and problems with data availability. In some cases, where only partial information was available, Real Property Services was able to use averages and extrapolation of the available data to estimate the performance of the entire inventory. For example, estimates for office solid waste for each building were generated from the 59 buildings for which waste audits had been completed.

8.36 For some of the operational issues, Real Property Services was able to use the environmental building reviews for performance information. This meant that baseline information was founded on a subset of approximately 70 percent of its 407 Crown–owned buildings. It also means that continued effort will be needed for data collection in future years. Such data are essential to identify opportunities for savings, to recognize problem areas and to ensure that managers are directly accountable for their operations.

8.37 Real Property Services expects that, as the information and reporting systems improve over time, the gaps will be filled in and more of the performance indicators will be reported. During this early stage, information systems, such as databases and spreadsheets, need to be easily modified and need to allow a "hands on" approach to the data and estimates. Despite these constraints, the Departmental Performance Report for the period ended 31 March 1998 submitted by Public Works and Government Services Canada offered the most detailed quantitative review of the environmental aspects of operations of any department.

Management commitment is necessary to obtain department–level reports

8.38 **Data collection is still under way.** Agriculture and Agri–Food Canada intended to have the full Environmental Management Review process finished and summarized at the branch level by December 1998. Of the approximately 22 major facilities across the country, 14 had completed the process by this date. The two branches with the greatest potential environmental impacts from operations — Research Branch and the Prairie Farm Rehabilitation Administration — were still working to complete their Reviews.

8.39 To understand where measurement difficulties were encountered, we examined 12 Environmental Management Reviews from sites that had supplied early responses to headquarters (Exhibit 8.3). From these early responses, there were gaps in their information on the actual annual quantities. Energy management and water consumption were relatively well documented; for other aspects, such as effluent management, waste management and procurement, fewer baseline data were reported. The Department recognizes the need for complete baseline information for all aspects of departmental operations to set appropriate priorities for action and to ensure accountability.

Exhibit 8.3 is not available, see the Report.

8.40 **Some leading sites.** Some of the sites are leading the way in implementing an environmental management system. As one example, staff at the Swift Current Research Station completed their Environmental Management Review for all aspects by December 1998, and also identified action plans. They acknowledge that resources are a significant constraint, but are integrating environmental issues into their plans and priorities for 1999.

8.41 The uneven progress highlights the need for sustained commitment in the Department at three levels: at corporate headquarters, in the branches, and at the individual sites. Each level must be able to get the kind of information it needs to do its job effectively. The experience of Agriculture and Agri–Food Canada suggests that, especially for a decentralized department, strong and sustained management commitment at all levels is crucial to successful implementation. This is especially true in the face of competing management demands, such as preparing the Department's information systems for the year 2000, extensively revising its employee classification framework, as well as carrying out its ongoing research, policy development and program delivery.

Environmental agendas are driven by three main concerns

8.42 **Due diligence.** Once initial baseline data are available, departments can start to take specific actions. Through consolidation of the Environmental Management Reviews, Agriculture and Agri–Food Canada planned to prepare a department–wide assessment of its environmental risks and liabilities by the end of 1998. This assessment would, in turn, provide an overview of the Department's success in implementing a regime of "due diligence". To provide evidence of due diligence, senior management recognizes it will need to address any issues arising from the completed Reviews and ensure that the environmental management system is delivered consistently across the Department.

8.43 Public Works and Government Services Canada also manages environmental issues for which there are due diligence concerns. When Real Property Services conducted its environmental reviews, the Branch was able to

highlight several situations where it was not yet in compliance with current regulations and take corrective action. In its view, this illustrates a key benefit of effective performance measurement.

8.44 The other public sector organizations we interviewed are also recognizing regulatory compliance issues for aspects that pose risks to the environment, and to the organization in terms of liability exposure (for example, contaminated sites, hazardous materials and wastes, ozone–depleting substances, storage tanks and spills). These aspects generally have a single performance measure associated with them and are tracked according to a longer–term risk mitigation plan in compliance with applicable regulations.

8.45 **Cost management.** Last year, we documented some of the environmental cost savings that Agriculture and Agri–Food Canada had achieved. We identified additional examples this year. For example, Lethbridge Research Centre is completing a retrofit of lighting that is expected to generate net savings within three years. This project, after careful initial study, was approved in the annual budget of the Centre last year.

8.46 Property managers in the two Crown corporations from the other jurisdictions also focussed on environmental aspects that significantly affect overhead costs, such as energy use, water use, and waste management. These aspects tend to have multiple performance measures associated with them and are measured frequently.

8.47 **Policy priorities.** As an additional motivation, federal departments have set environmental performance goals through laws and regulations in several areas. Individual departments are identifying and acting on their own targets established through their sustainable development strategies. The Government of Canada has also set national targets in some areas covered by the ‘‘greening” of government operations. The *Alternative Fuels Act* established government–wide targets for conversion to vehicles fuelled by alternatives to gasoline. In 1995, the federal government made a commitment to reduce greenhouse gas emissions from federal facilities by 20 percent below 1990 levels by the year 2005. For solid waste, the federal government has committed itself to a 50 percent reduction by the year 2000, using 1988 as the base year.

8.48 Data collection and environmental management systems need to reflect the different reasons for tracking environmental performance. The prototype accounts described in Chapter 7 of our 1998 Report recognize the information requirements associated with these three different motivations for departmental action. Thus the accounts are a useful overall framework for monitoring environmental performance.

Accountability needs to be clearly specified for implementation

8.49 At Public Works and Government Services Canada, statements of environmental roles, responsibilities and accountabilities have been developed for numerous positions within Real Property Services Branch, ranging from the Assistant Deputy Minister of Real Property Services to asset managers, regional managers and employees. These statements will help define accountability for due diligence and responsibilities for reporting.

8.50 At Agriculture and Agri–Food Canada, the Environmental Management Review process revealed that there are challenges to overcome in assigning responsibilities for specific tasks, estimating costs and estimating completion dates for actions. Corporate Services Branch has overall responsibility for implementation of the environmental management system, but has no authority to control the rate of implementation. Environmental management must be “sold” to individual managers. This gap between responsibility and authority acts as a constraint that needs to be managed to ensure consistent progress of sites relative to target dates.

8.51 The leading sites in Agriculture and Agri–Food Canada have been proactive and are already integrating environmental considerations into their planning and decision–making structures. For example, St. Hyacinthe Research Centre has integrated responsibility for environmental considerations into its organizational structure. The Centre reports that it has reduced overlap and duplication by having the health and safety officer be responsible for

similar areas under its environmental management system. Thus Agriculture and Agri–Food Canada has found that one way to clarify and strengthen accountability for environmental performance is to make environmental performance part of the job requirements for facilities managers. In other cases, the responsibilities for environmental management have not been assigned. Without these assignments, departments are not able to ensure that their objectives will be achieved.

8.52 **Role of audit and review.** Neither of the two case study departments is yet at the stage of formally evaluating its experience with mechanisms for accounting for sustainable development. At Agriculture and Agri–Food Canada, Review Branch was involved in the development and implementation of the Environmental Management Review. The Department has clearly identified the role for internal audit as part of the monitoring and correction process, especially once environmental performance targets are set.

Financial and environmental systems can be integrated at several points

8.53 Public Works and Government Services Canada has concluded that for annual performance reporting to be "sustainable", environmental information should be built into existing information systems. These systems are fully integrated into the daily operations of Real Property Services, and could therefore also be used to collect and maintain relevant environmental data. Much of the environmental information aligns with the type of information that is gathered during the annual Building Performance Review and Building Management Plan processes. Over the long term, Real Property Services plans to move to more direct indicators of the Branch's environmental impacts (for example, tonnes of carbon dioxide produced as a result of energy used in the facilities).

8.54 From its baseline data, Agriculture and Agri–Food Canada is assembling cost information for many environmental aspects; however, it is not presently integrating environmental and financial information. Corporate Services Branch, with overall responsibility for environmental management system implementation, has plans for an approach to information management that will allow it to analyze all the information collected as part of the Environmental Management Review and assist in monitoring departmental progress.

8.55 Departments could link their environmental information to their financial systems in two basic ways. First, they could integrate the environmental information to the budgeting system and use it as a basis for making project and capital decisions, such as investments in water efficiency. Second, they could make a link to the record keeping of actual expenses and thus be able to record environmental results in relation to observed costs (for example, by tracking solid waste disposal costs).

8.56 **Recognizing and capturing potential savings.** We asked the five other public sector organizations about their savings as a result of their measurement and management efforts. Some examples are highlighted in Exhibit 8.4. None of the government departments in this sample is currently monitoring cost savings. Both Crown corporations are in the early stages of integrating the non–financial information associated with energy use and waste management into their accounting systems. For example, to process an invoice for energy or waste services in one organization, the accounts payable officer must now enter the non–financial data on energy consumption or waste generated for the period. Recording data on consumption and cost in the same system will, they believe, improve the accuracy and accessibility of performance information and help to clarify the impact of management efforts.

Exhibit 8.4

Examples of Savings Achieved by Other Public Sector Organizations

By 1997, [one organization] had achieved an energy reduction of 55 percent that equates to a $7 million annual cost avoidance. To achieve this, [the organization] spent just over $20 million on various retrofits in its portfolio. The accumulated savings realized since the inception of the program in 1979 is now over $100 million.

The amount of the annual energy cost avoidance from the energy management program is equivalent to a quarter of the annual net income for the [organization]. In [the organization's] start–up year, 1978, the energy bill was 11 percent of total annual expenses. In 1995, it was only 5 percent.

In 1997-1998, 13,500 tonnes of waste were diverted and about $1,863,000 was saved, based on a waste disposal cost of $138/tonne.

8.57 Representatives of the five organizations identified several factors that contribute to successful performance measurement. For example, the resources allocated to environmental management should be invested where they will yield the highest return on investment. One organization told us that it applies most of its environmental management efforts to the 10 percent of its buildings that represent 80 percent of total floor area. In addition, we were told that highlighting the financial contribution of "greening" operations helped secure sustained support from senior managers.

Progress Is Being Made

8.58 Both case study departments have made progress on assembling environmental performance information. Public Works and Government Services Canada has built an environmental information system drawing on data from earlier environmental audits, financial systems and waste audits and from other newly collected information. Agriculture and Agri–Food Canada has begun to build the processes and the infrastructure to monitor the environmental aspects of its operations. Relatively little attention has been paid so far to integrating the environmental and financial information; some important cost savings and liability reduction opportunities have probably not yet been identified.

8.59 Based on the experiences of the two case study departments and public sector organizations from the other jurisdictions, some of the steps to integrated decision making for operations are increasingly clear. Exhibit 8.5 summarizes the progress of the case study departments in a common framework of steps. Other departments may take different routes through these steps, depending on specific factors, such as how centralized their operations and decision making are.

Exhibit 8.5

Summary of Progress of Case Study Departments

Step	Public Works and Government Services Canada — Real Property Services Branch	Agriculture and Agri–Food Canada	Key Challenges
Defining the scope and direction — This involves defining needs and developing a plan, with priorities, actions and resources.	• Draft environmental policy • Approved plan for environmental management system • Identified department–level environmental aspects	• Approved plan for environmental management system • Identified department–level environmental aspects	• Obtaining senior management support
Designing a measurement system — This involves selecting measures and defining accountability.	• Developed detailed set of measures covering most environmental aspects • Defined environmental roles, responsibilities and accountabilities	• Measures identified in baseline Environmental Management Review	• Choosing relevant and realistic performance indicators • Developing common measures where appropriate • Implementing accountability
Collecting baseline information — This involves defining the starting point and assembling the necessary information.	• First baseline completed • Guides and database for capturing and analyzing data	• Detailed site–specific baseline partially complete • Uneven response among sites	• Allocating sufficient resources • Setting priorities for data collection • Managing uneven performance among facilities • Using the information in decision making
Setting targets — This involves establishing the environmental agenda, starting from the baseline.	• Departmental targets set for some aspects	• Targets set at some sites, not complete at departmental level • Baseline data not available for 1999-2000 planning at departmental level	• Selecting realistic but demanding targets • Defining measurable, time–bounded targets
Implementing measurement and reporting cycles — This involves designing an appropriate information system, linked to the normal reporting process.	• Performance report generated for internal use, tied to branch–level sustainable development strategy • Not yet fully integrated into departmental reporting cycle	• Not yet merged with departmental reporting cycle	• Getting broad departmental commitment • Going from one time data collection to routine collection procedures • Building accountability • Recognizing different users of information and different needs
Reviewing and improving performance — This involves evaluating the experience, including	• Examples of using performance information in decisions	• Groundwork laid	• Monitoring results and taking corrective action • Obtaining senior management

costs and benefits, and taking corrective action.	• No formal review		interest in the results
Integrating financial and environmental systems — This involves building the links between systems and defining appropriate reports.	• Linked in financial planning, not for reporting	• Not yet in place	• Connecting environmental and financial systems • Ensuring the overall accounting system adds value • Documenting the potential benefits

8.60 **Putting Canada in context.** The Organisation for Economic Co–operation and Development recently summarized the progress being made by member countries on ‘‘greening” their internal operations. Other countries are struggling with similar difficulties to those faced by federal departments in Canada: improving the capacity to measure environmental performance at the departmental level; aggregating information at a national level by central agencies; collecting baseline information in a consistent format; and allocating the resources (time and money) required to establish performance measurement systems. Thus Canadian federal departments may benefit from exchanging lessons and experiences with other countries in a similar situation. There may be additional lessons to be learned from the experience of the approximately 45 public sector organizations, ranging from national departments to municipalities, that are implementing environmental management systems.

Common Measures Could Support Better Reporting

Several departments have worked toward common measures

8.61 As we noted in Chapter 7 of our 1998 Report, several major custodial departments formed an ad hoc working group in 1997 that focussed on how to build environmental performance reporting systems. Over this past year, the group continued to meet, named itself the Committee on Performance Measurement for Sustainable Government Operations, and worked to establish, define and promote the use of common measures for environmental aspects of government operations.

8.62 Current members of the Committee include most major custodial departments: Agriculture and Agri–Food Canada, Correctional Service Canada, Department of Foreign Affairs and International Trade, Environment Canada, Fisheries and Oceans, Health Canada, Indian and Northern Affairs Canada, National Defence, Natural Resources Canada, Public Works and Government Services Canada, Revenue Canada, Royal Canadian Mounted Police and Transport Canada. The Treasury Board Secretariat also serves on the Committee.

Common measures make sense for similar operations

8.63 **Benefits of common performance measures.** A common set of environmental performance indicators across the federal system would facilitate government–wide reporting (for example, for greenhouse gas emissions) and the oversight by Parliament of the government’s progress toward sustainable development. We believe that meaningful performance comparisons can and should be made among departments for comparable activities and assets, using both financial and environmental measures. For specialized assets such as agricultural laboratories, comparisons over time could be used to identify improved environmental performance and year–to–year differences due, for example, to changes in program activities or weather patterns.

8.64 By moving toward agreed upon measures, departments could build on each other’s experience and information. There may also be opportunities for significant economies of scale in developing common information systems. We believe that departments would find it cost–effective to establish common indicators for common activities now, while departments are in the early stages of developing and implementing their environmental performance measurement systems.

8.65 **Inconsistent measures among departments.** To assess the value of common environmental performance measures for operations, we reviewed how departments reported their environmental performance in the Departmental Performance Reports for the period ended 31 March 1998. Only 13 of 28 departments reported on the environmental performance of their internal operations in quantitative terms. Of all the measures that were reported by departments on all environmental aspects of their operations, we found that only two were comparable among any of the departments: the use of ethanol in vehicles and the percentage of diversion of office waste. In general, departments did not provide comparable information. The absence of information and the use of different indicators

will make it difficult for Parliament and Canadians to formulate a coherent view of the performance of the government as a whole. (More details on the Departmental Performance Reports are provided in Chapter 1 of this Commissioner's Report.)

8.66 Progress toward shared measures. As we reported last year, the Committee on Performance Measurement for Sustainable Government Operations proposed draft common measures for water consumption, energy consumption, petroleum product and allied petroleum product storage tanks, non–hazardous solid waste, ozone–depleting substances and spills. The Committee organized a workshop in May 1998 to develop a more complete set of indicators (Exhibit 8.6).

Exhibit 8.6

A Workshop to Develop a Common Framework for Reporting Environmental Performance

Background. During discussions beginning in 1997, the interdepartmental Committee on Performance Measurement for Sustainable Government Operations identified the need for a workshop to develop a common framework for environmental performance measurement of federal government operations.

The workshop brought together over 70 invited participants from 16 departments and agencies, and took place over two days (6 and 7 May 1998). The workshop was organized by Public Works and Government Services Canada, the Institute for the Environment (Royal Military College) and the Commissioner of the Environment and Sustainable Development (Office of the Auditor General). The workshop took a very practical ''hands on" approach. Participants were those who actually had responsibility for implementing any proposed measures.

Objectives. The objectives of the workshop were to:

- begin the development of a common environmental performance measurement framework for sustainable government operations;
- develop common measures for 10 environmental aspects; and
- provide a focal point for performance measurement for sustainable government operations by capturing the work of a variety of interdepartmental working groups, as well as a broad cross–section of departments with significant custodial operations.

Workshop process. For each environmental aspect, participants developed common performance management frameworks, addressing the goals of managing performance, how the aspect could be managed, and who was involved. Then for each part of the framework, participants identified appropriate indicators (see Exhibit 8.7). Sub–groups concluded their discussions by listing the critical management gaps and the actions that could be taken to bridge the gaps.

Different stages of implementation. The environmental aspects under consideration were at different stages of development and implementation with respect to the performance measurement goals.

Need for leadership. Senior management commitment to providing the necessary tools and resources (money, information systems, standards, policies, training, incentives) emerged as a key factor in developing and implementing performance measurement. The need for strong leadership in terms of central policy development and a stronger co–ordinating function was recognized as critical to success.

Recommendations. The recommendations on the next steps include: further refinement of the common measures and framework; obtaining senior management "buy–in"; setting priorities for the measures; and testing the proposed measures.

Conclusion. The workshop objectives were achieved and the outputs from the workshop were considerable. This exercise demonstrated the feasibility of having a common framework and measures for sustainable operations among federal departments.

8.67 These consultations resulted in a revised list of proposed environmental performance indicators for federal departments (Exhibit 8.7). The Federal Committee on Environmental Management Systems has recommended that its members consider the list of indicators when looking at the measurement and evaluation component of their environmental management systems.

Exhibit 8.7

Proposed Environmental Performance Indicators for Government Operations

Environmental Issues	Proposed Indicators
Contaminated Sites	• total number of properties • number of potentially contaminated sites • number of confirmed contaminated sites • number of sites remediated • number of sites subject to risk management • number of properties where further action is not required
Hazardous Material/ Wastes	• total number of hazardous material/waste facilities • number of storage facilities meeting regulations, policies and procedures • amount of hazardous waste sent to disposal (by type/class) — time frame will vary • number of on–site recycling, treatment, destruction and disposal facilities meeting regulations, policies and procedures • amount of hazardous waste sent to on–site recycling, treatment, destruction and disposal
Water Efficiency	• total number of facilities/sites/buildings • cubic metres per year (per building/occupant/m^2 of office space/program) • cost per year (per building/occupant/m^2 of office space/program) • percent of new construction/renovation using water efficient specifications • percent of sites audited (per category) • number of facilities with water reduction implementation plans
Solid Waste Management	• total number of facilities/sites/buildings • number of facilities with waste management program (i.e. with waste audits, follow–ups and work plans) • cost of waste to landfill per person/year/facility • reduction in kg/person/year/facility to landfill (from baseline) • percent of waste not diverted through available local services • percent (or per capita) of waste recycled/composted
Ozone–Depleting Substances (ODS)	• total number of facilities/sites/buildings • number of facilities with strategic management plan that addresses phase–out of high priority ODS • number of facilities with baseline inventories • number of phase–out plans (approved, in–place, and in the process of being implemented) • number, kg, ozone–depleting potential (ODP), and global–warming potential (GWP) of ODS releases (total or reportable) • decrease in releases as a percent of inventory • percentage decrease in ODP and GWP of ODS inventory (by class)
Fleet Management	• total number of vehicles (passenger and other) • percent of fleet covered by Fleetwise Program

	• total fleet kilometres • average fuel consumption • number of vehicles with alternative fuels • fleet operating costs per passenger–kilometre
Energy Use in Federal Facilities	• total number of facilities/sites/buildings • number of energy audits completed • percent of buildings retrofitted • cost per year (per building/occupant/m^2 of office space/program) • percent of identified energy and cost savings achieved • gigajoules per year (per building/occupant/m^2 of office space/program)
‘‘Green” Procurement	• number of specifications with ‘‘green” statements • number of ‘‘green” source lists • percent attended training (of those requiring training) • value (in dollars) of purchases from ‘‘green” source lists or with ‘‘green” specifications
Storage Tanks	• percent of storage tank systems in compliance with *Canadian Environmental Protection Act* Part IV technical guidelines • total number of storage tank systems
Releases	• total number of facilities/sites/buildings • number of facilities with emergency plans • number and quantity of releases • percentage change in number and quantity of releases from previous year
Waste Water	• total number of facilities/sites/buildings • number of facilities with direct/indirect discharges of wastewater • number of monitoring programs (discharge/ambient quality) • number of water use impairments (or by type of water use impairment) • number of instances exceeding discharge guidelines

Obtaining the benefits of common measures requires leadership

8.68 Unclear responsibility for leadership. The advantages of common measures will not be achieved without clear leadership to define, select and refine them. Interdepartmental committees do not believe they have the authority to establish standards for common indicators for the federal government as a whole. By January 1999, no central agency or department had acknowledged formally that it had the mandate, authority or resources to provide the leadership required to ensure that common indicators will be developed and implemented. No external standard–setting body has taken on this task. As a result, the federal government will have difficulty reporting on progress against government–wide targets for aspects such as greenhouse gas emissions, the use of alternative fuels, solid waste, or the management of real property.

Next Steps

8.69 Next year, we expect to help the government clarify the accountability for establishing and promoting common performance measures for the custodial side of departmental activities. Rather than focussing on a few case

study departments, we plan to prepare a government–wide status report for Parliament in May 2000. We believe that Parliament needs a better picture of departmental progress in implementing and reaping the benefits that should accompany an effective environmental performance management system. This report will also help departments assess their own progress and clarify the areas for improvement.

8.70 In our work so far, we have focussed on the measurement and integration of environmental and financial aspects of departmental performance. The definition of accounting for sustainable development also includes the social impacts of departmental activities. Many organizations are making progress in developing and reporting on indicators of their performance on this dimension (for example, through social accountability reports); relatively few have developed indicators that combine all three aspects. In the future, we will be increasing the emphasis on the social dimension of sustainable development.

8.71 Finally, over the coming years we plan to do a detailed assessment of how federal departments are implementing "green" procurement. The amounts of money are very large (more than $11 billion each year). The preliminary evidence leads to several questions. Are departments considering the environmental and financial aspects of their decisions together? Do they have clear guidance for making procurement decisions (for example, when is paying a premium for an "environmentally friendly" option acceptable)? Are departments realizing the large potential savings from better information and hence better decisions? Are they recognizing the links between procurement and some of the other aspects of their environmental performance, such as fleet management and waste disposal?

Conclusion

8.72 Agriculture and Agri–Food Canada and Public Works and Government Services Canada are moving toward better measurement of their environmental performance — an important first step to assessing progress on their sustainable development objectives for custodial operations. They are putting the information and management systems in place to track the environmental and financial dimensions of their operations. Both departments recognize that it will be a long road, requiring sustained commitment.

8.73 On a government–wide basis, some of the key opportunities to use integrated information have not yet been seized. We estimate that there are potentially large benefits, including direct cost savings; however, departments do not yet have the necessary capacity to quantify and exploit these opportunities.

8.74 Based on our discussions with custodial departments and our review of the Departmental Performance Reports, departments do not yet have a shared basis for measuring their performance. As a result, they are not able to report consistently and accurately to Parliament on their progress against some long–standing commitments. This, in our view, is a critical gap.

8.75 We believe that Parliament now has a clearer picture of what the major signposts on the journey are, and where some of the deeper potholes lie. As the information base improves, departments (and Parliament) will develop a better understanding of some of the areas where progress may be faster, where money may be saved, and where resources may be required to meet some of the commitments departments have made. We will be providing a more complete status report next year, cutting across all departments.

8.76 One option is for Parliament to indicate to departments what its expectations are with respect to reporting on environmental performance. There is a need for the government to assign specific responsibilities for ensuring that suitable reports are prepared. Without this direction, there is a risk of stalling on the journey toward sustainable government operations.

Public Works and Government Services Canada's response:

Public Works and Government Services Canada strongly supports the importance and value of environmental performance reporting and is committed to continuing to evaluate and report environmental performance annually. It is a critical step toward minimizing the environmental impact of our activities and toward maximizing the financial benefits that can be associated with good environmental management. As a common service agency, the Department would be pleased to assist other custodians in developing and implementing environmental management processes.

Public Works and Government Services Canada will continue to support the activities of the Committee on Performance Measurement for Sustainable Government Operations and its goal of developing common approaches to be used for environmental performance measurement by all federal custodians. This approach should result in improved reporting and in efficiencies for the government as a whole.

Agriculture and Agri–Food Canada's response: *Agriculture and Agri–Food Canada has benefited considerably through participation in this project over the past two years. The second phase of this study has identified important issues and concerns related to the gathering of information and establishment of baseline data for setting achievable targets and monitoring progress.*

The Department acknowledges the importance of maintaining an information management system to monitor and report on the information acquired to date and will continue its efforts to develop an approach to an information management system that will help to fulfil this requirement.

Agriculture and Agri–Food Canada looks forward to continuing this opportunity to work in partnership with the Office of the Commissioner of the Environment and Sustainable Development.

Treasury Board Secretariat's response: *Treasury Board Secretariat notes the early progress made in the Commissioner's five–year project on accounting for sustainable development. The Secretariat is supportive of the work being done by the interdepartmental Committee on Performance Measurement for Sustainable Government Operations. We are pleased to see departments working co–operatively to share lessons learned and to reach consensus on indicators for achieving comparable results in measuring environmental performance for the greening of government operations.*

Treasury Board Secretariat will continue to participate as a member of the Committee and supports its ongoing work to develop a set of performance indicators from which departments can select those that are relevant and applicable to them for sustainable development reporting.

About the Study

Objectives

This chapter is part of the second phase of a five–year project to assist government departments in developing decision support tools for integrating environmental, social and economic information. The three overall objectives for this project are:

1. to help departments with custodial responsibilities to build the tools necessary to integrate considerations of environmental and social effects into capital and operating decisions;

2. to help departments create the baseline reference information necessary for credible, relevant and consistent measures of their sustainable development performance; and

3. to help departments with policy responsibilities to build practical, cost–effective tools to integrate information from diverse databases into decisions on policies with significant environmental, social and economic effects.

This chapter addressed the first two objectives. A companion chapter, Chapter 9 in this Report, documents our work on the third objective. With respect to the first and second overall objectives, our four sub–objectives for this second phase of the project were:

- to report case studies describing the development and use of integrated measures and accounting procedures by departments with significant custodial responsibilities;

- to identify lessons, benefits and costs of implementing environmental accounts;

- to report on the status of implementation of environmental performance measures; and

- to document how large public sector organizations select environmental performance measures, implement these measures and “roll–up” information on their environmental performance in summary reports.

Scope and Approach

Our investigation of implementation of performance measurement systems was built on four separate foundations. We began work with Public Works and Government Services Canada. We conducted a series of interviews with the managers and staff in Real Property Services Branch who had responsibility for designing and implementing the environmental performance management system. We reviewed the steps they went through in assembling their summary performance reports.

Our work with Agriculture and Agri–Food Canada was primarily a follow–up to the more detailed work we carried out last year. We focussed on regional baseline information submissions to headquarters in Ottawa, supplemented by interviews with managers in the regions, and a visit to two research centres in the Maritimes.

As a second continuing thread, we met several times with the interdepartmental Committee on Performance Measurement for Sustainable Government Operations. We wanted to ensure that the information received through the detailed case studies was relevant to other departments. In particular, we worked with the Committee to facilitate a workshop in May 1998 to discuss common performance measures for operations.

As a basis for comparison with Canadian federal departments, we identified five public sector organizations that were measuring at least some aspects of their environmental performance. We questioned staff in each organization about their approach to measuring environmental performance in their operations. Two organizations are provincial Crown corporations whose mandates focus on property management services. The other three are government departments or agencies in other countries where property management is incidental to their core mandates. The five organizations share several characteristics. They are all multi–divisional public sector organizations that manage many facilities with a mix of operations. For each of these organizations, the number of occupants in facilities under management is at least 60,000.

Study Team

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Appendix A

Glossary

Accounting for sustainable development — an information tracking framework that integrates internal (private) and external (societal) costs and benefits, and supports evaluations of the short– and long–term consequences of activities and projects from environmental, social and economic perspectives. (Commissioner of the Environment and Sustainable Development)

Co–generation — utilization of the normally wasted heat energy produced by a power plant or industrial process, especially to generate electricity. (Source: *Random House Dictionary of the English Language*)

Due diligence — to be able to demonstrate due diligence, both operational and senior managers of an organization must be able to persuade the courts that they have taken adequate steps to acquire appropriate knowledge or appropriate professional advice on the potential environmental risks posed by their operations. They must also be able to demonstrate that they have acted appropriately on this information. Appropriate actions include implementing systems to minimize and manage risk, educating employees in the use of the systems, reporting on the success of the systems to senior management and taking necessary corrective action. (Commissioner of the Environment and Sustainable Development)

Environmental accounting — the identification, measurement and allocation of environmental costs, internal or external, or both, to provide information to internal or external users. (Source: *Full Cost Accounting from an Environmental Perspective*, CICA)

Environmental aspect — element of an organization's activities, products or services that can interact with the environment. (Source: International Organisation of Standardisation)

Environmental management system — the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy. (Source: International Organisation of Standardisation) (In 1995, the Office of the Auditor General described an approach to environmental management system implementation applicable to the federal government.)

Integrated decision making — an approach to planning and decision making that ensures progress on each and all of the dimensions — social, economic and environmental — of sustainable development. (Source: *A Guide to Green Government*)

Sustainable development — development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Source: *Auditor General Act*)

Appendix B

Estimate of Potential Cost Reductions in Building Energy Use

Key Assumptions:

- Federal cost data for energy consumption indicate expenditures of $665 million in 1994-95, $640 million in 1995-96 and $520 million in 1997-98. (It is unclear if these costs include non–building expenditures and leased buildings.) Given current projections for federal space requirements and energy costs (relatively stable), we consider a reasonable range of baseline annual costs to be $400-500 million (in 1999 dollars).

- Natural Resources Canada reports savings of approximately 23% on the 30% of the energy bill that has been addressed to date. We estimate that an additional 5–10% saving could be achieved in these buildings and 20-30% in the remaining 70% of the bill.

- Natural Resources Canada's experience with the Federal Building Initiative is that the payback period for project costs (including financing and profit for energy service companies) varies from six to eight years. We have assumed an average payback period of seven years.

- Discount rate of 7%.

Estimate Calculations ($ million):

For the current 30%:

$400 x 30% x 5% = $6	$400 x 30% x 10% = $12
$500 x 30% x 5% = $7.5	$500 x 30% x 10% = $15

Giving a range = $6-15 million

For the remaining 70%:

$400 x 70% x 20% = $56	$400 x 70% x 30% = $84
$500 x 70% x 20% = $70	$500 x 70% x 30% = $105

Giving a range = $56-105 million

Total range = $62-120 million, say $60-120 million.

Adding these savings over 20 years, deducting project costs and applying the discount rate yields a cumulative present value (net of project costs) of between $300 million and $600 million (in 1999 dollars).

Chapter 9

Greening Policies and Programs

Supporting Sustainable Development Decisions

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Greening Policies and Programs

Supporting Sustainable Development Decisions

Main Points

9.1 The federal government most strongly affects Canadians through its policies and programs. For example, the government's own operations contribute less than 0.5 percent of Canada's greenhouse gas emissions, yet it has policy levers that could influence the remaining 99.5 percent.

9.2 In our first report on this project last year, we noted that the federal government has made a commitment to integrate environmental, social and economic considerations into its operational and policy decisions. Almost all departments made further commitments to integrated decision making in their sustainable development strategies. We are concerned that some departments have not yet come to terms with the challenges of this integration and identified how they plan to deliver on their commitments.

9.3 We believe that Parliament needs to know what action departments are taking to meet their commitment to integrated decision making for policies and programs, and when the gap between commitment and implementation will be closed.

Background and other observations

9.4 In this chapter, we focus on ways of supporting integrated decision making for policies and programs. Making decisions in an integrated way requires a distinct approach for policies and programs because of issues of timing, the specific information requirements, and the need to evaluate results.

9.5 We reviewed four approaches that would allow departments to consider the environmental, social and economic implications of their policies and programs: foresight initiatives, strategic environmental assessment, multiple accounts analysis, and national environmental accounting. All four approaches are being used in other jurisdictions and all are applicable to Canadian federal departments. One approach, strategic environmental assessment, is already required by Cabinet directive. In last year's Commissioner's Report, we noted slow and inconsistent compliance with this directive across departments.

9.6 We recognize that departments will require time to implement fully an effective mix of tools. Based on the four approaches reviewed, we identified several aspects of implementation that would help departments successfully use these approaches. The aspects include the flexibility to mesh with the policy development process, a balance among the different aspects of sustainable development, consideration of the long–term consequences, early application and clear accountability.

Introduction

Decision makers face new expectations

9.7 The requirement for Canadian federal departments to prepare and implement sustainable development strategies has shifted the context in which decisions are made. Parliament now has new expectations about how departments will carry out their business. Through the strategies, each department has made a commitment to respond to those expectations. Decision makers inside the departments now need to understand what sustainable development means for them as they sit at their desks and do their jobs. How do their programs affect the environment? How do they balance the social and environmental consequences of their policies? What does "taking future generations into account" mean — in practice?

9.8 **Need for integrated decision making.** Departmental managers may not yet have all of the pieces of the jigsaw puzzle. To meet the challenge of their new context, they may need to look at the puzzle from a new angle, use existing information in different ways, or collect new information. For example, to identify the effects of particular programs on emissions of greenhouse gases, managers need to make the links between those programs and the resulting economic activity, and from the activity to the demand for oil and coal. They may need to integrate information relating to the different dimensions of sustainable development (environmental, social and economic) to evaluate the trade–offs among alternatives. Is a policy that invests in natural resource conservation preferable to one that provides training for people leaving the industry?

This study is part of a long–term project

9.9 The Commissioner of the Environment and Sustainable Development is committed to a long–term effort to improve the quality of information available for departmental decision makers, to help them make better decisions. Last year, we began a five–year project on accounting for sustainable development. The emphasis of the project is on building the capacity of departments and agencies to implement some key elements of sustainable development.

9.10 The project objective relevant to the work reported in this chapter is to help departments with policy responsibilities to build practical, cost–effective tools to integrate information from diverse databases into decisions on policies with significant environmental, social and economic effects.

9.11 The first chapter in this project was tabled in the House of Commons in May 1998 as part of the Report of the Commissioner of the Environment and Sustainable Development (Chapter 7 — Counting the Environment In). Chapter 8 (Greening Government Operations: Measuring Progress) of this year's Report is a companion chapter and reports on our work the past year on measuring the environmental performance of departments' internal operations.

Focus of the study

9.12 This chapter reports on our initial work on policies and programs. We expanded the scope to include programs because in many cases programs are a vehicle for implementing policies, and the most significant effects of policies may occur when they are put into practice. Our emphasis was on approaches and methods that could be used to support integrated decision making by federal departments. We conducted four case studies, drawing on the experience of other jurisdictions and organizations, to provide a starting point for defining the needs of and possibilities for Canadian federal departments. This is an early step into relatively uncharted territory.

9.13 For more details on the overall project and this study, see **About the Study** at the end of the chapter.

Observations

Delivering on Commitments

The federal government is committed to integrated decision making

9.14 We commented last year on the general commitments made by Canadian federal departments to integrated decision making in *A Guide to Green Government* and the *Code for Environmental Stewardship*. As described in the audit of environmental stewardship (May 1996) and the follow–up in December 1998, there were significant problems with implementation.

9.15 **New commitments to integrated decision making.** In the sustainable development strategies tabled in the House of Commons in 1997, 26 of 28 departments made specific, detailed commitments to integrate environmental, social and economic factors in their decisions (Exhibit 9.1). Some departments clearly distinguished between integrated decision making in their operations and integrated decision making for their policies and programs.

Exhibit 9.1

Departmental Commitments to Integrated Decision Making

Departments have made commitments to integrate the different dimensions of sustainable development into their decisions. Some examples include the following:

Agriculture and Agri–Food Canada

''Encourage building environmental thinking into the way decisions are made and business is conducted in Canada - on the farm, in the food–processing plant, and in the government office...''

''Improve the capacity of departmental and sectoral decision makers to integrate environmental factors into day–to–day decision making...''

''Focus and enhance the department's analytical capabilities and provide timely and appropriate information to encourage greater integration of environmental factors into sectoral and departmental decision making...''

''Integrate environmental sustainability objectives into departmental policies, legislation, and programs.''

Citizenship and Immigration Canada

''In the years to come, we will promote sustainable development by working closely with our partners, by integrating environmental considerations into decision making, and by adopting best practices for the 'greening' of departmental operations.''

Department of Finance

''Integrating the economy and the environment. Build on progress in integrating environmental and economic considerations in tax, spending and related policies.''

Health Canada

''During 1997-2000, the Department will undertake actions to integrate sustainable development into its decision making and physical operations.''

Natural Resources Canada

''A sound economy and a healthy environment are mutually supportive. We will make decisions based on sound economic,

environmental and social principles, relying on tools such as environmental assessment and scientific assessments of risk. We will improve our ability to analyze decisions for their life–cycle environmental impacts, their full costs and benefits, and their implications for society."

Veterans Affairs Canada

''The multi–faceted nature of sustainable development necessitates an integrated approach to planning and decision making to ensure progress in all three of the dimensions of sustainable development - social, economic and environmental."

9.16 How will departments deliver on these commitments? Some were specific about their commitments and referred to tools and approaches that they would use, such as environmental impact assessment, internal training, environmental accounting, consultation and full cost accounting. Others provided few details of their plans for implementation, either in the strategies or in the first sustainable development progress reports included in the Departmental Performance Reports for the period ended 31 March 1998. Based on the progress reports and our review of the strategies, we are concerned that some departments have not yet put in place the action plans necessary to deliver on their commitments and may not appreciate the challenges they face.

Good information is essential

9.17 To meet their commitments to integrated decision making (and sustainable development), departments need mechanisms to track the effects of their programs and policies. In the first year of this project, we concluded that accounts for sustainable development (see Appendix - Glossary) could be an information tracking framework to support evaluations of the short– and long–term consequences of activities and projects from environmental, social and economic perspectives. Such frameworks could strengthen sustainable development performance in the areas of target setting and measuring progress against objectives for internal operations (see Chapter 8). Different frameworks, but with the same overall objective of integration, could also help managers make better policy and program decisions.

9.18 **Three broad types of decisions. The** information framework should be tailored to the policy decisions to be made (Exhibit 9.2). The first broad type of policy decision may set the direction and establish the policy agenda. For example, how should immigration influence the design of future social programs? The second type of decision involves considering one or more options, evaluating the implications and weighing the alternatives. It might answer questions such as "What might be the environmental implications of a change in immigration levels?" or "What are the pros and cons of a particular immigration policy in social and economic terms?" The third type of decision involves evaluating a policy or program after it has been implemented. For example, what has been the effect of past immigration restrictions on the rate of urban growth? The case studies discussed later in this chapter focus on these different decision points.

Exhibit 9.2 is not available, see the Report.

Policies and programs impose distinct requirements

9.19 The information essential for making decisions about programs or policies will differ from that appropriate for managing internal departmental operations (for example, buildings and fleet), as discussed in Chapter 8 of this Report. The tools need to match the characteristics of policies and programs and the type of decision being made. Without appropriate tools, departments will not be able to deliver on their commitments to make integrated decisions.

9.20 **Potentially greater sustainable development impact.** The policies and programs of the federal government have a much greater sustainable development impact than their operations. Three examples illustrate this. First, the greenhouse gas emissions from the federal government's own operations represent less than 0.5 percent of the total Canadian emissions, yet the government has policy levers that can strongly affect the remaining

99.5 percent of the sources. Second, the government directly employs less than two percent of the Canadian work force, yet through taxes, employment insurance and other programs it influences unemployment rates and economic growth across the country. In its sustainable development strategy, Human Resources Development Canada noted that it has the largest direct impact on the broadest range of Canadians of any federal department. It does this by developing and managing major social and labour market programs such as employment insurance, labour standards, student loans, Canada Pension Plan and Old Age Security. As a third example, direct program expenditures ($31.3 billion in 1997-98) represent less than four percent of all spending in the Canadian economy, but through its fiscal policies the government affects the short–term availability of health and education services as well as the debt burden future generations will bear.

9.21 The government has greater direct control over its internal activities. With policy and programs, the links to particular impacts may be less easily quantified, but the opportunities for progress on sustainable development may be greater. In Chapter 8 of this Report, we noted the potential financial and environmental benefits from using integrated information for internal operations. We expect the potential benefits to be greater on the policy and program side. We also expect the possible impacts of policy and program decisions to be reflected in the effort and emphasis departments place on the tools and approaches used to support those decisions, compared with operational decisions.

9.22 **Fluid decision–making context.** Policies and programs may be established, modified and terminated in a fluid decision–making context, sometimes on very short notice, sometimes as a result of strong political or international forces. Thus they are more unpredictable and less easily captured in the framework of an annual management cycle than, say, operations and maintenance decisions for a building complex. This fluidity and the confidentiality associated with some policy processes also means that it is more difficult to document decision processes publicly and identify accountability. For example, decisions to supply humanitarian aid in the aftermath of natural disasters are usually made quickly and with little public debate.

9.23 **Different information demands.** Information to support integrated decision making for policies and programs must fit into a different framework than for operations. Given that different policies may be targeted at very different stakeholders, information about activities may not be transferable from one policy initiative to another. The relevant baseline indicators will reflect the overall context for the policy or program (for example, how many farmers are selling wheat, or what the pollution level is in a given river). Decision makers will want to know who will be affected by the policy, how they will be affected and how they are likely to respond (that is, the focus is on results). This means that departments need to maintain the capacity to answer these questions. For example, Agriculture and Agri–Food Canada is developing a set of agri–environmental indicators covering possible impacts on soil, wildlife and water quality to help the Department plan programs and assess their consequences. Departments also need information on the effects of their existing programs and policies, such as the effects generated by their taxes, grants and subsidies. (The government made a commitment to prepare such baseline studies as part of their sustainable development strategies.)

9.24 **Measuring results.** Previous work by the Office of the Auditor General has focussed on the challenges of measuring the results of policies and programs. The effects are less direct than for operational decisions; this means that it may be more difficult to attribute the outcomes (positive or negative) to any given federal program or policy. Specialized measurement instruments (for example, surveys of program recipients) may be required, and considerable resources may be needed to obtain a clear reading of the outcomes. There may be substantial time lags before some kinds of programs or policies can reasonably be expected to produce desired effects, thus hindering simple evaluation approaches. The specific, possibly unique, character of policies and programs means that measuring progress toward sustainable development may have to be done on a policy–by–policy, program–by–program basis. Despite these constraints, government policy requires that all programs or program instruments be considered for evaluation and that evaluations be carried out where they are material and cost–effective.

Support for Integrated Decision Making

9.25 Policy makers have taken many different approaches to making integrated decisions. We wanted to understand what kinds of approaches federal departments could use. Selecting examples from other jurisdictions and organizations to help set the context for Canadian practices, we examined the following four approaches: foresight initiatives, strategic environmental assessment, multiple accounts analysis, and national environmental accounting. They were selected on the basis of their potential applicability and relevance to the Canadian federal government, the potential lessons to be learned from their application, the availability of research information, and their variety.

Foresight initiatives are used to anticipate long–term issues

9.26 Foresight is a set of methods used to anticipate the long–term future in a sector of concern. It focusses on identifying the key driving forces of social, economic, environmental and cultural change and the interactions among them, and examines what these forces are likely to mean in terms of policy choices and decisions. The value of the approach lies not in making predictions, but in analyzing and organizing information that can help shape decisions and actions.

9.27 Foresight has been used in several policy domains. For example, in the United States, the Environmental Protection Agency's foresight study identified 50 specific possible issues. These included the psychological and social impacts of the "information highway", and environmental problems resulting from rapid growth in developing countries and the depletion of fossil fuels, leading to the use of alternatives that could contaminate the biophysical environment or destroy habitat. The issues have since been incorporated into the Agency's strategic planning process.

9.28 **Diversity of participants.** Foresight is not a single method, but rather an approach or a way of thinking about the future. Foresight initiatives are usually multi–sectoral, multi–disciplinary and multi–stakeholder. The national foresight initiative in the United Kingdom involved 16 sectoral panels, each with representatives from business, "the science base" and government. These panels consulted their respective sectors using a variety of methods, involving a total of about 10,000 people.

9.29 **Consensus–building process.** Most foresight initiatives also recognize the importance of the process itself. For example, in Japan, foresight methods have built consensus by creating and fostering networks that facilitate the communication of ideas among individuals, organizations and institutions.

9.30 **Long–term focus.** Foresight initiatives usually focus on the medium– or long–term future (15–50 years), unlike most organizational planning processes, which focus on the short–term future (3–5 years). The Environmental Protection Agency's foresight process used a 50–year time horizon.

9.31 **Linked to planning and policy.** Foresight processes are most effective when they are linked to strategic planning, policy and decision making processes. In the United Kingdom, the government launched a Foresight Challenge, which provided up to 50 percent of the funding for multi–sectoral projects consistent with the foresight priorities identified. The government also required the Research Councils in the United Kingdom to consider foresight priorities when making funding decisions.

9.32 **Experience in the Netherlands.** In the mid–1990s, foresight initiatives were started in several sectors important to the Dutch economy, including agriculture. Foresight was used for the agricultural sector because there are many potentially conflicting considerations that must be balanced and optimized over the long–term in agricultural policy. These considerations include environmental (for example, biodiversity and pesticide use), economic and social (for example, agricultural subsidies and support programs) and land use planning (for example, rural development and conservation).

9.33 The Dutch National Council for Agricultural Research used a foresight approach to identify long–term issues for research and policy in agriculture, rural development and fisheries. The approach has resulted in a dialogue and, in some cases, a consensus among participants from research institutions, government and the private sector that would not have occurred otherwise. The link to policy development has been relatively weak, however, possibly because the application of the approach is still quite new and because the Council primarily plays an advisory role, at "arm's length" from the government.

9.34 **Application to Canadian federal departments.** In Canada, most departmental sustainable development strategies now focus on relatively short–term ways of making progress (such as, on the operational side, the development and implementation of environmental management systems), with little emphasis on intergenerational issues. Implementing foresight processes could encourage the consideration of likely future issues in decision making. Some departments have already implemented or are considering foresight approaches for science and technology policy.

Strategic environmental assessment permits prediction of the environmental effects of programs and policies

9.35 The second approach, strategic environmental assessment, assists policy analysts and decision makers at the stage of considering alternatives to a given policy, plan or program and evaluating their implications. The approach has been defined as: "a systematic, proactive process for evaluating the environmental consequences of policy, plan or program proposals in order to ensure that they are fully included and addressed at the earliest appropriate stage of decision making on a par with economic and social considerations."

9.36 **Addressing problems at their source.** The systematic use of strategic environmental assessment can promote sustainability by addressing the cause of environmental problems at their policy source, rather than just treating them as symptoms or impacts. For example, a policy decision to undertake a major infrastructure program could be assessed for generic issues of need, alternatives and mitigations, before drawing up plans for the individual construction projects and conducting many separate project environmental impact assessments.

9.37 **Several countries use assessments.** A small but growing number of countries have established mandatory provisions for strategic environmental assessment. Within the European Union, formal provisions for assessing the environmental impacts of policies, plans and programs exist in Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden and the United Kingdom. There are similar processes in Canada, Australia and New Zealand. The instruments used to implement these requirements are very diverse, including laws, cabinet and ministerial decisions, circulars and advice notices. No country routinely applies strategic environmental assessment to all policies, plans and programs, nor does any require the application of this form of assessment with the same rigour or detail as project level environmental assessment.

9.38 **The Danish experience.** Denmark has required environmental impact assessments of designated categories of projects since 1989, and has required strategic environmental assessments of government bills and proposed policies since 1993. When the sponsoring ministry introduces a bill or program to Parliament, it must indicate whether or not the bill is expected to have a significant environmental impact and, if so, provide an assessment of the nature of that impact.

9.39 The Danish experience indicates that the strategic environmental assessment of proposed policies and laws is difficult, but feasible. It is important that assessment processes be tailored to the existing policy and planning processes and the existing political culture. This cultural aspect includes the character of the policy–making process, the level and nature of political accountability, and the degree of activism and influence of interest and community groups.

9.40 **Improving quality of assessments.** A review of the Danish experience indicates that several factors promote a better analysis of environmental impacts, including:

- stipulating detailed requirements concerning the content, scope and process (Exhibit 9.3 illustrates part of the process);
- establishing procedural checks and balances on assessment quality;
- requiring public involvement that goes beyond organized non–governmental organizations; and
- senior management support.

Exhibit 9.3

Danish Strategic Environmental Assessment Checklist

This checklist can be used to help determine whether a strategic environmental assessment is required.

- Does the bill/government proposal affect the possibilities of ensuring sustainable development or preventing environmental damage?
- Are the environmental effects contrary to, or will they make it difficult to comply with, established environmental objectives, policies or guidelines?
- Does the effect in question involve any particular risk or is it particularly harmful or irreversible, e.g. emission of heavy metals or toxic substances?
- Will the effect in question affect large geographical areas or involve particularly radical changes in the ecological or landscape structures or in the land use of local areas?
- Is the area affected particularly vulnerable or sensitive, for example, areas like coastal zones, habitats for rare or endangered species, or areas of specific recreational value?

Source: Ministry of Environment and Energy, Denmark. Guidance on procedures for environmental assessments of bills and other government proposals, 1995

9.41 **Application to Canadian federal departments.** In Canada, a 1990 Cabinet directive established a non–legislated process for environmental assessment of federal policy and program initiatives submitted for Cabinet consideration. This was also to apply to other policy and program decisions made by ministers without reference to Cabinet. We reviewed the state of implementation of this approach in Chapter 6 of our 1998 Report. Compliance with the directive has been slow and uneven across departments.

9.42 Departments are at different stages of using strategic environmental assessment. Agriculture and Agri–Food Canada has developed a guide to help it prepare the environmental assessments of its policies and programs, including those assessments required under the *Farm Income Protection Act*. Parks Canada evaluates business plans and management plans for national parks and national historic sites for their potential adverse effects on the environment. The Canadian Environmental Assessment Agency is providing guidance on a strategic environmental assessment to support the new Climate Change Strategy.

9.43 Overall, however, this approach does not have a high profile. In their first sustainable development strategies, only 12 of 28 departments mentioned strategic environmental assessment, or the environmental assessment of policies and programs. For some departments, it was mentioned in passing; for others, there was a firm commitment to using it. We believe there are opportunities to strengthen implementation of this key tool to help them deliver on their commitments to integrated decision making.

Multiple accounts have been used to make better trade–offs

9.44 The third approach, multiple accounts analysis, was developed in the United States in the early 1970s as a method for incorporating social and environmental considerations into the planning of land and water resources.

This form of analysis was first introduced in British Columbia a few years later and its use has gradually become more widespread in that province, particularly since the early 1990s.

9.45 Separate and parallel analysis. Instead of putting a single dollar value on the economic, environmental and social costs and benefits of an issue, multiple accounts analysis involves considering the different aspects of the problem separately, and in parallel. This approach recognizes the importance of value judgments in making trade–offs — for example, between tourism benefits and logging employment. It often includes a public participation component. The users of multiple accounts analysis try to integrate qualitative and quantitative information within a common analytical framework.

9.46 Multiple accounts evaluation entails the systematic documentation and assessment of relevant implications of alternative plans and projects. It involves four major steps:

establishing the framework of accounts to be analyzed and the effects and perspectives to be considered. This step entails choosing appropriate scales (for example, local, regional and global) and relevant accounts (for example, financial, environmental, economic and Aboriginal) for analysis;

- developing alternative management scenarios;

- defining how each type of effect is to be analyzed and measured; and

- clearly communicating the advantages, disadvantages and trade–offs associated with each management scenario.

9.47 The experience in British Columbia. Early this decade, British Columbia was the arena for several high–profile confrontations over land use and forest management. At stake were issues of ecosystem protection (for example, old growth forests), Aboriginal rights, economic returns to the Province, jobs and the dependence on resource extraction for remote communities. The Province instituted a multiple accounts approach to the preparation of land and resource management plans. Nine such plans have been completed or are in preparation. The approach features a multi–stakeholder consensus–seeking process operating within parameters established by government policy.

9.48 Selecting and weighting variables. The effectiveness of this approach depends strongly on the selection of the variables for analysis (that is, the accounts and their indicators) and the availability of supporting data. For example, short–term economic imperatives, such as job creation, may receive greater weight in areas of high unemployment. The approach's application often also calls on consultation skills because of the explicit nature of the value judgments to be made.

9.49 Application to Canadian federal departments. Multiple accounts approaches have also been used for other purposes not directly related to land management (see Exhibit 9.4). In our view, the multiple accounts approach lends itself to tracking parallel environmental, social and economic effects.

Exhibit 9.4

Use of Multiple Accounts to Evaluate the Benefits of Environmental Management

In a report prepared for the Canadian Council of Ministers of the Environment, the benefits of four environmental management programs were evaluated by using a multiple accounts approach. The summary shown here is for a New Brunswick program for managing underground storage tanks.

The possible environmental effects of leaking underground storage tanks include contamination of groundwater, surface water, air and soil. The direct benefits include avoiding these effects as well as reduced emergency response, avoided property value reductions, and avoided remedial

action. The indirect economic impacts are secondary effects due to program expenditures and increased marketability of Canadian goods and services.

The authors estimated large direct benefits over the assumed 25–year time horizon for the program. Note the mix of quantitative estimates and qualitative information.

Account	Key Factors	Magnitude or Significance	Indicator
Direct Benefits[1]	Major benefit is avoided remedial cost; others include avoided loss of property value and new water system costs	$132.9-277.8 million[2]	Benefits valued on the basis of market prices
	Relate to use and intrinsic value of groundwater	$0.8-2.0 million[2]	Benefits valued on the basis of willingness to pay
	Relate to avoided vapour contamination	Potential health and safety risks are avoided	Not quantified or valued
Economic Impacts[1]	Relate to cost of tank removal/ replacement	$41-81 million 900-1800 person years[2]	Income and employment from compliance
	Relate to government implementation, monitoring and enforcement	$0.4 million per year 10 person years per yea	Income and employment from government expenditures
	No major tank manufacturers in the province	Not significant	Enhanced marketability
Government Financial Effects	Based on program costs less fees and fines	($0.5 million per year)	Net revenue (cost)

[1] The Direct Benefits and Economic Impacts accounts are separate and not additive.

[2] These estimates are for the 25 years over which the program is assumed to have effect.

Source: Adapted from Dillon Consulting Limited

National environmental accounting can be used to track the effects of national policies

9.50 The fourth approach, national environmental accounting, may help evaluate the sustainable development effects of policies and programs at a national or sectoral level, such as tax policies, subsidy programs, and agricultural price supports. The approach builds on the current systems of national accounts, through which countries record the inputs, outputs and level of activity of the national economy.

9.51 Modifications to national accounts needed. The existing national accounts and associated indicators, such as Gross Domestic Product (GDP), were not intended to be used as measures of human wealth and well–being. National statisticians have recognized some perverse effects from the way the national accounts are currently defined, including the following:

- Environmental expenditures are included as additions to national accounts. For example, the clean–up of the spill from the *Exxon Valdez* oil tanker contributed positively to the GDP of the United States, despite the environmental and economic damage that it caused.

- Depletion of natural resources, such as oil reserves or iron ore deposits, and the corresponding reduction in "natural capital" are not reflected in the current calculations. (In contrast, depreciation of man–made capital such as buildings and machinery is included.)

9.52 Several initiatives are under way to complement the national accounts, to change the methodology used to calculate them, or to devise alternative indicators. Many developed countries, including Canada, have modified their national accounts or constructed "satellite" accounts. For example, the Netherlands has developed a "National Accounting Matrix Including Environmental Accounts" and uses the results to track pollution emissions and evaluate performance relative to its National Environmental Policy Plan. France is registering changes in land use and ecosystems through its ecozone accounts.

9.53 **Link to sustainable development strategies.** Some developing nations are using national accounting approaches to consider the effects of their sustainable development strategies. For example, Namibia is using its accounting system to help it address water allocation and land degradation issues. Other developing countries with projects on national environmental accounting include Colombia, Ghana, Indonesia, Korea, Mexico, Papua New Guinea, and the Philippines.

9.54 **Experience of the World Bank.** The World Bank has focussed on developing a series of indicators that are intended to track changes in the wealth of countries, incorporating the effects of natural resource depletion, environmental damage, and investments in human capital, as well as the traditional economic measures. It is using these indicators to evaluate whether, overall, countries are on a sustainable path, and whether the opportunities for future generations are diminished. The World Bank plans to include these measures as part of the background information package as it designs and implements country assistance policies and programs.

9.55 The World Bank has estimated the revised wealth measures for almost 100 countries. Even this relatively early work has clearly documented the relative significance of human capital in the wealth of nations — human capital defined in terms of education, raw labour and social capital. This has important implications for national development strategies, in both poor and rich countries. For example, the World Bank estimates that more than two thirds (69 percent) of Canada's national wealth is due to its human capital; the rest is attributable to natural capital (11 percent) and manufactured capital (20 percent).

9.56 There is continuing debate over how best to adjust the national accounts, but the current work is helping decision makers view their policies and programs from a more comprehensive perspective.

9.57 **Application to Canadian federal departments.** In Canada, Statistics Canada has already developed satellite accounts to complement the traditional GDP measures of economic performance. The first results of this work, along with other relevant indicators, were released in December 1997. The initial set of indicators generated from the new accounts includes measures of natural resource wealth, agricultural land use and supply, greenhouse gas emissions per unit of household expenditure, and pollution abatement and control expenditures by governments (see Exhibit 9.5 for examples). Once these accounts are produced on a regular basis, departments will be able to use this information to help track the effects of policies and programs, either singly or in combination. For example, the information in Exhibit 9.5 could be used by departments whose programs affect agricultural land use and competing uses.

Exhibit 9.5 is not available, see the Report.

Departments face barriers to implementation

9.58 Any of the decision support tools described in the case studies could be applied by Canadian federal departments. Although there are no policy barriers to the introduction of these approaches, there are other obstacles that departments will need to overcome to deliver on their commitments to integrated decision making.

9.59 **Resource demands.** The application of each of the approaches reviewed in the case studies will demand resources, time and information, and may require a more sophisticated level of analysis than is often conducted. The recent cuts in departmental budgets have in many cases eroded internal analytical capacity (see Chapter 3 of this

Report). Resource constraints may inhibit widespread introduction of these decision–support tools, despite the potential net benefits of this initial investment in the form of more sustainable projects and policies.

9.60 Lack of co–ordination among departments. Effective sustainable development approaches require decision makers to overcome the problems posed by the fragmentation of departmental responsibilities for different issues. Interdepartmental or intergovernmental collaboration and co–ordination has often proved difficult to achieve for a variety of reasons, ranging from incompatible data sets and differing decision–making systems to "turf–protection" (see Chapters 3 and 4 of this Report).

9.61 Lack of attention to the long term. The federal government's approach to sustainable development emphasizes the need to reconcile environmental, social and economic imperatives in the present. The approaches that we have examined here, however, either are explicitly oriented to the future (for example, foresight approaches) or implicitly recognize the need to consider issues over time. The information yielded by these approaches will be most valuable for federal decision makers who place a high priority on the need for longer–term planning and policy development.

9.62 Lack of co–ordination within departments. The departmental officers responsible for strategic planning (including business plans) and policy development are often different from those managing sustainable development issues. This may inhibit the full integration of sustainable development approaches in the delivery of some departmental mandates.

The approaches share several features and point to aspects of successful implementation

9.63 Shared characteristics. Although each of the four approaches focussed on a different decision–making theme and on its application in different countries and to different issues, the approaches share several characteristics:

- All approaches are designed to improve the quality of information and analysis available to decision makers.
- The approaches demonstrate that environmental, social and economic considerations can be integrated at various stages in the policy process.
- All approaches can be used to manage issues across several departments.
- With the possible exception of national environmental accounting, the approaches all illustrate the importance of stakeholder participation to assist in making value judgments.

9.64 Desirable aspects of implementation. Based on the experiences of other jurisdictions with the range of approaches reviewed above, we conclude that there are several key aspects of implementation that allow the approaches to provide effective support for sustainable development decisions:

- **Flexible.** The approach chosen ought to reflect the fluid nature of the policy and program development process, the fact that the process can operate at different speeds, and the possibility that the magnitude and implications of policies or programs may differ dramatically.
- **Balanced.** The approaches chosen ought to cover all the dimensions of sustainable development, reflecting a comprehensive view of policy or program consequences. For example, a strategic environmental assessment, with its emphasis on impacts on the natural environment, would need to be complemented by information on social and economic effects.

- **Consider the long term.** In our view, it is important that approaches support consideration of possible effects on future generations.

- **Applied early in process.** A process that only considers the consequences of policies and programs at the last minute will not realize some of the benefits of integrated decision making. Early application is necessary to take advantage of a full and careful analysis of options.

- **Matched to initiative.** The nature and magnitude of the proposed policy or program and the nature and number of affected parties ought to shape both the mix of approaches used, and the depth and breadth of analysis.

- **Allocated sufficient resources.** Some applications of the approaches can be time– and resource–intensive. In our view, approaches need to be allocated sufficient resources to do their job effectively, to adequately identify the possible opportunities and areas of concern.

- **Developed in consultation.** For some policies and programs, stakeholders can provide input about the values associated with different options, offer insight into how policies and programs will be implemented, and provide crucial public support. In Chapter 2 of this Report, we review the central role of consultation in sustainable development strategy development and implementation. (For policies and programs, public consultation may not be appropriate in some cases — for example, due to concerns about confidentiality or national security.)

- **Establish clear accountability.** Successful implementation will require that the responsibility for preparing information, analyzing it and incorporating it into decisions be clearly assigned.

Next Steps

9.65 We are still in the early stages of our work on policies and programs. In future phases of this project, we may look further at the obstacles faced by federal departments in implementing integrated decision making in this area. We recognize that this will be a long journey. We plan to work closely with departments to help them identify what their needs are, what approaches are most appropriate, and how they could track their performance and report it to Parliament. As we did on the operational side, we will document some of the key steps to successful implementation (see Chapter 8 of this Report).

Conclusion

9.66 The government's commitment to integrated decision making is clear. It was reaffirmed through the first round of sustainable development strategies submitted by departments in 1997. Departments now need to go the next step — to translate these commitments into reality. We are concerned that some departments have not yet come to terms with the challenges and identified how they plan to do that. In our view, departments will need to consider carefully the kinds of approaches they use and plan to use, to ensure that they will be able to deliver on their commitments to integrated decision making.

9.67 Given the dominance of the government's policies and programs in influencing Canada's prospects for sustainable development, we focussed on a sample of relevant approaches that could assist departments to bridge the implementation gap. All four approaches have strengths and weaknesses, but all could be applied by federal departments. In our view, these approaches or other appropriate ones are necessary — as departments grapple with integrating the three dimensions of sustainable development (environmental, social and economic), as they consider the long–term consequences of their plans, and as they find ways of working together. Such approaches are not sufficient by themselves; successful implementation requires more than having the right tool in hand. There are

several promising avenues; we look forward to exploring them with departments, jointly developing a road map to better decisions.

9.68 At the same time, we believe that Parliament needs to know how departments will deliver on their commitments, whether the benefits of integrated decision making will be realized, and when the gap between commitment and implementation will be closed.

About the Study

Objectives

This study is part of the second phase of a five–year project to assist government departments in developing decision support tools for integrating environmental, social and economic information. The three overall objectives for this project are:

1. to help departments with custodial responsibilities to build the tools necessary to integrate considerations of environmental and social effects into capital and operating decisions;

2. to help departments create the baseline reference information necessary for credible, relevant and consistent measures of their sustainable development performance; and

3. to help departments with policy responsibilities to build practical, cost–effective tools to integrate information from diverse databases into decisions on policies with significant environmental, social and economic effects.

This chapter addresses the third objective. A companion chapter, Chapter 8 in this Report, documents our work on the first and second objectives. With respect to the third overall objective, our three sub–objectives for this phase of the project were:

- to document the state of the art for integrating information on environmental, social and economic impacts into policy and program decisions;

- to demonstrate how the use of this approach can contribute to departmental initiatives consistent with sustainable development; and

- to start defining criteria to be applied in future audits of the implementation of policies and programs.

Scope and Approach

To understand what is feasible for federal departments, we conducted four case studies. The cases were chosen based on their potential applicability to Canadian federal departments, on the potential lessons to be learned from their application in other jurisdictions and on the available information. A range of approaches was deliberately chosen to reflect some of the different policy choices. Our selection of these case studies should not be interpreted to indicate that we believe either that these are the four most effective decision–making techniques or that they should be the highest priority for adoption by the Canadian government.

Each case study was developed on the basis of a review of the relevant literature and interviews with practitioners, in the applicable organization and elsewhere.

The commitments to integrated decision making in the sustainable development strategies were documented after reviewing copies of the strategies.

Study Team

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Appendix

Glossary

Accounting for sustainable development — an information tracking framework that integrates internal (private) and external (societal) costs and benefits, and supports evaluations of the short– and long–term consequences of activities and projects from environmental, social and economic perspectives. (Commissioner of the Environment and Sustainable Development)

Integrated decision making — an approach to planning and decision making that ensures progress on each and all of the dimensions — social, economic and environmental — of sustainable development. (Source: *A Guide to Green Government*)

Strategic environmental assessment — a systematic, proactive process for evaluating the environmental consequences of policy, plan or program proposals in order to ensure that they are fully included and addressed at the earliest appropriate stage of decision making on a par with economic and social considerations. (Source: *International Study for the Effectiveness of Environmental Assessment*, 1995)

Sustainable development — development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Source: *Auditor General Act*)