



# Environment Canada

## Performance Report

For the period ending  
March 31, 2001

Canada

## **Improved Reporting to Parliament Pilot Document**

Each year, the government prepares Estimates in support of its request to Parliament for authority to spend public monies. This request is formalized through the tabling of appropriation bills in Parliament.

The Estimates of the Government of Canada are structured in several parts. Beginning with an overview of total government spending in Part I, the documents become increasingly more specific. Part II outlines spending according to departments, agencies and programs and contains the proposed wording of the conditions governing spending which Parliament will be asked to approve.

The *Report on Plans and Priorities* provides additional detail on each department and its programs primarily in terms of more strategically oriented planning and results information with a focus on outcomes.

The *Departmental Performance Report* provides a focus on results-based accountability by reporting on accomplishments achieved against the performance expectations and results commitments as set out in the spring *Report on Plans and Priorities*.

The Estimates, along with the Minister of Finance's Budget, reflect the government's annual budget planning and resource allocation priorities. In combination with the subsequent reporting of financial results in the Public Accounts and of accomplishments achieved in Departmental Performance Reports, this material helps Parliament hold the government to account for the allocation and management of funds.

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## Foreword

In the spring of 2000 the President of the Treasury Board tabled in Parliament the document “Results for Canadians: A Management Framework for the Government of Canada”. This document sets a clear agenda for improving and modernising management practices in federal departments and agencies.

Four key management commitments form the basis for this vision of how the Government will deliver their services and benefits to Canadians in the new millennium. In this vision, departments and agencies recognise that they exist to serve Canadians and that a “citizen focus” shapes all activities, programs and services. This vision commits the government of Canada to manage its business by the highest public service values. Responsible spending means spending wisely on the things that matter to Canadians. And finally, this vision sets a clear focus on results – the impact and effects of programs.

Departmental performance reports play a key role in the cycle of planning, monitoring, evaluating, and reporting of results through ministers to Parliament and citizens. Earlier this year, departments and agencies were encouraged to prepare their reports following certain principles. Based on these principles, an effective report provides a coherent and balanced picture of performance that is brief and to the point. It focuses on results – benefits to Canadians – not on activities. It sets the department’s performance in context and associates performance with earlier commitments, explaining any changes. Supporting the need for responsible spending, it clearly links resources to results. Finally the report is credible because it substantiates the performance information with appropriate methodologies and relevant data.

In performance reports, departments strive to respond to the ongoing and evolving information needs of parliamentarians and Canadians. The input of parliamentarians and other readers can do much to improve these reports over time. The reader is encouraged to assess the performance of the organization according to the principles outlined above, and provide comments to the department or agency that will help it in the next cycle of planning and reporting.

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This report is accessible electronically from the Treasury Board of Canada Secretariat Internet site:

<http://www.tbs-sct.gc.ca/rma/dpr/dpre.asp>

Comments or questions can be directed to this Internet site or to:

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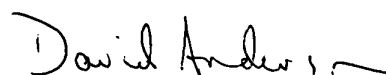
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# **Environment Canada**

## **Performance Report** **For the period ending March 31, 2001**



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**David Anderson**  
**Minister of the Environment**



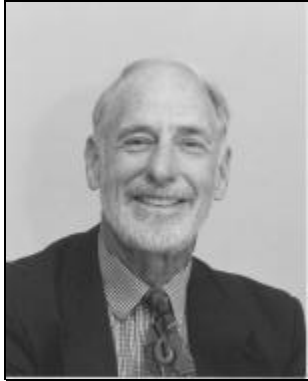
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# Section 1: Minister's Message



As the Minister responsible for Environment Canada, I am pleased to present the Departmental Performance Report for 2000-2001.

In the January 2001 Speech from the Throne, the environment was recognized as one of the cornerstones of the Government of Canada's plan for creating a better quality of life for all Canadians. Environment Canada has made tremendous progress this year in ensuring a clean and healthy environment for Canadians and preserving our natural spaces.

This Report focuses on the progress made on the priorities outlined in Environment Canada's Report on Plans and Priorities for 2000-2001. These priorities included developing a national clean air strategy, a new *Species at Risk Act*, responding to the threat of climate change, strengthening federal leadership on freshwater issues, and enhancing our services to Canadians in the area of weather service.

In addressing all of these priorities, Environment Canada has continued to work in partnership with all levels of government, individual Canadians, aboriginal communities, and non-governmental organizations and industry at the local, national and global levels. Ensuring a healthy and sustainable environment requires a concerted effort from all of us. It is only by working together that we will be able to develop effective solutions to environmental issues and ensure a healthy and sustainable environment now and for the generations of Canadians to come.

The progress achieved during the year 2000-2001, as detailed in this Performance Report, positions Environment Canada to continue to deliver on our commitments into the future. I am very proud of the environmental successes we have achieved this year and I would like to take this opportunity to thank all those who took part in helping us reach our goals.

David Anderson, P.C., M.P.

Minister of the Environment



# Section 2: Strategic Context

This section focuses on progress made on strategic priorities stated in Environment Canada's Report on Plans and Priorities (RPP) for 2000-2001. This performance report also serves as Environment Canada's annual report on science and technology.

## 2.1 Departmental Overview

### 2.1.1 Mandate, Vision and Mission

#### MANDATE

The mandate of the Minister of the Environment is to preserve and enhance the quality of the natural environment, including water, air and soil quality; conserve Canada's renewable resources, including migratory birds and other non-domestic flora and fauna; conserve and protect Canada's water resources; carry out meteorology; enforce the rules made by the Canada - United States International Joint Commission relating to boundary waters; and coordinate environmental policies and programs for the federal government (Department of Environment Act).

- The legislation and regulations, which provide Environment Canada its mandate and allow it to carry out its programs, can be found at: <http://www3.ec.gc.ca/EnviroRegs>.

#### MISSION

Environment Canada's mission is to make sustainable development a reality in Canada by helping Canadians live and prosper in an environment that needs to be respected, protected and conserved. To this end, we undertake and promote programs to:

- protect Canadians from domestic and global sources of pollution;
- conserve biodiversity in healthy ecosystems; and
- enable Canadians to adapt to weather and related environmental influences and impacts on human health and safety, economic prosperity and environmental quality.

#### OUR VISION

*At Environment Canada, we want to see a Canada:*

- *where people make responsible decisions about the environment; and*
- *where the environment is thereby sustained for the benefit of present and future generations.*

### 2.1.2 Organized to Deliver Results

Environment Canada fulfills its mandate of conserving and protecting our natural heritage, and protecting the health and safety of Canadians, through the efforts of its four results-based business lines: Clean Environment, Nature, Weather and Environmental Predictions, and Management, Administration and Policy.

Each business line is set up to deliver a long-term strategic outcome. Each desired outcome includes two or three more specific long-term goals, which, in turn, are divided into a series of distinct, achievable targets.

These business lines and their long-term goals, called "Long-Term Key Results", provide the framework for internal accountability and management as well as external reporting. The long-term key results also provide a stable, results-based strategic direction against which pressures faced by the Department, and shorter-term priorities to address these pressures, are organized.

Clean Environment Business Line	Nature Business Line
<p><b>Strategic Outcome</b> Through the Clean Environment business line, Environment Canada protect Canadians from domestic and global sources of pollution.</p> <p><b>Long-term key results:</b></p> <ul style="list-style-type: none"> <li>• Reduced adverse human impact on the atmosphere and on air quality.</li> <li>• Understanding, and prevention or reduction of the environmental and human health threats posed by toxic substances and other substances of concern.</li> </ul>	<p><b>Strategic Outcome</b> Through the Nature business line, Environment Canada conserves biodiversity in healthy ecosystems.</p> <p><b>Long-term key results:</b></p> <ul style="list-style-type: none"> <li>• Conservation of biological diversity.</li> <li>• Understanding and reduction of human impacts on the health of ecosystems.</li> <li>• Conservation and restoration of priority ecosystems.</li> </ul>
Weather and Environmental Predictions Business Line	Management, Administration and Policy Business Line
<p><b>Strategic Outcome</b> Through the Weather and Environmental Predictions business line, Environment Canada helps Canadians adapt to their environment in ways which safeguard their health and safety, optimize economic activity and enhance environmental quality.</p> <p><b>Long-term key results:</b></p> <ul style="list-style-type: none"> <li>• Reduced impact of weather and related hazards on health, safety and the economy.</li> <li>• Adaptation to day-to-day and longer-term changes in atmospheric, hydrological and ice conditions.</li> </ul>	<p><b>Strategic Outcome</b> Through the Management, Administration and Policy business line, Environment Canada provides strategic and effective departmental management to achieve environmental results.</p> <p><b>Long-term key results:</b></p> <ul style="list-style-type: none"> <li>• Strategic and integrated policy priorities and plans.</li> <li>• A well-performing organization supported by efficient and innovative services.</li> </ul>

Each business line is led by an assistant deputy minister who provides leadership by building shared ownership for priorities, strategies and performance commitments across the Department.

- A detailed description of Environment Canada's planning, reporting and accountability framework can be found at: [http://www.ec.gc.ca/introec/dept\\_org.htm#mf](http://www.ec.gc.ca/introec/dept_org.htm#mf)

Business lines are not isolated from each other, each makes important contributions to the success of the others. Business lines have common areas of interest such as air quality, climate change and environmental effects, and are working co-operatively to achieve results.

Organizationally, the Department is divided into five headquarters services, five regions, plus the Human Resources Directorate and Corporate Offices. Environment Canada's organizational structures crosscut business lines in a matrix management approach, which allows programs to be delivered in a client-centered manner that respects regional differences.

Program delivery in Environment Canada is achieved by drawing on the Department's scientific and technical knowledge combined with a strong regional understanding of the social, cultural and economic factors that shape attitudes, perceptions and behaviour. Environment Canada's regional offices deliver the national vision for the environment at the local level. They work in partnership with provinces, territories, communities and others across the country and encourage them to set goals sensitive to local and regional ecosystems. They provide science-based information, tools for action, and opportunities for sharing experiences and learning. Moreover, they help build the capacity of all the players involved to effect changes that will improve their quality of life.

**Linkages Across Business Lines**

Every part of the environment is linked. Every day the atmosphere interacts with every ecosystem and every person. Although atmospheric issues and their impacts appear unrelated, there are strong links between the issues of atmospheric change. These global air issues are integrators of our business lines. For instance, some chemicals linked to climate change are also implicated in smog, acidification, and stratospheric ozone depletion. The science behind all these air issues plays a role in the decline, invasion and adaptation of species, the adaptation of humans and their economic processes, the production of environmental services and the development of policies and protocols. These linkages provide the key in mitigating atmospheric change issues. Strategies to reduce greenhouse gases will produce visible results in the other atmospheric issues, as well as ecosystem health, biodiversity and human health. Through its interdependent business lines and matrix structure, the Department is organized to reflect these profound linkages.

### 2.1.3 Financial Information by Business Line

Clean Environment	\$	231,278,000
	\$	185,343,535
	\$	<b>172,982,137</b>
Nature	\$	172,437,793
	\$	188,505,299
	\$	<b>177,098,695</b>
Weather and Environmental Predictions	\$	232,998,999
	\$	247,902,355
	\$	<b>237,573,601</b>
Management, Policy and Administration	\$	108,165,658
	\$	124,366,461
	\$	<b>129,679,289</b>
<b>2000-2001 Total Gross</b>	\$	744,880,450
	\$	746,117,650
	\$	<b>717,333,722</b>
Planned Spending		
<i>Total Authorities</i>		
<b>Actuals</b>		
Details Provided in Table 2.		

## 2.2 Progress On Strategic Priorities

### 2.2.1 Highlights of Progress on Priorities

In the *Report on Plans and Priorities for 2000-2001*, Environment Canada outlined four strategic priorities to guide actions to be taken by its business lines. Priorities included:

- Clean air and water;
- Species at Risk;
- Climate change; and
- Weather - Safeguarding Canadians.

Highlights of progress on each of these priorities are described below.

#### CLEAN AIR AND WATER

Environment Canada made progress on several initiatives to improve **air quality**. The signing of the Ozone Annex to the Canada-U.S. Air Quality Agreement will result in significant cross-border emissions reductions. In April 2000, the Minister of the Environment announced a 10-year Clean Air Strategy which addresses vehicle and fuel standards, transboundary pollution, industrial sectors, the science on air quality, and the engagement of Canadians and communities.

#### Interim Plan on Particulate Matter and Ozone

*"The Interim Plan demonstrates action on the part of the Government to reduce targeted air pollutants that cause smog and contribute to ill health and deaths. We will continue to deliver on measures to reduce harmful air emissions and to build on our activities with more science, outreach to Canadians and a greener government."*

Minister of the Environment (Canada)

In June 2000, the Government of Canada, the provinces and the territories, except Quebec, adopted new Canada-Wide Standards for Particulate Matter (PM) and Ozone, two of the principle components of smog. These standards set the agenda for managing air quality in Canada for the next decade.

The ratification of the global Convention on Persistent Organic Pollutants (POPs) (also know as the Stockholm Convention on POPs) will reduce or eliminate emissions of twelve toxics substances that includes polychlorinated biphenyls (PCBs), dichlorodiphenyl trichloroethane (DDT), dioxins and furans.

- See related clean air performance stories in Section 3 of this report - Signing the Ozone Annex (page 19); and Federal Agenda on Vehicles and Fuels (page 21)
- To learn more about clean air issues and protecting our environment, visit: [http://www.ec.gc.ca/air/introduction\\_e.cfm](http://www.ec.gc.ca/air/introduction_e.cfm)

In the 2001 Speech from the Throne, the Government affirmed its commitment to lead in developing stronger national guidelines for **water quality** by enhancing scientific research and continuing its collaboration with partners. Drawing on expertise within the Government and from across Canada, it will significantly strengthen the role of the National Water Research Institute.

Environment Canada's effort to protect Canada's water resources is directed at working with provinces and territories, through the Canadian Council of Ministers of the Environment (CCME), to address freshwater priority issues. The Department also continues to build on successes achieved through its six ecosystem initiatives. Ecosystem initiatives are cooperative efforts on targeted ecosystems to address and solve complex environmental issues.

- ▶ See related water performance stories in Section 3 of this report - Water (page 50); and Ecosystem Initiatives (page 51)
- ▶ To learn more about issues relating to water quality, visit: [http://www.ec.gc.ca/envpriorities/cleanwater\\_e.htm](http://www.ec.gc.ca/envpriorities/cleanwater_e.htm)

## **SPECIES AT RISK**

In April 2000, the Minister of the Environment announced the federal strategy for species at risk, which includes three parts: new federal legislation (the *Species at Risk Act*); building on the Accord for the Protection of Species at Risk; and effective incentive and stewardship programs (the Habitat Stewardship Program for Species at Risk). In the January 2001 Speech from the Throne, the Government confirmed its intention to re-introduce the species at risk legislation. Environment Canada reached a key milestone in February 2001, with the introduction in the House of Commons of Bill C-5, the *Species at Risk Act* (SARA) and is actively guiding the Act through the parliamentary process. The Department promotes a number of stewardship initiatives enabling private landowners to protect and maintain habitat for species at risk, including the Habitat Stewardship Program for Species at Risk and the Ecological Gifts Program. More than 60 habitat stewardship partnerships were established with First Nations, landowners, resource users, nature trusts, provinces, the natural resource sector, community-based wildlife societies, educational institutions and conservation organizations.

- ▶ See related performance stories in Section 3 of this report - Species at Risk (page 38); and Migratory Birds and Habitat Protection (page 40)
- ▶ To learn more about Canada's species at risk and their recovery, visit: <http://www.cws-scf.ec.gc.ca/sar/>

## **CLIMATE CHANGE**

The agreement reached in Bonn includes all the necessary elements for Canada to consider ratification of the Kyoto Protocol next year.

The Government of Canada Action Plan 2000 on Climate Change, announced in October 2000, represents the federal contribution to the First National Climate Change Business Plan. Action Plan 2000 takes Canada one third of the way to achieving its Kyoto target, reducing greenhouse gas emissions (GHG) by 65 megatonnes per year during the commitment period of 2008-2012. Environment Canada and Natural Resources Canada play lead roles in implementing Action Plan 2000, along with other government departments (OGDs). Specific initiatives in *Action Plan 2000* will:

- triple the production of biomass ethanol, enabling as much as 25% of Canada's total gasoline supply to contain 10% ethanol;
- achieve significant new vehicle fuel efficiency targets by 2010 supported by a consumer education campaign as well as good driving habits and maintenance practices;

- support pilot projects to demonstrate best urban transportation technologies and strategies for reducing emissions;
- expand the use of low or non-emitting renewable energy sources, by four-times current levels, including purchasing 20 % of federal electricity requirements from emerging renewable sources.

Canada will continue the development of options for achieving the remainder of its Kyoto target.

In partnership with OGDs, business, community groups, non-governmental organizations, and other interested parties, Environment Canada continues to build understanding of climate change under the Public Education and Outreach component of the Climate Change Action Fund (CCAF). To date, 393 projects have received CCAF contributions totaling \$101 million.

- See related performance stories in Section 3 of this report - National Implementation Strategy (page 15); Climate Change - Science (page 66); Working with Partners to Reduce GHG Levels (page 72)
- To learn more about Environment Canada's work on climate change, visit: <http://www.ec.gc.ca/climate#index.html>

## **WEATHER - SAFEGUARDING CANADIANS**

Operating 365 days a year, 24 hours a day, Environment Canada issues timely and accurate weather forecasts and warnings to the public, as well as transportation and commercial clients, that help reduce casualties and damage from natural disasters. Through the Meteorological Service of Canada, Environment Canada provides warnings for health, safety, adaptation and reduced economic loss. It also provides the weather and environmental information necessary for Canadians to make effective decisions about their health, economic efficiency and environmental quality.

Annually, the Meteorological Service of Canada issues approximately 14,000 severe weather warnings and 35,000 ice hazards warnings, and provide about 500,000 public weather forecasts, 200,000 marine weather forecasts and 400,000 aviation forecasts.

Since spring 2000, five Doppler radars were installed in Franktown, southwest of Ottawa, King in southwestern Ontario, Montreal River near Sault Ste. Marie, Ontario; and Spirit River, Alberta, Victoria (located on Mt. Sicker, near Duncan, British Columbia). An improved Wind Chill product was developed to enhance the accuracy of wind chill warnings to Canadians and enable them to make more informed decisions to avoid injuries from extreme cold. The Department also disseminates weather information via telephone, television, and the Internet.

- See related performance stories in Section 3 of this report - Monitoring Systems (page 60)
- To learn more about the Meteorological Service of Canada, visit: [http://www.msc.ec.gc.ca/index\\_e.cfm](http://www.msc.ec.gc.ca/index_e.cfm)



## 2.2.2 Progress On Other Ongoing Interests

### SUSTAINABLE DEVELOPMENT

In accordance with Treasury Board Secretariat guidelines, this document provides performance information that allows parliamentary oversight regarding the implementation of Environment Canada's Sustainable Development Strategy.

- ▶ Refer to Section 4.1 on page 82, "Sustainable Development Strategy"

### PURSUIT OF EXCELLENCE IN ENVIRONMENT CANADA SCIENCE

Recent events in the areas of natural resource management and public health and safety have contributed to public concern regarding the ability of government to effectively use scientific advice in decision making. Canadians are demanding that government impose a reasonable and diligent standard of action to minimize risk to their health, their environment and their businesses.

These developments are of great importance to Environment Canada as a major provider of federal science and technology (S&T) and in delivering its mandate to help Canadians live and prosper in an environment that needs to be protected, respected and conserved. Science activities account for approximately 70% of departmental spending. A quarter of this is devoted to research and development.

Environment Canada takes direction on the evaluation of the management and performance of its S&T programs from three sources. First, the Department applies the principles of the Federal Science and Technology Strategy developed in 1996. Second, the Council of Science and Technology Advisors (CSTA) provides expert advice on internal federal government S&T. Finally, from the Environment Canada S&T Advisory Board.

### Impacts and Benefits - Advancement of Knowledge

Environment Canada S&T provides new scientific knowledge and tools essential to inform Canadians so that they can make responsible decisions to address existing and emerging issues. Environment Canada is the country's largest single contributor to environmental and meteorological sciences, accounting for more than 25% of Canadian environmental research publications. Key science contributions to the Business Lines during the planning period are reported under Section 3 under the individual Business Lines.

- ▶ See related performance stories in Section 3 of this report - Priority Substances Assessment Program (page 27); National Performance Indicators (page 44); Assessing Cumulative Environmental Effects (page 47); Warnings: Lead Time and Accuracy (page 58); and Climate Change - Science (page 66)

### Specific Accomplishments

The CSTA recently released a report titled "Science and Technology Excellence in the Public Service" (STEPS). This report lays out clear guidelines for fostering and measuring excellence in the conduct and management of federally-performed science and technology. It recommends that federal science be built on a foundation that emphasizes strong leadership and management, sufficient capacity, and an effective science/policy interface. Throughout the planning period,

Environment Canada evaluated its performance in several areas against the framework. Specific accomplishments include:

- An examination by Environment Canada of ways to build partnerships and networks to develop more effective and integrated approaches to increasing scientific environmental information. In particular, Environment Canada is exploring a Canadian Environmental Sciences Network to act as a hub of an intelligence network, a network of networks, and a focal point for environmental sciences in Canada. While still at the conceptual stage of development, this network is envisaged as a vehicle to provide links between individual networks, and between users and providers of scientific information about the environment. It might also be a suitable instrument to report on cross-cutting environmental issues and develop an environmental sciences agenda for Canada.
- Led by the Environment Canada S&T Advisory Board, the Department has produced a **Science Communications Framework** that highlights practices for science communications including Technical and Popular Publications; Issue Life Cycle Analysis and Issue Forecasting; Media Relations; Coordination and Cooperation with Citizens and Stakeholders.
- In the area of **Values and Ethics**, Environment Canada held workshops to engage S&T staff in a dialogue on values and ethical decision-making, and provide Environment Canada with an indication about the types of ethical dilemmas which typically confront staff in their work. The project provided Environment Canada with a number of recommendations it could consider to advance the departmental values and ethics agenda.
- Environment Canada obtained approximately \$425,000 from the Treasury Board Secretariat to run a one year pilot project under the **Graduate Opportunities Strategy**. The project, which was initiated in conjunction with other science-based departments, is to provide program continuity in core critical areas through the recruitment of recent S&T graduates in advance of the departures of senior personnel.
- Progress was made on **integrating federal research efforts** on a number of issues. An implementation plan for the Endocrine Disrupting Substances research agenda was developed under the 5NR<sup>1</sup> Memorandum of Understanding (MOU). Environment Canada also prepared a draft research strategy for Understanding the Ecosystem Effects of Genetically Modified Organisms and initiated interdepartmental consultations on the strategy. In addition, federal departments are discussing their respective research activities on water and exploring opportunities to work collaboratively on specific issues.
- The National Water Research Institute was evaluated against the **1999 Auditor General's Report on the Attributes of a Well-Managed Research Organization**. The results of the audit are positive and there are many lessons to be learned here for the Department in terms of good management practices, tools and processes; but also in terms of the attention being paid to people management, and to the cultivation of an open and supportive working environment.
- To learn more about Environment Canada's Science and Technology, visit:  
[http://www.ec.gc.ca/scitech/index\\_e.htm](http://www.ec.gc.ca/scitech/index_e.htm)

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<sup>1</sup> 5NR is a partnership of five departments (i.e. Agriculture and Agri-Food Canada, Environment Canada, Fisheries and Oceans Canada, Health Canada, and Natural Resources Canada) focusing their science and technology on sustainable development in Canada's Natural Resources sectors.

## **MODERN MANAGEMENT**

Environment Canada Modern Management is focused on the Government of Canada commitment of the highest quality of service to the public; it addresses the four critical areas (Citizen Focus, Values, Results and Responsible Spending) to a well-performing public sector. Environment Canada Modern Management is about improving the way the Department spends, works and make its contribution to fulfilling environmental commitments. It is also about improving current Environment Canada managerial capacity.

Over the last fiscal year, Environment Canada's main achievement has been to build awareness on the fundamentals of Modern Management. The Department also collected valuable information on the state of Environment Canada management capacity and sorted out actions needed to continue improving. The Department is currently crafting an action plan that is to be fully implemented by the fall of 2004.

- See related performance stories in Section 3 of this report - Implementing E-Government (page 77); Taking Action on Public Service Employment Survey Results (page 79)

## Section 3: Business Line Performance

This Section provides detailed performance information of selected stories in each of Environment Canada's four business lines. Performance stories were selected based on the achievement of a significant milestone during the review period, anticipated interest on the part of Parliamentarians or the Canadian public, and their relation to government-wide priorities.

- To obtain detailed information on accomplishments relative to the performance commitments set out in the Department's *Report on Plans and Priorities 2000-2001*, visit: [http://www.ec.gc.ca/drp/2001/table\\_e.htm](http://www.ec.gc.ca/drp/2001/table_e.htm)

### 3.1 Clean Environment Business Line

Through the Clean Environment business line, Environment Canada acts to protect Canadians and their environment from domestic and global sources of pollution. Specifically, the Department aims to achieve two long-term results:

- reduce adverse human impact on the atmosphere and on air quality; and
- understanding, and prevention or reduction of the environmental and human health threats posed by toxic substances and other substances of concern.

Activities under the Clean Environment air and toxics results are managed according to an issue model. This model follows the lifecycle of a typical environmental issue -- problem identification, solution development, implementation of solutions, and tracking of performance. Our activities begin with research on the toxic substance and assessment of its effect on ecosystems. Work continues with development of management options, and implementation of the most appropriate risk management mechanisms. Finally, there is ecosystem monitoring to ensure the desired environmental results are achieved. The cycle begins again if problems are identified through results of monitoring or new research findings.

<b>Financial Information by Long-Term Results</b>		
Reduced adverse human impact on the atmosphere and on air quality.	\$	97,091,911
	\$	68,834,579
	<b>\$</b>	<b>63,009,057</b>
Understanding, and prevention or reduction of the environmental and human health threats posed by toxic substances and other substances of concern.	\$	134,186,089
	\$	116,508,956
	<b>\$</b>	<b>109,973,080</b>
<b>2000-01 Total Gross</b>	\$	231,278,000
	\$	185,343,535
	<b>\$</b>	<b>172,982,137</b>
Planned Spending		
Total Authorities		
<b>Actuals</b>		

## Long-Term Key Result: Reduced adverse human impact on the atmosphere and on air quality.

In general, all air issues are closely linked. These linkages include common sources for pollutants that contribute to multiple problems and common health and environmental impacts. Increasingly we are trying to take actions that have multiple benefits for one investment of resources. The “*air result*” is divided into five areas of focus that support this long-term key result. The following table aligns those five areas of focus, the long-term indicators and targets, and the commitments for 2000-2001 that form Environment Canada’s response to the long-term key result for the planning period.

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
<b>Climate Change</b>	<p><b>Indicator:</b> Canadian greenhouse gas (GHG) emissions.</p> <p><b>Target:</b> Reduce total emissions to 6% below 1990 levels between 2008-12.</p>	<p>✓ <b>National Implementation Strategy</b></p> <ul style="list-style-type: none"> <li>Develop a National Implementation Strategy and a three-year business plan.</li> </ul> <p><b>Climate Change Action Fund</b></p> <ul style="list-style-type: none"> <li>Manage the public education and outreach program; co-manage the science, impacts and adaptation, and the technology early action measures components.</li> </ul> <p><b>Ontario Green Power</b></p> <ul style="list-style-type: none"> <li>Promote procurement through wind power demonstration projects and energy audits of small and medium-sized businesses.</li> </ul>
<b>Air Quality</b>	<p><b>Indicator:</b> Air pollution related mortality, hospital admissions and asthma episodes.</p> <p><b>Target:</b> Reduce air pollution-related mortality, hospital admissions and asthma episodes by 25% from 1990 levels by 2005 and 50% by 2010.</p> <p><b>Indicator:</b> Ambient levels of ground-level ozone and particulate matter (PM).</p> <p><b>Targets:</b> Meet Canada-Wide Standards for Particulate Matter and Ozone by 2010.</p> <p>Achieve 90% compliance with sulphur in fuels regulations within five years of coming into effect.</p>	<p>✓ <b>Federal Phase 3 Smog Strategy</b></p> <ul style="list-style-type: none"> <li>Federal Phase 3 Smog Plan in early 2000.</li> </ul> <p><b>Canada-Wide Standards (CWS) for PM and Ozone</b></p> <ul style="list-style-type: none"> <li>Sign CWS for particulate matter and ozone.</li> </ul> <p>✓ <b>Canada-U.S. Air Quality Agreement</b></p> <ul style="list-style-type: none"> <li>Agreement with the U.S. on an Ozone Annex to the Canada/U.S. Air Quality Agreement.</li> <li>Vehicles and fuels agenda.</li> </ul> <p><b>Air Quality Predictions and Forecasts</b></p> <ul style="list-style-type: none"> <li>Atlantic Region will expand its air quality prediction program. Pacific and Yukon Region will evaluate a prototype air quality forecast service for the Georgia Basin.</li> </ul> <p><b>Sustainable Development Technology Fund</b></p> <ul style="list-style-type: none"> <li>Continue to support the development of technologies and management options that reduce polluting emissions.</li> </ul>
<b>Acid Rain</b>	<p><b>Indicator:</b> Canadian emissions of sulphur dioxide and nitrogen oxides.</p> <p><b>Target:</b> Establish permanent national limit on sulphur dioxide emissions of 3.2 million tonnes annually (first met in 1993).</p>	<p><b>Canada-Wide Acid Rain Strategy for Post 2000</b></p> <ul style="list-style-type: none"> <li>Present to Ministers, targets and timetables to further reduce sulphur dioxide emissions.</li> <li>Prairie and Northern Region will participate in the implementation of the province of Alberta’s Acidifying Emissions Management Strategy.</li> </ul>
<b>Hazardous Air Pollutants</b>	<p><b>Indicator:</b> Atmospheric deposition of hazardous air pollutants (HAPs).</p> <p><b>Target:</b> Long-term target under development.</p>	<p>✓ <b>UNEP Global POPs Control Agreement</b></p> <ul style="list-style-type: none"> <li>Global Control Agreement for POPs.</li> </ul>
<b>Stratospheric Ozone</b>	<p><b>Indicator:</b> Domestic consumption and production of ozone depleting substances.</p>	<p><b>Ozone Depleting Substances</b></p> <ul style="list-style-type: none"> <li>Actions to implement the National Action Plan for the Environmental Control of Ozone Depleting Substances.</li> </ul>

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
	<p><b>Targets:</b> Reduce consumption of HCFCs - 35% by 2004 (base year 1996).</p> <p>Reduce production and consumption of methyl bromide - 50% by 2001 (base year 1991).</p> <p><b>Indicator:</b> Developing countries meet their obligations under the Montreal Protocol.</p>	<p><b>Montreal Protocol Multilateral Fund</b></p> <ul style="list-style-type: none"> <li>• Actions to implement the Montreal Protocol.</li> </ul>

Note: Shaded areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.1.1 Climate Change

#### *What is the issue?*

Climate change poses an enormous challenges for Canada and the global community at large. The chemical composition of our atmosphere is changing through the buildup of greenhouse gases, particularly carbon dioxide. As a northern country, we are particularly susceptible and we are already seeing the impacts of increased temperatures, particularly in the Arctic.

The average global temperature has risen about 0.6°C over the past century. Canada's average temperature has increased 0.9°C in the past 50 years. The northwestern Arctic has warmed by 1.8°C. By the end of this century Canada's average temperature could warm by 5.0°C and the Arctic by as much as 10°C (see Figure 1).

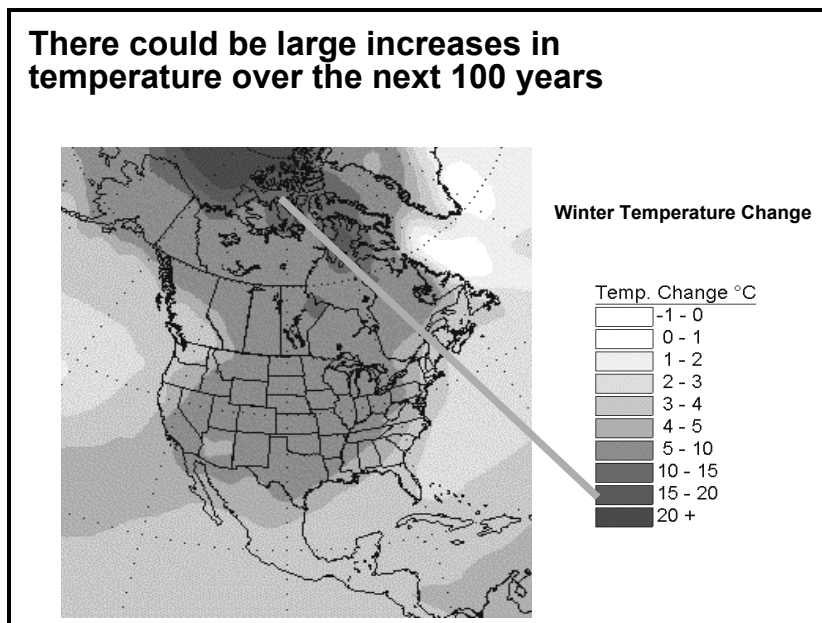


Figure 1- Projected Winter Temperature Change between 2080-2100 (using data from 1975-1995) .

These temperature increases will have serious consequences for our health, our environment, and our economy. The frequency and severity of heat waves in our major cities will increase. Sea ice and permafrost will melt. Water levels in the Great Lakes could drop by more than a metre. Water flows in the St. Lawrence could decrease by 40%. Farmland in southern Saskatchewan and Alberta could become semi-arid. The northeastern Pacific Ocean will become too warm for salmon. Parts of our Atlantic provinces could be flooded by rising sea levels.

### ***What are we doing about it?***

In December 1997, the global community adopted the Kyoto Protocol. Canada's target under the Protocol is to reduce greenhouse gas emissions (GHG) to six percent below its 1990 levels by the 2008-2012 timeframe.

It is the Government's intention to achieve the majority of its Kyoto target through domestic action. The Government of Canada has begun to implement the \$1.1 billion in measures announced in 2000 to mitigate the effects of climate change including *Action Plan 2000 on Climate Change (AP2000)*. The measures in *AP2000* will take Canada one-third of the way to the Kyoto target. It sets the course for action in all sectors of the Canadian economy and lays the groundwork for long-term behavioral, technological and economic change.

The Climate Change Action Fund (CCAF) public education and outreach activities will provide Canadians with information on actions that they can take to reduce GHG emissions through partnered outreach projects and Government of Canada information and awareness activities.

#### **Green Municipal Funds (GMF)**

Budget 2000 provided \$125M to support municipal investments in innovative environmental projects and green infrastructure. Subsequently, two funds were created, the Green Municipal Enabling Fund (GMEF) and the Green Municipal Investment Fund (GMIF). The GMEF is a five-year, \$25 million fund which provides grants to support feasibility studies on leading-edge environmental technologies. The GMIF is a \$100 million revolving fund that provides loans to municipalities to finance the implementation of environmental infrastructure projects. Environment Canada and Natural Resources Canada each contributed half of these Funds. The funds were transferred through an arms length agreement to the Federation of Canadian Municipalities (FCM) who is the designated delivery agent. In 2000-2001, thirty-nine GMF were approved for a total funding commitment of \$2.6 M. In addition, Municipal governments are providing financial support for all Green Fund projects and private sector partners are participating in 13 of the approved projects. The performance of the funded projects and their contribution to environmental results (i.e. GHG reductions) will be monitored and reported on regularly by the FCM. ([www.fcm.ca](http://www.fcm.ca))

### **NATIONAL IMPLEMENTATION STRATEGY**

First Ministers directed Ministers of Environment and Energy to establish a national climate change process to examine the impacts, costs and benefits of carrying out the Kyoto Protocol as well as various implementation options open to Canada.

- To learn more about the National Climate Change Process, visit <http://www.nccp.ca/>

### **Accomplishments**

In February 1998, the Government of Canada launched the Climate Change Action Fund (CCAF) to, amongst other things, support the national process and develop a National Implementation Strategy on Climate Change (NIS) to establish principles and a framework for a coordinated national response to climate change. The CCAF had four components:

- an analytical component which was used to create 16 Issue Tables/Working Groups and establish a Federal Climate Change Secretariat. The Issue Tables brought together more than 450 experts from industry, academia, non-government organizations, municipalities, and federal, provincial and territorial governments to establish measures and develop contributions by various sectors of the economy towards achieving our Kyoto target;
- a science, impacts and adaptation component;
- an early emission reduction actions component; and

- a Public Education and Outreach component to increase awareness and understanding of climate change, and encourage Canadians to reduce GHG emissions in their communities and adapt to climate change.

In February 2000, federal Budget investments in the national climate change process included the Sustainable Development Technology Fund to help ensure that new technologies are available so that Canada can achieve its climate change and air quality goals in a cost effective manner. Investments in Green Municipal Funds are helping communities become more eco-efficient in their operations. The Government of Canada created the Canadian Foundation for Climate and Atmospheric Sciences to provide leadership and a focal point for advancing the state of the science and to leverage research funding from universities and institutes. The advances in technology and science generated through the Foundation will help all Canadians.

Budget 2000 also provided support for:

- a three-year extension of the Climate Change Action Fund; and
- Official Development Assistance for technology transfer to help developing countries reduce their greenhouse gas emissions.

In October 2000, the Government of Canada announced Action Plan 2000 on Climate Change, and its contribution to the First National Climate Change Business Plan (FNBP). Later in October, all federal, provincial and territorial governments, except Ontario, approved the NIS and the FNBP.

- To learn more about the federal investments in climate change announced in Budget 2000, visit [http://www.fin.gc.ca/budget00/bp/bpchs5\\_1e.htm#Environmental](http://www.fin.gc.ca/budget00/bp/bpchs5_1e.htm#Environmental)
- To learn more about the Government of Canada Action Plan 2000 on Climate Change, visit: [http://www.climatechange.gc.ca/english/whats\\_new/action\\_plan.shtml](http://www.climatechange.gc.ca/english/whats_new/action_plan.shtml)
- To learn more about the First National Climate Change Business Plan, visit [http://www.nccp.ca/NCCP/strategy\\_bus/index\\_e.html](http://www.nccp.ca/NCCP/strategy_bus/index_e.html)

### Impacts and Benefits

Action Plan 2000 draws extensively and captures the best ideas from the provinces, territories and stakeholders involved in the Issue Tables consultation process. It sets the course for action in all sectors of the Canadian economy and lays the groundwork for long-term behavioural, technological and economic change (See Figure 2).

Specific initiatives in Action Plan 2000 will:

- triple the production of biomass ethanol, enabling as much as 25% of Canada's total

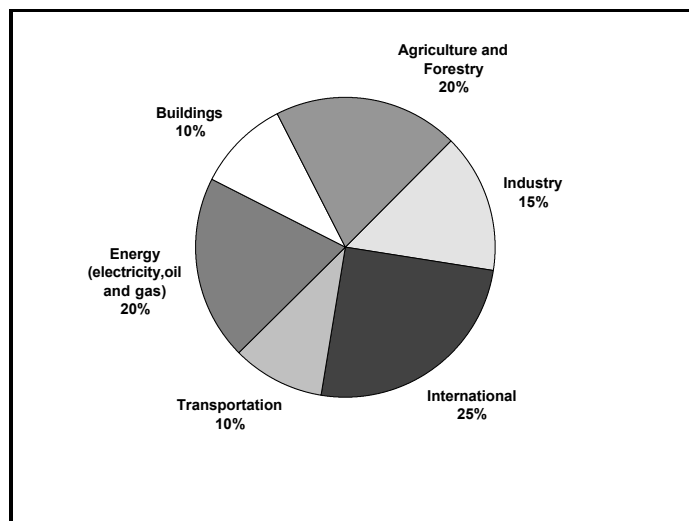


Figure 2 - GHG Emission Reductions Expected from Action Plan 2000



gasoline supply to contain 10% ethanol;

- achieve significant new vehicle fuel efficiency targets by 2010 supported by a consumer education campaign to increase understanding of the importance of purchasing clean and efficient vehicles as well as good driving habits and maintenance practices;
- support pilot projects to demonstrate best urban transportation technologies and strategies for reducing emissions;
- expand the use of low or non-emitting renewable energy sources, by four-times current levels, including purchasing 20% of federal electricity requirements from emerging renewable sources;
- support carbon dioxide (CO<sub>2</sub>) capture and storage in western Canada;
- provide industry benchmarking comparing companies' relative energy-efficiency performance against others in the sector to help industry improve GHG-reduction performance;
- upgrade the *Model National Energy Code for Houses* in partnership with the provinces and territories;
- encourage high efficiency commercial and residential building retrofits;
- reduce the GHG emissions of the federal Government to 31% below 1990 levels by 2010 by reducing energy consumption, making energy efficiency improvements on buildings, putting the federal house in order and buying more 'green power'.

### **Future Challenges**

The Government of Canada is committed to the Kyoto Protocol and to achieving Canada's GHG emission reduction target.

In July 2001, in Bonn, at Part II of the Sixth Conference of the Parties to the United Nations Framework Convention on Climate Change, a landmark agreement was concluded on the rules to implement the Kyoto Protocol that will allow Canada and other developing countries to achieve the GHG emission reduction commitments they made in the Kyoto Protocol in ways that are economically sound in both the short and long term.

The Bonn agreement opens the way for Canada's ratification of the Kyoto Protocol next year, following full consultations with the provinces, the territories, stakeholders and other Canadians.

The Government of Canada is continuing its policy development work, including domestic emission trading, so that it will be able to decide on how best to achieve the remainder of the Kyoto target.

## **3.1.2 Air Quality**

### *What is the issue?*

Canada's air quality is affected by pollutants that come from the combustion of fossil fuels in vehicles, homes, power plants, smelters, and other industries. Average air pollution levels in Canada have improved over the last 25 years, but smog remains a serious health concern in a number of highly populated parts of the country. "Smog" refers to a noxious mixture of air pollutants that can often be seen as a haze in the air. The two main ingredients in smog that affect our health are ground-level ozone (made from volatile organic compound - VOCs and nitrogen oxides - NO<sub>x</sub> in sunlight) and fine airborne particles, or particulate matter (PM) (see

Figure 3). Both ground-level ozone and PM are of particular concern because of their pervasiveness and toxicity.

Although the nature of transboundary flows of PM are being investigated now, scientific understanding of the Canada-U.S. transboundary flows of ground-level ozone is well established. The United States is the source of between 30% and as much as 90% of the high levels of ground-level ozone, a major component of smog in eastern Canada. In southern British Columbia where there is a small two-way flow of pollution, forecasts of population growth in the Pacific Northwest indicate that the United States may become a larger contributor to air quality problems in the future.

More than half of all Canadians live in areas (both rural and urban) where ground-level ozone may reach high levels during the summer months, and every major Canadian urban centre has levels of airborne particles that are high enough to cause health impacts. PM is a pervasive problem in all major cities in Canada, while ozone problems are more regional. However, there are three “hot spots” for smog in Canada; southwestern British Columbia, Windsor-Quebec City corridor and southern Atlantic Canada.

Despite economic growth, PM and ozone levels have declined moderately in both Canada and the U.S. since the late 1980s; however, regional air quality problems remain. The decline in PM and ozone should not create public complacency, however, as health effects are seen even at low levels of air pollution in rural communities. New science from Health Canada estimates that air pollution contributes to the premature deaths of more than 5,000 Canadians, and sends thousands more to hospitals each year (Steib *et al.*, 1998; Steib *et al.*, 1996).

### ***What are we doing about it?***

Vehicle emissions are the single largest contributor to Canada’s air pollution problem. The Department engaged stakeholders in a consultative process that resulted in an integrated agenda to reduce emissions from vehicles and fuels. Transportation is more than vehicles and fuels and Environment Canada is working with Transport Canada to promote sustainable transportation effort.

In industrial sectors, the Department is working with the provinces and industry to provide multi-pollutant analysis and information on key sectors to feed into decisions on emission reduction actions in jurisdictional plans on particulate matter and ground-level ozone. Integrated work is now underway for the following industrial sectors: electric power, iron and steel, base metals smelting, pulp and paper, concrete and asphalt and, lumber and allied wood products.

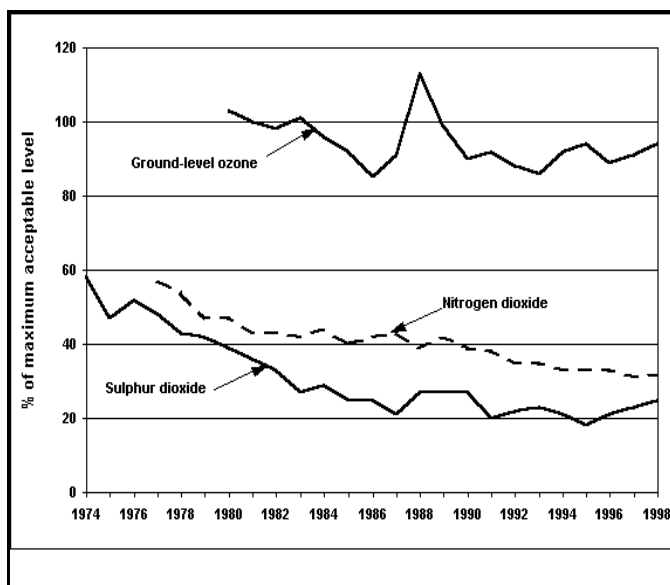


Figure 3 - Levels of ground-level ozone, nitrogen dioxide and sulfur dioxide in Canada 1975-1998

Significant changes in behaviour are necessary if we are to address air quality challenges. Canadians need evidence-based information to reduce their own health risks. The Department is viewed as the lead in providing scientific and technological support necessary to meet clean air targets and objectives. The science effort is focused on generating and communicating new knowledge regarding the nature of airborne secondary pollutants in smog, and their concentration levels in different air-sheds in Canada.

## **SIGNING THE OZONE ANNEX TO THE CANADA-U.S. AIR QUALITY AGREEMENT**

The Government of Canada is taking concerted action to protect the health of all Canadians by reducing air pollutants from domestic and cross-border sources. In December 2000, Canada and the U.S. signed an historic agreement to significantly reduce smog-causing pollutants and improve air quality. On February 19<sup>th</sup> 2001, the federal government announced the funding of \$120.2 M to implement the Ozone Annex. The funds will be used to implement commitments to reduce NO<sub>x</sub> and VOC emissions from the transportation sector and industrial sector and to report to Canadians on industrial pollution and on air quality.

### **Accomplishments**

A reciprocal agreement, the Ozone Annex represents an important milestone in bilateral relations. It demonstrates the ability of Canada and the United States to co-operate in addressing and resolving important transboundary environment problems. To support the negotiation of the Ozone Annex, environmental, health and industry representatives were consulted. In addition, the Canadian delegation included representatives from the Ontario and Quebec governments who were crucial participants in the negotiations, both as representatives on the delegation and in delivering key emission reductions as part of Canada's commitment. The Ozone Annex covers these major areas:

- **Transportation:** With respect to transportation, the largest contributor to air pollution in Canada, the government is investing \$48.4 M over four years to implement new standards for emissions from vehicles and engines and the fuels that power them.
  - **Industrial sector:** Investments of \$19.8 M over a period of four years will be made towards initial actions for reducing NO<sub>x</sub> emissions from the electricity sector and VOCs from industrial sources and products including paint coatings, degreasing agents and solvents. Part of these investments will be used to characterize major sources of smog through targeted regional analysis and to assess progress in meeting the Ozone Annex goals through models applications of transboundary flows and regional smog formation and transport.
  - **Monitoring:** To track progress on commitments made by both Canada and the U.S., Environment Canada will invest more than \$29.1 M over four years to expand and refurbish monitoring stations across the country.
  - **Reporting:** An investment of \$22.9 M over four years to expand the National Pollutant Release inventory (NPRI) will mean that, for the first time, Canadian will have annual reports of the industrial pollutants that create smog.
- To learn more about "Providing Cleaner Air to Canadians", visit [http://www.ec.gc.ca/air/pdfs/cleanair\\_e.pdf](http://www.ec.gc.ca/air/pdfs/cleanair_e.pdf)

## Impacts and Benefits

The Ozone Annex recognizes that both Canada and the U.S. are sources of transboundary air pollution causing ground-level ozone (See Figure 4). The initiatives covered by the Ozone Annex will apply to a specific region called the Pollutant Emission Management Area (PEMA). The Canadian PEMA consists of central and southwestern Ontario and southern Quebec. This region represent over 50% of Canada's population. The U.S. Pollutant Emission Management Area (PEMA), representing about 40% of the U.S. population, is a 19 jurisdiction region including 18 states and the District of Columbia all of which are within 500 kilometers of the border with Canada.

In a joint Canada-U.S. "modeling" exercise, it was estimated that substantial air quality improvements would result from the Ozone Annex emission reductions. A scenario for emissions reductions similar to those in the Ozone Annex was modelled for a two week period. When the results of this modelling were translated into human health benefits as many as 70 deaths, more than 500 asthma emergency room visits, and 140 respiratory hospital admissions were predicted to be avoided in the two weeks alone. The actual measures in the Ozone Annex go beyond the model scenario and address the whole 21 week smog season.

Emission reduction commitments proposed by Canada in the Annex are based on and consistent with existing federal and provincial programs and commitments covered under the Canada-wide Standards (CWS) for Particulate Matter (PM) and Ozone signed by the federal and most provincial governments in June 2000. Canadian actions are estimated to reduce annual  $\text{NO}_x$  emissions in the Canadian portion of the PEMA from 1990 levels by 39% by 2007 and 44% by 2010, and annual VOC emissions in the Canadian portion of the PEMA from 1990 levels by 18% by 2007 and 36% in 2010. The

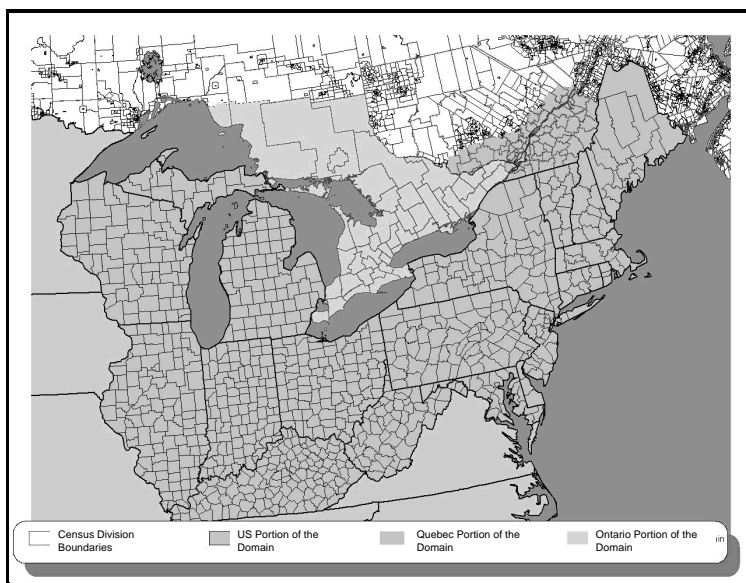


Figure 4 - Ozone Annex transboundary regions

Ozone Annex embeds an aggressive U.S. program to reduce nitrogen oxide ( $\text{NO}_x$ ) emissions that are precursor emissions for the formation of summertime smog or ground-level ozone. The U.S. commitments in the Ozone Annex will reduce annual  $\text{NO}_x$  emissions in their portion of the PEMA by 27% from 1990 levels by 2007 and by 36% in 2010, and annual VOC emissions by 35% from 1990 levels by 2007 and 38% in 2010.

## Future Challenges

The Ozone Annex commits Canada to meet the CWS for PM and Ozone and to accomplish very specific results related to transportation, air quality monitoring and reporting. As the implementation of the CWS for PM and Ozone progresses, the federal government will continue to work with provinces and territories to develop strategies to reduce emissions from specific industrial sectors. In 2004 the Ozone Annex will be re-visited with the intent to review progress and assess the need to negotiate further reductions.

*"We know that air pollution affects our health, and that children, senior citizens and those with respiratory and cardiac illness are particularly vulnerable to the health effects of dirty air. Therefore, our job is not finished. We will continue to work on reducing emissions from industrial sectors, on engaging more and more Canadians and on strengthening the foundation of clean air science."*

Minister of the Environment (Canada)

- To learn more about the Ozone Annex to the Canada-U.S. Air Quality Agreement, visit: [http://www.ec.gc.ca/air/ozone-annex\\_e.shtml](http://www.ec.gc.ca/air/ozone-annex_e.shtml)

## FEDERAL AGENDA ON VEHICLES AND FUELS

Transportation is the single largest source of air pollution in Canada and the use of engines to power vehicles and equipment and the combustion of transportation fuel have major impacts on the environment and health of Canadians. Environment Canada has developed initiatives and is now working towards the implementation of a further series of measures over the next decade to protect the health of Canadians and the environment by reducing emissions from vehicles, engines and fuels.

### Accomplishments

In the spring of 2000, the Minister of the Environment announced the federal government's integrated clean air strategy. A key component of this strategy was the development and implementation of a federal agenda on cleaner vehicles, engines and fuels. A discussion paper entitled "Future Canadian Emission Standards for Vehicles and Engines and Standards for Reformulation of Petroleum-based Fuels" was distributed to parties interested in participating in the process of developing the federal agenda. In May 2000, Environment Canada convened a multi-stakeholder workshop to discuss possible future measures to reduce air pollution from vehicles, engines and fuels. After considering the comments of all stakeholders, the Minister of Environment published the Federal Agenda on Cleaner Vehicles, Engines and Fuels in the Canada Gazette Part I February 17, 2001. The Federal Agenda includes the following main action items.

- **Action on On-Road Vehicles and Engines:** Regulations regarding light-duty vehicles, light-duty trucks and heavy-duty vehicles and engines will be developed to ensure that Canadian emission standards align with those of U.S. Environmental Protection Agency (EPA) which are considered the most stringent in the world.
- **Action on In-Use Vehicles and Engines:** A Code of Practice for Heavy-duty vehicle Inspection and Maintenance Programs will be developed in consultation with stakeholders.
- **Action on Off-Road Vehicles and Engines:** Regulations regarding off-road diesel vehicles and engines such as those used in the agriculture sector and in the construction industry as well as regulations for gasoline utility engines such as those used in snowblowers, lawn mowers and chain saws will be proposed.

- **Action on Future Standards for Diesel Fuel:** Regulations will be developed for reducing the level of sulphur in on-road diesel used by trucks and buses by 2006 to align Canadian requirements with those of the U.S. Work will also proceed towards setting a regulatory limit for sulphur in off-road diesel.
- **Action on Future Standards on Fuel Oil:** Measures to reduce the level of sulphur in light and heavy fuel oils used in stationary facilities will be assessed.
- **Action on Future Standards for Gasoline:** Further analysis on the composition of gasoline will be undertaken to determine if additional controls would have the potential to reduce emissions of air toxics from the vehicles and engines. As well, a notice was published on May 26, 2001 in the Canada Gazette requiring information on the use and release into the environment of the gasoline additive methyl tertiary butyl ether (MTBE).

### Impacts and Benefits

These actions regarding vehicle emission standards and reformulation of fuels will result in a 90% reduction in emissions from new vehicles. These emission reductions will improve air quality and generate significant improvements in the health of Canadians and of our environment. The improvements include expected reductions in: mortality, child and chronic bronchitis, asthma symptoms, acute respiratory symptoms, emergency room visits and restricted activity days.

*“While cars today are much cleaner than in earlier years, more and more vehicles are on the road. Improved emission control technologies in new low emission vehicles reduce total smog-forming emissions and will help Canadian to breathe easier.”*

Minister of the Environment (Canada)

### Future Challenges

Development of regulations that will be undertaken under the Federal Agenda for Cleaner Vehicles, Engines and Fuels will follow the established regulatory process. This process enables interested parties to further comment on the details of actions that Environment Canada will take to reduce air pollution.

## 3.1.3 Hazardous Air Pollutants (HAPs)

### *What is the issue?*

HAPs are toxic substances which can be transported through the atmosphere and have harmful effects on ecosystems and human health. In Canada, the term “hazardous air pollutants” certain heavy metals such as lead and mercury, and persistent organic pollutants (POPs) pesticides such as dichlorodiphenyltrichloroethane (DDT), industrial chemicals such as polychlorinated biphenyls (PCBs), and by-products and contaminants such as dioxins and furans.

In colder climates and at high altitudes or alpine regions, low evaporation rates "trap" POPs and they accumulate in the food chain. The impacts of concentrations of some POPs are particularly serious for Canada's northern aboriginal people, because their traditional food sources are being contaminated. Once in the foodchain, these POPs can be passed on from mother to child across the placenta, or through breast milk, causing subtle effects related to learning ability, memory and resistance to infection. Similarly, certain heavy metals in the environment, e.g. mercury, have been linked to adverse effects on human health or wildlife. Mercury has been found at problematic levels in Canada's north, and there is evidence of long-distance atmospheric

transport of mercury from foreign sources. Cadmium and lead are the two other heavy metals of greatest interest in Canada. They are also subject to long-distance atmospheric transport.

***What are we doing about it?***

Domestically the goal is virtual elimination of 12 POPs and stringent control of the production, use and release of other POPs and Heavy Metals which have been determined to have adverse effects on the environment. Internationally, the goal is to reduce or eliminate releases of foreign sources of POPs entering the Canadian environment, primarily through development of legally binding international control actions.

**STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS (POPs)**

The only meaningful means of reducing exposure of Canadians to POPs is through international efforts to reduce foreign production and use. On May 23, 2001 in Stockholm, Sweden, Canada was the first country to ratify the global Convention on POPs. Effective implementation of the Convention (also referred to as the Stockholm Convention on POPs) is of vital interest to Canada. It will reduce Canada's exposure to major foreign sources of POPs which are adversely impacting the health and environment of Canadians. Northern Canadians, especially Inuit and Aboriginal peoples are particularly affected.

**Accomplishments**

Over 90 countries signed the Stockholm Convention in May 2001, and the agreement will come into force when 50 have ratified. The Convention establishes a global, legally binding mechanism for control of twelve POPs, the so-called "dirty dozen", including DDT, PCBs, and dioxins and furans. The Convention also establishes criteria and a process for identifying and adding substances for control in the future. The Convention requires Parties to develop national plans and strategies to implement the obligations, encourages research and development, and establishes a process for periodic review of its effectiveness in reducing global levels of POPs. Most importantly, it also includes a commitment by Canada and other developed nations to work co-operatively with developing countries and countries with economies in transition (former members of the Soviet Union), providing financial and technical support to help them undertake their obligations and to help find cost-effective alternatives to the use of POPs such as DDT.

All twelve POPs addressed under the Convention are targeted for virtual elimination. Canada has been taking effective domestic action to control POPs over many years. Guided by the federal Toxic Substances Management Policy and the national Policy for the Management of Toxic Substances, Canada is already in compliance with the provisions of the POPs Convention and will not experience difficulties with full implementation.

- ▶ To access the Canadian Backgrounder on POPs, visit:  
[http://www2.ec.gc.ca/press/001212\\_b\\_e.htm](http://www2.ec.gc.ca/press/001212_b_e.htm)
- ▶ To access the UNEP POPs web site, visit: <http://www.chem.unep.ch/pops/>

## Impacts and Benefits

Signature and ratification of the Convention by Canada was the final chapter in a federal government success story. Canada was instrumental in having the United Nations Environment Programme (UNEP) initiate global action on POPs, and played a key leadership role throughout the negotiations, including: hosting the first negotiating session in Montreal in July 1998 and supporting all other sessions; committing \$20M in Budget 2000 to establish a Canada POPs Fund at the World Bank, to help developing countries build their own capacities to deal with POPs; developing key proposals that bridged gaps between countries on difficult issues; and providing the Chair of the Negotiating Committee.

The most significant results of the Stockholm Convention will be reduction or elimination of major international sources of POPs entering the Canadian environment, and a significant reduction in the risk to the health of citizens. Addressing contaminants in the north from foreign sources is a major international environmental achievement, as well as an important milestone in the northern dimension of Canada's Foreign Policy. The Convention established a positive precedent for the international community in dealing with toxic chemicals management.

This process engaged the global community in an environmental issue of particular importance to Canada. An inclusive consultation process allowed stakeholders to play an effective role which was critical to achieving buy-in to Canada's goals and objectives. This initiative also emphasized the importance of a team approach within government, based on joint ownership of policies and positions.

Over the course of international negotiations on POPs, northern Aboriginal peoples and the federal government worked in partnership in highlighting the particular threats to the health and traditional lifestyle of the Inuit posed by POPs, and the need for comprehensive international action. Northern Aboriginal peoples have expressed their appreciation for the efforts of the federal government in dealing with this threat to their health and culture and for inclusion in the process to develop international controls, which they consider a "model" for future consultation processes.

*"The Canadian negotiating team listened to and acted upon the concerns of northern Aboriginal peoples...we soon worked from the same script and both engaged in corridor lobbying so crucial in international negotiations".*

Sheila Watt-Cloutier, President, Inuit Circumpolar Conference of Canada

Environmental and industry representatives were part of the negotiation process and support Canada's active involvement in the Convention. Likewise, provincial and territorial governments supported Canada's pursuit of international action. They were consulted in the development of Canadian negotiating positions, reviewed the Convention obligations, and have not indicated any major concerns regarding implementation of Convention obligations.

*POPs are an urgent global problem that demands urgent global solutions. We are proud of the fact that Canada played a leadership role in finding solutions to this environmental threat to wildlife and humans".*

Monte Hummel, President, World Wildlife Fund Canada

## Future Challenges

Canada was the first country and only country to ratify the Stockholm Convention on POPs. A total of 50 ratifications are required for the Convention to come into effect - a process which normally takes three to four years. The Minister of the Environment has challenged other



countries to ratify the Convention prior to the 2002 World Summit on Sustainable Development. In the meantime, Canada will continue to actively participate in activities leading up to the coming into force of the Convention, as well as beyond, in order to ensure that provisions are implemented in a timely, effective and efficient manner.

**Long-Term Key Result: Understanding, and prevention or reduction of the environmental and human health impacts posed by toxic substances and other substances of concern.**

The overall goal for the “toxics result” is to prevent or reduce environmental and human health threats posed by toxic substances and other substances of concern. Given this, the toxics goal involves management to achieve the following three areas of focus:

- Existing substances - adverse impacts on human health and the environment from existing substances of concern are understood by Canadians, and prevented and/or reduced;
- New substances - adverse impacts on human health and the environment from new substances and new activities are understood by Canadians, and prevented; and
- PBTs - persistent, bioaccumulative toxic substances are virtually eliminated.

The following table aligns these three areas of focus, the long-term indicators and targets, and the commitments for 2000-2001 that form Environment Canada’s response to the long-term key result for the planning period.

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
Existing Substances	<p><b>Indicator:</b> Domestic releases of toxic substances for which Environment Canada controls are in place.</p> <p><b>Targets:</b> Categorize all of the approximately 23,000 substances (jointly with Health Canada) by 2006. Risk management measures for any substances declared toxic will be proposed within 24 months of declaration and finalized 18 months later. Each year 10-20 CEPA toxic substances are anticipated.</p>	<p>✓ <b>Existing Substances</b></p> <ul style="list-style-type: none"> <li>• Categorize and assess risk for Domestic Substances List (DSL) substances.</li> <li>• Assess substances placed on the Priority Substances List (PSL) for CEPA “toxic” within 5 years of addition to the list.</li> </ul> <p>✓ <b>Pollution Prevention and Control Measures</b></p> <ul style="list-style-type: none"> <li>• Publish regulations or amendments to metal mining and pulp and paper sectors regulations.</li> <li>• Contribute economic knowledge/tools to develop management options for toxics programs. *</li> </ul> <p>✓ <b>Clean Water</b></p> <ul style="list-style-type: none"> <li>• Create two complementary municipal funds.</li> <li>• Release Canada’s National Programme of Action for the Protection of the Marine Environment from Land-based Activities.</li> <li>• Atlantic Region will work with provinces, improve treatment of municipal wastewater effluents.</li> <li>• Pacific and Yukon Region will undertake remedial action to reopen commercial shellfish harvesting areas in Georgia Basin.</li> <li>• Quebec Region will lead the identification of options to reduce the environmental effects of textile mill effluents.</li> </ul>

\* Sustainable Development Strategy Target or Deliverable

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
		<b>Enforcement</b> <ul style="list-style-type: none"> <li>• Implement 13 projects under the Enforcement Action Plan.</li> <li>• Introduce new enforcement program components, including an intelligence capacity.</li> </ul> <b>Environmental Emergencies</b> <ul style="list-style-type: none"> <li>• Develop a Renewal Initiative.</li> </ul> <b>✓ Sydney Tar Ponds / Coke Ovens Contaminated Sites</b> <ul style="list-style-type: none"> <li>• Assessment and initial phases of remediation of the sites.</li> <li>• Phase II/III environmental site assessment, demonstration of environmental technologies, demolition of site structures, and construction of an interceptor sewer.</li> <li>• Conduct environmental and health studies.</li> </ul>
<b>New Substances</b>	<b>Indicator:</b> All notified substances assessed and conditions or other controls issued within regulatory timeframes for all substances suspected of being toxic (Environment Canada receives and assess approximately 1,300 notifications per year). <b>Target:</b> Under development.	<b>New Substances Notifications</b> <ul style="list-style-type: none"> <li>• Assess and issue conditions and controls for new substances suspected as toxic.</li> </ul>
<b>Persistent, Bioaccumulative Toxic Substances (PBTs)</b>	<b>Indicator:</b> Canada-wide standards for mercury, benzene, petroleum hydrocarbons and dioxins and furans presented to federal and provincial Ministers of the Environment by end of 2000. <b>Target:</b> Under development.	<b>Canada-Wide Standards (CWS)</b> <ul style="list-style-type: none"> <li>• Sign CWS for benzene and mercury emissions and begin implementation.</li> <li>• Sign CWS for dioxins and furans, petroleum hydrocarbons and mercury products.</li> </ul>

Note: Shaded areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.1.4 Existing Toxic Substances

#### *What is the issue?*

According to the "Domestic Substances List" there are over 23,000 chemical substances in use in Canada which include industrial and commercial chemicals, heavy metals, and manufacturing byproducts. Most of these substances are not considered to pose a risk to human or ecosystem health, however, some may be found to be toxic as defined by the *Canadians Environmental Protection Act* (CEPA) 1999. CEPA defines a toxic substance as having the potential to harm human health or environmental quality, when released into the environment.

Addressing the problem of toxic substances is complex, for several reasons. 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.

### ***What are we doing about it?***

Existing Substances include substances that are already present in the environment and/or that are already in use in Canadian commerce. The Department is responsible for determining if substances pose unacceptable environmental risks, and if so, to ensure that management measures are put in place. CEPA 1999 requires the categorization of all substances (chemicals, polymers, biological substances) on the Domestic Substances List by September 2006. This involves reviewing 23,000 substances and identifying those that are persistent and/or bioaccumulative and inherently toxic, or those having the greatest potential for human exposure (Health Canada responsibility) and conducting assessments where appropriate.

Since 1988, the Department has identified 69 substances as priorities for assessment of which 30 have been determined to be toxic as defined by CEPA as of March 2001.

Each year, under the new substances result, the Department receives notifications on new substances being manufactured in or imported into Canada. In recent years, submissions have increased and are expected to continue as a result of the growth in biotechnology products requiring new testing/assessment protocols. Last year, the Department completed environmental risk assessments for 900 notifications resulting in actions to address the 17 substances suspected of being toxic.

Domestic action is also continuing on the management of persistent, bioaccumulative toxics (PBTs), long lasting and highly toxic substances which are harmful to human and ecosystem health. This includes the development and implementation of Canada-Wide Standards for identified PBTs such as dioxins and furans, updating of PCB regulatory regime as well as the management of new PBTs identified through assessment processes in order to meet the target of virtual elimination.

Despite efforts to reduce waste and pollution, many goods and services used on a daily basis in Canada create an unwanted by-product: hazardous waste. Imports for disposal of hazardous wastes have been increasing, largely because American standards for landfilling of hazardous waste are more stringent than those in Canada. In July 2000, the Minister of the Environment issued a call to action to the provinces and territories urging them to work with Environment Canada to strengthen the standards for all facilities that accept hazardous waste. As a result, in 2000-2001 an action plan to establish a national regime for environmentally sound management (ESM) was developed in cooperation with the provinces and territories under the Canadian Council of Ministers of the Environment (CCME). A priority goal is to establish new landfill guidelines. An accelerated ESM program was also initiated with Ontario and Quebec since most major hazardous waste landfills are located in these provinces.

## **PRIORITY SUBSTANCES ASSESSMENT PROGRAM**

### **Accomplishments**

In December 1995, 25 substances, including individual chemicals, mixtures and effluents, were added to the Priority Substances List (PSL2) for assessment of environmental and health risks by Environment Canada and Health Canada, respectively. Risk assessments on the PSL2 substances were completed by December 2000 within the mandated 5 year time frame prescribed under CEPA.

Substances added to PSL2 reflected the recommendations of the Minister's Expert Advisory Panel, members of which came from a broad spectrum of government and non-government organizations. The public also nominated substances of concern. This panel began with a list of nearly 600 substances from various Canadian priority lists and by reviewing available data, considering public input and applying professional judgment, the Panel worked by consensus, to arrive at a list of 25 substances.

- To learn more about the second Priority Substances List, visit: [http://www2.ec.gc.ca/CEPARegistry/subs\\_list/PSL2.cfm](http://www2.ec.gc.ca/CEPARegistry/subs_list/PSL2.cfm)

To ensure that accurate, scientifically valid assessments are completed with the intent and spirit of the Act, the risk assessment process was designed to:

- Enhance openness and transparency by inviting experts from academia, government, environmental groups and industry to contribute to risk assessment, and by informing other interested groups of major decisions made during the assessment phase;
- Increase knowledge by engaging the required expertise and conducting monitoring and research as needed to complete assessments; and
- Improve efficiency by sharing responsibility, and involving risk managers to minimize duplication of effort in assessment and risk management activities.

In addition to extensive internal and external scientific peer reviews and approval by the Environment Canada/Health Canada CEPA Management Committee, each draft assessment report was released for a 60-day public comment period. This maintains the openness of the process and allows the public to have an opportunity to provide scientific and technical information to support or refute the proposed conclusions.

Final conclusions have been reached for fourteen of the twenty-five substances, and proposed conclusions have been reached for a further nine substances. Assessment of two other substances on PSL2 (ethylene glycol and aluminum salts) have been concluded to be non-toxic to the environment, however, assessment has been suspended to collect necessary data to enable meaningful conclusion on health.

### **Impacts and Benefits**

Of the twenty-three substances on PSL2 for which conclusions were reached, eighteen were found "CEPA toxic" and five were found not "toxic". Substances that have been assessed as "toxic" will be considered for possible risk management measures such as regulations, guidelines, pollution prevention plans or codes of practice to control any aspect of their life cycle, from the research and development stage through manufacture, use, storage, transport and ultimate disposal.

### **Future Challenges**

The new *Canadian Environmental Protection Act, 1999* (CEPA 1999) has shifted the focus from cleaning up environmental problems to preventing them. The new Act requires the government to assess more substances more quickly, using new measures included in the Act such as the Categorization and Screening of the Domestic Substances List (DSL) and sets firm deadlines for action to control toxic substances. The Priority Substances List (PSL) will continue to play a key role, particularly when issues associated with substances are difficult and complex.

CEPA 1999 requires the Minister of the Environment and the Minister of Health to categorize and then, if required, to conduct a screening level risk assessment on substances listed on the Domestic Substances List (DSL) to determine whether they are “toxic” or capable of becoming “toxic”. Under CEPA 1999, all substances must be categorized by 2006. Environment Canada and Health Canada initiated a pilot project for organic substances which identified 123 substances which met the categorization criteria of 1) persistent and/or bioaccumulative and inherently toxic to non-human organisms or 2) having a high potential for exposure to Canadians.

Categorization and screening of the 23,000 substances on the DSL is a challenging undertaking for the federal government. It is a program that will evolve in the coming years and will require adapting to the technical, scientific and policy issues that arise.

## **EXPANDING OUR “TOOLKIT”: INNOVATIVE NEW POLLUTION PREVENTION AND CONTROL MEASURES**

CEPA 1999 gives the Minister the authority to require any person (e.g. those using, releasing or producing the toxic substance) to prepare and implement Pollution Prevention Plans (P2) and Environmental Emergency Plans (E2) for substances found to be "toxic".

Environment Canada has developed an innovative “toolkit” of instruments to protect the environment including regulations, pollution prevention plans, environmental emergency plans, guidelines, codes of practice and economic instruments. In addition Environment Canada can use challenge programs, agreements with industry and educational campaigns to complement these instruments.

### **Accomplishments**

#### *Pollution Prevention Plans (P2) and Environmental Emergency Plans (E2)*

CEPA 1999 gives the Minister the authority to require any person (e.g. those using, releasing or producing the toxic substance) to prepare and implement P2 and E2 plans for substances found to be "toxic". A P2 plan should describe actions to be taken to prevent or minimize the creation of pollutants or the release of pollutants and waste. By requiring companies to do P2 planning, government is engaging industry in the management of risks posed by toxic substances in a way that incorporates knowledge of their business operations and expertise.

An E2 plan represents one of the important components of a comprehensive emergencies management framework and will assist in reducing gaps in or between federal and provincial legislation for the prevention of, preparedness for, response to and recovery from an environmental emergency.

In 2001, the Department published several documents to assist organizations in understanding pollution prevention planning and environmental emergency plans:

- *Pollution Prevention Planning Handbook*: provides detailed direction for facilities, both small and large, on how to develop and implement P2 plans and includes a model plan.
- *Frequently Asked Questions*: is a document designed to help organizations understand their P2 planning obligations under CEPA 1999, describing in a question and answer format how P2 planning will be administered and what affected parties must do.
- *Guidelines for the Implementation of the Pollution Prevention Planning Provisions of Part 4 of CEPA 1999*: includes a detailed explanation of the policy for implementing the P2 planning

provisions of CEPA 1999, including a sample P2 planning *Canada Gazette* Notice requiring the preparation and implementation of P2 plans and accompanying forms to be submitted by facilities.

- *Guidelines for the Implementation of the Environmental Emergency Planning Provisions of Part 8 of CEPA 1999*: includes an explanation of when E2 plans may be required as well as what is required from parties in the preparation and implementation of E2 plans including declarations to the Minister on the preparation and implementation of E2 plans which will be posted on the CEPA Registry for public review.
- To learn more about pollution prevention plans (P2 plans) for CEPA-toxic substances, visit: <http://www.ec.gc.ca/nopp/cepa-lcpe/index.cfm?l=e>

### *Environmental Performance Agreements (EPAs)*

In June 2001, a Policy Framework for Environmental Performance Agreements was approved by the Minister. Consistent with the 1999 recommendations of the Commissioner for the Environment and Sustainable Development, the principles and criteria of the framework establish a more rigorous policy to strengthen the effectiveness of Environment Canada's non-legislative (voluntary) initiatives. An Environmental Performance Agreement is negotiated among parties (e.g., industry, government agencies and non-government organizations) to achieve specified environmental results. These agreements can address a wide variety of environmental issues affecting human health and the environment, such as the need to reduce the use and emission of specific pollutants, to advance environmental stewardship, to conserve sensitive habitats or to provide for remedial action where needs have been identified.

The Policy Framework for Environmental Performance Agreements proposes that non-regulatory initiatives respect four essential principles - effectiveness, credibility, transparency/accountability, and efficiency. To guide the development of future agreements, the policy framework: describes Environmental Performance Agreements; sets out the core design criteria; outlines Environment Canada's role in the negotiation and implementation of the agreements; and identifies circumstances in which Environment Canada will consider entering into Environmental Performance Agreements.

### **Impacts and Benefits**

Environment Canada believes that the use of the P2 planning provisions to manage toxic substances will likely reduce the need for additional regulatory or other government interventions while effectively managing the risks posed by toxic substances.

On industry's part, interest may stem from the increased flexibility both a P2 plan and an Environmental Performance Agreement allows in achieving an environmental objective, and the increased certainty that such agreements can provide. Industry may be interested in the opportunity to enhance its public image or to improve its relations with government. At the same time, Canadians can benefit by having a broad range of environmental problems addressed, and receiving comparable results at lower costs than by using conventional regulatory instruments, alone.

### **Future Challenges**

In order to properly protect the environment, the Minister of the Environment must have assurances that risks identified through scientific risk assessment are managed to a degree that protects the health and the environment of Canadians. Increasingly it is Environment Canada's

practice to do so through performance based (rather than prescriptive) regulations and an expanded tool box that is less intrusive to users, releasers and producers of toxic substances, allows companies to distinguish themselves achieving leading environmental performance and promotes innovation within these sectors. The challenge is to use this innovative tool box in a manner that keeps pace with the volume of toxic substances anticipated over the next few years. Time and experience will demonstrate the extent to which government can use a variety of mechanisms to prevent negative impacts to human health and the environment.

## **CANADA'S NATIONAL PROGRAM OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES (NPA)**

Major threats to health, productivity and biodiversity of the marine environment originate from human activities on land. It is estimated that 80% of marine pollution stems from land-based activities. As part of an international initiative to address major land-based threats in an integrated manner, Canada and 108 other nations adopted the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) in November, 1995. The GPA called for participating countries to develop national programmes of action. In response, in June 2000, Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities (NPA) was released. Developed by a federal/provincial/territorial Advisory Committee over the course of four years (1996-2000), Canada's NPA reflects shared responsibilities and input from two extensive rounds of public consultations. All provinces except Quebec have signed the NPA. However, Quebec representatives have been encouraged to participate as observers and eventually rejoin the process.

### **Accomplishments**

As 8 of 10 provinces as well as our three territories border three oceans, it was decided at the outset that provincial and territorial involvement was needed in the preparation, review and approval of the NPA. Hence, a team of experts, nominated by federal, provincial and territorial agencies, was assembled to draft this document. The first step was the release of a National Discussion Paper in 1996 that was used as the basis for consultations with Aboriginal people and stakeholders. As well it served as the framework for regional discussion papers and workshops held to identify priorities. Input from consultations was then used to draft an initial NPA, released for a 60-day consultation period in 1999 prior to finalization.

Canada's NPA is based upon the principles of sustainable development, integrated management and a precautionary approach. As the two key strategies are pollution prevention and habitat protection in the coastal zone, the Minister of Environment, along with the Minister of Fisheries and Oceans are co-leads for this major initiative.

#### Key NPA activities include:

- establishing an information clearing house
- promoting improved sewage treatment
- developing guidelines and codes of practice
- promoting coastal zone management
- collaborating on community-based actions
- preparing annual progress reports

### **Impacts and Benefits**

A recognized world leader with respect to addressing land-based sources of marine pollution, Canada was the first country to develop a national programme in response to the GPA. With the

NPA in place we will be at the forefront in terms of our ability to prepare an accurate picture of the nation with respect to what we are doing on all fronts, and in each province and territory, to protect our waters from land-based activities. Better coordination and streamlined monitoring and reporting procedures will ultimately result in improved water quality and pollution prevention measures across the nation.

The NPA is based on existing policies, laws and programmes for pollution prevention and habitat protection. It is responsive to emerging policies, priorities and initiatives such as the Budget 2000 links to green infrastructure, and encourages an approach of increasing cost-effectiveness, efficiency and cooperation within and among governments.

### **Future Challenges**

Canada's NPA is better known internationally than it is in Canada. Although consultations leading to the finalization of the NPA were extensive, significant challenges lie ahead in terms of educating Canadians from coast to coast on what the NPA is, why we need it, and how it will serve to better protect our marine and coastal environment.

Reporting on the progress taken in priority areas will be a collective initiative, coordinated at the national level. The process of monitoring and reporting is just beginning and will be a complex and time-consuming undertaking.

- ▶ To learn more about Canada's National Programme Action for the Protection of the Marine Environment from Land-Based Activities, visit: [http://www.ec.gc.ca/marine/npa-pan/index\\_e.htm](http://www.ec.gc.ca/marine/npa-pan/index_e.htm)

#### **Upcoming Event.....Canada Invited to Host Review of GPA**

The Department's leadership in developing the NPA and related activities has served to raise the Canadian profile internationally. In fact our leadership role prompted the Executive Director of the United Nations Environment Programme (UNEP) to invite Canada to host the upcoming five-year intergovernmental review of the Global Programme of Action (to be held in Montreal on November 26-30, 2001). A report on the development and implementation of the NPA will be tabled at this time.

### **REMEDIATION EFFORTS TO ADDRESS THE SYDNEY TAR PONDS AND COKE OVENS CONTAMINATED SITE**

The Muggah Creek Watershed in Cape Breton County, Nova Scotia, along with its various sources of contamination, are a national environmental and health issue with serious implications as a result of heavy industrialization over the past century. The tidal estuary area of the Watershed is the repository of more than 700,000 tonnes of toxic sludge containing significant concentrations of known contaminants. It is also the recipient of raw sewage from sewage outfalls and leaching from landfill areas. Addressing these issues has been recognized by the Government of Canada, the Government of the Province of Nova Scotia, and the Cape Breton Regional Municipality as being beyond the scope of any single level of government.

#### **Background**

The Sydney Tar Ponds and Coke Ovens contamination issue has major ramifications for citizens of Cape Breton. In addition to serious concerns about health and the environment, the site is considered to be a hindrance to local economic development. Cleanup efforts date to 1986 with a federal-provincial agreement for the excavation and incineration of Tar Pond sediments. Following discovery of significant amounts of PCBs in the sediments and difficulties in delivering sediments to the incinerator, this project was abandoned in 1994. In 1996, the



provincial government announced plans to encapsulate the Tar Ponds. The local community was concerned with the lack of consultation and participation in decisions affecting their community, and requested intervention by the federal government. The current community-based process was established almost three years ago in response to this negative sequence of events.

### **Accomplishments**

In July 1998, the three levels of government in partnership with the community ratified a Memorandum of Understanding (MOU) which sets out a framework for the participation of all parties, as represented by the Joint Action Group for Environmental Clean-up of the Muggah Creek Watershed (JAG). JAG is community-based group engaged in a complex, multi-faceted and multi-year process of studying options, as well as planning and recommending to governments, solutions for the environmental problems associated with the Muggah Creek Watershed.

The JAG process establishes a governance system to encourage and facilitate participation of members of the community, along with representatives of the three levels of government, in all aspects of the process to enhance the community's understanding of health and environmental risks and achieve consensus on solutions. Projects must meet the following criteria: environmentally sound, socially acceptable, publicly accountable, community-driven, health conscious, and economically responsible. The goals of the Parties, as cooperative participants in this innovative venture, are to strive for the achievement of:

- remediation of historical contamination on the Tar Ponds and Coke Ovens site;
- fostering a healthy community by finding workable solutions within the Cape Breton community through the JAG process;
- enhancement of ecosystems; and
- subject to relevant laws, policies and guidelines, the optimized use of local labour, services, products, expertise and compliant technologies.

In signing the subsequent three-year cost-share agreement, the federal government committed to providing approximately \$38 M of the total \$62 M budget to identify and evaluate potential remedial alternatives and to stabilize the site. This is the initial phase of what will ultimately result in the long-term cleanup of this site. At the end of the first phase, the government will understand the scope of the problem and the estimated cost to address these issues.

### **Impacts and Benefits**

The relationships between the three levels of government and the community have worked well over the last few years. The community has been actively engaged every step of the way. Concerns about lack of involvement in the late 1980s and early 1990s are being addressed.

Many specific actions and measures have already been implemented, and the stage has been set for further activity, in a coordinated and fully participatory manner. A few cases in point:

- As a result of Phase II and III site investigations, much more is known about conditions and the extent and types of contamination on the site.
- More is known about potential health impacts as a result of several completed and ongoing studies. Reports suggest that Cape Breton County has a higher incidence of certain diseases (i.e. certain types of cancer), and efforts are ongoing to determine if environmental conditions are a factor.

- Security measures have been put into place, including fencing the entire site (previously there was unrestricted access), and the provision of 24-hour security patrols around the coke oven site.
- The municipality has developed an emergency response capability.
- An ambient air monitoring program has been implemented to evaluate potential impacts to nearby residential areas before, during and after cleanup activities.
- Interim Separation Zones have been developed through the use of computer modeling techniques to identify potential impacts associated with demolition activities. Project-specific air monitoring will identify potential impacts to adjacent residential areas.
- Soil sampling programs were completed in August 2001 to indicate where soil quality, especially in residential areas closest to the Coke Ovens site, posed any acute or chronic health risk to current or future residents. Concurrent sampling was completed to determine background soil contaminant levels in the Sydney area.
- Construction began in August 2001 under a \$9.9 M contract to close and cap the municipal landfill whose leachate impacts both the coke ovens site and tar ponds, for completion by year-end 2002.
- Tenders were to be issued in September 2001 for preparatory work and demolition and removal of above-ground structures such as smoke stacks and derelict buildings at the coke ovens property.
- A contract was awarded for the Remedial Action Evaluation Report which is the framework document for selecting appropriate cleanup technologies.
- A contract was to be awarded in September 2001 for construction of an interceptor sewer system to end the daily flow of approximately 13 million litres daily of untreated sanitary and storm sewage which enters Muggah Creek from municipal outfalls.
- JAG is currently defining a series of “core principles” that will serve as guide posts when evaluating remedial options.

### **Future Challenges**

The \$62 M cost-share agreement was for three years (April 1999 to March 2002) with provisions for a fourth (close-out) year. Attention has recently switched from the projects associated with the three-year cost-share agreement to community concerns associated with elevated levels of contaminants within neighbourhoods outside the project boundary. Any off-site remedial work necessary to address these public health and safety concerns could delay completion of the current projects.

Bringing the focus back to the original purpose to ensure that projects are completed within the anticipated timeframe, while balancing the concerns of the community, poses an immediate challenge.

## **3.2 Nature Business Line**

In the Nature business line, Environment Canada acts to conserve the biodiversity of healthy ecosystems. Through this business line, Environment Canada aims to achieve, in partnership with others, three long-term goals:

- conservation of biological diversity;
- understanding and reduction of human impacts on the health of ecosystems; and

- conservation and restoration of priority ecosystems.

<b>Financial Information by Long-Term Result</b>		
Conservation of the biological diversity.	\$	68,133,725
	\$	68,752,846
	\$	<b>65,035,091</b>
Understanding and reduction of human impacts on the health of ecosystems.	\$	41,213,845
	\$	38,983,509
	\$	<b>38,802,078</b>
Conservation and restoration of priority ecosystems.	\$	63,090,223
	\$	80,768,944
	\$	<b>73,260,526</b>
<b>2000-2001 Total Gross</b>	\$	172,437,793
	\$	188,505,299
	\$	<b>177,098,695</b>
Planned Spending		
<i>Total Authorities</i>		
<b>Actuals</b>		

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### **Long-Term Key Result: Conservation of biological diversity.**

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Human induced pressures on biodiversity continue to result in significant declines in many species of animals and plants, in certain cases pushing them to the edge of extinction. At the other end of the spectrum, some human activities that upset ecological balances have led to burgeoning populations of some species now considered overabundant, again presenting conservation challenges. Urbanization, agricultural intensification, forest harvesting and other resource extraction industries are increasingly leading to habitat loss and fragmentation, a concern that is further compounded by the long-term effects of acid precipitation, widespread and expanding use of pesticides and other toxic chemicals, and the threat of global climate change. Traditional uses of wildlife, such as hunting for food and sport, bird-watching and nature enjoyment add to the impacts of human activities on our wildlife populations, and increased international human movement and trade has led to new threats from introduced disease and alien invasive species.

The “*biological diversity*” result is divided into three areas of focus that support the long-term key result. The following table aligns the three areas of focus, the long-term indicators and targets, and the commitments for 2000-2001 that form Environment Canada’s response to the long-term key result for the planning period.

Area of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives and Deliverables (as stated in RPP 2000-2001)
<b>Species at Risk</b>	<p><b>Indicators:</b> Change in species status over time.</p> <p>Recovery trends for species at risk, percentage of threatened and endangered species of migratory birds with stable or increasing populations.</p> <p><b>Targets:</b> Threatened or endangered species populations under federal jurisdiction meet the objectives of recovery strategies and action plans within 15 years.</p> <p>No species of special concern under federal jurisdiction is listed as threatened or endangered.</p>	<p><b>Ö National Strategy for the Protection of Species at Risk</b></p> <ul style="list-style-type: none"> <li>• Introduce in Parliament the proposed Species at Risk Act.</li> <li>• Habitat Stewardship Program for Species at Risk - develop and implement stewardship and incentives programs.</li> </ul>
<b>Habitat</b>	<p><b>Indicators:</b> Trends in area of wildlife habitat conserved, protected and rehabilitated under direct Environment Canada actions.</p> <p>Trends in area of wildlife habitat conserved, protected and rehabilitated through stewardship, conservation land agreements, ecological gifts, etc.</p> <p><b>Target:</b> Habitats are conserved, protected, and rehabilitated to meet the objectives of CWS's conservation plans for migratory birds and species at risk within 15 years.</p>	<p><b>Ö Migratory Birds and Habitat Protection</b></p> <ul style="list-style-type: none"> <li>• Implement the North American Waterfowl Management Plan.</li> </ul>
<b>Migratory Birds</b>	<p><b>Indicator:</b> Population trends of migratory bird species.</p> <p><b>Target:</b> Migratory bird populations are sustained at healthy levels by the year 2020.</p>	<p><b>North American Bird Conservation Initiative</b></p> <ul style="list-style-type: none"> <li>• Implement the North American Bird Conservation Initiative.</li> </ul> <p><b>Overabundant Populations</b></p> <ul style="list-style-type: none"> <li>• Quebec and Prairie and Northern Regions will manage overabundant populations of snow geese.</li> <li>• Ontario Region will manage overabundant populations of Canada geese.</li> </ul> <p><b>Population Trends</b></p> <ul style="list-style-type: none"> <li>• Atlantic, Quebec and Prairie and Northern Regions will identify population trends for selected species of sea ducks.</li> <li>• Atlantic and Pacific and Yukon regions will improve knowledge of coastal, marine and interior migratory birds.</li> </ul> <p><b>Enforcement</b></p> <ul style="list-style-type: none"> <li>• Regions will continue to enforce federal wildlife legislation to protect migratory birds and species at risk.</li> </ul> <p><b>Regulatory Amendments</b></p> <ul style="list-style-type: none"> <li>• Amend Schedule to the Migratory Birds Convention Act to include the Parksville Protocol.</li> </ul>

Note: Shared areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.2.1 Species at Risk

#### *What is the issue?*

Wildlife populations and their habitats have been disappearing rapidly due to extensive human activities that have resulted in deforestation, the spread of non-native species, the loss of wetlands, and air and water pollution, for example. The world's plants, animals, and other organisms all play a key role in maintaining the Earth's atmosphere, climate, landscapes, and water in a way that will allow for our continued economic sustainability. Loss of species impairs the Earth's ability to provide those services on which people and economic prosperity depend. Canadians need to know more about their country's natural legacy and its dependence on ecological processes and functions.

Canada is home to approximately 70,000 known species of wild plants, animals, and other organisms. New species are still being discovered. In the early 1990s, as many as 60 new insect species were identified in the canopies of old-growth forests in the Carmanah Valley and South Moresby on the west coast. Despite these new species, studies are showing that a growing number of species are at risk of eventual extinction.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has determined that a total of 352 species are at risk of imminent or eventual extinction (i.e., endangered, threatened, or of special concern) in Canada as of May 2001. Of the 142 species re-examined by scientists in recent years, 29 have seen their status deteriorate. The Prairie grasslands, southern Ontario, and the southern Okanagan region of British Columbia are some of the areas where a large number of species have been identified as being at risk.

Species at risk in Canada, May 2001										
Status	Birds	Mammals		Fish	Amphibians & reptiles	Molluscs	Butterflies & moths	Plants	Lichens & mosses	Totals
		Terrestrial	Marine							
Extinct	3	1	1	6	0	1	0	0	0	12
Extirpated	2	2	2	2	2	1	3	2	0	16
Endangered	20	9	6	10	9	7	3	49	2	115
Threatened	6	7	6	18	9	1	2	33	0	82
Special concern	23	17	8	40	17	1	2	44	3	155
<b>Total</b>	<b>54</b>	<b>36</b>	<b>23</b>	<b>76</b>	<b>37</b>	<b>11</b>	<b>10</b>	<b>128</b>	<b>5</b>	<b>380</b>

Source: Committee on the Status of Endangered Wildlife in Canada.

#### *What are we doing about it?*

In April 2000, the Minister of the Environment announced the federal strategy for species at risk. The approach involves three main pillars: the 1996 Accord for the Protection of Species at Risk under the direction of the Canadian Endangered Species Conservation Council (CESCC), the *Species at Risk Act* (SARA), and the Habitat Stewardship Program for Species at Risk. Budget 2000 provided for the national strategy through a Government of Canada commitment of \$90 million over three years, and stabilized funding of \$45 million in subsequent years, for the protection of species at risk.

Under the Accord for the Protection of Species at Risk, the national recovery program has been strengthened and the level of cooperation between the federal government and the provinces and territories improved. The CESCC released two documents under the Accord in 2001: the 11<sup>th</sup>

annual report of the national recovery program, RENEW, and the first report on the General Status of Wild Species in Canada, a collaborative overview of the condition of Canada's wild flora and fauna.

## **PROGRESS UNDER THE NATIONAL STRATEGY FOR THE PROTECTION OF SPECIES AT RISK IN CANADA**

Bill C-5, the *Species at Risk Act*, was introduced in February 2001. SARA aims to: prevent Canadian indigenous species, subspecies and distinct populations of wildlife from becoming extirpated or extinct; provide for the recovery of endangered or threatened species; and, encourage the management of other species to prevent them from becoming at risk. The proposed Act covers all wildlife at risk nationally, their critical habitats, and applies to all lands in Canada.

The Habitat Stewardship Program for Species at Risk contributes to the recovery and protection of habitat for species at risk by targeting investments (\$45M over 5 years) towards the stewardship of priority landscapes (those with a high risk for biodiversity loss). Complementing this initiative, the Ecological Gifts Program provides private landowners with tax incentives to protect and maintain wildlife habitat.

### **Accomplishments**

*Tabling of Legislation:* With the dissolution of Parliament in October 2000 following the federal election call, the proposed *Species at Risk Act* (Bill C-33) died on the Order Paper. Bill C-5, which was tabled on February 2, 2001, took into consideration the many submissions on the former Bill made by individuals and organizations. Bill C-5 passed Second Reading and was sent to the Standing Committee on Environment and Sustainable Development for review in March 2001.

*Aboriginal Involvement in SARA:* Aboriginal organizations have been working with the Minister and departmental officials on the development of species at risk legislation for the past few years. The Species at Risk Aboriginal Working Group has been meeting regularly over the past two years and is a key vehicle for Aboriginal involvement in the development of Bill C-5.

*Habitat Stewardship Initiatives:* There are a number of stewardship initiatives that have been promoted by Environment Canada, with Fisheries and Oceans Canada and the Parks Canada Agency, and in cooperation with the provinces, territories and other organizations, that enable private landowners to protect and maintain habitat for species at risk. These initiatives include the Habitat Stewardship Program for Species at Risk and the Ecological Gifts Program. In its first year (2000-2001), the Habitat Stewardship Program for Species at Risk contributed \$5M towards 38 projects that established over 60 partnerships with provinces, First Nations, landowners, resource users, nature trusts, the natural resource sector, community-based wildlife societies, educational institutions and conservation organizations. Projects were funded across Canada, with Aboriginal Peoples participating in 10 of 38 projects. With respect to the Ecological Gifts Program, Budget 2000 enhanced the tax incentives for Canadians to donate ecologically sensitive lands by reducing the capital gains arising from such donations. Environment Canada has set up an appraisal, review and determination process to certify the fair market value of all ecogifts.

*Bilateral Agreements under the Accord:* Under the Accord, federal, provincial and territorial governments agreed to complementary legislation and programs and the creation of the Canadian Endangered Species Conservation Council (CESCC). At the second meeting of the CESCC in

August 2000, Ministers endorsed the development of bilateral agreements under the Accord. These agreements will further clarify how governments will work together on protecting species at risk, and avoid overlapping regimes for implementation.

### Impacts and Benefits

SARA, once in place, will provide the authority to prohibit the killing of extirpated, endangered or threatened species, the destruction of their residences and the destruction of the critical habitat of all listed endangered or threatened species on all lands in Canada. It will provide emergency authority to protect species in imminent danger. The Act will also, for the first time, legally recognize the Committee on the Status of Endangered Wildlife in Canada

(COSEWIC), ensuring the ongoing provision of rigorous, independent and scientific assessments that would be required to be published in the public registry established under the Act.

*"Canadians want to help protect species at risk and their habitats. The Government of Canada is creating a framework for the protection of species at risk that will achieve results on the ground by using incentives as the preferred approach, backed up with strong legal protections and the ability of the Government of Canada to act alone when necessary,"*

Minister Anderson, February 2001

Partnership and incentives programs are extending habitat protection in all parts of Canada. Stewardship projects have benefited the habitat of approximately 100 nationally endangered and threatened species and well over 200 provincially-listed species at risk. Since 1995, over 200 ecogifts have been made, with an approximate property value of \$25M and representing 18,000 hectares of ecologically sensitive land. Many gifts contain nationally or provincially significant areas and contain rare or threatened habitats that are home to species at risk. These programs provide the mechanisms for Canadians to contribute to their country's natural legacy.

### Future Challenges

It is projected that SARA could have royal assent by the winter of 2002. The challenge will then be to implement all aspects of the Act, and ensure continual reporting on the status and progress towards recovery of species at risk in Canada. Environment Canada will continue to work with its partners in this regard. The Habitat Stewardship Program for Species at Risk will continue to facilitate stewardship actions appropriate for landscape and species, and the Ecological Gifts Program will continue to extend its reach and financial incentives through the *Income Tax Act* and other fiscal reforms.

- To learn more about Canada's species at risk and their recovery, visit:  
<http://www.speciesatrisk.gc.ca/sar/>

## 3.2.2 Habitat/Migratory Birds

### *What is the issue?*

Across Canada, many natural areas are rapidly disappearing, along with critical habitat for the many plant and animal species that they support. Losses of habitat are clustered largely in southern Canada, because pressure for development is the highest there. Protected areas help conserve natural ecosystems and maintain biodiversity, provide ways to understand ecosystems and can also provide a source of individuals for reintroduction to restored areas. Protected areas include nature reserves, designated wilderness areas, national parks, national wildlife areas, habitat/species management areas such as migratory bird sanctuaries, and other conservation

areas. Landowners are encouraged through stewardship initiatives to protect habitat essential for species at risk along with other species.

Canada is characterized by large natural tracts of land, diverse landscapes, and many different ecosystems. The country contains over 20% of the world's Arctic regions, 10% of its forests, and 25% of its wetlands, and it has the longest coastline on the planet. In 1997, 8.6% of Canada's land area, or almost 859,000 square kilometres, was protected in approximately 3,100 sites through the combined efforts of government and conservation agencies.

From 1990 to 1997, the total areas under protection in Canada increased by approximately 17% (See Figure 5). Despite these increases, the total area of protected spaces in Canada still falls short of the target set in 1992 when the federal government joined the provinces and territories in endorsing a statement of commitment to complete Canada's network of protected areas.

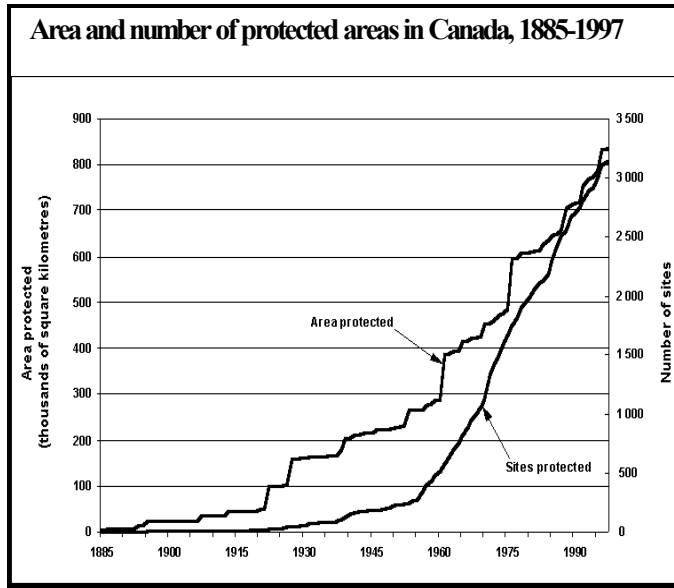


Figure 5- Sources: Canadian Conservation Areas Database, Canadian Council on Ecological Areas; Environment Accounts and Statistics Division, Statistics Canada.

### *What are we doing about it?*

Environment Canada is viewed as the lead agency responsible for the management of transboundary migratory wildlife. It plays a direct role in the recovery of species at risk and habitats, and the conservation and protection of existing wildlife populations through the management of national wildlife areas, migratory bird sanctuaries and marine protected areas. The Department also influences action on federal lands, and facilitates land stewardship through initiatives such as the North American Bird Conservation Initiative (NABCI), the North American Waterfowl Management Plan (NAWMP), ecological land donations (EcoGifts) and Ramsar designation.

## **MIGRATORY BIRDS AND HABITAT PROTECTION**

In 1916, Britain, on behalf of Canada, and the United States signed the Migratory Birds Convention. This historic Treaty needed to be brought up-to-date and long awaited negotiations resulted in the signing of the Protocol amending the Convention in 1995. International ratification took place on October 7, 1999. Canada negotiated these amendments, with Aboriginal Peoples as part of the negotiation team – a precedent setting occurrence. This international law places priority on the conservation of North American migratory birds and recognizes the aboriginal and treaty rights of the Aboriginal Peoples of Canada.

The Migratory Birds Convention provided the legal mandate for Canada and the United States to cooperate in waterfowl population surveys and harvest management for many years. However, the accelerated loss of habitat led to record low populations of most duck species in the 1980s.



The North American Waterfowl Management Plan (NAWMP) was signed by Canada and the U.S. in 1986 to respond to this challenge. It was updated in 1994 with the addition of Mexico as a signatory. Over the last 15 years, NAWMP partners have worked together to develop comprehensive, site-specific habitat management programs to assist in restoring waterfowl populations on a continental scale. In Canada, this work is implemented through three defined habitat-focused joint ventures: Pacific Coast, Prairie Habitat, and Eastern Habitat, and three species joint ventures focused on addressing the monitoring and research needs of specific species. Taking a stewardship approach, the habitat-focused ventures assist landowners in adopting sustainable land use practices, which benefit them and the wildlife they help protect. Canadian Plan activities have received around \$7M annually from Canadian federal sources. Much of the partner funding originates from U.S. government and other sources, to the extent that each Canadian federal dollar leverages more than seven dollars from partners. This effort is now being expanded through NABCI to include all bird species.

### Accomplishments

Ratification of the Protocol amending the Migratory Birds Convention is a significant achievement. It allowed the *Migratory Birds Convention Act* to be brought up to date with the *Constitution Act*, by recognizing Aboriginal and Treaty rights. The amendments recognize the role of Aboriginal Peoples of Canada and indigenous peoples in Alaska for which migratory birds have cultural and dietary importance, and provide for the traditional harvest of migratory birds. In addition, the Protocol recognizes the need for Aboriginal participation in the cooperative management and sustainable use of migratory birds.

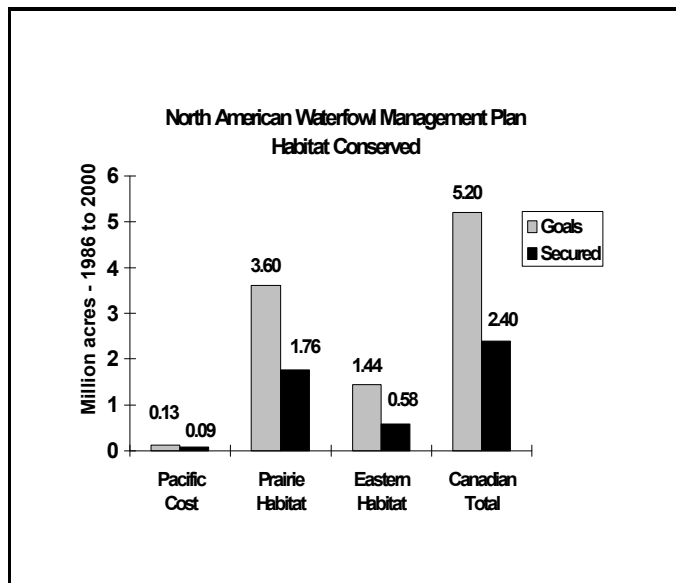


Figure 6 - North American Waterfowl Management Plan

By having this solid framework in place, programs such as NAWMP continue to expand their reach, partnerships and successes. From 1986 to the end of 2000 in Canada, NAWMP secured, enhanced and managed over 1.0 million hectares (2.4 million acres) of habitat (46% of the goal), through the expenditure of \$564M - 21% of the expenditure goal (See Figure 6). Of the total contributions to NAWMP in Canada, U.S. sources account for 56% of the total, with the other 44% being split between Canadian federal (38%), provincial/territorial (37%) and private sources (25%). A range of creative strategies and on-the-ground partnership arrangements have contributed to these accomplishments.

## Impacts and Benefits

The Migratory Birds Convention and programs established to support it, such as NABCI and NAWMP, remains a model for international conservation. Thousands of partners representing diverse interests in three countries have worked to conserve 5 million acres of wetland ecosystems. Waterfowl populations have been effectively managed for many decades and, in some cases, are remarkably close to the population goals based on the 1970s benchmark decade. There has also been a rebound in most populations of ducks, geese and swans (e.g., Trumpeter Swan populations have recovered from critically low numbers when some predicted extinction to be imminent; and, of the 10 most common duck species breeding in the Prairies, 8 have increasing population trends).

### Conservation Agencies Sign Historic Agreement With Manitoba Farmer

A Minnedosa farm family has been the first to complete a purchased conservation easement (CE) in Manitoba, a conservation tool that is starting to take off in this province. Rick and Linda Nylen signed a perpetual CE that secures habitat on 80 acres of their land. The Delta Waterfowl Foundation and Manitoba Habitat Heritage Corporation, through the *Potholes Plus Program*, compensated them for their contribution. NAWMP funding helps to support *Potholes Plus Program* activities. "The whole 80 acre parcel has wetland and upland habitat that provides nesting habitat for a wide array of birds," said Gerald Forsyth, Corporation Field Representative in Minnedosa. "Hardly a day goes by without a landowner calling me to find out more," said Forsyth. The Corporation and the Foundation have 32 more CEs either completed or in progress (as of May 1, 2000).

## Future Challenges

While many migratory bird species are rebounding, some species, such as the Northern Pintail and Scaup ducks, have not responded to habitat improvements. Other species' populations, such as Sea Ducks, are declining. NAWMP is implementing new joint ventures to address these issues, and is continually evaluating and readjusting its approach based on the results of scientific targets and specific goals. Its expanded vision, as of its 1998 update, is to (1) strengthen the biological foundation; (2) move towards a landscape approach; and, (3) broaden the scope of partnerships.

With the Protocol now in force and regulations under review, a new, more comprehensive approach to migratory bird conservation is being implemented. The new North American Bird Conservation Initiative (NABCI) has been embraced to deliver on the full spectrum of bird conservation programs through regionally based, biologically driven, landscape oriented partnerships. The four pillars of the NABCI are: NAWMP for waterfowl, Wings Over Water for water and sea birds, Canadian Shorebird Conservation Plan for shorebirds, and Partners in Flight for land birds.

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## Long-Term Key Result: Understanding and reduction of human impacts on the health of ecosystems.

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The ability to secure a clean and healthy environment for Canadians is dependent upon our capacity to understand how our ecosystems are affected by human-induced stressors and to transfer that knowledge to Canadians and the global community so that it can be incorporated into decision-making. An understanding of the ecosystem structure, processes and functions, as well as the effects of economic activities, including land-use changes, inputs, products, wastes generated and resources stocks and flows across all sectors, are critical requirements for an effective ecosystem-based management approach and of fundamental importance to sound

decision-making.

The health of ecosystems long-term key result is supported by four areas of focus. The following table aligns the four areas of focus, the long-term indicators and targets, and the commitments for 2000-2001 that form Environment Canada's response to the long-term key result for the planning period.

Area of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives and Deliverables (as stated in RPP 2000-2001)
<b>Provide timely information and advice to Canadians</b>	<b>Indicator:</b> Effective monitoring and reporting systems in place. <b>Target:</b> Under development.	<p><b>Monitoring Review</b></p> <ul style="list-style-type: none"> <li>• Complete a review of departmental monitoring programs (2001).</li> </ul> <p><b>Status and Trends Reports</b></p> <ul style="list-style-type: none"> <li>• Develop options for establishing a status and trends reporting system (2001).*</li> </ul> <p>√ <b>Ecosystem Health Indicators</b></p> <ul style="list-style-type: none"> <li>• Pacific &amp; Yukon will develop 12 environmental indicators on priority issues (2002).</li> <li>• Develop new ecosystem health indicators (2002). *</li> </ul>
<b>Advance science understanding</b>	<b>Indicator:</b> Evidence of new tools to advance scientific understanding. <b>Target:</b> Under development.	<p>√ <b>New Knowledge</b></p> <ul style="list-style-type: none"> <li>• Publish eight science assessments on environmental issues (2003).</li> <li>• Develop new knowledge on emerging issues such as the impacts of endocrine disrupting substances (EDSs) and of biotechnology (2001).</li> </ul> <p><b>Oil and Gas Development</b></p> <ul style="list-style-type: none"> <li>• Atlantic Region will examine the marine impacts from oil and gas development.</li> </ul>
<b>Contribute science-based advice and solutions</b>	<b>Indicator and Target:</b> Under development.	<p><b>Environmental Quality Standards</b></p> <ul style="list-style-type: none"> <li>• Develop 20 science-based standards on environmental quality, including Canadian water quality guidelines (2002).</li> </ul> <p><b>Sediment Remediation</b></p> <ul style="list-style-type: none"> <li>• Develop new techniques and approaches for sediment remediation (2002).</li> </ul> <p><b>Sustainable Practices</b></p> <ul style="list-style-type: none"> <li>• Atlantic Region will work with model forest research partners to influence the development of sustainable forest management practices.</li> </ul>
<b>S&amp;T Capacity</b>	<b>Indicator and Target:</b> Under development.	<p><b>S&amp;T Capacity and Infrastructure</b></p> <ul style="list-style-type: none"> <li>• Identify models for environmental science and technology governance (2001).</li> <li>• Examine options to improve the connection between advice and policy development (2001).</li> <li>• Develop recommendations to address science capacity issues related to human resources and infrastructure.</li> </ul>

Note: Shared areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

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\* Sustainable Development Strategy Target or Deliverable

### **3.2.3 Timely information and advice to Canadians**

#### *What is the issue?*

Conducting ecosystem monitoring and assessments to identify and report what is happening in Canadian ecosystems is the first critical step to conserving and protecting the health of Canada's ecosystems. Environmental monitoring is a cornerstone in detecting and tracking ecosystem changes. Monitoring should be able to provide both comprehensive information on ecosystem status and trends, and early detection of ecosystem change as a basis for preventive actions, including appropriate research. It is equally important that monitoring is based on consistent, meaningful, and ecologically relevant indicators of this change so that results can be interpreted, compared and communicated in terms of their significance to ecosystem health. To be achievable at the national level, monitoring design must also provide opportunities for effective partnerships, from other federal departments to the general public. Innovative research on new and emerging stressors and the evaluation of the efficacy of existing policies and management actions provides critical early-detection of potential change, and also enables the design of relevant ecosystem indicators for monitoring. Finally, effective interpretation and reporting of information is needed to communicate significant ecosystem changes and to influence timely and appropriate response to this change.

#### *What are we doing about it?*

Environment Canada's efforts are focused on designing and implementing a system for assessing and reporting ecosystem status and trends that tracks, measures and describes ecosystem response to environmental stressors and provides early detection of significant new stressors. The Department fosters innovative research and enhances predictive capacity in detecting new, emerging (e.g. endocrine disrupting substances), or poorly understood stressors (e.g. in-use pesticides; cumulative stresses). Environment Canada is also producing the Ecosystem Status and Trends Series, which includes Early Detection Advisories of Ecosystem Change on key environmental issues to inform and advise scientists, government, and the public on ecosystem change and to raise awareness of the importance of ecosystem change. It also develops partnerships within the Department, with other federal Departments and Canadian jurisdictions, international agencies, and the public to promote effective, and consistent ecosystem and cumulative effects monitoring, to gain efficiencies, and to facilitate the sharing of information and exchange of ideas and expertise.

Over the course of the planning period, Environment Canada released the report "Tracking Key Environmental Issues", which provides an overview of the status and trends of environmental issues of concern to Canadians. The Department also completed a review of departmental monitoring and is exploring the concept of a Canadian Integrated Network for Environmental Monitoring. Finally, Environment Canada has developed a number of new ecosystem health indicators.

### **NATIONAL ENVIRONMENTAL INDICATORS**

The impetus to identify and develop national environmental indicators was provided by the Group of Seven at its 1989 Economic Summit in Paris. The Group requested that the Organization for Economic Co-operation and Development (OECD) begin developing environmental indicators in the context of integrated environmental and economic decision-making. Canada took up the challenge and made a government-wide commitment to develop a national set of environmental indicators. Developing this set has involved ongoing consultations

with federal, provincial and territorial departments and agencies, environmental and other non-government organizations, and private sector stakeholders.

Environmental indicators are selected key statistics that provide information on significant trends in the environment, natural resource sustainability and related human activities. The National Environmental Indicator Series produced by Environment Canada, in partnership with other federal departments and in consultation with numerous other stakeholders, provides a national profile of the state of Canada's environment and measures progress towards sustainable development.

### Accomplishments

Indicators for 17 key environmental issues of national significance are being developed as part of the national set of environmental indicators. To-date, Environment Canada has developed 45 environmental indicators relating to 12 key environmental issues.

Such indicators are the "canary in the coal mine," early warning signals for emerging environmental problems, as well as signposts for our path towards environmental sustainability. The State of Canada's Environment Infobase web site provides further information on these indicators and other state of the environment reporting products.

- To learn more about the state of the environment reporting products, visit: <http://www.ec.gc.ca/soer-ree/>

The 2000-2001 report "Tracking Key Environmental Issues" provides an overview of the status and trends of some key environmental issues of concern to Canadians using these environmental indicators. Public feedback on the report has been very positive.

### Impacts and Benefits

Environmental indicators are important tools for translating and delivering concise, scientifically credible information in a manner that can be readily understood and used by decision-makers. They are an extremely effective communications tool that facilitates a broader awareness of environmental issues and the state of the environment by Canadians.

Domestically, environmental indicators have been used to set measurable policy targets and assess performance and as a communication tool to report on the status and trends of key environmental issues. Internationally, they allow Canada to report on the world stage and are used by international agencies to compare and report on the overall health of the global ecosystem (e.g. by OECD in their regular performance reports, UNEP, World Resource Institute, and the International Institute for Sustainable Development).

#### Environmental Issues Tracked by Indicators

1. Stratospheric Ozone (1999)
2. Climate Change (1998)
3. Toxic Contaminants in the Environment: Persistent organochlorines (1998)
4. Acid Rain (1999)
5. Urban Air Quality (1999)
6. Urban Water: Municipal water use and wastewater treatment (2001)
7. Sustaining Canada's Forests: Timber Harvesting (1999)
8. Sustaining Canada's Forests: Forest Biodiversity (1997)
9. Sustaining Marine Resources: Pacific Herring Fish Stocks (1998)
10. Environmental Sustainability of Canadian Agricultural Soils (2000)
11. Canadian Passenger Transportation (1998)
12. Energy Consumption (1999)

## Future Challenges

While Environment Canada has successfully developed and promoted national environmental indicators, a comprehensive set is not yet available to report on the complete state of the environment. In many cases, monitoring data are unavailable or not available as a consistent on-going time-series across the country (e.g. water quality). In other cases, more research and conceptual development is needed to establish which indicators will be the most appropriate for a variety of uses (e.g. biodiversity). Therefore, work continues to build the national series of indicators, and supporting research and

monitoring is required to not only help develop new indicators but to continue to monitor existing trends. In addition, the work on environmental indicators at Environment Canada will support the National Round Table on Environment and the Economy work on sustainable development indicators, to complement indicators on societal values and economics.

### Tracking Key Environmental Issues

*“We need stronger science and more reliable information to help us know where we are, where we want to be, and how we are going to get there. For this reason, we are working towards a Canadian Information System for the Environment and investing in this country's science capacity to make government more accountable, to increase our knowledge on the environment, and to make it more broadly available.”*

Minister of the Environment (Canada)

## 3.2.4 Advance science understanding

### *What is the issue?*

Once we know what is happening in the environment, research is needed to understand the individual and cumulative impacts of specific stressors on the health of ecosystems—*why it is happening*. To effectively deal with change, we must understand and communicate information about the human activity causing that change and the importance of the change to the overall health of the ecosystem. Research is primarily aimed at identifying those activities having significant impacts on Canadian aquatic ecosystems, ecosystem components that are most vulnerable to impacts, and opportunities to minimize these impacts. Related ecosystem research on wildlife and its habitat, and atmospheric science and monitoring also support our overall understanding of the impact of human activities on ecosystem health. The study of basic ecosystem structure and function is also important in order to support ultimate understanding of ecosystem response to stress. Science assessment is the primary mechanism for delivery of scientific knowledge and information to the scientific community and policy makers and plays a key role in providing succinct, state of scientific knowledge reviews of complex environmental issues.

### *What are we doing about it?*

Environment Canada focuses its efforts on conducting and fostering innovative research on ecosystem structure and function, and the impacts of key stressors on the health of ecosystems. It creates, integrates, synthesizes and communicates the state of scientific knowledge on key environmental issues through integrated science assessment. The Department also advances the understanding of global ecosystems and the implications of global events and change for the health of Canadian ecosystems.

Some key accomplishments during the planning period included: the completion or near completion of science assessments for issues of concern to Canadians, including the Impacts of Nutrients on the Canadian Environment, Municipal Wastewater, a Bibliometric Review of Cumulative Effects Research, and Threats to Water Quality; the development of a federal science strategy on endocrine disrupting substances (EDSs); and a draft research strategy for understanding the ecosystem effects of genetically modified organisms. Environment Canada also hosted a workshop to begin exploring a research strategy on the assessment of human and agricultural pharmaceuticals and therapeutic products in the Canadian Environment.

**Communicating science to as many people as possible...**

Environment Canada's Biosphere is on the way to becoming the cornerstone of a new way of thinking: the blending of scientific and traditional knowledge. Each year, nearly 70,000 visitors and 25,000 young people learn about the major issues surrounding the St. Lawrence River and the Great Lakes. Various activities are available for visitors, including programming that adapts the issue of climate change to the whole world, updates on major environmental issues and an activity which lets visitors make decisions concerning important issues related to the ecosystem, such as pollution, degradation, and water levels. Visitors are then invited to join the ranks of the nearly 5,000 volunteers in the ObservAction Network who have made a commitment to do their part to improve the state of the environment.

**ASSESSING CUMULATIVE ENVIRONMENTAL EFFECTS IN AQUATIC ECOSYSTEMS - MOVING THE YARDSTICK**

Cumulative effects assessment (CEA) represents an essential part of the ecosystem-based management of natural resources and the human activities that impact upon them. In 1995, the Canadian government included a requirement to address cumulative effects when an action or project is subject to a federal environmental assessment under the *Canadian Environmental Assessment Act*. While CEA is a common requirement, there are shortcomings with the existing process and no widely accepted scientific methods for CEA that exist in a concise and manageable framework.

Cumulative effects are defined as those effects that result from the interactions of multiple human activities in time and space, each of which may be insignificant when viewed alone but which become cumulatively significant when seen in aggregate.

**Accomplishments**

The National Water Research Institute at Environment Canada has been examining how best to determine cumulative effects in a range of different environments subject to a number of different stressors (e.g., effects of pulp-mill and metal-mining effluents on communities in several large rivers across Canada; cumulative effects of multiple developments on fish populations; cumulative impacts of agricultural and forestry practices).

Recent Environment Canada work has produced two documents that advance knowledge of CEA in a fundamental way. First, a review of the published literature was conducted to obtain relevant information and an annotated bibliography was prepared in February, 2001. Based on this work, new approaches for conducting a CEA in aquatic ecosystems were drafted, as part of the Northern Rivers Ecosystem Initiative (*Approaches To Assessing Cumulative Environmental Effects In Northern River Ecosystems*). The Northern Rivers Ecosystem Initiative is currently developing an Integrated Environmental Effects Monitoring (IEEM) Program that will serve as a demonstration project for the integrated CEA.

In addition, a new Management Framework for CEA is proposed that focuses on environmental responses, rather than just the particular stressors on the environment. This allows evaluators to determine how much the ecosystem can sustain – i.e., how much stress is the system currently under and how much more can it tolerate. This shift in focus enables CEA to be implemented in a more holistic and systematic manner, which is crucial as the density of development increases in Canadian ecosystems.

### **Impacts and Benefits**

The primary benefit of the Cumulative Effects Management Framework is that it can help to establish and maintain baseline information for an entire region, and identify important ecosystems and natural resources. This information can then be used to assess and manage the potential impacts of all present and future developments in the area. Such a framework is a proven and useful tool for dealing effectively and efficiently with multiple proposals for development (e.g., hydrocarbon developments in the Athabasca Oil Sands of northern Alberta).

The most important contribution of CEA to ecosystem-based management is an enhanced understanding of the linkages between human activities and the goals that have been established for sustainable ecosystem development. This enhanced understanding of critical linkages can then be used in public policy development, such that ongoing and future human activities do not compromise our ability to maintain the environment in its desired state.

### **Future Challenges**

Several data gaps still exist with CEA. There is also a need to evaluate and test the proposed conceptual CEA framework. The ultimate objective is to produce the foundation for a regional information system that can be used by both project proponents and environmental assessment practitioners to assess and manage the cumulative effects of multiple projects in a region. Continuously improving the product and demonstrating success will illustrate to regulators the need for and advantages of this kind of CEA.

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## **Long-Term Key Result: Conservation and restoration of priority ecosystems.**

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Major ecosystems are under continuous threat from a number of stressors such as increased population, industrial activity, and unsustainable land use. These activities are leading to increased air and water pollution and the disappearance of habitat required to maintain the natural balance of living things and their environment. In addition, freshwater issues have become an increasing concern to Canadians, the provinces and territories and the federal government. All provinces have taken actions to modernize their water policies, regulations and strategies to better meet their responsibilities for water management, and Environment Canada has been working to better fulfill its role in water management.

The “*priority ecosystems*” result is divided into two areas of focus that support the long-term key result. The following table aligns those two areas of focus, the long-term indicators and targets, and the commitments for 2000-2001 that form Environment Canada’s response to the long-term key result for the planning period.



Area of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives and Deliverables (as stated in RPP 2000-2001)
Water	<b>Indicator and Target:</b> Under development.	<b>Ö Freshwater</b> <ul style="list-style-type: none"> <li>• Develop a Canada-wide Accord for the Prohibition of Bulk Water Removal from Drainage Basins.</li> <li>• Release a federal discussion paper on how to better conserve and protect our freshwater resources.</li> <li>• Renew the Federal Water Policy and develop a national freshwater strategy.</li> </ul>
Ecosystem Initiatives	<b>Indicator:</b> Evidence of increased scientific understanding. <b>Target:</b> Under development.	✓ <b>St. Lawrence Vision 2000</b> <ul style="list-style-type: none"> <li>• Quebec Region will determine the possible origin and atmospheric contribution of airborne toxic substances to the St. Lawrence River.</li> </ul> <b>Northern Sustainable Development Strategy</b> <ul style="list-style-type: none"> <li>• Support Indian and Northern Affairs Canada in the development of a Northern Sustainable Development Strategy.</li> </ul> <b>Research</b> <ul style="list-style-type: none"> <li>• Pacific &amp; Yukon will assess endocrine disrupting effects in pilot watersheds and key wildlife indicators.</li> <li>• Prairie and Northern Region and the National Water Research Institute will assess natural and anthropogenic impacts of oil sands contaminants.</li> </ul>
	<b>Indicator:</b> Evidence of public awareness and capacity. <b>Target:</b> Under the Great Lakes Program, federal actions completed in 13 Areas of Concern by 2005.	<b>Great Lakes Program</b> <ul style="list-style-type: none"> <li>• Commence the next phase of the Great Lakes Program, Great Lakes 2020.</li> </ul>
	<b>Indicator:</b> Evidence of behavioural change and incremental environmental improvements. <b>Target:</b> Under the Georgia Basin Ecosystem Initiative, re-open greater than 25% of closed shellfish harvesting areas in selected Georgia Basin communities by 2005.	<b>Atlantic Coastal Action Program</b> <ul style="list-style-type: none"> <li>• Atlantic Region, through the Science Horizons and Science linkages programs, will provide scientific research support to implement the Atlantic Coastal Action Program Comprehensive Environmental Management Plans.</li> </ul> <b>Eco-Action 2000</b> <ul style="list-style-type: none"> <li>• Support action towards sustainable communities in Canada through Eco-Action 2000 and other outreach initiatives.</li> <li>• Report from a national perspective on ecosystem initiatives to better communicate the results achieved through partnerships at the community level.</li> </ul>

Note: Shared areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.2.5 Water

#### *What is the issue?*

Human activity affects the quality of water resources throughout the country. Threats to water quality come from municipal wastewater discharges (sewage, combined sewer overflow, and stormwater runoff), effluent from septic systems, industrial effluent, waste from intensive livestock operations, agricultural runoff, and the deposition of atmospheric pollution.

#### *What are we doing about it?*

In addressing this issue, Environment Canada focuses its efforts on working with other departments to address immediate federal water priorities and to propose ways of enhancing

collaboration with partners on water priorities of national importance. The Department continues to promote a common vision and priorities for freshwater management, and invest in opportunities to enhance overall ecosystem health through its ecosystem initiatives.

## **CLEAN, SAFE AND SECURE WATER FOR CANADA**

Canadians are becoming increasingly concerned about the quality and sustainability of their water resources, particularly issues related to drinking water and source water protection. Canadians and their governments recognize the need to work together to protect vital water resources and to address human health and environmental risks.

In June 2000, the Canadian Council of Ministers of the Environment (CCME) asked that work be carried out on three broad freshwater themes, namely: water quality and aquatic ecosystems; hazard and flood mitigation; and water demand, use, and management. This request builds on the advice of the *Governments Roundtable on Water* that met in January 2000. CCME Ministers continue to be committed to clean, safe and secure water for all Canadians. At its most recent meeting in September 2001, Ministers agreed that each jurisdiction must continue to maintain and improve high standards for water quality, and initiated a series of collaborative actions to complement their individual initiatives:

- reviewing existing guidelines and accelerating the development of additional water quality guidelines;
- setting research priorities for addressing water quality issues such as disturbances to groundwater, land use impacts that have a potential adverse impact on our watersheds, and recycling and reuse; and
- providing information to Canadians through the CCME web-site, which will include a water quality index and links to water quality information from all jurisdictions.

### **Accomplishments**

The federal government is playing a leadership role in addressing freshwater priorities of common concern across the country. The work by Environment Canada on guideline development, monitoring and research serves as a basis for collaborative action intended to lead to complementary policies and actions by all jurisdictions.

Provincial action to prohibit bulk water removal and the federal government's amendments to the International Boundary Waters Treaty Act (expected to receive Royal Assent this fall) will prohibit bulk water removal from boundary waters. This provides solid assurance that the removal of water in bulk within Canada or intended for foreign destinations will not take place.

### **Impacts and Benefits**

The work of the federal government in bringing together the provinces, territories and water experts through CCME has led to strengthened collaboration in addressing freshwater priorities by all governments.

In addition, Environment Canada's work on water has influenced other federal programs to ensure clean water. For example, the Infrastructure Canada Program, announced in the 2000 Federal Budget, includes a "green" component with a significant portion targeted towards water and wastewater treatment.

## Future Challenges

Water is a horizontal issue involving all orders of government, industry, and individuals. It will be important to ensure all sectors are engaged in protecting water (e.g. agriculture, health, etc.) to provide integrated and effective solutions to freshwater priorities.

Water quality is a primary focus, with the priority on clean drinking water. Our efforts will be directed at developing integrated approaches that will ensure protection of water quality from the source to the tap. In addition, collaboration on safe water priorities, including preventative planning for water hazards, and on water security issues related to demand, use and management will be addressed in co-operation with all jurisdictions and stakeholders.

- ▶ To learn more about issues relating to water quality, visit:  
[http://www.ec.gc.ca/envpriorities/cleanwater\\_e.htm](http://www.ec.gc.ca/envpriorities/cleanwater_e.htm)

## 3.2.6 Ecosystem Initiatives

### *What is the issue?*

Ecosystem initiatives are cooperative efforts on targeted ecosystems to address and solve complex environmental issues as identified and agreed upon by stakeholders. Ecosystem initiatives help Canadians achieve environmental results through partnerships, pooling resources, focusing science, coordinating efforts, sharing information and experiences, and generating a broad basis of support. Moreover, they help build the capacity of all the players involved to make better decisions and to effect change.

### *What are we doing about it?*

Environment Canada works with a broad spectrum of governments and communities of interest in pursuit of shared objectives in six ecosystem initiatives in Canada, namely, the Georgia Basin Ecosystem Initiative, the Northern Rivers Ecosystem Initiative, the Northern Ecosystem Initiative, the St. Lawrence Vision 2000, the Atlantic Coastal Action Program and Great Lakes 2000.

## ST. LAWRENCE VISION 2000 (SLV 2000)

The St. Lawrence Action Plan is currently in its third successive phase of activity. This third phase began in June 1998 with a new Canada-Quebec five-year agreement on joint action. Phases I and II of SLV 2000 gave priority to the most urgent interventions such as reducing discharges of toxic liquid effluents from the industrial sector and protecting wildlife habitats and species of concern. Phase III emphasizes prevention, particularly in relation to human health, industrial and urban clean up, agriculture and navigation. The three main objectives of the Action Plan include: protecting ecosystem health, protecting human health, and encouraging the participation of riverside communities. A number of departments, organizations and agencies of the federal and Quebec governments<sup>2</sup> have pooled their expertise, information and resources to achieve results.

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<sup>2</sup> Environment Canada, Agriculture and Agri-Food Canada, Canada Economic Development, Parks Canada Agency, Fisheries and Oceans Canada, Health Canada, Transport Canada, Public Works and Government Services Canada, Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, Ministère de l'Environnement du Québec, Ministère de la Santé et des Services sociaux du Québec, Ministère des Transports du Québec, and the Société de la faune et des parcs du Québec

The plan also extends beyond governments to include many non-government partners. SLV 2000 has a budget of \$239 million.

### Accomplishments

The overall goal of SLV 2000 is to ensure sustainable development of the St. Lawrence ecosystem. It includes six components: agriculture, biodiversity, industrial and urban, human health, community involvement, and navigation, and also has a management system, accessible to the partners on the Internet, to track the achievement of results.

ACCOMPLISHMENTS OF NOTE	
<p><b>Agriculture:</b> To contribute to a 50% reduction in the use of pesticides, agricultural clean-up plans have been developed for 4 targeted watersheds. \$1.46M has been used to fund 60 projects that reduce pesticide and herbicide use on field crops; 80 farmers have joined 'green clubs' in the Boyer River Basin, and 7,500 farm inspections have taken place to monitor agricultural pollution.</p>	<p><b>Biodiversity:</b> To contribute to safeguarding 35 species at risk, 19 action plans have been implemented. In addition, the first multidisciplinary study on the effects of water level fluctuations on the river ecosystem has been initiated and an integrated monitoring program established with 25 indicators chosen by partners to represent the state of the river.</p>
<p><b>Industrial and Urban:</b> To contribute to reducing toxic effluents from small and medium sized businesses (SMEs), guides, tools and pollution prevention pilot projects were developed within the metallurgical, metal processing and chemical sectors. The program to develop new environmental technologies has given rise to 28 projects representing a total investment of \$22.8 million.</p>	<p><b>Human Health:</b> To contribute to protecting human health, studies have been conducted to reduce human exposure to the contamination risks posed by recreational waters, drinking water and aquatic products.</p>
<p><b>Community Involvement:</b> To contribute building consensus in riverside communities, 14 ZIP committees (Areas of Prime Concern) are now in place to actively implement environmental remedial action plans along the River (4 new ones). The Biosphere's Ecowatch Network involves 93 organizations to disseminate information and popularize science. In addition, a new joint Canada-Quebec funding program has supported more than 105 community projects with over \$4 million in funds.</p>	<p><b>Navigation:</b> To contribute to a navigation management strategy consistent with sustainable development, a navigation committee was established as the forum for all players to participate. Based on new studies of river bank erosion, a voluntary measure with respect to reduced ship speed is now in place in vulnerable zones in the Montreal - Sorel area.</p>

### Impacts and Benefits

Some of the impacts and benefits derived from the accomplishments to date include:

- Reduced pesticide use in the agricultural environment and decreased pesticide contamination in the water of tributaries.
- 3 species safeguarded in legally protected areas; 8 wildlife species and 26 plant species designated as threatened or vulnerable under Quebec process, 2 ecological reserves created, and 100,694 hectares protected.
- A groundswell of support to protect the St. Lawrence - over 200 environmental stakeholders in Quebec have participated in SLV 2000, including many representatives from riverside communities. There has been invaluable cooperation and support for activities with all partners in federal and provincial governments that continue to provide the programs and funds to work toward sustainable development in the region.
- Of the 107 industries targeted for action, 74 have achieved their environmental results and been awarded environmental recognition certificates.

## **Future Challenges**

Work will continue on SLV 2000 to achieve the target results by March 31, 2003. There is a continued recognition that riverside communities are in the best position to identify and direct local initiatives and address the environmental issues along the St. Lawrence. The ever-growing number of partners and complexity of issues make the task of managing the St. Lawrence a significant challenge. Continued work with the shipping industry will be required to achieve a navigation sustainable development strategy. More time and effort will be required to recruit volunteer small and medium-size enterprises (SMEs) to develop pollution prevention plans. There is a need to accelerate the species protection work while also advancing work on water level impacts and monitoring. Finally, a continued scientific program will be needed to ensure the most effective solutions are developed and implemented in this important ecosystem region.

- To learn more about the St. Lawrence Vision 2000, visit:  
[http://slv2000.qc.ec.gc.ca/index\\_a.htm](http://slv2000.qc.ec.gc.ca/index_a.htm)

## **GEORGIA BASIN ECOSYSTEM INITIATIVE (GBEI)**

The straits of Georgia and Juan de Fuca, along with Puget Sound, create an inland sea around whose shores cities are rapidly growing and imposing urban pressures on a sensitive environment. Watersheds, airsheds, marine and terrestrial ecosystems, and natural species in this area are increasingly at risk from human activity and urban sprawl. The challenge is to manage the impacts of this growth and activity in the Georgia Basin to achieve healthy, productive and sustainable ecosystems and communities.

Led by Environment Canada, the GBEI is a federal-provincial partnership launched in 1998, that includes three federal departments (Environment Canada, Fisheries and Oceans Canada, and Parks Canada Agency) and three provincial ministries (Ministry of Water, Land and Air Protection, Ministry of Sustainable Resource Management, and Ministry of Community, Aboriginal and Women's Services). Local governments, First Nations, non-government and volunteer organizations, business and industry, and academia also partner in many of the components of the initiative's action plan. Over the period 1998 - 2003, Environment Canada will invest \$21.7 million in the GBEI. It is estimated that, through the GBEI partnership, approximately \$100 million will be invested by all partners.

## **Accomplishments**

The following are but a few examples of the many 2000-2001 partnered achievements toward achieving clean air and clean water, protecting habitat and species and supporting sustainable community initiatives.

GOALS	ACCOMPLISHMENTS OF NOTE
Residents and decision-makers taking action for healthy, productive and sustainable ecosystems and communities,	<ul style="list-style-type: none"> <li>• Launched a 2 year Cowichan Valley Integrated Data Management Project to improve the accessibility of integrated environmental information for local decision-makers and communities.</li> <li>• Supported the Headwaters Project in which the City of Surrey is preparing alternate development standards to ensure the long term health of the area’s streams and agricultural lowlands.</li> <li>• Initiated the development and reporting of transboundary environmental indicators.</li> <li>• Engaged First Nations in issue identification, joint project planning and capacity building through the Coast Salish Sea Initiative.</li> <li>• Supported the development of the web-based Stewardship Centre to provide access to stewardship best practices and case studies.</li> <li>• With the Sustainable Development Research Institute, developed Georgia Basin QUEST - a computer game designed to help users choose alternate futures for the Georgia Basin.</li> </ul>
Air quality that supports healthy, vibrant communities and healthy ecosystems.	<ul style="list-style-type: none"> <li>• Prepared a Clean Air Action Plan with the Greater Vancouver and Fraser Valley Regional Districts to support development of airshed planning and management tools.</li> <li>• Completed a sampling program (more than 50 sites) designed to learn more about “white haze” in the lower Fraser Valley.</li> <li>• Undertook a study of potential losses of future tourist spending associated with poor visibility from air pollution episodes.</li> <li>• Developed and released a smog indicator web page for the Lower Fraser valley.</li> </ul>
Clean water to protect and improve aquatic ecosystem health and human well-being in the Georgia Basin.	<ul style="list-style-type: none"> <li>• Pesticide Collection Events on Vancouver Island and Greater Vancouver resulted in the safe removal and disposal of 55,000 kg of pest control products.</li> <li>• Best Management Practices (BMPs) for auto industries in Victoria’s Cecelia Creek Watershed were implemented, and a generic BMP guide for other businesses was completed.</li> <li>• Innovative approaches to stormwater management were promoted through a series of workshops and the development of a Stormwater Management Guidebook.</li> <li>• Impacts from agricultural activities, including those from endocrine disrupting substances, are being assessed in watersheds in the Lower Fraser Valley.</li> <li>• Community roundtables (including industry, local governments, First Nations, and citizens) have been established in four regions to develop and implement local actions that will re-open closed shellfish areas.</li> </ul>
Terrestrial and aquatic fauna and flora, biodiversity and human well-being are maintained.	<ul style="list-style-type: none"> <li>• The acquisition of key ecologically significant non-wetland habitats, including sites containing Garry Oak and other rare ecosystems, is being coordinated through the Georgia Basin Ecosystem Conservation Partnership (GBECP) – an initiative of public and private sector organizations.</li> <li>• The Sensitive Ecosystems Inventory (SEI) project continues to provide information and develop outreach strategies on remnant rare and ecologically fragile ecosystems to support local land use and park planning processes, private land stewardship, and the acquisition and protection of critical habitat.</li> <li>• Guidance documents and BMPs for coastal shoreline protection and stewardship are under development.</li> </ul>

## Impacts and Benefits

The work underway in the Georgia Basin will result in many benefits, including:

- Improved transfer of scientific knowledge, and the development of decision-support tools, standards and practices that integrate social, economic and environmental issues, and advance innovative urban development approaches that protect ecosystem functions and processes.

- Improvements in air quality, reductions in water pollution, and securement and/or protection of important and rare habitats.
- Increased community capacity to deal with health and environment issues.
- The advancement of ecosystem science, including air pollution, endocrine disrupting substances impacts and wildlife research, and the use of these results in community-based watershed planning and stewardship processes.
- Realistic options for remediation of the closed shellfish harvesting areas.
- Regular reporting of key transboundary environmental indicators, and the development of regionally-specific economic indicators of sustainability.
- More coordinated, strategic and effective delivery of ecosystem-based programs.
- Strengthened relationship with First Nations.

#### **Waste to Wealth – The Union Bay Story**

Baynes Sound is often called the "Jewel of the Comox Valley" but raw sewage was polluting its shore, threatening both the beauty of the Sound and the future of its shellfish industry. The Union Bay group proposed a treatment plant with a constructed wetland to filter the treated liquid waste before it flows into Baynes Sound. The sludge left behind will be composted using worms to remove any harmful material, resulting in rich compost that can be sold as plant fertilizer. According to Cliff Boldt, Chair of the Liquid Waste Management Committee, "Without the GBEI, we would not have gotten off the ground. This is a community process that could be replicated. Three other communities in the Comox Valley have already started similar processes as a result of us starting this one."

#### **Future Challenges**

The sustainability of the Georgia Basin will continue to be challenged by population growth, and the pressures such growth places on both the health of the ecosystem and the communities within the Basin. The goal of improving air quality will require a more coordinated transboundary approach, and more strategic linkages with transportation planning activities. The protection of species and habitats will continue to require a broad stewardship approach, integrated with the land-use planning activities of local governments, Crown land owners and private land owners. Solving problems of non-point source pollution of surface, ground and marine waters will demand coordinated and cooperative efforts at the community and watershed level. Community demand for access to environmental information will continue to grow, requiring governments at all levels to re-think and re-design their information management systems. Over the months and years to come, the GBEI will be building on its foundation of partnerships to address these emerging challenges.

- To learn more about Georgia Basin Ecosystem Initiative, visit:  
[http://www.pyr.ec.gc.ca/GeorgiaBasin/gbi\\_elIndex.htm](http://www.pyr.ec.gc.ca/GeorgiaBasin/gbi_elIndex.htm)

### 3.3 Weather and Environmental Predictions Business Line

Through the Weather and Environmental Predictions (WEP) business line, Environment Canada helps Canadians adapt to the influences and impacts of weather and weather related hazards, as well as subsequent environmental conditions, on human health and safety, economic prosperity and environmental quality. Through this business line, Environment Canada aims to achieve two long-term results:

- Reduced impact of weather and related hazards on health, safety and the economy.
- Adaptation to day-to-day and longer term changes in atmospheric, hydrological and ice conditions.

<b>Financial Information by Long-Term Result</b>		
Reduced impact of weather and related hazards on health, safety and the economy.	\$	173,317,679
	\$	183,646,165
	\$	<b>174,543,634</b>
Adaptation to the day to day and longer term changes in the atmospheric, hydrological and ice conditions.	\$	59,681,320
	\$	64,256,190
	\$	<b>63,029,967</b>
<b>2000-2001 Total Gross</b>	\$	232,998,999
	\$	247,902,355
	\$	<b>237,573,601</b>
Planned Spending		
Total Authorities		
<b>Actuals</b>		

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**Long-Term Key Result: Reduced impact of weather and related hazards on health, safety and the economy.**

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Through its warning program Environment Canada, primarily via the media, informs Canadians of imminent or short-term weather and related environmental hazards. Doing so ensures that Canadians have the knowledge and the time to react to protect themselves, their property and their businesses.

Each year Environment Canada issues approximately 14,000 warnings of high impact weather such as severe thunderstorms, tornadoes, and ice storms. The Department also provides education and outreach to Canadians in addition to offering direct technical support to clients and partners. For example, Environment Canada provides information to provinces in support of flood programs, and provides critical ice information in support of Coast Guard activities, international shipping and offshore resource extraction. All are supported by a strong research and development program.

For the planning period 2000-2001, two areas of focus support the “*weather and related hazards*” long-term key result. The following table aligns these two areas of focus, along with



long-term indicators, targets, and commitments for 2000-2001 that form Environment Canada's response to the long-term key result for the planning period.

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
<b>Increased margin of safety from severe weather and related hazards</b>	<p><b>Indicator:</b> Lead times and accuracy of warnings.</p> <p><b>Targets:</b> Meet the standards in the Public Weather Charter by 2003-04.</p>	<p>✓ <b>Lead Time and Accuracy</b></p> <ul style="list-style-type: none"> <li>• Publish service standards for public warning lead times and begin annual performance reports against standards (2001-02).*</li> <li>• Revitalize an extreme weather research program to improve understanding of severe weather and its predictive capabilities (2003-04)</li> <li>• Better understand the causes of severe weather and how best to observe its formation by the end of 2002.*</li> <li>• Implement a national system for warnings on cable TV (2003-04).</li> <li>• Improve warning capability in Atlantic Canada.</li> </ul> <p><b>Clients and Partners</b></p> <ul style="list-style-type: none"> <li>• Renew Environment Canada contracts and partnerships with National Defence and NAV CANADA in 2000-01.</li> <li>• Establish a comprehensive agreement with Fisheries and Oceans Canada for the provision of marine weather services.</li> <li>• Renew Environment Canada partnerships and agreements with provinces and territories for the water program (2001-02).</li> </ul>
<b>Capacity to respond to the needs of Canadians</b>	<p><b>Indicator:</b> State of monitoring systems.</p> <p><b>Targets:</b> Modernize 10% of networks/ systems by 2002-03.</p> <p>Complete National Radar Project Installation by 2003-04.</p> <p><b>Indicator:</b> Demographics of Science and Technology Employees.</p> <p><b>Target</b> Increase the number of S&amp;T staff in the 20 to 35 age range by 2002-03.</p> <p><b>Indicator:</b> Percentage of operational federal hydrometric sites cleaned up.</p> <p><b>Target:</b> Clean-up 25% of existing known contaminated federal monitoring sites by 2002-03.*</p>	<p>✓ <b>Monitoring Systems</b></p> <ul style="list-style-type: none"> <li>• Install 5 Doppler Radars in 2000-01.*</li> <li>• Implement a life cycle and integrated management approach to monitoring systems by 2001.</li> <li>• Modernize and automate water quantity network (2003-04).*</li> <li>• Modernize sea ice remote sensing capability (2001-02).*</li> </ul> <p>✓ <b>Science and Technology (S&amp;T) Capacity</b></p> <ul style="list-style-type: none"> <li>• Develop the Human Resources renewal plan and implement staffing reforms and succession plans (2000-01).</li> </ul> <p><b>Contaminated Sites</b></p> <ul style="list-style-type: none"> <li>• Replace mercury-based equipment with alternative technologies and clean up sites according to specified protocols (2003-04).*</li> </ul>

Note: Shaded areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

\* Sustainable Development Strategy Target or Initiative

### 3.3.1 Increased Margin of Safety from Severe Weather and Related Hazards

#### *What is the issue?*

Human and economic losses from floods, tornadoes, severe winds, snow, and ice storms can be tragic and are often severe. As Canada grows, population concentrations increase along with chances that extreme weather events will affect more people. To protect themselves, Canadians need promptly disseminated, accurate forecasts and warnings, in addition to guidance about what to do when severe weather threatens.

#### *What are we doing about it?*

Environment Canada monitors weather and other related conditions, and builds computer models to produce forecasts and warnings. Monitoring networks are being modernized. Ongoing research is focused on improving scientific understanding and developing methods and tools to better predict environmental hazards. The Department works with the media and other partners to broadcast this information, and inform and educate people about weather, and how best to react in order to reduce the number of casualties and damage from natural disasters. Environment Canada is also investigating new ways to better deliver weather information to all Canadians, including the use of telephone systems, the Internet, and televised WeatherAlert messages.

#### **WARNINGS: LEAD TIME AND ACCURACY**

##### **Accomplishments**

##### *Enhanced communication of severe weather events*

Environment Canada continues to explore ways of reaching the public through the media. In cooperation with The Weather Network, the Canadian Cable Television Association, and the Canadian Radio-television and Telecommunications Commission (CRTC), Environment Canada is working on the implementation of TV crawlers to announce severe weather warnings. Similarly, Environment Canada is working with various radio networks on the development of a weather warning audio-interrupt system for use during hours when they are in automatic operation. These efforts are being supported through a special subcommittee of the Canadian Association of Broadcasters. In all of these efforts, Environment Canada is employing the latest display and delivery technologies to meet increasing service delivery demands and the increasing sophistication of these demands.

Environment Canada completed the modernization of the Weatheradio Canada network of transmitters, replacing old and obsolete equipment across Canada at the cost of \$1.2 million. The next step in improving services to Canadians is to provide services in both official languages at all locations.

After consultation with the media and end-users, a revised format for warnings was developed for implementation this fall. Environment Canada is also building a single new public web site for weather (available in July 2001) so that Canadians in all parts of the country will have the same high standard of access to forecasts and warnings.

- ▶ To access the new public web site for weather, visit:  
[http://weatheroffice.ec.gc.ca/canada\\_e.htm](http://weatheroffice.ec.gc.ca/canada_e.htm)

### *Maintaining warning capacity in Atlantic Canada*

The Canadian Hurricane Centre (CHC) experienced a busy season. The highest number of storms entered the region since 1996 including seven tropical cyclones. As well, CHC issued more bulletins than any year since 1995, including 222 prognostic messages and information statements.

### *Revitalizing extreme weather research*

A Canadian Weather Research Program has been initiated. This program focuses on improved detection and better prediction of extreme weather, as well as reducing the impacts of severe weather. It will include research in the use of ground- and satellite-based remote sensors and in-situ data, to better detect severe weather phenomena, such as tornadoes, strong winds, heavy precipitation (snow, rain, hail, freezing rain/drizzle), and transportation hazards (fog, aircraft icing, road icing). Information will be integrated with numerical models to better understand these processes, resulting in more accurate forecasts of severe weather phenomena.

As the Numerical Weather Prediction (NWP) systems become more accurate and reliable, the many applications that use model outputs will see significant improvements, (e.g., the atmospheric transport and dispersion of volcanic ash and nuclear radioactivity, and air quality predictions). From an operational standpoint, the NWP system is continually growing in complexity and scope. Environment Canada will continue to invest in rationalising the system to facilitate maintenance and implementation of system improvements, and to create new tools in support of quality assurance.

#### **5<sup>th</sup> Annual Northern Plains Convective Conference**

The 5<sup>th</sup> Annual Northern Plains Convective Conference was held in May 2000 at Winnipeg, Manitoba. This is the first time this conference has been hosted outside the United States. It attracted over 150 participants from every region, as well as the headquarters of the Meteorological Service of Canada (MSC), the U.S. National Weather Service; federal, provincial and local emergency officials; universities; CANWARN and Skywarn spotters (Canadian and American amateur radio volunteer severe weather watchers); the U.S. Air Force; and the media. The Prairie and Northern Region, together with Canadian Meteorological and Oceanographic Society (CMOS) and the University of Winnipeg, hosted a workshop on Emergency Preparedness and Response. This workshop helped to pave the way for two other high profile events: the opening of the first Manitoba Doppler radar, and the regional Severe Weather Awareness Week.

### **Impacts and Benefits**

The Department benefits from scientific investigation conducted in-house as well as that carried out by universities and research institutes in Canada and abroad. The knowledge gained from studies of severe weather events and other aspects of the environment is shared through workshops and seminars in order to increase operational expertise of staff and external partners. An enhanced knowledge base also serves to improve computer models and automated systems on which Environment Canada places a heavy reliance.

## **3.3.2 Capacity to Respond to the Needs of Canadians**

### *What is the issue?*

Environment Canada serves Canadians, their institutions, and businesses in several economic sectors, e.g., agriculture, transportation, fishing, energy, construction, travel, and tourism. Canadians expect prompt, reliable services responsive to their needs. Thus Environment Canada must possess the knowledge, combined with the most appropriate tools, to create and deliver a

range of effective services for Canadians.

Over the past few years, various studies of WEP have revealed issues regarding human resources and rust-out of networks and systems, which will have an impact on service. In 2001, a major review and assessment of WEP will be undertaken to determine the best approaches to deal with these issues.

### ***What are we doing about it?***

Observation networks are being modernized as are current production systems and dissemination tools. New innovative tools and techniques will enhance service within existing budgets. A significant number of employees will be eligible to retire over the next several years. To maintain the existing level of skill and expertise, and to continue providing a high level of service, Environment Canada is recruiting scientists and technologists.

## **MONITORING SYSTEMS**

Collecting relevant data is critical to predicting future states of the environment. Environment Canada has an array of networks across the country that collect weather, air quality, ice, snow and water observations from the earth's surface, atmosphere, bodies of water, and even from space. Monitoring includes: data gathering, quality assurance, archiving, data base management, instrument maintenance and network planning and standards. Measures of many scales are taken (e.g., soil temperature at a site, severe weather affecting a small town, the water quantity of a river, a storm system affecting several provinces). Thousands of volunteer observers, ham radio operators and shipboard observers assist with the monitoring of severe weather and climate. Data are shared with others in Canada and over 179 countries around the world.

### **Accomplishments**

Environment Canada's network of conventional and Doppler radars covers 95% of Canada's population. Doppler radar is a key tool in improving the detection and prediction of environmental hazards such as severe weather and floods. The National Radar Project (NRP) is a multi-year project that will convert all weather radars to Doppler (See Figure 7). This project is WEP's capital investment priority. When finished, 31 Doppler radars will be in operation.

During 2000-2001, Environment Canada developed plans to modernize some data collection networks, such as those dealing with climate, surface weather, hydrometry and air quality. In addition, critical equipment deemed to be past its life span, or that presented health and safety risks to staff, was replaced or retrofitted.

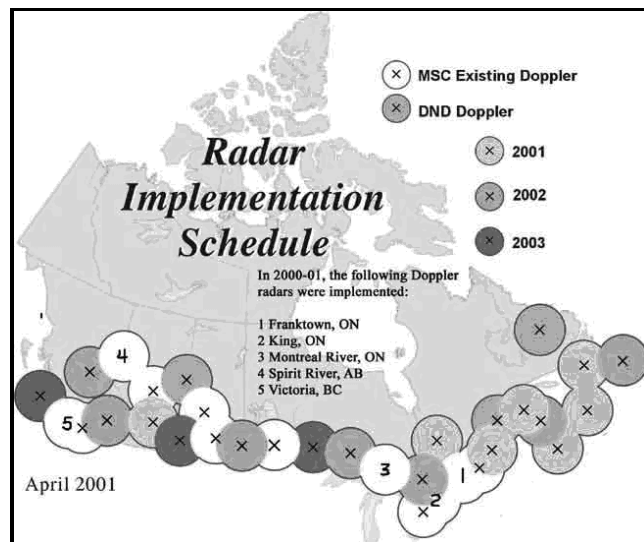


Figure 7 - Radar Implementation Schedule

The International Ice Charting Working Group (IICWG), comprising the major national ice services of the northern hemisphere, met in Iceland this year to share information and coordinate research and operational programs. Environment Canada is leading IICWG activities to standardize the colours used on ice charts, develop methods of incorporating ice information into electronic navigation charts, and define new terminology and coding practices for stages of ice decay.

In May 2000, in partnership with the World Meteorological Organization, Environment Canada hosted an international workshop on Mapping and Archiving Sea Ice Data. This successful event addressed recent developments in remote sensing instrumentation for sea ice parameters, radar signal interpretation, data management, data assimilation and sea ice modeling.

### **Impacts and Benefits**

Monitoring is the basis for all WEP's services, research, and policy development, and is an important part of a co-operative international program to monitor the global environment. With continuous and systematic observations of the atmosphere, hydrosphere, and cryosphere, Canada and other countries can examine and understand the environment, predict how it will change, identify trends, and evaluate options for policy development.

### **Future Challenges**

Canada's RADARSAT satellite is Environment Canada's primary source of ice observations. A great deal of time and effort was spent during 2000-2001 in developing a contingency plan to fill the anticipated gap between the demise of RADARSAT-1 and the availability of RADARSAT-2 data. The plan proposes modernizing the existing ice reconnaissance radar to provide reliable strategic, as well as tactical, data and increasing Environment Canada's capacity to make use of alternate satellite data sources. The availability of data from the European ENVISAT (due for launch in late 2001), should provide a capability similar to RADARSAT. ENVISAT will help reduce the potential cost of implementing the contingency plan. Primarily to meet Canadian Ice Service (CIS) requirements, a ground reception and processing capability for ENVISAT, will be implemented by Canadian Centre for Remote Sensing/Natural Resources Canada and Industry Canada/Canadian Space Agency by autumn, 2001.

Environment Canada is in the process of evaluating current capabilities and future needs. Monitoring priorities include:

- Completing the national radar plan.
- Replacing aging and mercury-based equipment and cleaning up sites as needed.
- Improving access to archived data for scientists outside Environment Canada.
- Implementing a life cycle and integrated management approach to monitoring systems.
- Building solid partnerships with agencies involved weather monitoring, such as the Réseau météorologique coopératif du Québec (RMCQ).

### **SCIENCE AND TECHNOLOGY CAPACITY**

The majority of WEP staff are highly trained and specialized scientific and technical employees. Many work round-the-clock shifts, on land and at sea, throughout Canada including the High Arctic. Staff monitor and predict severe weather events, warn of hazardous ice conditions at sea, and measure water levels of major lakes and rivers. Dedicated staff are the primary reason

for Environment Canada's reputation as a world-class meteorological prediction service and Canada's internationally recognized excellence in atmospheric science research.

WEP needs to renew and enhance its workforce to continue providing Canadians with a continued high quality of service. The Department will consider current and emerging areas of knowledge as it replaces retiring staff, so that Environment Canada will have the capacity and skills required to deal with new and anticipated science and technology.

### **Accomplishments**

**Recruitment** : Hiring and succession plans have been developed for major scientific and technical groups. Environment Canada worked closely with the Treasury Board in the development of the Graduate Opportunities Strategy. The Department applied for bridge funding which will allow new staff to train with current experts thereby facilitating knowledge transfer.

Early in 2000, after a hiatus of several years, Environment Canada re-established a training program for new meteorologists. A total of 16 recruits successfully completed required coursework. English courses took place in Edmonton and Dartmouth and a French course took place in Montreal. This intensive 6-month session of theory and simulation was followed by a period of on-the-job training. After the September 2000 course, 21 successful applicants were invited to join the Department. By March 2001, they had been placed at weather forecast centres.

**Training**: Canadian and U.S. scientists from government and universities worked in partnership to develop a 2-week workshop to improve capability to predict severe winter weather. This pilot program was delivered to 16 departmental forecasters at the U.S. Centre for Atmospheric Research's Cooperative Program for Operational Meteorology, Education and Training (COMET) facility. Future partnership opportunities between Environment Canada and COMET are being considered as part of Environment Canada's professional development program.

To improve the skills of staff in the operational prediction and policy programs, ten 3-day workshops on environmental prediction research results, were conducted across the country for regional Environment Canada scientists and their partners.

### **Impacts and Benefits**

Over the next eight years, approximately 1/3 of the science and technology (S&T) workforce and managers within the Meteorological Service of Canada (MSC) will be eligible for retirement (about 20% of meteorologists, 40% of meteorological and hydrological technicians, and 30% of research scientists). Attrition rates of 3.7% are almost double the long-term average of 2%. Recruitment efforts will begin to alleviate the anticipated shortage, and will reduce workload issues.

### **Future Challenges**

Due to unique science and technology skills required, it takes 5 to 7 years to produce suitably trained graduates from atmospheric and hydrologic science programs at Canadian universities and colleges.

Very limited recruitment over the past several years has meant that the university undergraduate and graduate programs in fields relevant to meteorology, have been severely scaled back. The Department recently announced that a minimum of 20 new meteorologists per year will be hired in the foreseeable future. This has helped increase university enrollments in meteorology. This trend is expected to continue and expand the number of qualified Canadian candidates.

However, competition for science professionals from the private sector as well as from other countries is fierce. Recently, 25% of potential meteorologist recruits declined Environment Canada job offers. Retaining new recruits as well as existing employees will be a challenge for at least the next 5 years.

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**Long-Term Key Result: Adaptation to day-to-day and longer term changes in the atmospheric, hydrological and ice conditions.**

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Each year, Environment Canada issues approximately 500,000 public weather forecasts, 200,000 marine weather forecasts and 400,000 aviation forecasts. The Department provides information on water quantity in our rivers and lakes, including information and advice on changing water levels in the Great Lakes and transboundary water allocations. For shipping and navigation Environment Canada provides information on ice, wind and waves. Such information is essential for Canadians and their governments to understand vulnerabilities and opportunities changes can bring, and to make informed decisions on adapting to such changes.

The “adaptation” result is divided into three areas of focus that support the long-term key result. The following table aligns these three areas of focus, along with long-term indicators, targets, and the commitments for 2000-2001 that form Environment Canada’s response to the long-term key result for the planning period.

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
<p><b>Supporting the economy through services and science</b></p>	<p><b>Indicator:</b> Under development.</p> <p><b>Target:</b> Climate and hydrometric station information (i.e. types of data, parameters, observing program, etc.) accessible via the Internet.</p>	<p><b>New Products and Services</b></p> <ul style="list-style-type: none"> <li>• Develop specialized products for the media and transportation sectors (2001-02).</li> <li>• Diversify applications to economic prosperity through tailored agricultural forecasts or aviation forecasts.</li> <li>• Increase the number of Road Weather Systems (RWIS) to 75 from the present 45 by end of 2000, in co-operation with provinces and municipalities. *</li> <li>• Develop and implement a heat balance model to more efficiently and effectively salt roads by end of 2000.*</li> <li>• Format climate and hydrometric data for Internet access (2001-02).</li> </ul>
<p><b>Improved quality of life for Canadians</b></p>	<p><b>Indicator:</b> Public and government satisfaction with products and services (include accuracy, utility and accessibility).</p> <p><b>Targets:</b> Maintain satisfaction with access at 85%.</p> <p>Improve overall satisfaction with products and services.</p>	<p><b>Quality, Satisfaction and Utility</b></p> <ul style="list-style-type: none"> <li>• Improve predictions from climate and weather models as a result of better representations of clouds and aerosols by end of 2000.*</li> <li>• Improve seasonal and multi-seasonal climate predictions (2001-02).*</li> <li>• Increase understanding of the variability and trends in Canadian climate including extremes of precipitation, wind, temperature, and sea ice, and provide predictions of changes in the probabilities of climate extremes (2000-01).</li> </ul>

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\* Sustainable Development Strategy Target or Deliverable

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
	<p><b>Indicator:</b> Canadian's awareness of changes to their physical environment and the effects of these changes on their health and safety.</p> <p><b>Targets:</b> Awareness of climate change and variability increases 10% over the 1999-2000 baseline by 2001-02.</p> <p>Awareness of stratospheric ozone depletion and effects on human health increases 10% over the 1999-2000 baseline by 2001-02.</p>	<ul style="list-style-type: none"> <li>• Increase understanding of physical/chemical processes in the life cycle of atmospheric constituents (2002).*</li> <li>• Develop and implement 4-D data assimilation techniques into numerical models by end of 2001.*</li> <li>• Implement a public weather service complaint strategy (2001-02).</li> <li>• Develop Quebec regional climate models.</li> </ul> <p><b>Outreach and Education</b></p> <ul style="list-style-type: none"> <li>• Deliver media and public education tools on climate change and air issues by end of 2000.*</li> </ul> <p><b>✓ New Health and Safety Products and Services</b></p> <ul style="list-style-type: none"> <li>• Diversify applications to human health through wind-chill forecasts.</li> <li>• Expand smog forecast to up to four locally-sensitive areas by end of 2000.*</li> </ul>
<b>Scientific integrity and leadership</b>	<b>Indicator and target:</b> Under development.	<p><b>✓ Climate Change - Science</b></p> <ul style="list-style-type: none"> <li>• Provide scientific input and leadership for the Inter-governmental Panel on Climate Change Third Assessment Report.</li> <li>• Publish regional scale climate change scenarios (2001-02).</li> <li>• Continue to operate state-of-the-art climate models to project climate changes through the 21st century.</li> </ul>

Note: Shaded areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.3.3 Improved Quality of Life for Canadians

#### *What is the issue?*

While scientists debate whether there is a link between weather extremes and global warming trends, there is little debate that Canadians have experienced recent changes in weather patterns. As well there has been a substantial increase in the number and cost of weather-related disasters.

#### *What are we doing about it?*

Environment Canada aims to create a better understanding of the current state and trends of Canadian climate, and to communicate this information in an easy-to-understand way to Canadians. The Department also intends to create services such as smog forecasts that will help Canadians cope with changes to climate.

#### **NEW HEALTH AND SAFETY PRODUCTS AND SERVICES**

In support of the government's Service Initiative and departmental priorities, Environment Canada has been working on a series of projects to improve service and the quality of life for Canadians.



## Accomplishments

An improved wind chill index has been developed for implementation in the fall of 2001. Extensive consultation on how best to measure wind chill was undertaken with the international scientific community. A unique approach to consultation was adopted whereby a virtual conference on the Internet was set up, and input from scientists around the world was obtained. A special commission of the International Society of Biometeorology looked at thermal indices and their conclusions were part of the decision-making process.

The first phase of an experimental Pollen Forecast was completed in partnership with St. Mary's University in Halifax, N.S..

The Info-Smog program made use of partnerships including provincial, municipal, and public safety organizations, in establishing the air quality prediction program for southern Quebec. Additional partners were acquired, thus ensuring an extensive dissemination of smog information to the public.

## Impacts and Benefits

Providing more and improved information to Canadians will increase their ability to take action during incidents of poor air quality and dangerous weather conditions.

## Future Challenges

Environment Canada is constantly working to improve the quality of products to better meet user requirements. Many departmental projects aimed at improved service begin as an experiment in one small part of the country. If deemed a success, a project may be expanded nationally. Due to budget restraints, it will be increasingly important for Environment Canada to find partners willing to help introduce innovative ideas.

## 3.3.4 Scientific Integrity and Leadership

### *What is the issue?*

Climate change will affect all aspects of Canadian society, economy and the natural environment. We have already seen the social and economic impact of climate variability on Prairie droughts and water levels in the Great Lakes. These conditions, combined with other high profile weather events, have already raised interest in several sectors including agriculture, shipping, construction, media, health, environmental conservation, forestry and recreation, as well as among the public. These sectors are quickly becoming aware of the emerging risks of climate change and variability. They see the impacts of extreme weather events (e.g., 1998 Ice Storm, 1997 Red River Flood) on businesses, homes and infrastructure and citizens in many parts of Canada feel the stress

Environment Canada has estimated losses in Canada due to extreme weather events from 1987 to 1998. Over 70 lives were lost and 58,000 people displaced. Insurable losses were estimated to be \$3 billion and economic losses \$7–10 billion, including the following:

- Ice storm 1998: \$4.2 billion
- Saguenay flood 1996: \$1.2 billion
- Red River flood 1997: \$400 million
- Calgary hailstorms 1991: \$400 million
- Edmonton tornado 1987: \$300 million
- British Columbia blizzard 1996–1997: \$200 million

from unusually hot summers. In addition, human health could be indirectly affected by more frequent severe air pollution events, and increased incidence of diseases which usually occur in more southerly climates.

### ***What are we doing about it?***

Environment Canada conducts research to ensure that the Department has science, impacts and adaptation options needed to produce policy and protocol options as well as strategies to protect habitats and to conserve biodiversity. The Department participates in a multitude of cooperative projects with universities and research agencies in Canada and around the world to conduct research related to atmospheric and environmental sciences, and to develop policies on issues such as climate change. Environment Canada supports the development of atmospheric science and policy capacity in the academic and private sectors.

## **CLIMATE CHANGE - SCIENCE**

Through research, Environment Canada plays a key role in climate change. Scientists conduct studies which provide a sound basis for discussion and development of Canadian policy and for developing Canadian positions for international negotiations.

### **Accomplishments**

The Canadian Foundation for Climate and Atmospheric Sciences Foundation (CFCAS) was established in July 2000 and is administered through the Canadian Meteorological and Oceanographic Society. Environment Canada was instrumental in the creation of the CFCAS and continues to play an important role as a member of the Board. The funds allocated by the CFCAS to Canadian researchers will complement work being done by federal government scientists, and will be an important source of support for researchers in the academic and private sectors. It will allow the Department to advance the current level of understanding of the climate system, extreme weather, and air quality.

A Climate Change Action Fund (CCAF) project on sea level rise and climate change on Prince Edward Island has been completed and a public release of the study is planned for early September, 2001. The project involved several major partners. Key science outputs include the following:

- A storm surge climatology.
- An examination of the long-term tidal records to determine the historical sea level rise in the P.E.I. area.
- Long-term ice cover trends and the development of an ice index.
- Use of a storm surge model to work with worst-case storm events.
- Development of extreme value statistics and an assessment of socio-economic impacts.

Environment Canada has joined with other partners in conducting research and development for an environmental prediction capability in the Atlantic region. This Atlantic Environmental Prediction Research Initiative (AEPRI) is an excellent example of collaboration between various groups within the Weather and Environmental Predictions business line (research and operational forecasting), the Fisheries and Oceans Canada, universities, and industry. Multi-disciplinary and multi-stakeholder projects include hurricane and severe marine weather prediction, climate change detection and impact studies, and linking atmosphere models to ocean, hydrology, air quality, and chemistry models.

Environment Canada has worked with the Prairie provinces and the private sector to develop a 20-year Snow Water Equivalent data set from passive microwave satellite data. This provides a climatology for the Prairies that will be used to establish climate normals and anomalies.

At the Northern Climate Exchange's inaugural climate change workshop in Whitehorse, Environment Canada presented an update of the science and potential impacts of climate change in the Arctic, along with a summary of planned and current climate change research projects in the Yukon. The Department emphasized the need to establish a dialogue among Yukon stakeholders on adapting to the expected impacts of climate change in northern Canada.

The Centre de ressources en impacts et adaptation au climat et ses changements (CRIACC) was implemented in the Quebec Region. It is a Web-based forum of reference information and expertise on impacts and adaptation to climate change in Quebec. It bridges the gap between knowledge at a global level and the need for information in developing regional adaptation strategies. There are already five partners with access to informatics support for research projects carried out under this partnership: Centre géoscientifique de Québec, Natural Resources Canada, Quebec Ministry of Public Security, Université du Québec à Montréal (UQAM), Fisheries and Oceans Canada (Institut Maurice-Lamontagne).

- To learn more about the Centre de ressources en impacts et adaptation au climat et ses changements, visit: [http://www.criacc.qc.ca/index\\_e.html](http://www.criacc.qc.ca/index_e.html)

### **Impacts and Benefits**

Working with various institutes and funding bodies in Canada, Environment Canada will be able to influence the research agendas of universities and institutes, and ensure that the needs of Canadians are met.

The Canadian global climate model (GCM), developed by Environment Canada over the past decade, is considered among the best in the world. The model predicts how climate and ocean circulation might react to the accumulation of greenhouse gases and other pollutants. The GCM was one of four models chosen by the International Panel on Climate Change (IPCC) data distribution centre to display results, and is included in the IPCC's third assessment report. It was also one of two models selected for use in the U.S. national climate change assessment (the other was the British model). Results obtained from this model are a key component of the U.S. National Assessment of Climate Variability and Change, and are available through the IPCC Data Distribution Centre.

These climate change scenarios serve to protect the future health and safety of Canadians, through their use in developing policy and adaptive measures to climate change.

### **Future Challenges**

The Great Lakes Basin already accounts for the largest concentration of people, industry and economic activity in Canada and will account for half of the growth in Canada over the next two decades. This will magnify the impacts and risks of climate change to the people, the economic engine, and the Great Lakes Basin ecosystem.

The North will also see significant environmental, cultural and economic changes as a consequence of climate change. For example, as the ice-free area increases, the Northwest passage could be used regularly as an international shipping route. Economic activity would increase the risks to fragile Arctic ecosystems and would alter Arctic traditions.

The international science community agrees that some climate change is inevitable even if we could meet our Kyoto commitments tomorrow. In responding to impacts and risks of climate change, special consideration needs to be given to the Great Lakes Basin and the North.

Environment Canada is working with the Canadian Foundation for Climate and Atmospheric Sciences and the Natural Sciences and Engineering Research Council (NSERC) to establish an effective partnership for the support of climate and atmospheric research in Canada. A tripartite approach will result in a stronger, better coordinated atmospheric science community in Canada. Future research will include:

- Enhancing climate models by improving representation of the carbon and sulfur cycles, interactions between atmospheric chemistry and climate variables, and atmosphere-ocean coupling.
- Placing increasing emphasis on smaller scale of climate change predictions and their applications using regional climate models.
- Placing an increased emphasis on greenhouse gas sources and sinks research in Canada, specifically in the boreal forest.

### 3.4 Management, Administration and Policy Business Line

In the Management, Administration and Policy business line, Environment Canada develops the Department's integrated management and policy agenda. This is the Department's strategic medium and long-term agenda that focuses on leadership, partnerships, innovative means to inform and engage citizens, and ways to provide efficient and innovative support services.

In the Management, Administration and Policy business line, Environment Canada aims to achieve two long-term results:

- strategic and integrated policy priorities and plans; and
- a well-performing organization supported by efficient and innovative support services.

<b>Financial Information by Long-Term Key Result</b>		
Strategic and integrated policy priorities and plans	\$	41,532,014
	\$	44,344,922
	\$	<b>44,884,726</b>
A well performing organization, supported by efficient and innovative services	\$	66,633,644
	\$	80,021,539
	\$	<b>84,794,563</b>
<b>2000-2001 Total Gross</b>	\$	108,165,658
	\$	124,366,461
	\$	<b>129,679,289</b>
Planned Spending		
<i>Total Authorities</i>		
<b>Actual Spending</b>		

## **Long-Term Key Result: Strategic and integrated policy priorities and plans.**

To be effective, Environment Canada's policy agenda must transcend short-term policy pressures, respond to the longer-term needs of government, Canadians, and non-government partners (domestic and international), and be communicated to and supported by, stakeholders and the public alike. For the planning period 2000-2001, two areas of focus - knowledge and partnerships - support the long-term key result of "strategic and integrated policy priorities and plans".

The following table aligns these two areas of focus, along with the long-term indicators, targets, and commitments for 2000-2001 that form Environment Canada's response to the long-term result for the planning period. A third area of focus - incentives - is emerging. The contribution of this third area of focus to the long-term key result will be integrated into future reports.

<b>Areas of Focus (see footnote)</b>	<b>Long-Term Indicators and Targets (beyond 3 years)</b>	<b>Initiatives/Deliverables (as stated in RPP 2000-2001)</b>
<b>Knowledge</b>	<b>Indicator and Target:</b> Under development.	<b>Canadian Information System for the Environment (CISE)</b> <ul style="list-style-type: none"> <li>• Develop an action plan for knowledge dissemination to Canadians.</li> </ul> <b>National Roundtable on the Environment and the Economy (NRTEE)</b> <ul style="list-style-type: none"> <li>• Develop environmental and sustainable development indicators with the NRTEE, in collaboration with Statistics Canada (2000-01 to 2002-03).</li> </ul> <b>Aboriginal Capacity for Sustainable Development</b> <ul style="list-style-type: none"> <li>• Integrating Aboriginal Knowledge into Environment Canada's Policy Process.</li> </ul>
<b>Partnerships</b>	<b>Indicator:</b> Clear and effective policy priorities that are integrated with government-wide priorities.	<b>Sustainable Development Leadership</b> <ul style="list-style-type: none"> <li>• Advocate placing a greater emphasis on sustainable development in decision making.</li> <li>• Explore mechanisms to assist the government in carrying out its SD commitment.</li> <li>• Coordinated sustainable development agendas with key sectors (e.g. health).*</li> <li>• Environment Canada-environment/health NGO agenda.</li> </ul> <b>Renewal of Environment Canada's Sustainable Development Strategy</b> <ul style="list-style-type: none"> <li>• A renewed Sustainable Development Strategy for Environment Canada.</li> <li>• Seek views of Canadians on areas where Environment Canada should focus its efforts for 2001-2004.</li> <li>• Open up dialogue with other departments on areas that would most benefit from federal coordination.</li> </ul>
	<b>Indicator:</b> Strengthened support of federal environmental policy priorities and active engagement of key partners in implementation of these priorities. <b>Target:</b> Perspectives and knowledge of Aboriginal people consistently	<b>Youth</b> <ul style="list-style-type: none"> <li>• Increase youth involvement in Environment Canada activities; and in providing strategic advice on key issues.*</li> <li>• Develop a strategy for youth participation in international fora.*</li> </ul>

\* Sustainable Development Strategy Target or Deliverable

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
	considered in Environment Canada decision-making . Capacity of Aboriginal Peoples to participate in SD projects and initiatives is enhanced by end of 2000.*	<b>Government-Wide Policy Research Agenda on Sustainable Development</b> <ul style="list-style-type: none"> <li>• Develop a government-wide policy research agenda on sustainable development.*</li> </ul>
	<b>Indicator:</b> Improve capacity of local communities and communities of interest to take action and share information. <b>Target:</b> Under development.	<b>Sustainable Communities</b> <ul style="list-style-type: none"> <li>• 100 communities under the Millennium Eco-Communities initiative (MEC).*</li> <li>• Prairie and Northern Region will develop and implement a regional sustainable communities strategy.</li> <li>• Ontario Region will develop a sustainable communities pilot program.</li> <li>• Atlantic Region will engage federal and provincial partners in Sustainable Communities initiatives in the Annapolis and Bras d'Or areas of Nova Scotia.</li> </ul>
	<b>Indicator:</b> Clear definition and advancement of Canada's environmental interests internationally. <b>Target:</b> Under development.	<b>✓ International Strategy on Environment and Sustainable Development</b> <ul style="list-style-type: none"> <li>• A government-wide international strategy to advance the environmental and sustainable development agenda in international fora.</li> </ul> <b>✓ Working with Partners to Develop An Innovative Option to Reduce GHG Levels</b> <ul style="list-style-type: none"> <li>• No initiatives outlined in RPP 2000-2001.</li> </ul>

**Note:** Shaded areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.4.1 Partnerships

#### *What is the issue?*

The nature and complexity of environmental issues continue to increase. More players than ever must play a role in developing and implementing solutions throughout the economy and society. New approaches are needed to help leverage the greatest possible collective impact from action by business, non-government organizations, universities, Aboriginal peoples, provinces, municipalities and citizens.

#### *What are we doing about it?*

Environment Canada has a strong history of working through partnerships. The Department will continue to develop innovative approaches to build new partnerships that focus on shared agendas and outcomes, and to establish and maintain strong constituencies in support of

**Atlantic Region: Partnerships Formed to Address Sewage Issues**

**Municipal Wastewater Effluents (MWWE):** Significant investments were made under the Infrastructure Canada Program to address key MWWE treatment needs throughout the Atlantic Region. Environment Canada, in co-operation with the provinces, developed a list of sewage treatment priorities throughout the region and promoted them to funding agencies responsible for the Infrastructure Program.

**Rural Sewage:** Environment Canada and the province of Nova Scotia along with several key federal and provincial agencies met with members of the Infrastructure Program Management Committee to discuss the need to support the delivery of an on-site sewage program. As a result, funding agencies are actively considering placing a priority on funding such a program.

**Long-term Infrastructure Program In Canada:** The region completed a national study on innovative funding mechanisms aimed at providing for stabilized and on-going funding to municipal green infrastructure in Canada. As a next step, the Department will be exploring options with central and economic development agencies aimed at addressing sewage investment needs under a long-term green infrastructure program for Canada.

environmental progress. There is a growing demand for the increased and integrated delivery of environmental and other federal services at the community level. Environment Canada has been working to enhance community sustainability through its programs and services by means of its regional ecosystems initiatives and its education and communications efforts. The Department has focused on building partnerships at the community level. Such partnerships bring together a broad range of government, private and voluntary sector organizations, and provide vital knowledge, tools, information and funding to enhance the ability of communities to take action.

## **OUR LEADERSHIP ROLE IN ADDRESSING INTERNATIONAL ENVIRONMENTAL GOVERNANCE CHALLENGES**

At the global level, responsibility for environmental issues is scattered among autonomous institutions. Policy and program coherence is rare and institutions compete for profile and resources. There is a growing consensus that a lack of coordination among international agreements and institutions poses a major impediment to global sustainable development. To meet existing and emerging environmental challenges, the system of global environmental governance, (namely, the international legal framework, the financial framework, the accountability framework and policy capacity) requires strengthening. During the past year Environment Canada has made significant inroads through an intergovernmental process aimed at addressing many international environmental governance challenges in advance of the 2002 World Summit on Sustainable Development (WSSD). Canada's Minister of the Environment, in his role as President of the United Nations Environment Programme (UNEP) Governing Council, is leading this high profile process. Ultimately, positive changes on this front will be an important investment in Canada's future, and in the health, security and prosperity of Canadians.

### **Accomplishments**

Internationally, most recent efforts to examine governance have fallen short in terms of outlining a clear process around which the dialogue on governance can continue. One key accomplishment during fiscal 2000-2001, that has served to pave the way for Canada's current role in leading such a dialogue, is our contribution to the Bergen Informal Ministerial Meeting in Norway (September, 2000). A Canadian paper - "*International Environmental Institutions: Where from Here?*" - served as a launching point for Ministerial discussion on governance. In January, 2001 Canada issued another key Discussion Paper to highlight substantive contributions to date of the dialogue on governance, and to put forward a proposed path for the future. Today, under the leadership of Minister Anderson, a focused exercise to consider certain key elements and issues within the broad framework of international environmental governance is underway. It is proving an effective means of building consensus among governments, and establishing momentum behind a coherent approach to international governance issues at the WSSD.

Canada's recent interventions with respect to global governance have served to put this critical topic at the top of the international agenda at an ideal time in history - on the eve of the 2002 World Summit on Sustainable Development.

### **Impacts and Benefits**

The UNEP-led governance process will lay the foundation for a more comprehensive review of governance and sustainable development as an outcome of the WSSD, and help to bridge North-South differences that are hampering progress on the global sustainable development agenda. Ultimately, governments will make the decision to select and implement the options developed through the UNEP governance exercise being led by Canada. At this point it is too early to

predict the actual outcomes and downstream benefits that positive changes to governance will bring. Suffice to say that at the highest level, we anticipate moving toward the following:

- Enhanced coordination amongst a vast array of environmental organizations across the globe will have far-reaching ultimate impacts on the health of our planet and its peoples;
- A stable funding formula for UNEP, will make multi-year planning a possibility; and
- Around the globe, we will make use of efficient, effective systems to deal with four key cross-cutting issues when dealing with environmental agreements.

In short, more efficient, effective international environmental governance will result in making better use of existing funds, removing barriers to countries such as the U.S. to increasing its funding, and making it less difficult for developing countries to be active and constructive participants. It provides an opportunity for Canada to ally with the U.S., contributing to strengthened bilateral relations overall.

### **Future Challenges**

Canada's efforts over the past few years positioned us to the point where timing was ripe for the Minister of the Environment to exercise leadership in terms of getting the impacts of problems with governance onto "the front burner". Whether or we are successful in further pre-Summit work, and in the years that follow depend heavily on our ongoing efforts to influence the international community in the days leading up to, as well as during, the 2002 World Summit on Sustainable Development. The WSSD presents an opportunity to make real gains in terms of securing international support for change. This opportunity must be maximized as a key milestone for further evolution.

### **WORKING WITH PARTNERS TO REDUCE GREENHOUSE GAS (GHG) LEVELS**

For Canada to meet greenhouse gas (GHG) targets set in Kyoto new, flexible approaches to successfully reducing emissions are under consideration. One such approach is found in the development of an emission trading system. Under such a system companies are offered a flexible method of selecting cost-effective solutions to achieve established environmental goals. In essence emissions trading provides industry, territories, governments and other organizations with the opportunity to buy and sell emission reductions. A typical trade occurs when a buyer with high cost options for emission reductions purchases a lower cost option from a seller.

### **Accomplishments**

Recent departmental efforts are serving to pave the way for possible use of this relatively new tool in Canada.

***Analysis and Modelling Group (AMG):*** Environment Canada is a member of the AMG set up to address issues surrounding the data, analytical and modelling needs in developing a national climate change implementation strategy. The AMG conducted an integrated assessment of economic and environmental implications for Canada of implementing the Kyoto Protocol. In a recent report the AMG highlighted potential benefits of emissions trading, noting that with domestic and international systems in place the GDP impact of reaching Canada's Kyoto target could be less than 1% (compared to 3% under a scenario where Canada acts alone with only very limited trading and the same target for all sectors).

- For more detailed background and performance information on the Analysis and Modelling Group, visit: [http://www.nccp.ca/NCCP/national\\_process/issues/analysis\\_e.html#final](http://www.nccp.ca/NCCP/national_process/issues/analysis_e.html#final)



**Greenhouse Gas Emission Reduction Trading Pilot (GERT):** This pilot was established to test the effectiveness of “baseline and credit” emission reduction trading for GHG in the Canadian context. Launched by a multi-stakeholder partnership in June 1998, it involves the federal government and six provinces. Key objectives include:

- providing participants with practical experience in emission reduction trading;
- assessing environmental and economic benefits of emission reduction trading;
- testing and evaluating technical, administrative and legal elements of this type of trading system;
- encouraging identification and joint investment in GHG emission reduction, avoidance and/or sequestration activities;
- helping to build the foundation for a future trading system.

The recent *'Working Together'* Report of the Commissioner of the Environment and Sustainable Development concluded that GERT provides a good example of federal and provincial governments working together in an effective manner.

▶ To learn more about the GERT pilot, visit: <http://www.gert.org/>

**Pilot Emission Removals, Reductions and Learnings Initiative (PERRL):** In October, 2000, Ministers also directed officials to develop a detailed program design for cost-shared pilots that would buy emission reductions in strategic areas. This direction led to the development of PERRL, an initiative led by Environment Canada. Through either a national or bilateral approach, PERRL will seek to:

- provide an incentive for incremental GHG reductions;
- further develop expertise in emission reduction trading;
- inform the development of future policy responses from the learnings gained through PERRL.

Efforts in 2000-2001 focused on setting the stage for widespread consultative sessions to allow a wide range of stakeholders to comment on the proposed design for the PERRL Initiative. Key suggestions from stakeholders were considered by the PERRL Working Group in completing a Design Package.

### **Impacts and Benefits**

Pilots and initiatives undertaken to date offer environmental, economic and social benefits for Canada. For instance, obtaining practical experience with GHG emission reduction trading will better position participants to contribute to the development of possible full scale GHG trading programs in the future. As

Emission trading systems can lead to the achievement of environmental goals at lower cost. The investigative work undertaken in fiscal 2000-2001 is an important step toward the development of efficient emission trading systems for the future.

well, regulators and the public will be provided with information on how emission trading works in comparison with traditional regulatory measures. Achieving environmental objectives at lower cost is ultimately a win-win scenario. Industry will save money, thereby increasing the likelihood of achieving greater benefits for the environment (e.g., through setting and achieving even more ambitious reduction targets). The regulated community favors a well-designed trading program because it provides the flexibility to pursue least cost solutions. Environmentalists and the public like trading because it provides a greater degree of assurance that environmental quality will be improved by the required increment and on schedule.

## Future Challenges

The outlook for emissions trading suggests that its use will continue to expand. Recognizing that emissions trading is a new tool the federal government recently asked the National Round Table on the Environment and the Economy (NRTEE) to broaden awareness of emissions trading to key stakeholders and media. As well the National Air Issues Coordinating Committee has recently created a new Federal/ Provincial /Territorial *Domestic Emissions Trading Working Group* to conduct additional analytical work. As well as its possible use in climate change, emissions trading is also being examined as a tool to achieve clean air goals. Over the coming months and years we will need to understand the costs and benefits of various emissions trading systems as well as the implications of different designs. This will include learning much more about the infrastructure, monitoring, quantification and validation requirements for various trading system designs.

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### Long-Term Key Result: A well-performing organization supported by efficient and innovative shared services.

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Ensuring the Department has the management context and capacity to achieve its environmental results entails providing the stewardship and frameworks that will lead to good management decision making, a healthy work environment and productive workforce. Five areas of focus support the “*well-performing organization*” long-term key result. The following table aligns these five areas of focus, along with long-term indicators, targets, and commitments for 2000-2001 that form Environment Canada’s response to the long-term key result for the planning period.

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
Citizen Focus	<p><b>Indicator:</b> Under development.</p> <p><b>Targets:</b> E-government plays a significant role in enabling the Department to deliver on its mandate.</p> <p>A 10% increase over baseline year 2000 in the number of Environment Canada’s Green Lane site visits; and improved access by Canadians to Environment Canada’s information holdings by 2001.*</p>	<p>✓ <b>E-Government</b></p> <ul style="list-style-type: none"> <li>Develop Environment Canada’s vision of citizen engagement.</li> </ul> <p><b>Renewed Internet Presence</b></p> <ul style="list-style-type: none"> <li>Implement a management and policy structure to facilitate the development and maintenance of a cohesive and integrated departmental Green Lane presence.</li> </ul>
	<p><b>Indicator:</b> Improved service to citizens and stakeholders.</p> <p><b>Target:</b> Under development.</p>	<p><b>Service Improvement</b></p> <ul style="list-style-type: none"> <li>Environment Canada’s vision of client-centered service delivery.</li> <li>Improve community outreach tools and support programs for Canadians.</li> <li>Quebec Region will focus on the communication of science to French-speaking clientele.</li> <li>Develop an IM/IT plan.</li> </ul>
Exemplary Workforce	<p><b>Indicator:</b> Degree to which the workforce is well led.</p> <p><b>Target:</b> Under development.</p>	<p><b>Framework for Good Human Resource Management</b></p> <ul style="list-style-type: none"> <li>Detailed HR planning will occur within the business line.</li> </ul> <p>✓ <b>Public Service Employee Survey</b></p>

\* Sustainable Development Strategy Target or Deliverable

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
		<ul style="list-style-type: none"> <li>Establish and implement concrete action plans to address concerns raised in the PS Survey.</li> </ul> <p><b>UCS</b></p> <ul style="list-style-type: none"> <li>Implement the Universal Classification System.</li> <li>Increase consultations with, and involvement of employees affected or impacted by decisions.</li> </ul>
	<p><b>Indicator:</b> Degree to which the productivity and capacity of the workforce is achieved.</p> <p><b>Targets:</b> Employee competencies are appropriately used to achieve organizational goals - 80% of employees report their capabilities are appropriately employed.</p> <p>Workforce increasingly representative of the public it serves - representation targets for women (technical category) 21.5%; Aboriginal Peoples 1.3%; Persons with Disabilities 4.9%; Visible minorities 9.8% by April 2005.</p>	<p><b>Competency Based Management</b></p> <ul style="list-style-type: none"> <li>Implement a competency based management approach to learning and development.</li> </ul> <p><b>Economic Capacity</b></p> <ul style="list-style-type: none"> <li>Improve departmental capacity for economic support by end of 2000.</li> <li>Establish a departmental economists network.</li> </ul>
	<p><b>Indicator:</b> Degree to which the workplace environment supports and enables the work of employees.</p> <p><b>Target:</b> Under development.</p>	<p><b>Official Languages</b></p> <ul style="list-style-type: none"> <li>90% of the bilingual positions are filled by employees who meet the linguistic requirements of their positions.</li> <li>Establish baseline for organizational health against which significant improvements will be made.</li> </ul>
	<p><b>Indicator:</b> Degree to which the workforce is being developed to meet the evolving and future requirements of the Department.</p> <p><b>Target:</b> Development of replacement plans for critical positions and groups.</p>	<p><b>Building Capacity</b></p> <ul style="list-style-type: none"> <li>Develop innovative recruitment, development and retention strategies; and learning strategies to enhance and build upon competencies of existing staff.</li> </ul>
<b>Modern Comptrollership/Managing Results</b>	<p><b>Indicator:</b> Quality of corporate decision making (informed, realistic and communicated to staff).</p> <p><b>Target:</b> Under development.</p> <p><b>Indicator and Target:</b> Under development.</p>	<p><b>Strengthening Decision-Making</b></p> <ul style="list-style-type: none"> <li>Develop a framework for the identification and assessment of risk.</li> <li>Begin implementing the recommendations of a project designed to re-engineer internal business processes.</li> <li>Implement a performance management and monitoring system in the Quebec Region to reinforce the management capacity of Phase Three of the St. Lawrence Action Plan Vision 2000.</li> <li>Ongoing and future program funding linked to performance measurement information.</li> <li>Support departmental decisions on strategic commitments by results-based implementation plans and reporting strategies (2001-02).</li> <li>Communication of the Management Framework to build awareness and ownership to all staff.</li> </ul> <p><b>Strengthening Environment Canada's Management Framework</b></p> <ul style="list-style-type: none"> <li>Complete first phase of a project to improve decision making and priority setting based on integrating financial, performance and HR information.</li> </ul> <p><b>Financial Information Strategy</b></p> <ul style="list-style-type: none"> <li>Fully implement the Financial Information Strategy including full accrual accounting (2001-02).</li> </ul>
<b>Values and Ethics</b>	<b>Indicator and Target:</b> Under development.	<p><b>Values and Ethics</b></p> <ul style="list-style-type: none"> <li>Clarify and reinforce ethical principles and values throughout</li> </ul>

Areas of Focus (see footnote)	Long-Term Indicators and Targets (beyond 3 years)	Initiatives/Deliverables (as stated in RPP 2000-2001)
		the Department. <ul style="list-style-type: none"> <li>Communicate Environment Canada's vision, direction and values to all employees.</li> </ul>
<b>Departmental Management Issues</b>	<b>Indicator:</b> The extent to which Departmental environmental policy is applied and integrated into internal operations. <b>Target:</b> Under development.	<b>Integrated Environmental Management Programs</b> <ul style="list-style-type: none"> <li>Continue the integration of the Environmental Management System (EMS) into departmental operations.</li> <li>Prepare service and regional Environmental Management Plans (EMPs).</li> <li>EMPs will include 3-year action plans for addressing environmental risks and liabilities.</li> <li>Prepare departmental EMP, based on service and regional EMPs.</li> <li>Develop a communications strategy to build employee awareness and participation.</li> <li>Pacific and Yukon Region will integrate the delivery of its EMP into regional business plans.</li> <li>Reduce environmental risks and liabilities identified in the May 1999 EMPs by May 2000.*</li> </ul>

Note: Shaded areas of focus and highlighted initiatives (✓) were selected for detailed reporting in this year's report. Initiatives were selected based on significant achievements occurring during the reporting period and/or the issue being of interest to Canadians and Parliamentarians.

### 3.4.2 Citizen Focus

#### *What is the issue?*

Today's organizations must be able to deliver quality services that are relevant and responsive to Canadians' needs and expectations. Developing excellence in these organizations requires a vision of citizen needs and value-added outcomes, a frank assessment of the gaps between that vision and reality, a practical agenda for change, and a motivated workforce to bring it all together.

Different relationships are now made possible by technologies that alter the way people and businesses communicate. Citizens and businesses want easy access to government services through a "single window," by using self-serve kiosks and the Internet. They also expect improved traditional access through mail, telephone and personal service. Essentially, citizens want the programs of their government to be more accessible and focused on their needs. They expect to get the product they want, when they need it, through their preferred service delivery channel.

**Improving community outreach tools and support programs for Canadians**

In March, 2001 the Pacific Northwest Environmental Directors Group initiated a "Working with Communities" workshop. It was designed to help front-line managers in environmental agencies improve their ability to work with communities and other stakeholders to address complex, multi-jurisdictional environmental issues.

#### *What are we doing about it?*

Environment Canada is committed to delivering effective, citizen-focused services and programs to Canadians and to seeking out partnerships where this make sense. In order to reflect the

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\* Sustainable Development Strategy Target or Deliverable

perspective of the citizen in program design, Environment Canada is assessing information and engagement needs of Canadians, developing an “e-Commitment” to guide subsequent e-Government decisions, and developing a service improvement strategy. We will build on positive media and public reaction by focusing public opinion research and strategic communications efforts on high priority files (e.g. climate change; clean air). To build on potential synergies among departmental priorities, we will adopt a more integrated approach to communications through clear priorities and reinforcing messages across the Department.

## **IMPLEMENTING E-GOVERNMENT THROUGH OUR “E-COMMITMENT”**

To ensure the relevance of government to its citizens, Environment Canada employees at all levels are being challenged to think of all they do as a way of responding to what Canadians want and need, in essence, adopting an “outside-in” view of the world. Technological advancements have provided critical mechanisms through which the Department is able to gain a profound understanding of citizen/client needs and expectations, and optimize delivery of services accordingly. With e-Government initiatives in place, citizens will be provided with a vast array of “channels” through which they can give and receive information, as well as obtain desired services, 24 hours a day, 7 days a week. To guide e-Government efforts, Environment Canada has recently spelled out its “e-Commitment” to Canadians. It has also developed an “e-Government Framework” which will be relied upon as the conceptual framework for managing all aspects of e-Government in the Department. Over the coming years, Environment Canada will hold itself and be held accountable to Canadians for delivering on this commitment.

### **Accomplishments**

Through an extensive internal consultation process, a departmental “e-Commitment” was developed in fiscal 2000-2001 and is soon to be widely communicated to Canadians. Simply put, our e-Commitment to Canadians is as follows:

*“At Environment Canada, we are committed to achieving the Department’s vision through the effective use of electronic tools that enable us to transform the way we conduct our business, to better engage and serve people.”*

Components of our e-Commitment:

- **Leadership:** be recognized leaders in serving Canadians through the innovative use of technology.
- **Service:** take an “outside-in” approach; always putting Canadian citizens at the center of what we do.
- **Business Transformation:** seize the opportunity to leverage technology in order to transform the way we conduct our business.
- **Knowledge Management:** make integrated knowledge management a priority.
- **Integration:** recognize that our website is an integrative facility offering a “single window” of access to services and information products.
- **Alliances:** pursue, with passion, the creation of new and the enhancement of existing alliances, where it means we can better serve people in a seamless manner.
- **Delivery Options:** recognize that Canadians will continue to expect services in person, by mail and by telephone, as well as through the Internet.

- **Citizen Engagement** : look for new ways to consult with people about issues of importance to them.
- **Staff Engagement**: make on-going e-Government communication and training a priority.
- **Best Practices**: build on each other's successes and lessons learned.
- **Setting the Example**: model the use of technology in internal information systems.

As one key step forward in the mobilization of our e-Commitment we have recently taken the lead in the development and implementation of the "Environment, Natural Resources, Fisheries and Agriculture" cluster on the Government of Canada Site. This cluster, addressing "sustainable development", will be developed in building blocks. Expansion to other partners will evolve over time. To ensure effective implementation of our e-Commitment, an "e-Government Framework has been developed and will be relied upon as the conceptual tool for managing all aspects of e-Government in the Department. This framework outlines key elements and sub-elements, accountabilities and targets over the short, medium and long terms. One of the key elements of the e-Government Framework is the comprehensive Information Management/Information Technology (IM/IT) strategy and action plan developed during 2000-2001.

The IM/IT Strategy proposed is a multi-year program for *restoring* IM/IT infrastructure across the Department, *transforming* information and people, and for achieving *sustainability* in IM/IT processes and structures throughout the Department. As part of the restoration process, over \$12 million in investments are planned for the 2001-2002 and 2002-2003 fiscal years. Major thrusts of these investments will be:

- restoring physical IM/IT infrastructure – Environment Canada's visible, tangible IM/IT assets that enable us to process, store and convey information from one place to another reliably and securely;
- restoring IM/IT management infrastructure – the Department's policies, practices, tools and know-how.

Both constitute vital footings upon which the Department's transformation to an e-Government will stand. Once completed, these investments will have placed Environment Canada on a sound footing for managing information resources, and for responding to pressures that will arise as the government's commitment to servicing and connecting Canadians matures.

### **Impacts and Benefits**

e-Government will transform public sector internal and external relationships through net-enabled operations, IT and communications. As a consequence, government service delivery, constituency participation and governance will be optimized in a manner that far exceeds what has been done before. Increasingly, through the use of relevant, understandable, easy-to-access information products and services, Canadians will be able to make informed, timely decisions about the environment.

### **Future Challenges**

With Government-On-Line (GOL) the expectations of Canadians for timely, relevant information and service will continue to increase over time at an exponential rate. While the use of Internet technology goes a long way to meet client demands, e-Government will not be successfully implemented without overcoming many significant roadblocks. Funding issues are still outstanding. We know that across government we must pull together in an integrated fashion to obtain maximum synergy.

Technology changes at a much faster rate than does the bureaucratic environment in which the Department must operate, creating frustrations and challenges both internally and externally. The Department faces the need for a critical shift in our culture. To successfully deliver on our e-Commitment we must all move from a traditional “inside-out” view of the world to one where client needs from outside influence all that we do inside.

### **3.4.3 Exemplary Workforce**

#### *What is the issue?*

Environmental issues are complex and while our knowledge is improving, new issues arise, are interconnected to others, and make the environmental agenda increasingly complex. This context poses real challenges in the area of Human Resource (HR) management. Another challenge relates to current demographics. An aging workforce puts corporate knowledge at risk, and our workforce is not fully representative of the public we serve. High turnover of personnel at all levels, particularly at senior levels, presents a challenge of continually changing priorities, and puts the continuity of environmental files at risk.

#### *What are we doing about it?*

Environment Canada is dedicated to sustain an exemplary workplace which is characterized by support for the employee, the encouragement of initiative, trust and communication, a respect for diversity, and a safe and secure environment. To address current challenges, the Department is developing a five-year strategic plan for human resources management. This plan is targeted at recruitment initiatives, (e.g. youth and employment equity); investing in learning and career development (i.e. Management Development Policy, Departmental Learning Investment Strategy); and developing HR tools to increase the self-serve capacity of managers across the Department.

### **TAKING ACTION ON PUBLIC SERVICE EMPLOYMENT SURVEY RESULTS**

Public Service Employee Survey (PSES) results were released in November, 1999. Since that time Environment Canada has been proactively demonstrating a strong level of commitment to using survey data to improve the quality of life in the workplace for all employees. Along with other members of the Environment Management Board, the Deputy Minister accepted personal responsibility for promoting innovative, Department-wide initiatives to respond to a myriad of suggestions put forward by Environment Canada employees. In doing so, the Deputy Minister clearly stressed the need for collective action at three levels - departmental, service/region, and work unit. Specific actions, timelines and responsibilities have been identified for three issues noted as key concerns by employees (workload, communications and career development), as well as for employee satisfaction in general, and the issue of leadership, upon which the success of current and future successes rests.

#### **Accomplishments**

In December 1998 a PSES Working Group, comprised of representatives from all regions and services was formed to design a flexible, responsive, strategic approach to addressing PSES results. The Working Group began by analyzing survey results and developing a series of recommendations for the path forward in terms of implementing specific initiatives to address key areas of concern. As implementation of actions has progressed over time, the Deputy Minister has kept employees informed through the release of monthly bulletins, and bi-annual

progress reports. The Working Group has continued to work together closely to ensure that efforts are sustained. By the end of fiscal 2000-2001 many new initiatives were well underway and further actions have been identified for both 2001-2002 and 2002-2003. Future initiatives are included, as priority areas, in corporate business plans. Key actions taken to date are highlighted below:

#### ***Addressing Workload Concerns***

- Need for new resources for Environment Canada recognized in Budget Speech 2000 and Speech from the Throne.
- An Environment Management Board Sub-Committee formed to oversee resource allocations.
- Guidelines on overtime developed.
- A strategic hiring plan put in place to guide recruitment and retention.

#### ***Communicating Effectively Throughout Environment Canada***

- HR management best practices posted on Infolane.
- An internal communications strategy established to better engage employees.
- “Discover Environment Canada” sessions for employees were designed and piloted.
- Nationally-mandated Town Hall meeting.
- Deputy Minister’s monthly Public Service Survey messages.

#### ***Facilitating Career Development Planning***

- Competency-based Environment Canada Management Development Policy developed.
- Personal Career Development Plans are recognized tools for all levels.
- Successful pilot for Ontario Infolane Career Planning web site currently being expanded nationally.

#### ***Ensuring Employee Satisfaction***

- Proactive approach for addressing harassment and discrimination concerns implemented (e.g., new policy; awareness sessions for employees and managers).
- Employee networks created to identify systemic barriers for underrepresented groups.
- A new employee recognition policy developed.

#### **Impacts and Benefits**

Much more is known today than ever before about the feelings and opinions of Environment Canada staff at all levels. In short, the innovative, inclusive approach taken by the Department to act on PSES findings has resulted in an array of positive changes based directly on employee wants and needs. Through the Working Group a network of advocates across regions and services quickly became champions for this initiative, and continue to widely promote the actions and specific benefits that have occurred and will continue to occur. To be successful, initiatives such as this depend upon sustained, visible commitment from senior management. In this case, the direct involvement of Environment Canada senior management was secured at the outset, and specific commitments have been made at this level well into the future to ensure ongoing implementation of new initiatives.



Externally Environment Canada's efforts have been recognized and flagged as a "best practice" at the central agency level. An Environment Canada HR Director was invited to sit on the Committee of Senior Officials (COSO) Sub-Committee on Workplace Well-being. Ultimately, the benefits achieved from this initiative will be gauged by the results we obtain during the next PSES exercise.

### **Future Challenges**

While progress has been made on many fronts, senior management recognizes the need to do even more – particularly with respect to innovation and fostering teamwork within Environment Canada and across government. Maintaining momentum over the coming years will be a key challenge. Resources remain tight across Environment Canada. Nonetheless, to ensure success in the future, results achieved to date must be tracked and measured over time, and the Department will need to prepare for the next public service wide survey expected within the next year. Resource implications for these activities will need to be addressed.

# Section 4: Consolidated Reporting

## 4.1 Sustainable Development Strategy

The past year represents the third and final year covered by Environment Canada's 1997 Sustainable Development Strategy (SDS). Environment Canada believes in the need to adopt government-wide approaches to meet the sustainable development challenge. While each department is required to prepare its own SDS, since the tabling of the last strategies considerable attention has focused on building support for government-wide initiatives on certain key sustainable development issues. Further steps will be required in coming years as the process of building greater coherence and coordination across the federal government continues and evolves. The Strategy has been an important instrument in helping Environment Canada to turn the concept of sustainable development into reality by working towards four overarching goals:

- to strengthen Environment Canada's ability to meet sustainable development goals;
- to be a more effective advocate of sustainable development;
- to give Canadians tools to make sound decisions in a changing environment; and
- to set a good example in the greening of government operations.

Under these goals there have been a number of accomplishments in the last fiscal year. Tools have been developed to assist employees in socio-economic analysis and there has been continued effort to work on indicators which provide vital knowledge to guide the department's activities. An overview of selected environmental indicators was offered in the report "Tracking Key Environmental Issues". Environment Canada recognizes the importance of working with others to achieve its sustainable development goals and concrete actions were undertaken to strengthen ties with partners, for example, a Memorandum of Understanding on Environmental Capacity Development Initiative for Aboriginal people was signed with Indian and Northern Affairs; a contribution agreement with the Canadian Environment Network was renewed; and youth were provided opportunities to participate in departmental activities and influence decision-making. An important focus of the Sustainable Development Strategy has been to provide business and other sectors, including individual Canadians, with the information and tools they require to make reliable decisions regarding their safety and for the protection of the environment. A major component in realizing this goal are new initiatives by the Meteorological Service which apply scientific and technological innovation to improve predictive capacity and to enhance understanding of atmospheric conditions. Environment Canada's Green Lane is another significant source of information via the Internet. The Green Lane exceeded its target to increase site visits. Finally, Environment Canada's Sustainable Development Strategy reflects the Department's special responsibility to be a leader and it continues to set an example in its operations by implementing a robust environmental management system.

- To learn more about environmental management systems, visit:  
<http://www.on.ec.gc.ca/pollution/fpd/systems/intro-e.html>

Environment Canada's updated Sustainable Development Strategy for the period 2001-2003 will continue to build on the progress and lessons learned from the first Strategy. An extensive consultations process across the country was undertaken to prepare the updated Strategy — phase one on a discussion paper in spring 2000 and phase two on a draft Strategy in fall 2000.

Feedback received during consultations helped shape the final document that was tabled in the House of Commons in February 2001. Environment Canada's updated Strategy more clearly articulates goals, objectives, and targets that we believe will enable the Department and Canadians to better judge where progress is being made. This second Strategy will further institutionalize sustainable development in Environment Canada's decision-making processes, while supporting and encouraging others to do the same.

- ▶ For a more detailed summary of progress against Environment Canada's 1997 Sustainable Development Strategy, visit: [http://www.ec.gc.ca/sd-dd\\_consult/pdf/DPR2001table.pdf](http://www.ec.gc.ca/sd-dd_consult/pdf/DPR2001table.pdf)
- ▶ To access the Environment Canada's Sustainable Development Strategy 2001-2003, please refer to: [http://www.ec.gc.ca/sd-dd\\_consult/index\\_e.cfm](http://www.ec.gc.ca/sd-dd_consult/index_e.cfm)

## 4.2 Major Legislative and Regulatory Initiatives

Purpose of legislative or regulatory initiative [Enabling legislation in brackets]	Expected results	Performance measurement criteria	Progress to Date
<b>Clean Environment Business Line</b>			
<p><b>Metal Mining Effluent Regulations - (Fisheries Act) - Revoke and replace</b></p> <p>To reduce the environmental impact of metal mining discharges to the aquatic environment.</p>	<p>Protect fish, fish habitat, and the use of fisheries resources by ensuring a consistent, maximum quality of effluent discharged to aquatic ecosystems.</p>	<p>Compliance with regulations</p>	<p>The proposed Metal Mining Effluent Regulations (MMER), were published in <i>Canada Gazette, Part 1</i> on July 28th, 2001 and are now available for public comment.</p>
<p><b>Tetrachloroethylene in Dry Cleaning Regulations</b></p> <p>To reduce releases of tetrachloroethylene, commonly called PERC, to the environment from dry-cleaning facilities.</p>	<p>Reduce threats to environmental and human health by reducing emissions of the solvent tetrachloroethylene from the dry cleaning sector.</p>	<p>Compliance with regulations</p>	<p>The proposed regulations were published in the <i>Canada Gazette, Part 1</i> on August 4<sup>th</sup>, 2001.</p>
<b>Nature Business Line</b>			
<p><b>Species at Risk Act</b></p> <p>New legislation to be introduced for the protection of species at risk and their critical habitats.</p>	<p>Provide a framework for protecting species at risk as well as safety net provisions when needed. Where combined federal and provincial efforts and private stewardship efforts are not sufficient to protect species and identified critical habitat, the Government of Canada would deploy measures to ensure protection.</p> <p>Prevent Canadian indigenous species, subspecies and distinct populations of wildlife from becoming extirpated or extinct; provide for the recovery of endangered or threatened species; and to encourage the management of other species to prevent them from becoming at risk.</p>		<p>Bill C-5 introduced in February 2001. The Bill received second reading and was referred to the Standing Committee in March 2001.</p>

- ▶ To learn more about the progress of other regulatory initiatives, visit:  
<http://www3.ec.gc.ca/EnviroRegs/Eng/SearchDetail.cfm?intAct=1001>

## 4.3 Statutory Annual Reports

### 4.3.1 International River Improvements Act

**PURPOSE:** The *International River Improvements Act* received assent on July 11, 1955. It provides for licensing international river improvements to ensure that Canada's water resources are developed and utilized in the best national interest. The Act does not apply to international river improvements built under the authority of an Act of the Parliament of Canada, or situated within boundary waters as defined in the Boundary Waters Treaty of January 11, 1909, or those constructed, operated and maintained solely for domestic, sanitary or irrigation purposes.

**ADMINISTRATION:** Regulations for administering this Act were passed by Order-in-Council P.C. 1955-1899 dated December 29, 1955, and amended P.C. 1987-1943, dated September 17, 1987, and P.C. 1993-764 dated April 20, 1993. The Department of the Environment has administered this Act since June 1971.

**ACTIVITY:** During 2000, no licences were issued under the Regulations of the International River Improvements Act.

The Columbia Power Corporation provided notification and information to the Minister on a project to upgrade hydraulic turbines and other electrical equipment at the existing Brilliant power plant and dam located on the lower Kootenay River near Castlegar, British Columbia. This project for an international river improvement has been excepted from the application of the Act.

Departmental officers received technical project documents for a proposed project to build another powerhouse near the existing facility at the Brilliant Dam to increase the total electrical capacity. The Department is reviewing the material to determine the applicability of the Act. In the case that a licence is required, the Department would be a Responsible Authority under the Canadian Environmental Assessment Act.

### 4.3.2 Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA)

**PURPOSE:** The *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRIITA) received royal assent on 17 December 1992 and came into force on 14 May 1996 when the Wild Animal and Plant Trade Regulations took effect. The purpose of WAPPRIITA is to protect Canadian and foreign species of animals and plants that may be at risk of overexploitation because of poaching or illegal trade and to safeguard Canadian ecosystems from the introduction of species designated as harmful. It accomplishes these objectives by controlling the international trade and interprovincial transport of wild animals and plants, as well as their parts and derivatives, and by making it an offence to transport illegally obtained wildlife between provinces or territories or between Canada and other countries.

WAPPRIITA is the legislative vehicle by which Canada meets its obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, commonly called CITES. Canada became one of the original Parties to this international agreement in 1973,

which has been adopted by 153 sovereign states by the end of 2000. CITES sets controls on the trade and international movement of animal and plant species that have been, or may be, threatened with overexploitation as a result of trade pressures. Such species are identified by the Parties and listed in one of three appendices to the Convention according to the level of control considered necessary for them. Appendix I lists species that are threatened with extinction. Trade in these species is strictly regulated to ensure their survival, and trade for primarily commercial purposes is prohibited. Appendix II lists species that are not currently threatened with extinction but may become so unless trade is strictly regulated to avoid overexploitation. Individual Parties may list species found within their borders in Appendix III in order to manage international trade in those species.

## ADMINISTRATION

**Authorities:** Environment Canada administers WAPPRIITA through its national office, where the national CITES management and scientific authorities are located. CITES management and scientific authorities are also located in Fisheries and Oceans Canada for fish and marine mammals and in each province or territory (except Alberta) for provincially or territorially managed species. The Canadian Food Inspection Agency assists Environment Canada by processing CITES documentation for the export of artificially propagated plants as an attachment to documents required under the *Plant Protection Act*, which it administers.

Enforcement of WAPPRIITA is overseen by the Enforcement Branch in Environment Canada and carried out by five regional offices (Pacific and Yukon, Prairie and Northern, Ontario, Quebec, and Atlantic) in cooperation with other federal agencies, including the Canada Customs and Revenue Agency (CCRA), the Royal Canadian Mounted Police (RCMP), and Fisheries and Oceans Canada, as well as with provincial and territorial wildlife agencies.

**Agreements with the Provinces and Territories:** Memoranda of Understanding (MOUs) to support cooperative management, administration, and enforcement of WAPPRIITA have been established with Saskatchewan and Yukon (1997); Alberta, Manitoba, and the Northwest Territories (1998); and British Columbia (1999). Similar MOUs are currently being negotiated with most of the remaining jurisdictions, including Canada's new territory, Nunavut. Agreements with Ontario (1996), Prince Edward Island and New-Brunswick (1997), Manitoba (1998), Nova Scotia and Quebec (2000) have been reached by the Department of Justice to permit ticketing for WAPPRIITA offences under the *Contraventions Act*. Ticketing agreements with other provinces are being negotiated.

**Permits:** Currently, all permits issued under the Act are to implement CITES. There were no applications in 2000 to import controlled species listed in Schedule II of the Wild Animal and Plant Trade Regulations as harmful to Canadian species or ecosystems. The following table shows the numbers of CITES permits and certificates issued respectively in 1999 and 2000.

All CITES import permits are issued by Environment Canada, as are all temporary movement certificates for live animals and scientific certificates. Fisheries and Oceans Canada issues CITES export permits for fish and marine mammals. The provinces and territories (except Alberta for all items and British Columbia for exotic species) issue CITES export permits for items leaving their jurisdictions. Environment Canada issues CITES export permits valid for multiple shipments by certified nurseries of artificially propagated plants and permits on behalf of Alberta and of British Columbia with respect to exotic species.

The coming into force of the amendments to the *Wild Animal and Plant Trade Regulations* in January 2000 exempting certain personal and household effects resulted in the reduction of the number of CITES export permits by forty percent overall; reductions have been substantial in some jurisdictions reaching over seventy percent.

### CITES Permits Issued in Canada in 1999 and 2000

Jurisdiction*	Import		Export		Temporary Export / Import		Scientific	
	1999	2000	1999	2000	1999	2000	1999	2000
Canada	190	188	9 169	7135	247	216	37	36
N.W.T.			153	110				
Yukon			225	254				
British Columbia			2 386	1867				
Saskatchewan			923	649				
Manitoba			1 958	1218				
Ontario			3 490	932				
Quebec			2 612	1038				
New Brunswick			1 699	403				
Nova Scotia			58	34				
P.E.I.			3	1				
Newfoundland			143	92				
Nunavut			3	2				
<b>TOTAL</b>	<b>190</b>	<b>188</b>	<b>22 819</b>	<b>13 735</b>	<b>247</b>	<b>216</b>	<b>37</b>	<b>36</b>

\* Note: Alberta does not issue CITES permits.

The CITES Management Authority started a complete review of all CITES permits/certificates forms and procedures. The review involves standardizing all forms, modifying existing procedures and developing new procedures to comply with established CITES Resolutions. This review involves the automation of the issuance of CITES permits and certificates using computer technology.

### REGULATION, COMPLIANCE, AND ENFORCEMENT

**Regulatory Development:** The *Wild Animal and Plant Trade Regulations* (1996) designate the species protected by the Act and detail the Act's requirements with respect to import, export, and possession of wild species. Further regulatory development has been the subject of consultations since 1997.

Effective January 15, 2000, the *Wild Animal and Plant Trade Regulations* were amended to allow exemptions from CITES permit requirements for certain personal and household effects, as provided for under Article VII, Paragraph 3 of the Convention, and authorize other measures to improve the administration and enforcement of the Convention in Canada.

The following summarizes the major conditions under which an exemption from CITES permits applies to personal and household effects:

Personal Effects - Most goods from species (except live animals) listed in Appendix I, II or III, that at the time of import or export are part of an individual's clothing or accessories or are contained in an individual's personal baggage and that they have owned and possessed in their ordinary country of residence will no longer require a CITES permit.

Tourist Souvenirs - Travellers entering or leaving Canada do not need CITES permits for goods which they have purchased outside of their country of usual residence, providing they are of species listed in Appendix II or Appendix III and providing they are part of their clothing or accessories or are in their accompanying baggage. The tourist souvenir exemption does not, however, apply to live plants, live animals and Appendix I species, all of which still require CITES permits.

Black Bear and Sandhill Crane Trophies - A CITES export permit is not required for residents of the United States or Canada to take their fresh, frozen or salted black bear or sandhill crane hunting trophies back home at the conclusion of their hunt. The trophy must be part of their accompanying baggage. CITES permit requirements continue to apply to residents of other countries and to all other species of trophies.

Household Effects - Goods (except live animals) that an individual has owned and possessed in their ordinary country of residence and form part of their household belongings that are being shipped to or from Canada to their new residence, or that form part of an inheritance from an estate that is being imported to or exported from Canada are exempted from CITES permit requirements.

Other Conditions - All importations or exportations for which an exemption from CITES permit requirements is being claimed must be strictly for personal and not commercial purposes. Any item for which an exemption is being claimed must not be sold or otherwise disposed of within 90 days after the date on which the exemption is claimed.

Conditions described in Article VII, Paragraph 3, sub-paragraphs a) or b) of the Convention apply to the above exemptions. Also, the exemption does not apply to the export of any raw or unprocessed products (except feathers) or to any species which is listed as threatened or endangered nationally in Canada and listed in Schedule III to the Regulations.

The amendments also include:

- the authority to prosecute based on species information provided on shipment labels, marks, or accompanying documents; and
- prescribing the content of removal orders and extending the period before automatic forfeiture of detained or seized items to the Crown to 90 days.

**Compliance:** Environment Canada continues efforts to promote compliance with WAPPRITA by focusing on public awareness through media and informational items, printed information, regular mailings to user groups, CITES displays in public buildings, public information sessions, and attendance at special events. For example, in 2000:

- The CITES Office started a review of CITES permits authorizing multiple shipments to identify permit holders that do not comply with the permit procedures and conditions with a view of informing them of errors and thus increasing the level of compliance to permit procedures.
- Environment Canada's Regional Offices provided assistance and information on CITES to conference organizers and exhibitors, mailed the brochures "Endangered Species and the

Traveller” to travel agents to distribute to their clients. Information has also been made available to the public at the CITES exhibit kiosks in major Canadian International Airports.

- Officers from all units participated in interviews and prepared press releases for television, radio, and print media.

Compliance with WAPPRIITA is monitored by such means as checking permits, auditing importers’ and exporters’ declarations, making inspections at international ports, running routine or spot inspections of wildlife businesses, monitoring hunting, sharing information with the Canada Customs and Revenue Agency and other national/ international agencies, gathering intelligence, and following up reports from the public (e.g., through Crime Stoppers). Environment Canada conducted about 2,153 inspections related to wildlife trade in 2000.

**Enforcement:** In 2000, Environment Canada cooperated with the U.S. Fish and Wildlife Service and the Procuradaria Federal de Proteccion al Ambiente (Mexico) in service training for enforcement inspectors. Environment Canada regional enforcement officers conducted training programs on WAPPRIITA for regional personnel in other federal and provincial/territorial agencies.

Environment Canada carried out more than 283 investigations into poaching or trafficking incidents involving international or interprovincial movement of wildlife, under provisions of applicable federal, provincial/territorial, or foreign legislation. Most of these investigations concluded with the confiscation of goods or issuance of a ticket.

Twenty seven significant cases, including some that are precedents, were prosecuted successfully under WAPPRIITA in 2000. Examples follow:

Illegal import of wildlife: On February 28, 2000 an Ontario resident was convicted of one count under section 6(2) WAPPRIITA, pursuant to the Contraventions Act, regarding the illegal importation of 15 poison arrow dart frogs, which were smuggled into Canada from the U.S.. A guilty plea was entered and a \$1,500.00 fine was registered together with forfeiture of seven unsold frogs.

Illegal import of caviar: A businessman from Ontario entered a guilty plea to unlawfully importing two hundred (200) jars of Russian sturgeon caviar (WAPPRIITA 6(2)). On December 19, 1999 during a Canada Customs secondary inspection he was found to be carrying the caviar in his suit cases. He stated to the Customs Officer that the caviar was for his business. He was convicted and sentenced to a fine of \$1,875.00 (\$375.00 victim surcharge and court costs), and ordered to forfeit the caviar.

Illegal interprovincial transport of wildlife: Two brothers pleaded guilty in Surrey Provincial Court (British Columbia) on May 29, 2000 to one count under section 7(2) of WAPPRIITA for the unlawful interprovincial transportation of bear gall bladders which had been taken, possessed, transported and distributed in contravention of a provincial law. One was also convicted of one additional count under section 2.08(1)(a) of the Commercial Activities Regulation, B.C. Reg. 338/82 of the B.C. Wildlife Act for trafficking in dead wildlife. The charges stemmed from a four month undercover operation conducted jointly by Environment Canada, Wildlife Enforcement Section and the B.C. Conservation Officer Service, Special Investigation Unit with assistance and cooperation from the RCMP. Undercover officers purchased bear gallbladders on three separate occasions between May and August 1999. The bear gallbladders originated in Quebec and were sent to Alberta. On the third transaction on August 14, 1999, the brothers were arrested and charged with a total of 19 counts under



WAPPRIITA and the B.C. Wildlife Act. On joint submission by Crown Counsel and Defense, the accused entered a plea of guilty to one “global count” under each piece of legislation encompassing all three transactions - the remaining counts were stayed by the Crown. Judge of the B.C. Provincial Court imposed the following sentence:

- 31 days imprisonment;
- \$3,500.00 fine for one count under section 7(2) of WAPPRIITA (54 days in default);
- \$3,500.00 fine for one count under BCWA (\$100.00 to be paid as a fine and \$3,400.00 to be paid into the Habitat Conservation Trust Fund);
- Court order under section 19(1) of WAPPRIITA for forfeiture of the vehicle used in the commission of the offense;
- Court order under section 19(1) of WAPPRIITA for forfeiture of all bear gallbladders seized;
- Court order under section 22(6)(d) of WAPPRIITA for the repayment of moneys paid by undercover officers for the purchase of bear gallbladders;
- Court order under section 22(6)(a) of WAPPRIITA prohibiting hunting or the possession of a hunting license for a period of 5 years;
- Court order under section 22(6)(a) prohibiting the possession of bears, bear parts or derivatives for a period of five years.

Illegal import of birds: Three Ontario residents were convicted in Ontario Provincial Court (Welland) on July 7, 2000 under section 6(2) of WAPPRIITA for the unlawful importation of wildlife. The accused, together with his wife and son, operates an aviary in Ontario and were facing a total of 483 charges laid under WAPPRIITA for illegally importing and exporting over 5,000 tropical birds, mostly finches which were captured in the wild. The sentence of the first accused was:

- \$50,000.00 fine;
- 90 days in jail (served intermittently), 3 years probation (condition: keep the peace and be of good behavior) and 50 hours community service;
- 3 year prohibition on the importation of birds.

The second accused was sentenced :

- \$25,000.00 fine;
- 2 years probation (condition: keep the peace and be of good behavior);
- 50 hours community service;
- 3 year prohibition on the importation of birds.

The sentence to the third accused will be decided in 2001.

Illegal importation of illegally obtained wildlife: A Quebec resident was found guilty after an eight day trial in Vancouver Provincial Court on December 8, 2000, of one count of importing wildlife which was taken in contravention of a foreign law under section 6(1) WAPPRIITA and one count of importing wildlife without a permit under section 6(2) WAPPRIITA. The Crown proceeded by way of indictment in this matter. The charges stemmed from an incident which took place on September 28, 1998. A mail parcel was intercepted at the Customs Mail Centre in Vancouver, B.C. The mail parcel contained a “hollowed out” hardcover book with six CITES Appendix I birdwing butterflies (*Ornithoptera alexandrae*) secreted inside. The originator of the

package was a villager from Papua New Guinea who eventually agreed to travel to Canada and testify against the accused. A representative of the government of Papua New Guinea also travelled to Canada to testify as to the laws of Papua New Guinea. Sentencing is scheduled to take place in Vancouver on July 27, 2001.

## INTERNATIONAL COOPERATION

**Eleventh Meeting of the Conference of the Parties:** Preparations that began in early 1999 for the Eleventh Meeting of the Conference of the Parties to CITES continued in 2000. Species proposals and working documents for the meeting were made available to the public and environmental non-governmental organizations as they were received from the CITES Secretariat. Two public consultation meetings were held on 10 and 27 March 2000 to discuss the proposed Canadian positions on the 62 species proposals and 58 working documents.

Canada participated in the 11<sup>th</sup> Meeting of the Conference of the Parties (COP 11), held in Nairobi, Kenya, on 10–20 April 2000. The Canadian delegation included representatives of Environment Canada, Foreign Affairs and International Trade, Fisheries and Oceans Canada, and the province of Ontario and the Northwest Territories representing respectively the eastern provinces and western provinces and territories. The delegation met daily with Canadian non-governmental organizations attending as observers.

There were several contentious issues for review by the Parties involving the Rules of Procedure for the meeting, the strategic plan for the Convention, and the listings of African elephant, minke and gray whales, the gyrfalcon, the hawksbill turtle, and sharks.

The changes to the Rules of Procedure have been adopted with no modifications. There was strong support for the strategic plan prepared by the working group chaired by the U.S.A. Canada spoke in support of and underlined the need for performance indicators. The plan was approved with minor amendments.

On the African elephant, a consensus was reached when African countries decided to maintain the Botswana, the Namibia and the Zimbabwe elephant populations in Appendix II and also to downlist the South African population to Appendix II, but with a zero quota on ivory. This position was adopted by consensus. All other elephant populations remain in Appendix I.

The four proposals to downlist several stocks of the gray whale and the minke whale, the proposal by the U.S.A. to downlist the North American population of the gyrfalcon from Appendix I to II, the proposal by Cuba and Dominica to downlist from Appendix I to II the Cuban population of the hawksbill turtle and the proposal to list the whale shark and the basking shark in Appendix II, and the great white shark in Appendix I were all rejected.

In summary, eleven taxa have been deleted from Appendix II, one taxon has been added to Appendix I and seven to Appendix II, while four taxons have been transferred from Appendix I to II and three from Appendix II to I.

Schedule I of Canada's *Wild Animal and Plant Trade Regulations* was amended in July 2000 to reflect these changes to the CITES Appendix listings. Environment Canada has distributed the revised CITES Control List publication to all enforcement agencies in Canada and to companies and the public identified in a mailing list. The new listings are also available on Canada's CITES web site.

**North American Wildlife Enforcement Group:** Through the North American Wildlife Enforcement Group (NAWEG), Canada (Environment Canada) works with the United States (U.S. Fish and Wildlife Service) and Mexico (Procuraduria Federal de Protección del Ambiente) to promote wildlife enforcement. NAWEG acts as the North American representative to Interpol and is the enforcement contact for the Trilateral Committee for Conservation and Management of Wildlife and Ecosystems. Canada has participated actively in the preparation of training seminars and workshop for the officers of the three countries. In Canada, NAWEG is the link between the foreign agencies and the federal and provincial/territorial chiefs responsible for natural resources law enforcement. Environment Canada personnel attend regular NAWEG meetings to discuss national positions and to develop a North American approach to present to CITES, Interpol, and the Trilateral Committee.

**Other:** In 2000, Canada's international cooperation included participation in:

- the Nineteenth North American CITES Regional Meeting that took place in Arlington, Virginia, U.S.A., 11-13 January 2000;
- the Joint Meeting of the CITES Animals and Plants Committees in Shepherdstown, West Virginia, U.S.A., 7-9 December 2000;
- the Tenth Meeting of the CITES Plants Committee in Shepherdstown, West Virginia, U.S.A., 11-14 December 2000;
- the Sixteenth Meeting of the CITES Animals Committee in Shepherdstown, West Virginia, U.S.A., 11-15 December 2000;
- Participation to the regular meeting of the CITES group of the World Customs Organization (WCO) that took place in Brussels, 30 November - 1 December. Environment Canada has been coordinating the preparation of a training package for the WCO.
- As representative of North America, Canada has participated with the CITES Secretariat to a technical mission to assess enforcement issues related to trade and the protection of tigers.
- Environment Canada's representative has been appointed as Chairman of the Interpol Working Group on Wildlife and participated to the 13<sup>th</sup> meeting of the group that took place from 14-16 March 2000.

#### **4.3.3 Other Statutory and Departmental Reports:**

- *Canadian Environmental Protection Act (CEPA)* - [http://www.ec.gc.ca/cepa/index\\_e.html](http://www.ec.gc.ca/cepa/index_e.html)
- *Canada Water Act* - <http://www.ec.gc.ca/water/index.htm>
- *Access to Information Act*
- *Privacy Act*

# Section 5: Financial Performance

## 5.1 Financial Performance Overview

This Section contains a summary of the financial performance of Environment Canada for the fiscal year 2000-2001.

The Department was authorized to spend approximately the same amount that was planned in the Report on Plans and Priorities. However, the Department actually spent \$26.1 million less than the planned spending amount mainly due to the following decreases and increases in the departmental activities.

Decreases:

- \$50.0 million contribution to the Sustainable Technology Development Fund has been delayed until the fiscal year 2001-2002;
- \$9.3 million of the budget for the environmental clean-up of the Sydney Tar Ponds contaminated site has been reprofiled to the next fiscal year; and
- \$4.0 million of the Climate Change Action Fund has been reprofiled to the next fiscal year.

Increases:

- \$16.9 million to compensate for salary increases related to new collective agreements;
- \$12.0 million for a one-time grant to the Clayoquot Sound Biosphere Reserve; and
- \$8.8 million to assess urgent needs in the capital infrastructure.

## 5.2 Financial Summary Tables

The financial tables presented in this Performance Report are based on the Planning, Reporting and Accounting Structure (PRAS) which was approved in 1998-1999 and therefore, the resources for 1998-1999 are estimated.

Summary financial data, such as the information presented in Table 1, are displayed using three separate headings. For clarity, these headings are defined as:

- *Planned Spending* - Amounts shown in the Report on Plans and Priorities in 2000-2001;
- *Total Authorities* - Planned spending plus any additional amounts Parliament has approved for departments to reflect changing priorities and unforeseen events; and
- *2000-2001 Actual Spending* - The amounts actually spent for the fiscal year.

Note: Some totals may differ from one table to another due to the rounding of the figures.

**Table 1: Financial Requirements by Authority (\$ millions)**

<b>Vote</b>	<b>Planned Spending</b>	<b>2000-2001 Total Authorities</b>	<b>Actuals</b>	
<b>Environment Program</b>				
1	Operating expenditures	479.9	502.3	<b>479.8</b>
5	Capital expenditures	28.8	43.2	<b>39.5</b>
10	Grants and contributions	105.8	64.9	<b>64.2</b>
(S)	Minister of the Environment - Salary and motor car allowance	0.1	0.1	<b>0.1</b>
(S)	Contributions to employee benefit plans	51.6	56.3	<b>56.3</b>
(S)	Spending of proceeds from the disposal of surplus Crown assets	0.0	0.3	<b>0.2</b>
<b>Total Department</b>		<b>666.2</b>	<b>667.1</b>	<b>640.1</b>

**Explanation of change from Planned Spending:**

The \$26.1 million decrease is mainly due to the following:

<b>Increases reflected in the Actual Expenditure but not in the Planned Spending</b>	<b>\$ Millions</b>
Unspent funds carried forward from 1999-2000	5.3
Increased funding for Capital Infrastructure Projects	8.8
One-time grant for the establishment of the Clayoquot Sound Biosphere	12.0
Compensation for salary increases due to new collective agreements	6.9

<b>Decreases reflected in the Actual Expenditure but not in the Planned Spending</b>	<b>\$ Millions</b>
Fund moved to subsequent years for Climate Change Action Fund	4.0
Total funding received from the National Strategy on Species at Risk was less than planned	5.7
Funds moved to subsequent years for the remediation of the Sydney Tar Ponds and Coke Ovens Site	9.3
Resources for the Sustainable Development Technology Fund moved to 2001-2002	50.0

**Table 2: Departmental Planned versus Actual Spending by Business Line (\$ millions)**

Business Lines	FTEs	Operating*	Capital	Voted Grants & Contributions	Subtotal: Gross Voted Expenditures	Statutory Grants & Contributions	Total: Gross Expenditures	Less: Respendable Revenues**	Total Net Expenditures
<b>Clean Environment</b>	1,000	142.2	5.2	83.8	231.2	-	231.2	(7.4)	223.8
	-	150.9	12.2	22.2	185.3	-	185.3	(7.3)	178.0
	<b>1,174</b>	<b>139.5</b>	<b>11.6</b>	<b>21.9</b>	<b>173.0</b>	-	<b>173.0</b>	<b>(8.5)</b>	<b>164.5</b>
<b>Nature</b>	1,075	153.7	3.7	15.0	172.4	-	172.4	(6.9)	165.5
	-	149.6	4.2	34.7	188.5	-	188.5	(6.9)	181.6
	<b>1,134</b>	<b>138.1</b>	<b>4.7</b>	<b>34.3</b>	<b>177.1</b>	-	<b>177.1</b>	<b>(7.3)</b>	<b>169.8</b>
<b>Weather and Environmental Predictions</b>	1,672	208.9	18.8	5.2	232.9	-	232.9	(63.8)	169.1
	-	217.7	25.8	4.4	247.9	-	247.9	(64.3)	183.6
	<b>1,740</b>	<b>210.7</b>	<b>22.5</b>	<b>4.4</b>	<b>237.6</b>	-	<b>237.6</b>	<b>(60.6)</b>	<b>177.0</b>
<b>Management, Administration and Policy</b>	1,016	105.3	1.1	1.8	108.2	-	108.2	(0.5)	107.7
	-	119.8	1.0	3.6	124.4	-	124.4	(0.5)	123.9
	<b>1,094</b>	<b>125.3</b>	<b>0.8</b>	<b>3.6</b>	<b>129.7</b>	-	<b>129.7</b>	<b>(0.9)</b>	<b>128.8</b>
<b>Total</b>	4,763	610.1	28.8	105.8	744.7	-	744.7	(78.6)	666.1
	-	638.0	43.2	64.9	746.1	-	746.1	(79.0)	667.1
	<b>5,142</b>	<b>613.7</b>	<b>39.5</b>	<b>64.2</b>	<b>717.3</b>	-	<b>717.3</b>	<b>(77.3)</b>	<b>640.0</b>
<b>Other Revenues and Expenditures</b>									
<b>Non-Respendable Revenues ***</b>									6.8
									6.8
									<b>11.0</b>
<b>Cost of services provided by other departments</b>									46.9
									46.9
									<b>51.1</b>
<b>Net Cost of the Program</b>									706.2
									707.1
									<b>680.2</b>

\* Operating includes contributions to employee benefit plans, minister's allowances and the disposal of Crown assets.

\*\* These revenues were formerly called "Revenues Credited to the Vote".

\*\*\* These revenues were formerly called "Revenues Credited to the Consolidated Revenue Fund".

Note: Normal font: 2000-001 Planned Spending

*Italic font: 2000-2001 Total Authorities*

**Bold font: 2000-2001 Actual Spending**

**Explanation of change from Planned Spending:**

The \$26.1 million decrease is mainly due to the following:

**Operating:**

Unspent funds carried forward from 1999-2000

Unplanned resources received from the settlement of the Irving Whale legal case

New resources received from the implementation and administration of the Ecological Gifts Program

Funding received from the National Strategy on Species at Risk was less than planned

Transfer of resources from the operating budget to the grants and contributions budget to fund various initiatives

**Capital:**

Increased funding for Capital Infrastructure projects

Unspent funds tied to capital projects carried forward from 1999-2000

**Grants and Contributions:**

Funds moved to subsequent years for the remediation of the Sydney Tar Ponds and Coke Ovens Site

Resources for the Sustainable Development Technology Fund moved to 2001-2002

Funds moved to subsequent years for Climate Change Action Fund

One-time grant for the establishment of the Clayoquot Sound Biosphere

The contribution portion of the funding received for the National Strategy on Species at Risk was higher than planned

**Respendable Revenues:**

Decrease in respendable revenues

**\$ Millions**

**3.6**

**10.7**

**(41.6)**

**1.3**

**Table 3: Historical Comparison of Departmental Planned versus Actual Spending by Business Line (\$ millions)**

Business Lines	Actual 1998-1999	Actual 1999-2000	Planned Spending	2000-2001	
				Total Authorities	Actual
Clean Environment	130.4	221.9	223.8	178.0	164.5
Nature	140.3	138.1	165.5	181.6	169.8
Weather and Environmental Predictions	180.7	247.7	169.1	183.6	177.0
Management, Administration and Policy	113.2	112.3	107.7	123.9	128.8
<b>Total</b>	<b>564.6</b>	<b>720.0</b>	<b>666.1</b>	<b>667.1</b>	<b>640.0</b>

Note: Resources reflected are net of spendable revenues

**Explanation of change from Planned Spending:**

The \$26.1 million decrease is mainly due to the following:

	<b>\$ Millions</b>
<b>Clean Environment</b>	<b>(59.3)</b>
Resources for the Sustainable Development Technology Fund moved to 2001-2002	
Funds moved to subsequent years for the remediation of the Sydney Tar Ponds and Coke Ovens Site	
Fund moved to subsequent years for Climate Change Action Fund	
Increased funding for Capital Infrastructure projects	
<b>Nature</b>	<b>4.3</b>
One-time grant for the establishment of the Clayoquot Sound Biosphere	
Total funding received for the National Strategy on Species at Risk was less than planned	
<b>Weather and Environmental Predictions</b>	<b>7.9</b>
Increased funding for Capital Infrastructure projects	
Unspent funds tied to capital projects carried forward from 1999-2000	
<b>Management, Administration and Policy</b>	<b>17.9</b>
Compensation for salary increases due to new collective agreements	
Unspent funds carried forward from 1999-2000	
Unplanned resources received from the settlement of the Irving Whale legal case	
Additional resources received to prepare the Department for the Financial Information Strategy	
Transfer from TB Vote 10	

**Table 4: Revenues by Business Line (\$ millions)**

<b>Business Lines</b>	<b>Actual 1998-1999</b>	<b>Actual 1999-2000</b>	<b>Planned Revenues</b>	<b>2000-2001 Total Authorities</b>	<b>Actual</b>
<b>Respendable Revenues *</b>					
Clean Environment	6.1	5.6	7.4	7.3	<b>8.5</b>
Nature	6.1	5.4	6.9	6.9	<b>7.3</b>
Weather and Environmental Predictions	58.7	60.6	63.8	64.3	<b>60.6</b>
Management, Administration and Policy	-	0.7	0.5	0.5	<b>0.9</b>
<b>Total Respendable Revenues *</b>	<b>70.9</b>	<b>72.3</b>	<b>78.6</b>	<b>79.0</b>	<b>77.3</b>
<b>Non-Respendable Revenues **</b>					
Clean Environment	0.3	0.2	0.1	0.1	<b>0.9</b>
Nature	4.0	4.7	2.3	2.3	<b>4.1</b>
Weather and Environmental Predictions	4.0	4.4	4.4	4.4	<b>5.3</b>
Management, Administration and Policy	-	1.3	-	-	<b>0.7</b>
<b>Total Non-Respendable Revenues</b>	<b>8.3</b>	<b>10.6</b>	<b>6.8</b>	<b>6.8</b>	<b>11.0</b>
<b>Total Revenues</b>	<b>79.2</b>	<b>82.9</b>	<b>85.4</b>	<b>85.8</b>	<b>88.3</b>

\* These revenues were formerly called "Revenues Credited to the Vote"

\*\* These revenues were formerly called "Revenues Credited to the Consolidated Revenue Fund"

**Explanation of change:**

**Respendable Revenues**

The \$1.1 million increase in Clean Environment in 2000-2001 Actual Revenues over the Planned Revenues is primarily due to higher project revenues from the Toxic Substances Research Initiative (TSRI) managed by Health Canada.

The \$3.2 million decrease in Weather and Environmental Predictions in Actual Revenues over Planned Revenues is mainly due to a decrease in the forecasted service level to NavCan and the Canadian Coast Guard.

**Non-Respendable Revenues**

The \$0.8 million increase in Clean Environment in Actual Revenues over the Planned Revenues is related to royalties and CEPA.

The \$1.8 million increase in Nature in Actual Revenues over the Planned Revenues is primarily due to higher than anticipated sales of Migratory Bird Hunting Permits.

The \$0.9 million increase in Weather and Environmental Predictions in Actual Revenues over the Planned Revenues is mainly due to additional recoveries from NavCan for capital and employee benefits.

The \$0.7 million increase in Management, Administration and Policy in Actual Revenues over the Planned Revenues is related to unplanned revenues tied to proceeds from sale of surplus assets and adjustments to prior years accounting records.



**Table 5: Transfer Payments by Business Line (\$ millions)**

Business Lines	Actual 1998-1999	Actual 1999-2000	Planned Spending	2000-2001	
				Total Authorities	Actual
<b>GRANTS</b>					
Clean Environment	1.2	63.8	52.0	2.0	2.0
Nature	0.2	-	-	12.0	12.0
Weather and Environmental Predictions	0.4	60.4	0.8	0.4	0.4
Management, Administration and Policy	0.2	0.2	-	-	-
<b>Total Grants</b>	<b>2.0</b>	<b>124.4</b>	<b>52.8</b>	<b>14.4</b>	<b>14.4</b>
<b>CONTRIBUTIONS</b>					
Clean Environment	13.7	18.3	31.8	20.2	19.9
Nature	16.5	17.0	15.0	22.7	22.3
Weather and Environmental Predictions	4.9	5.9	4.4	4.0	4.0
Management, Administration and Policy	1.7	2.2	1.8	3.6	3.6
<b>Total Contributions</b>	<b>36.8</b>	<b>43.4</b>	<b>53.0</b>	<b>50.5</b>	<b>49.8</b>
<b>Total Transfer Payments</b>	<b>38.8</b>	<b>167.8</b>	<b>105.8</b>	<b>64.9</b>	<b>64.2</b>

**Explanation of change from Planned Spending:** **\$ Millions**

The \$41.6 million decrease is mainly due to the following:

**Clean Environment** **(61.9)**

Resources for the Sustainable Development Technology Fund moved to 2001-2002  
 Funds moved to subsequent years for the remediation of the Sydney Tar Ponds and Coke Ovens Site  
 Funds moved to subsequent years for the Climate Change Action Fund

**Nature** **19.3**

One-time grant for the establishment of the Clayoquot Sound Biosphere  
 The contribution portion of the funding received for the National Strategy on Species at Risk was higher than planned

**Table 6: Comparison of 2000-2001 Gross Planned Spending to Gross Actual Expenditures by Organization and Business Line (\$ millions)**

	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: fit-content;">Minister</div> <div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: fit-content;">Deputy Minister</div>					
	REG DIR GEN Pacific and Yukon	REG DIR GEN Prairie and Northern	REG DIR GEN Ontario	REG DIR GEN Quebec	REG DIR GEN Atlantic	DIR GEN Human Resources
<b>Clean Environment</b>	10.6 <b>11.4</b>	9.8 <b>9.3</b>	9.9 <b>10.4</b>	7.7 <b>9.9</b>	23.7 <b>15.7</b>	- -
<b>Nature</b>	15.3 <b>31.6</b>	15.2 <b>16.6</b>	28.5 <b>26.3</b>	21.5 <b>21.3</b>	9.2 <b>12.1</b>	- -
<b>Weather and Environmental Predictions</b>	20.8 <b>22.8</b>	40.9 <b>46.4</b>	19.0 <b>19.7</b>	16.1 <b>16.4</b>	13.7 <b>14.5</b>	- -
<b>Management, Administration and Policy</b>	8.7 <b>19.9</b>	7.5 <b>7.7</b>	9.3 <b>10.8</b>	5.1 <b>5.1</b>	5.0 <b>6.5</b>	6.2 <b>5.7</b>
<b>Total-\$ Millions</b>	55.4 <b>85.7</b>	73.4 <b>79.9</b>	66.7 <b>67.2</b>	50.4 <b>52.7</b>	51.6 <b>48.8</b>	6.2 <b>5.7</b>

Note: Normal font: .2000-2001 Planned Spending  
**Bold font: 2000-2001 Actual Spending**

REG DIR GEN = Regional Director General  
 ADM = Assistant Deputy Minister

	<b>ADM Policy and Communications</b>	<b>Corporate Offices</b>	<b>ADM Corporate Services</b>	<b>ADM Meteorological Service of Canada</b>	<b>ADM Environmental Protection Service</b>	<b>ADM Environmental Conservation Service</b>		
	16.6	-	-	6.2	139.0	7.8	<b>231.3</b>	
	<b>14.4</b>	-	<b>0.1</b>	<b>7.2</b>	<b>85.5</b>	<b>9.2</b>	<b>173.1</b>	<b>24.1</b>
	-	-	-	-	1.5	81.2	172.4	
	-	-	-	<b>1.2</b>	<b>2.0</b>	<b>66.0</b>	<b>177.0</b>	<b>24.7</b>
	-	-	-	122.1	-	0.4	233.0	
	-	-	-	<b>117.2</b>	-	<b>0.5</b>	<b>237.5</b>	<b>33.1</b>
	20.3	6.0	37.3	0.8	1.5	0.5	108.2	
	<b>25.8</b>	<b>6.1</b>	<b>39.2</b>	<b>0.6</b>	<b>1.7</b>	<b>0,5</b>	<b>129.7</b>	<b>18.1</b>
	36.9	6.0	37.3	129.1	142.0	89.9	744.9	
	<b>40.2</b>	<b>6.1</b>	<b>39.3</b>	<b>126.2</b>	<b>89.2</b>	<b>76.3</b>	<b>717.3</b>	<b>100.0%</b>

**Table 7: Capital Projects by Business Line (\$ millions)**

Business Lines	Current Estimated Total Cost	Actual 1998-1999	Actual 1999-2000	Planned Spending	2000-2001	
					Total Authorities	Actual
<b>Nature</b>						
Relocation of the National Wildlife Research Centre	10.0	-	-	1.0	1.0	<b>1.0</b>
<b>Weather and Environmental Predictions</b>						
Doppler upgrade - Radar Network Modernization	39.2	5.1	7.0	26.5	26.5	<b>8.7</b>
Modernization of the Climate Observing Program	8.6	0.1	0.8	1.3	1.3	<b>0.1</b>
Weather station construction Eureka N.W.T.	9.9	0.1	0.2	4.6	4.6	<b>1.1</b>
Weather Warning Delivery System	3.6	0.2	0.9	3.6	3.6	<b>0.7</b>
Mercury manometer replacement program	3.3	0.5	1.1	3.3	3.3	<b>0.2</b>
Automation and real-time access to discharge data-hydrology	1.2	0.4	0.2	1.2	1.2	<b>0.1</b>
EDPSS	0.2	0.1	0.7	0.2	0.2	-
Modernization - NAVCAN	2.4	0.2	-	1.3	1.3	<b>0.6</b>
AWOS Retrofit	2.0	-	0.2	2.0	2.0	<b>0.0</b>
ODAS Buoy Payload Replacement	1.7	0.2	0.2	1.2	1.2	<b>0.2</b>
Sable Island Weather Station	3.0	-	-	0.5	0.5	<b>0.1</b>
Hydrometric Program	10.0	-	-	1.0	1.0	<b>0.2</b>
Operational Computer Hardware Infrastructure	2.4	-	-	0.9	0.9	<b>0.8</b>

**Table 8: Contingent Liabilities (\$ millions)**

<b>List of Contingent Liabilities</b>	<b>Current as of March 31, 2001</b>
Atwin Roger (Oromocto Band)	Unknown
Air Inuit Ltd and Mark J. Oppenheim for Lloyd's of London	Unknown
Border Enterprises Ltd and Atlantic Industries Ltd	Unknown
IPSCO Inc.	Unknown
IPSCO Inc.	Unknown
FenetySeven	Unknown
Blank, Sheldon and Gateway Industries Ltd	Unknown
S.D. Myers Inc.	Unknown
Access to Information Commissioner	Unknown
Windsor (various plaintiffs)	Unknown
Gateway Industries Ltd	Unknown
Mishra, Ramesh	Unknown
Savoie Sylvia	Unknown
Brett, Brenda et al	Unknown
Harbor Enterprises Ltd and North of 60 Petro Ltd	Unknown
Bovar Waste Mgmt. Inc and Chem-Security Ltd.	Unknown
Hutchinson, Charlotte	Unknown
Great River Holding Corporation	Unknown
Siksika Nation	Unknown
Siksika Nation	Unknown
Siksika Nation	Unknown
Squamish Indian Band and FMC Canada Ltd et al	Unknown
<b>Total Liabilities</b>	<b>Unknown</b>

# Section 6: Other Information

## 6.1 Contacts for Further Information

Headquarters Directors of Communications	Regional Managers of Communications
<p><b>Mark Colpitts</b> Environmental Protection Service <b>Clean Environment Business Line</b> 351 St. Joseph Boulevard 12th floor Hull, Quebec K1A 0H3 Telephone: (819) 953-6603 Fax: (819) 953-8125 E-mail: Mark.Colpitts@ec.gc.ca</p>	<p><b>Wayne Eliuk</b> Atlantic Region Environment Canada 45 Alderney Drive Dartmouth, Nova Scotia B2Y 2N6 Telephone: (902) 426-1930 Fax: (902) 426-5340 E-mail: Wayne.Eliuk@ec.gc.ca</p>
<p><b>Catherine Schellenberg</b> Environmental Conservation Service <b>Nature Business Line</b> 351 St. Joseph Boulevard 9th floor Hull, Quebec K1A 0H3 Telephone: (819) 994-6079 Fax: (819) 994-0196 E-mail: Catherine.Schellenberg@ec.gc.ca</p>	<p><b>Clément Dugas</b> Quebec Region Environment Canada 1141 Route de l'Église Sainte-Foy (Quebec) G1V 4H5 Telephone: (418) 648-5777 Fax: (418) 648-3859 E-mail: Clement.Dugas@ec.gc.ca</p>
<p><b>Norman Naylor</b> Meteorological Service of Canada <b>Weather and Environmental Predictions Business Line</b> 10 Wellington Street 4th floor Hull, Quebec K1A 0H3 Telephone: (819) 997-0458 Fax: (819) 953-5888 E-mail: Norman.Naylor@ec.gc.ca</p>	<p><b>Maureen Martinuk</b> Ontario Region Environment Canada 4905 Dufferin Street Downsview, Ontario M3H 5T4 Telephone: (416) 739-4787 Fax: (416) 739-4776 E-mail: Maureen.Martinuk@ec.gc.ca</p>
<p><b>Deborah Davis</b> Corporate Communications <b>Management, Administration and Policy Business Line</b> 10 Wellington Street 25<sup>th</sup> floor Hull, Quebec K1A 0H3 Telephone: (819) 953-6805 Fax: (819) 953-1599 E-mail: Deborah.Davis@ec.gc.ca</p>	<p><b>Heather Hamilton</b> Prairie and Northern Region Environment Canada Room 200, 4999-98 Avenue Edmonton, Alberta T6B 2X3 Telephone: (780) 951-8867 Fax: (780) 495-2478 E-mail: Heather.Hamilton@ec.gc.ca</p>
<p><b>Michel Cléroux</b> Ministerial Communications Services 10 Wellington 25<sup>th</sup> floor Hull, Quebec K1A 0H3 Telephone: (819) 953-9738 Fax: (819) 953-6789 E-mail: Michel.Cléroux@ec.gc.ca</p>	<p><b>Anne-Marie Clancy</b> Pacific and Yukon Region Environment Canada 700-1200 West 23<sup>rd</sup> Avenue Vancouver, British Columbia V6P 6H9 Telephone: (604) 713-9807 Fax: (604) 713-9517 E-mail: ClancyA@ec.gc.ca</p>

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