



S U S T A I N A B L E
D E V E L O P M E N T
S T R A T E G Y

674/4
X

April, 1997

HC
120
.E5
E59213
1997

Environment Canada has prepared a summary document as well as this full *Sustainable Development Strategy* document.

The *Sustainable Development Strategy* and the *Summary Document* are available on Environment Canada's Green Lane at <http://www.ec.gc.ca>

Copies of the *Sustainable Development Strategy* and the *Summary Document* are available through Environment Canada's Inquiry Centre.

Tel.: 1-800-668-6767

© Minister of Public Works and Government Services Canada 1997

Catalogue No. En-21-162/1997E
ISBN 0-662-25711-1



HE
120
E5
E59213
1997

3030239J



Minister's Message

Our environment is where we live. Everywhere on earth, human health and well-being depend on the quality of the environment that sustains us. This fact — so simple to state, yet so complex to act on — is central to the challenge of sustainable development.

The challenge exists because of the growing gap between the demands that people place on the environment, and the environment's ability to meet those demands. Each day brings fresh evidence of that gap: on one hand, further growth in the world's population and in patterns of consumption; on the other, an overall downward trend in the quantity and quality of much of the earth's natural resources.

Sustainable development offers a way — the *only* acceptable and workable way — of bridging the gap. It makes the essential link between social and economic forces, policy decisions, and the carrying capacity of our environment. It offers not only hope for the future, but a practical framework for action.

The Government of Canada is committed to making sustainable development a reality in Canada. As proof of that commitment, the government is leading by example and setting its own house in order. All federal departments are



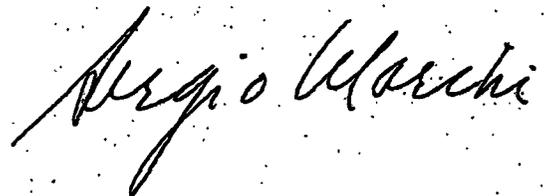
responsible for preparing sustainable development strategies to guide them in greening their policies, programs and operations. Each strategy will set out measurable results to be achieved, and progress towards achieving those results will be monitored and publicly reported by the federal Commissioner of the Environment and Sustainable Development. This is truly an integrated national effort in the name of all Canadians.

Environment Canada's Sustainable Development Strategy is among the first to be completed. In addition to moving ahead with our own Strategy, this department has taken a lead role in promoting a cooperative approach among departments in exchanging information and proposals on priorities and goals. Environment Canada has also taken the lead in fostering sustainable development in the private sector and communities across Canada. And beyond our own borders, Environment Canada is championing our government's promotion of the international sustainable development agenda.

A key element of our action on all these fronts is the sharing of knowledge for sustainable development — knowledge relating to science, green technology, innovative approaches and best practices in government and the private

sector. By sharing practical solutions that work, our department can help improve global environmental quality while enabling Canada to expand the markets for environmental technologies and services, create new jobs for Canadians, and strengthen our country's international influence.

Environment Canada's Sustainable Development Strategy gives us the necessary framework for action within our own department. We want to take that framework and see how we can use it to build further action within government, across Canada and internationally. Our world, and our own future, depend on caring for our environment.



Hon. Sergio Marchi

Executive Summary



The health and prosperity of Canadians and the quality of life they will enjoy in the future depend on the natural environment that sustains them. This natural environment is made up of the air, water, land and nature within our own borders and within the global commons we share with the rest of the world. Every day, the environment is being affected by actions we take at home and by activities around the globe.

Environment Canada's long-term mission is to foster a national capacity for sustainable development that will result in a safe and healthy environment and a sound and prosperous economy. This basic mission will continue to be relevant as Canada enters the next century, even though specific policy instruments and their uses may evolve substantially. Sustainable development represents a long-term approach that will enable us to fulfill this mission.

Through this first Sustainable Development Strategy, Environment Canada has identified four strategic approaches that it will take to enhance its contribution to sustainable development. They are:

- *to strengthen its ability to meet sustainable development goals;*
- *to be a more effective advocate of sustainable development;*
- *to give Canadians the tools they need to make sound decisions in a changing environment; and*

- *to set a good example in the greening of government operations.*

In pursuing these strategic lines, the department will make use of its skills and expertise in policy and decision making, science and technology, and working with others. We will make ourselves a model of sustainable development through our decisions, activities and operations; contribute to government-wide policies and programs that support sustainable development; and give Canadians tools and information to deal with sustainable development in their daily lives.

In so doing, we will remain mindful of the fact that the broad issues of governance, science and technology, and partnerships are fundamental within the broader global context and over the longer term. This will affect the way in which we adapt and evolve our collective decision making and direction setting; the way we use and promote evolving scientific and technological capacities; and our skill at building new partnerships within society — both nationally and internationally.

Integrating the principles and practices of sustainable development into our daily lives will be a continuous, dynamic process that will require patience and persistence. Environment Canada will provide leadership in building a Canada in which the economic, environmental and social signals of government point clearly in the same direction. Our mission commits us to this goal, and our first Sustainable Development Strategy details the steps we are taking to achieve it.



Table of Contents

Chapter 1: Introduction and Overview	1
1.1 Introduction	1
1.2 Mandate and Roles	1
1.3 Vision of Sustainable Development	2
1.4 Challenges	3
1.5 Values, Principles and Approaches for Sustainable Development	5
Chapter 2: Enhancing EC's Contribution to Sustainable Development	9
2.1 Strategies	9
2.1.1 Core Capacities	9
2.1.2 Overview of Strategies	9
2.2 Planned Actions	11
2.3 Emerging Issues and Considerations: Future Directions	17
2.3.1 Cross-Cutting Issues	17
2.3.2 Encouraging Innovative Solutions	17
Chapter 3: Performance Measurement for Sustainable Development	19
Appendices to the Strategy	31
Appendix A: Departmental Profile	31
Appendix B: Consultations Summary	35
Appendix C: Lists Related to EC's SDS Consultations	39
Appendix D: Greening Government Operations	44
Appendix E: Issue Scan Summary	50
Appendix F: Cross-Cutting Issues	56
Appendix G: Selected Indicators of EC's Performance against the Department's Long-Term Results	64



Chapter 1: Introduction and Overview

"Development should meet the needs of the present without compromising the ability of future generations to meet their own needs".

Our Common Future, 1987

1.1 Introduction

This is Environment Canada's (EC's) first Sustainable Development Strategy (SDS) pursuant to the 1995 *Amendments to the Auditor General Act*. The Strategy also takes into close account government policy related to sustainable development as outlined in *Directions on Greening Government Operations* and in *A Guide to Green Government*.

The Strategy is being integrated into EC's approach to planning for and reporting on its directions, programs, expenditures and performance. The SDS complements and expands upon one of EC's priorities as described in the department's *Report on Plans and Priorities* (RPP), tabled in the House of Commons in February, 1997. In turn, the departmental *Business Plan* sets out detailed program plans and results for the delivery of the Strategy. The department's *Annual Performance Report* will detail progress made in its implementation.

EC's Strategy will provide the means by which the department will turn the concept of sustainable development into a reality. It presents the department's vision of sustainable

development, an overview of issues and challenges related to its vision, and a description of operating values and principles that will guide its implementation. It also describes EC's overall directions, its strategies for furthering sustainable development, and specific actions the department plans to take to achieve its goals.

The appendices to this document contain information relevant to the preparation of the Strategy, including: a summary of stakeholder and partner consultations; an overview of the issue scan that was conducted; a description of the department's efforts to green its operations; and a discussion of several cross-cutting issues that are important to considering sustainable development from a government-wide perspective.

1.2 Mandate and Roles

EC is a science-based department with a mandate (under the Department of the Environment Act) to: preserve and enhance the quality of the natural environment and its renewable resources (including migratory birds and other non-domestic flora and fauna); carry out meteorology; enforce the rules of the Canada-U.S. International Joint Commission;

and coordinate federal environmental policies and programs. In all its roles, EC's science is the foundation of its policies, programs and regulations, and is essential to achieving results.

While EC's mandate has not changed since it was founded in 1971, the range and character of the issues and challenges it faces have evolved considerably. The context for delivering on EC's environmental mandate is sustainable development. Sustainable development is a national goal, a policy of the Government of Canada, and a shaping assumption for environmental management in this country. Although the department contributes every day to sustainable development, there is more it could do. It is uniquely positioned to provide leadership in building an agenda and in mobilizing Canadians to make sustainable development a reality.

More details on the department's mandate can be found in Appendix A.

2 1.3 Vision of Sustainable Development

EC interprets the concept of sustainable development to mean the implementation of a process that integrates environmental, economic and social considerations into decision making. This reinforces the World Commission on Environment and Development's conclusion that development should be sustainable for the benefit of current and future generations.

In recent years, and particularly since the report of the World Commission on Environment and Development, the view that economic growth, environmental quality and social well-being are inextricably linked has been predominant.

"The concept of sustainable development does imply limits — not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be managed and improved to make way for a new era of economic growth. In the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs."

(Our Common Future, 1987)

Progress towards implementing sustainable development practices can be made if all three interdependent and mutually reinforcing elements — social, economic and environmental — are considered. Applying the principles of sustainable development to public policy favours an integrated approach in which these elements are brought together as a forethought in planning and decision making at local, national and global levels.

Implementing this approach and the objectives described in *A Guide to Green Government* can, over the longer term, contribute to achieving a vision for Canada in which we are:

- protecting the health of Canadians and ecosystems by virtually eliminating anthropogenic, persistent, bioaccumulative toxic substances in the environment, preventing pollution, protecting environmentally-fragile areas, and reducing the risks and effects of environmental hazards;

- contributing to the protection of the global environment by setting a good example in meeting our international obligations in areas like protection of the atmosphere and oceans, and by sharing knowledge, advice and “green” technology with business, individuals and other sectors of society;
- promoting fairness by making sure that everyone shares the costs and benefits of development in Canada, around the world and between generations, so that poverty and environmental damage are reduced;
- improving the well-being of Canadians by making business more productive through environmental awareness; by encouraging fresh, new approaches to sustainable development; and by promoting the measurement of progress to reflect a broader range of interests;
- encouraging practices that replace renewable resources faster than they are used up, taking the needs of industry, society and the environment into account; and
- encouraging more efficient use of non-renewable resources like oil, natural gas and minerals.

EC will contribute to such a national vision through this Strategy as well as through ongoing programs and activities. Its contribution will complement those of other federal departments and sectors of society across Canada.

1.4 Challenges

There are a number of challenges to be addressed in working towards achieving this vision. In preparing this Strategy, EC has identified several challenges that it believes to be particularly important. The Issue Scan Summary

in Appendix E presents additional issues and detail.

Challenge: Dealing with the integration of environmental, economic and social issues.

Growing consumerism in the developed world and rapid industrialization and urbanization in the developing world are testing the global limits of the earth's capacity to absorb waste and provide food, water and energy. They are also testing our own ability to adapt to naturally-occurring and anthropogenic hazards. The deeply-rooted social and economic causes of the growing gap between economic demands and the earth's carrying capacity require cooperation among governments internationally and new and innovative approaches.

Response: At every level of society and across all jurisdictions, environmental, economic and social considerations need to be integrated in ways that will stimulate sustainable employment and enhance the quality of life. EC must, therefore, pursue a strategy in which environmental goals are accomplished in a cost-effective manner that creates jobs and improves national productivity over the long term.

Challenge: Environmental issues are becoming more complex and global in scale.

Domestically, the quality of Canada's environment has improved in a number of respects over the past 25 years. Today, however, more and more pollution to which the Canadian environment is subjected originates from beyond our borders. Some problems persist even when the cause has been removed, as in the case of DDT in the Great Lakes. Some are hard to detect, such as toxic substances that accumulate below scientific detection levels before their effects become evident. There is growing

potential for surprises as factors are discovered to be interacting in unforeseen ways. And evidence is mounting that greater atmospheric variability is changing the character and scale of environmental hazards.

Compounding these problems is the fact that our scientific understanding of many environmental issues is inadequate. We do not yet fully comprehend the complex linkages within ecosystems, and are only beginning to understand the interactions of various environmental stressors with each other and to trace their effects on ecosystems and the global environment. Also, the rate at which environmental issues can be solved is slowing. In contrast to environmental improvements achieved over the past two decades through regulation and the reduction of point-source emissions, issues like non-point-source pollution and the long range transport of toxics are not as easily remedied by conventional command and control approaches.

Response: To address these challenges, EC must continue to develop much needed knowledge in a timely fashion, and must learn how to build consensus among its partners based on imperfect information. Pollution must be prevented and the thresholds of ecosystem sustainability and resource use respected by improving and sustaining public awareness, concern and commitment over the longer term. Above all, EC must sustain a sense of purpose and progress by delivering on Canada's commitments and by measuring results.

Challenge: *The focus of responsibility and capacity is shifting.*

All over the world, we are seeing the increased influence of international bodies on national policy making. Standards for production and consumption are being harmonized internationally, and are influencing international

trade rules and regimes. International pressure to use economic instruments to achieve environmental and sustainable development goals is encouraging legislators to eliminate environmental barriers and disincentives.

Domestically, the "information age", the fiscal realities faced by all governments, and perhaps even Canada's changing demographics are combining to shift the focus of capacity and responsibility away from governments and towards communities and citizens. A positive manifestation of this shift is the increased willingness and capability of a more knowledgeable population to contribute in innovative ways to achieving shared goals.

Response: Internationally speaking, this shift provides Canada with opportunities to influence environmental outcomes on a global scale and strengthens the need for a strong federal presence on the international stage. To date, Canada's influence in the international environmental community has far outweighed its economic stature, largely because of the credibility it has gained from its domestic progress on key commitments and from the strength of its science. This international influence must be sustained and enhanced.

Domestically speaking, EC must also develop strategies to increase its influence at the national and community levels. This means basing activities on more effective partnerships with other departments, other governments, Aboriginal people, communities, businesses and professional organizations. It also means building public support for the environment by leveraging EC's agenda through local leaders and building social capital at the community level. Community capacity and action should be aligned with international environmental agendas through national strategies and standards.

1.5 Values, Principles and Approaches for Sustainable Development

The department has identified a number of considerations that it sees as fundamental to addressing the challenges and to implementing this Strategy. These are listed below.

Equity: The costs and benefits of human activity, both current and intergenerational, should be distributed fairly among people.

Cooperation: The global nature of environmental concerns calls for the widest possible cooperation, in accordance with common but differentiated responsibilities and capabilities.

Policy integration: Environmental, societal and economic signals should point the same way. Trade and environmental policies should be mutually supportive.

Ecosystem approach: Policies, programs, and operations should be designed to consider the unique and fundamental characteristics of individual ecosystems and to recognize the interdependence of social, economic and environmental systems.

Precautionary principle: Where there are threats of serious or irreversible damage, lack of full scientific uncertainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Polluter pays: The polluter should, in principle, bear the cost of pollution.

Pollution prevention: The use of processes, practices, materials, products, or energy that

avoid or minimize the creation of pollutants or wastes and reduce the overall risk to human health or the environment should be promoted.

Environmental assessment: Social, economic and environmental factors should be systematically considered during policy, program and project development and decision making.

Science and technology foundation: A sound scientific understanding of our environment provides the key to meeting the challenges facing Canada and will be crucial to delivering on the sustainable development agenda. Canadians should research, develop, test and implement technologies that are essential to furthering environmental quality, human health and economic growth.

Government leadership by example: EC will openly share its knowledge of environmental management and promote the use of sustainable development principles. We recognize that we must set a good example in order to effectively promote the greening of government operations to others.

Continuous improvement: Policies, programs and performance should be improved on an ongoing basis and should take into account technical developments, scientific understanding, client needs and community expectations.

The Department also recognizes that many of these considerations have been and continue to be an integral part of how EC does business, as highlighted in the examples that follow.

North American Waterfowl Management Plan (NAWMP)

The goal of this plan, signed in 1986, is to restore waterfowl populations in North America to 1970s levels by securing, enhancing and managing key wetland habitat across the continent. In 1994, the Plan was updated and Mexico joined as a co-signatory. The Plan is financed through joint venture partnerships involving the federal governments of Canada, the United States and Mexico, provinces, states and major national and international private-sector firms, non-governmental organizations (NGOs) and landowners. The key to the success of the program is the recognition that to save waterfowl, people's behaviour has to change, particularly with regard to the stewardship of wetlands. The program has become a model to EC for delivering results in innovative ways, partnering, working internationally and measuring performance.

Porcupine Caribou Herd Study: Changing the Traditional Approach to Research

EC's Canadian Wildlife Service (CWS) has a well-deserved reputation for conducting credible wildlife research and, in doing so, has contributed substantially to the base of knowledge on a multitude of migratory species. One project, however, is broadening the traditional approach to research. CWS, Yukon region, has a long history of research on the Porcupine Caribou Herd, a large migratory herd of caribou that moves from winter ranges in the taiga of the north-central Yukon to summer ranges on the tundra of Yukon and Alaska.

In the last year, CWS researchers have teamed up with university researchers at the University of Alaska, the Institute for Social and Economic Research, and the Institute of Arctic Biology to spearhead a project that will examine the sustainability of arctic communities under global change (major issues being southern encroachment of tourism, climate change, and increased industrial development). CWS will bring its biological knowledge and caribou computer models into the project, while other cooperators will provide the social, economic and climate-change modeling expertise. From the outset, this project (funded by the US National Science Foundation) has involved four communities within the range of the herd (two in Alaska and two in Canada) in the design, focus and conduct of the research to ensure that the project meets community needs and concerns.

In the immediate future this project will make researchers more appreciative of community knowledge and concerns and, in turn, will expose northerners to the research community. In the longer term we hope that this cooperative relationship will result in local, regional and national policies and practices that reflect our changing environment, so that the centuries-old relationship between caribou and native communities can endure.

Sydney Tar Ponds Clean-up: A Community-based Approach

A unique community-based initiative is being developed to clean up Canada's largest contaminated site — the tar ponds located in the middle of a residential area of Sydney, Nova Scotia. An ecosystem approach is being used to involve the community and various levels of government in looking at ways to safeguard public health, improve environmental health and increase the economic well being of the residents of Sydney and the surrounding Muggah Creek area. A joint action group has been formed and EC and its partners are providing expertise and resources to resolve this issue.

The Green Corps

Many developing countries are trying to strengthen their environmental programs, and recognize the value of others' experience and expertise in finding solutions to environmental problems. Canadian environmental industries have developed a range of products, services and expertise and the Canadian government has experience in developing and managing policy, regulatory and technical environmental programs. EC has created the Green Corps to respond to requests for departmental expertise from Canadian environmental industry, international organizations and foreign governments. The Green Corps also supports Canada's role as a knowledge broker for sustainable development.

Solid Waste Management

The department's innovative waste reduction program, No Waste, began in its two headquarters office buildings in Hull, and has since been exported to regional offices and numerous other government departments.

The program is based on the premise that employee participation is essential to positive change. It has achieved startling results in a very short period of time. Not only have we achieved a waste diversion rate of 72% in our headquarters buildings, but we have also reduced the total amount of waste being generated. Against the 1988 baseline, our combined reduction/diversion has reached almost 85% in two of EC's headquarters buildings. EC has set a target to reduce and/or divert 80% of its office waste in all of its office facilities by the end of 1997-98.



Chapter 2: Enhancing EC's Contribution to Sustainable Development

2.1 Strategies

Virtually everything the department does contributes in some measure to making sustainable development a reality in Canada. EC's Performance Report for the Period ending March 31, 1996 along with the department's Business Plans for the past three years demonstrate this. The challenge in developing this Strategy has been to identify opportunities to enhance this contribution to improve the effectiveness of its influence over social, economic and environmental decision making.

The department also wants to make a significant contribution to its vision of sustainable development in Canada, and to delivering the results and addressing the challenges it has identified in working towards this vision. It will pursue the following four strategies to achieve this end:

EC's Strategy for Sustainable Development

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

2.1.1 Core Capacities

In implementing this Strategy, the department proposes to focus on three core areas of organizational strength and capacity. These relate to governance (our capacity for appropriate policy and decision making), science and technology (making best use of our expertise) and partnerships (engaging society). These areas of focus represent, to a large degree, the ways and means of pursuing a course towards sustainable development. They also correspond to the department's activities and focus in pursuing its other broad directions.

The following sections describe the four key strategies and identify plans and priorities EC will pursue for each. These, which are integrated with the planned actions from EC's Report on Plans and Priorities and Business Plan, comprise the basis for the implementation of the SDS. Performance will be reported on annually through the department's Performance Report.

The department will work closely and cooperatively with other federal departments, partners, clients and stakeholders in implementing its Strategy.

2.1.2 Overview of Strategies

Strategy #1: Strengthen EC's ability to meet sustainable development goals.

The department will improve the way it conducts, employs and communicates its science

and develops policies and programs to make its business more relevant.

Priority will be given to:

- strengthening the linkages between EC's existing and emerging scientific and technological capacities and the federal government's environmental, social and economic policy making; and
- improving the integration of socio-economic analysis into its own policies and programs and utilizing socio-economic tools and strategies to accomplish its objectives.

Strategy #2: Be a more effective advocate of sustainable development.

The department will seek to work with key decision makers beyond its traditional sphere, particularly in the social and economic sectors. Its focus will be on establishing innovative, efficient and effective partnerships to achieve environmental sustainability and sustainable development.

Priority will be given to:

- changing the processes of governance and decision making; and
- building partnerships across social, economic and environmental sectors.

Strategy #3: Give Canadians the tools they need to make sound decisions in a changing environment.

The department will extend the reach and application of its weather and environmental information services.

Priority will be given to:

- providing weather and environmental warnings, forecasts and information that contribute to the health and safety of Canadians;
- providing weather and environmental warnings, forecasts and information that contribute to the competitiveness of Canadian businesses in the global market; and
- extending its environmental prediction capacity to longer time frames and a wider array of parameters.

Strategy #4: Set a good example in the greening of government operations.

The greening of government operations is an integral part of the SDS.

Priority will be given to:

- greening the department's own operations; and
- advocating for the greening of operations across both domestic and international governments.

2.2 Planned Actions

The department has specific plans and priorities for pursuing each of its four key strategies. These plans and priorities, which will be realized through departmental programs and activities, are fully integrated with related results and deliverables in the department's Report on Plans and Priorities and Business Plan.

Strategy #1: Strengthen EC's ability to meet sustainable development goals.

Plans and Priorities

Acquire techniques and tools for socio-economic analysis in the design of EC's policies.

The department plans to:

- conduct studies, in cooperation with partners (e.g. other government departments, provinces) in the use of economic instruments;
- enhance management tools and mechanisms for the implementation of the SDS; and
- review existing funding programs as required under the government-wide approach to the Baseline Study of taxes, grants and subsidies.

Develop sustainable development indicators.

The absence of effective and widely-shared indicators undermines efforts to engage the public, define new policy measures, and evaluate progress.

EC will:

- work with other departments and governments to develop indicators of sustainable development and to incorporate natural capital values into indicators of sustainability; and
- provide tools, such as the Environmental Valuation Reference Inventory, to assist in determining the value of non-marketed goods by using cost-benefit and other appropriate types of analysis.

Enhance EC's capacity to employ science, socio-economic analysis and market-based approaches, particularly in the implementation of legislation.

The department will:

- develop in the implementation of CEPA — together with other government departments and other stakeholders — economic instruments and market-based approaches to prevent and contain environmental degradation and to promote the sustainable use of resources;
- develop guidelines, programs and other measures for the implementation of these instruments and approaches; and
- meet the challenges of the climate change issue, work in partnership with other stakeholders to undertake research, strengthen voluntary actions that involve all Canadians, and promote energy efficiency and renewable energy.

Specifically, the department plans to:

- implement the Federal Action Program on Climate Change, including a set of 45 new actions that were announced by the federal government on December 12, 1996, and continue to support the

implementation of the National Action Program on Climate Change;

make the issue real to Canadians and engage them more effectively in the process of finding solutions—in part by publishing a Canada-wide country study to evaluate the social, economic and biological impacts of climate variability and change on Canada; and

commence a national education and outreach initiative.

- meet Canadian commitments under the United Nations Convention on Biological Diversity, in close cooperation with both Canadian and international stakeholders, including the resource and economic sectors, with a focus on building consensus and partnerships among the diverse interests represented. Key components to address this initiative will be federal research and legislation.

Strategy #2: Be a more effective advocate of sustainable development.

Plans and Priorities

Build partnerships for the sustainable development of the North. Canada's North is important to all Canadians because of its unique environmental, economic, social, cultural and health dimensions.

The department recognizes this and plans to:

- review its management strategies for the North, including science and technology, the consideration of socio-economic factors in the implementation of programs, and its

advisory role with respect to development proposals;

- provide expertise in support of the Arctic Council and the Arctic Environmental Protection Strategy and use these vehicles as a means of providing leadership internationally;
- broaden the application of CEPA administrative agreements and equivalency agreements to include Aboriginal governance structures; and
- work with other federal agencies and the Department of Indian Affairs and Northern Development to develop a Federal Strategy for Northern Science and Technology, which provides for meaningful consultations with northern communities and Aboriginal people in particular.

Strengthen relationships and build partnerships for sustainable development with Aboriginal people and their structures of governance. The department recognizes the unique, significant role of Aboriginal people in environmental management and stewardship of their lands.

Accordingly, EC will:

- forge alliances to meet the needs of Aboriginal people in setting environmental quality standards;
 - promote integration of environmental considerations in Aboriginal self-government and land claims agreements; and
 - work with Aboriginal governance structures, the Department of Indian and Northern Affairs and other federal departments to
-

promote a coherent approach to sustainable development issues.

Improve its interdependencies and partnerships within government. The department will contribute to federal leadership in the integration of sustainable development into government policies and operations, establish partnerships to rationalize environmental policies and practices, promote and protect domestic environmental security and economic interests, and foster the resolution of global commons and trade issues.

Specifically, EC will:

- develop joint policy agendas in areas such as health, energy and ecological tax reform, share science, integrate its policy development and deliver services in an increasingly horizontal manner with other government departments. It will also work with these departments to establish federal positions for negotiating with the provinces, territories and other countries on environment-related matters and to ensure that government policies and operations reflect the principles of sustainable development;
- build on the Canada-Wide Accord on Environmental Harmonization to strengthen EC's partnerships with the provinces. Through the harmonization initiative, federal and provincial governments are working in partnership to achieve the highest standards of environmental quality across the country. Roles will be determined by what makes the most sense for the environment, and fiscal resources will be maximized by streamlining environmental management;
- focus international efforts on areas that affect domestic interests. EC will focus its international agenda on positioning itself to

more effectively influence and exploit emerging opportunities and to advance Canadian interests across different fora and with different international partners.

It will:

- build environmental considerations and accountability into international trade and agreements on economic cooperation;
- strengthen partnerships that involve scientific and commercial exchange, cooperation on environmental management, and development assistance; and
- enhance EC's role as a source of information on how to achieve sustainable development, creating Canadian solutions, and facilitating the dissemination of practical solutions from across the globe.

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

- stimulate innovations by streamlining the regulatory burden;
- encourage industry to adopt sustainable development approaches, in particular, eco-efficiency;
- develop voluntary approaches;

- help industry comply with environmental regulations;
- develop, with other government departments and natural resource industries, clear policy statements related to the greening of energy. It will continue to assess the economic and environmental benefits of renewable energy and conservation and communicate the findings broadly to promote the competitiveness of renewable/green energy; and
- encourage private sector investment and advance the commercialization of a broad range of environmental technologies for both the domestic and international markets through the Technology Partnerships Canada Program. It will help position Canadian companies to take advantage of opportunities in the environmental market through the Canadian Environmental Industry Strategy, and will continue to foster capacity building.

Specifically, EC will:

- work with Canadian industry and others to identify the environmental and economic benefits of pollution prevention and related opportunities for job creation;
- help industry address environmental and human health protection issues through improved science and technology, and improve their capacity to solve domestic problems and enter foreign markets;
- create a national pollution prevention clearinghouse to give Canadians access to the information and tools necessary to implement pollution prevention; and

- accelerate the commercialization of Canadian environmental technologies and processes by supporting the Canadian Environmental Technology Advancement Centers, which deliver comprehensive technology transfer services to small- and medium-sized environmental enterprises.

Engage youth. EC will encourage young Canadians to promote sustainable development. The department will engage youth in environmental action and policy development and involve them in the growing international environmental sector (e.g. launch of Northern Star; Polaris Network; UN "Rescue Mission"; and involvement at APEC and Montreal Protocol meetings).

Strategy #3: Give Canadians the tools to make sound decisions in a changing environment.

Plans and Priorities

Warn Canadians of environmental risks to their health and safety. Individual decisions about environmental risks such as severe and extreme weather, smog and ultraviolet radiation directly affect the quality of life and have a major impact on the long-term sustainability of social structures such as our health care system. EC, in partnership with other governments, will enable Canadians to take steps to minimize these risks by introducing an Air Quality Index that forecasts air quality for coming days.

Provide services and expertise to contribute to the competitiveness of Canadian businesses in the global market. Transportation, tourism, recreation, construction, agriculture, fisheries, forestry, energy and water-use can all be more efficient or competitive — and therefore more

sustainable — when decisions are made with the knowledge of expected weather conditions.

EC plans to:

- develop targeted products and services that enable clients in all sectors, especially the economic sector, to understand and consider environmental matters in their decisions, adapt their social and economic decisions to changing environmental conditions; and
- work with the insurance sector to better understand liabilities, so it can make informed choices and decisions in light of future climate change (e.g. liabilities related to severe storms, floods, rises of sea level).

Predict a wider variety of environmental parameters using various time scales. As a result of natural influences and human intervention, Canadians will be subjected to a different range of weather variability. Predictions and scenarios of probable future states of the environment based on atmospheric and other factors give citizens, industry and governments the tools to plan their activities, infrastructures and policies in a cost-effective, sustainable manner.

EC will:

- build upon its scientific capacity to develop an integrated environmental prediction capability using its short- and long-term forecasts of the atmospheric environment over Canada as the basis and to improve understanding of ecosystem processes and sensitivities;
- build on its warning/response expertise and infrastructure to enhance its predictive capacity for modeling future states of the environment, identify areas of risk, and transfer skills to Canadians that will enable

them to integrate environmental considerations into their decision making. Such predictive capacity is based on EC's monitoring network and will require extensive partnerships with provinces, communities, industries, universities and other countries; and

- combine meteorological and hydrological expertise to provide predictions for water levels in basins to minimize flood danger and maximize the potential benefits of water reservoirs.

Increase efforts aimed at environmental education and communication. EC will work to raise public awareness and understanding of key environmental issues by building on its ecosystem initiatives and Action 21. It will synthesize, popularize and communicate scientific information and provide information products and services that help Canadians understand the environment and encourage them to factor it into their decision making. It will use its expertise to offer a mix of products and services for the public good and, on a cost-recovery basis, for clients with specific needs.

It will:

- ensure that departmental products are based on the clients' needs, as well as on EC's ability to deliver quality services in a timely fashion;
 - issue — in partnership with academia, other government departments and other jurisdictions — a new generation of “state-of-the-environment assessments” that are more focused, timely and cost effective, and increase cost recovery revenues by providing environmental information products and services to clients with specific needs; and
-

- use communications technologies to facilitate the dissemination of environmental information, including expanding the information products made available on the Green Lane and using the SchoolNet.

Strategy #4: Set a good example in the greening of government operations.

Plans and Priorities

Play an advocacy role and provide leadership by example in implementing sustainable development. EC is dedicated to adopting and implementing the pollution prevention approach in the greening of its operations and to making this approach the basis for environmental decision making in federal departments.

The department will:

- commence implementation of an Environmental Management System in all regions and services by Spring 1997, in parallel with on-going development and improvement;
- implement Federal Buildings Initiative (FBI) projects in up to 100 buildings to make the department much more energy and water efficient;
- purchase 15-20 percent of its energy from renewable sources by the year 2010 and commence green power pilot projects in fiscal year 1998-99;
- reduce the size of its fleet from 771 vehicles (in August 1995) to 540 by the year 2004. Seventy-five percent of new vehicles purchased will operate on alternative fuels,

where economically and operationally appropriate;

- reduce and/or divert from landfill, by the end of 1997/98, 80 percent of its office waste from all of its office facilities by implementing waste reduction programs in its facilities, using the Canadian Council of Ministers of the Environment baseline year of 1988;
- be in compliance with all federal environmental regulations and legislation;
- incorporate green accommodation standards into EC facilities and leased facilities through the Master Occupancy Agreement with Public Works and Government Services Canada; this will include adopting the new National Energy Code in all new construction;
- introduce tools to help managers and employees "buy green" and monitor the use of these tools;
- advocate green operations across domestic and international governments;
- continue to create partnerships with federal departments, agencies and Crown corporations to close regulatory gaps in environmental protection within the federal house in such areas as ozone-depleting substances, hazardous waste management, air emissions, wastewater discharges and contaminated sites; and
- continue to draw the federal community together to develop best practices and collective frameworks for common issues, and to share information through such mechanisms as the Environmental Accountability Partnership and the Federal

Committee on Environmental Management Systems.

2.3 Emerging Issues and Considerations: Future Directions

The department has identified two issues that it believes will warrant special attention as the SDS process evolves across government.

2.3.1 Cross-Cutting Issues

Many issues that are critical to addressing sustainable development in the federal government cut across departmental mandates and interests.

EC is particularly interested in exploring ways to deal with these cross-cutting issues effectively and efficiently with a view to achieving a more integrated approach to environmental, economic and social policy factors.

This Strategy is a starting point from which the department will begin to build on past efforts to manage cross-cutting issues. EC will focus more attention on this issue as it implements this Strategy and looks towards updating it in three years' time.

A discussion of several issues of this type, and how they are being addressed, is presented in Appendix F.

2.3.2 Encouraging Innovative Solutions

The pressures and stresses on the global environment continue to build as populations grow, industrialization proceeds, production and consumption of goods increases, and natural resources are depleted. Our collective ability to address these pressures through innovation and technology can not keep pace with this rate of change. Our challenge, according to the results of the Brundtland Commission, is to find the

ways and means to ensure that development proceeds in an environmentally-sustainable manner.

To narrow the gap between the earth's carrying capacity and the rate at which solutions to environmental problems are developed, EC must innovate in a number of areas. They include: environmental technology; the sharing and dissemination of information; individual understanding and lifestyle changes; and new roles for governments as catalysts and partners. EC will explore opportunities to use its policy and program levers to influence and encourage these different forms of innovation and the potential synergy among them.

Knowledge, and the capacity to use it, are the key building blocks to making sustainable development a reality in Canada and around the world. EC believes that it has a responsibility to provide that knowledge and capacity to Canadians.

It also believes that Canada has a special global responsibility and is uniquely positioned to play a major role in the development and delivery of that knowledge and capacity to the rest of the world. Although EC is committed to meeting this responsibility, its success will rely on the effort and commitment shown by other governments, businesses, voluntary organizations and individual Canadians.



Chapter 3: Performance Measurement for Sustainable Development

EC has aligned a framework of long-term results with the principles of sustainable development under its three business lines: A Healthy Environment; Safety from Environmental Hazards; and A Greener Society. Within this broad framework of results, the department has identified a number of areas that make a particular contribution to sustainable development.

The performance information that follows identifies two distinct but complementary levels at which the department intends to measure its progress. They are: measures that relate to the effectiveness of its sustainable development strategy (such as EC's ability to reach, develop partnerships with and influence decision makers); and indicators that gauge the effect of the department's contribution to long-term environmental goals.

As evidenced by EC's 1996 Fall Performance Report, EC is already monitoring and reporting on progress across a wide spectrum of issues. The challenge for the department will be to cite these measures in the context of sustainable development and to make refinements and improvements, where appropriate, in the interest of telling a meaningful story about its performance.

More specifically, the department intends to gauge its progress by using existing performance measures and indicators that address both the need to influence others and the intent to achieve measurable improvements in the environment. Measures of influence include the achievement of partnership arrangements and the use or

uptake of departmental products and services. Measures related to environmental goals include percentage of restored habitat, regulatory compliance, and the adoption of green technologies. These performance measures will draw from the National Series of Environmental Indicators plus specific measures that will provide a more detailed assessment of progress. They will continue to provide valid and verifiable information for both intermediate and longer-term outcomes.

The department will also re-examine these measures to determine what additional factors will help to link them in a sustainable development context. For example, the adoption of green technologies could be linked to proxies for economic value such as jobs and sectoral growth or increased export. In other areas, new indicators, both quantitative and qualitative, will need to be developed. Some will yield information over short time frames that will be immediately useful for determining progress. Others, such as trend lines, will only indicate verifiable changes in state or behaviour over many years of observation.

Applying this Strategy to EC's business and enhancing the existing performance framework to cover all aspects of the department's sustainable development commitments will take place gradually, as part of the normal business planning cycle. Throughout this evolution, the framework must continue to provide meaningful information for decision makers and, at the same time, be manageable within fiscal restraints. Where measures have not yet been established, the department will make use of existing data or

information to produce surrogate measures, where possible. It will also act in concert with others making use of such forums as the Government-wide Performance Measurement initiative to build shared indicators and measurement frameworks.

Within the context of EC's overall accountability framework of long-term results (see pages 29-30) and related indicators (see Appendix G), the department will measure its performance in delivering on its strategy in terms of milestones achieved and influence on key partners within three years. The performance measurement framework presented in the following pages is an initial framework related to the Strategy and will continue to evolve.

Acronyms used in the following Performance Measurement Framework

OGDs	Other government departments
AAFC	Agriculture and Agri-Food Canada
DIAND	Department of Indian Affairs and Northern Development
FAIT	Foreign Affairs and International Trade
FIN	Department of Finance
HC	Health Canada
IC	Industry Canada
NRCan	Natural Resources Canada
PWGSC	Public Works and Government Services Canada
TC	Transport Canada
CEPA	Canadian Environmental Protection Act
NGOs	Non-Government Organizations
StatsCan	Statistics Canada
US EPA	U.S. Environmental Protection Agency
TBS	Treasury Board Secretariat
IDRC	International Development Research Centre
CIDA	Canadian International Development Agency
OECD	Organization for Economic Cooperation and Development

Goal A: To Strengthen EC's Ability to Meet Sustainable Development Goals

Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
Acquire techniques and tools for socio-economic analysis in the design of EC's policies	<ul style="list-style-type: none"> • Conduct studies with partners in the use of economic instruments • Enhance management tools and mechanisms for the implementation of the SDS • Review funding programs in the context of the Baseline Study of taxes, grants and subsidies 	Finance, Industry Canada	The number of pilots in the use of economic instruments and in the adjustments of taxes, grants and subsidies; number of studies
Develop sustainable development indicators	<ul style="list-style-type: none"> • Develop indicators of sustainability that incorporate natural capital values • Release Environmental Valuation Reference Inventory for determining the value of non-marketed goods (1997) 	StatsCan, Finance & NRCan, NGOs Scientific community, provinces, private sector, US EPA, international community	Number of indicators in use across the federal government Trends in uptake of the Inventory
In managing toxics, enhance EC's capacity for socio-economic analysis and market-based approaches and the application of its science	<ul style="list-style-type: none"> • By 2001, complete assessments for 25 substances from the second list of priority substances • Assess 500 new chemicals per year • Renew ARET challenge to engage more industry and government participants to decrease emissions of toxics • Implement plans for the virtual elimination of specific persistent bioaccumulative toxics (PBTs) (1999) • Fifty Canadian environmental quality guidelines for soil, water, sediment or biota for toxic substances of national concern (1998) 	Manufacturers and users of PBTs and other substances of concern Canadian Council of Ministers of the Environment	Actions to virtually eliminate PBTs or life-cycle manage other toxics Number of standards, guidelines accepted

Goal A: To Strengthen EC's Ability to Meet Sustainable Development Goals (continued)			
Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
In addressing the issue of Climate Change, enhance the application and communication of EC's science, socio-economic analysis and market-based approaches	<ul style="list-style-type: none"> In accordance with the Federal Action Program, federal government operations stabilize greenhouse gas emissions at 1990 levels by 2000 and reduce them at least 20 percent by the year 2005, relative to 1990 	NRCan, TC, PWGSC, TBS	Integration into regulatory and policy instruments of socio-economic analysis and ecosystems effects of climate change
	<ul style="list-style-type: none"> Publish Canada-wide country study to evaluate the social, economic and biological impacts of climate variability and change on Canada (initial evaluation 1997, research program 1997/98-2001/02) 	Canadians	Level of public awareness and understanding of climate change; its impacts and actions that can be taken including adaptation options
In meeting Canada's commitments under UN Convention on Biological Diversity, enhance the application of science and socio-economic analysis	<ul style="list-style-type: none"> Complete recovery plans for endangered and threatened species 	OGDs, NGOs, other levels of government	<p>Number of recovery plans for species on federal lands</p> <p>Number of complementary actions for species at risk</p>

Goal B: To be a More Effective Advocate of Sustainable Development			
Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
Enhance EC influence with energy sector	<ul style="list-style-type: none"> • Promulgate benzene regulations • Policy statements on greening of energy with OGDs • Promote competitiveness of renewable/green energy knowledge 	<p>NRCan and TC</p> <p>Energy producers</p>	<p>Concerted goals and joint policy agenda</p> <p>Agreements on concerted actions</p>
Partnerships for sustainable development in the North	<ul style="list-style-type: none"> • Review EC's management strategies for the North, including S&T and socio-economic factors • Broaden application of CEPA administrative agreements to include Aboriginal representation and equivalency agreements to include Aboriginal governance structures under a renewed CEPA and broaden the Federal/Provincial Advisory Committee to include Aboriginal people • Provide expertise in support of the Arctic Council and the Arctic Environmental Protection Strategy (1997 and ongoing) • Develop a federal strategy for northern science and technology with OGDs 	Aboriginal people, Territories, DIAND	<p>Number of cases of joint ecosystem conservation actions</p> <p>Number of administrative and equivalency agreements with Aboriginal people</p>
Partnerships with Aboriginal people and their structures of governance	<ul style="list-style-type: none"> • Seek to incorporate environmental management consideration in all land claims and self-government agreements 	DIAND, Territories and Aboriginal people	Number of environmental management agreements with Aboriginal people
Better manage inter-dependencies and partnerships within government	<ul style="list-style-type: none"> • Joint policy and science agendas (e.g. health, energy and ecological tax reform) • Greater integration of policy and science agendas • Delivery of services in an increasingly horizontal manner with OGDs 	NRCan, HC, IC, Fin	Joint innovative policy initiatives in fields of common interest such as climate change, urban air, and oceans

Goal B: To be a More Effective Advocate of Sustainable Development (continued)

Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
Strengthen EC's partnerships with provinces	<ul style="list-style-type: none"> • Negotiate sub-agreements to Canada-Wide Accord on Environmental Harmonization with provinces on standards, inspections, other areas • Pursue bilateral and multilateral agreements with provinces and territories to rationalize environmental functions for specific environmental results (1998) 	Canadian Council of Ministers of the Environment	Number and result of harmonization agreements National standards agreed to
Focus international efforts on areas of domestic interest	<ul style="list-style-type: none"> • Build environmental considerations and accountability into international trade and agreements on economic cooperation • Strengthen S&T, policy and economic partnerships on environmental management, technologies and development assistance • Enhance Canada's role as a source of expertise, knowledge and know-how on sustainable development. • Provide Canadian solutions, and facilitate technology transfer and dissemination of practical solutions from across the globe 	US, Latin American countries, FAIT, IDRC and CIDA, Asia-Pacific countries.	Extent to which Canadians' priorities are reflected in international trade and environmental cooperation agreements Trend in commercialization and uptake of green technologies and practices Number of MOUs and international projects

Goal B: To be a More Effective Advocate of Sustainable Development (continued)			
Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
Work with private sector to identify environmental and economic benefits of pollution prevention and related opportunities for job creation	<ul style="list-style-type: none"> • Help industry address environmental and human health protection issues through improved science and technology, improve its capacity to solve domestic problems and enter foreign markets • National Pollution Prevention Clearinghouse (1997) • Support Canadian Environmental Technology Advancement Centers • Shift delivery of Technology Verification Program to the private sector 	Small and medium enterprises and manufacturing companies	<p>Number of new environmental protection codes and guidelines that include the pollution prevention approach</p> <p>New jobs created through growth in the environmental industries sector and sectors related to knowledge and capacity for sustainable development</p> <p>Trend in voluntary pollution prevention planning by industry</p>
Engage youth	<ul style="list-style-type: none"> • Beginning in 1997, involve young Canadians in environmental programs (the International Environmental Youth Corps and the Science Horizons program) with a target of 154 young people in year one and 234 in year two • By 1999, expand information products available on the Green Lane and access to youth and educators via SchoolNet 	<p>Young Canadians</p> <p>Canadian business</p> <p>Educators</p>	<p>Number of young people who participate in international events and who find employment opportunities in the environmental industries sector and sectors related to knowledge and capacity for sustainable development</p> <p>Number of "hits" on Green Lane web site and the number and type of information provided on Schoolnet</p>

Goal C: To give Canadians the tools they need to make sound decisions in a changing environment

Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
<p>Increase efforts aimed at environmental education and communication</p>	<ul style="list-style-type: none"> • Ensure EC's products are tailored to client needs and that EC's ability to deliver quality services in a timely fashion is maintained • By 2000, series of 12 state-of-the-environment assessment reports completed • Use communications technologies to facilitate the dissemination of environmental information, including expanding information products made available on Green Lane and SchoolNet 	<p>Media</p> <p>Academics, scientific community, schools, Provinces</p>	<p>Demand and the increase in cost recovery, e.g. ice services and specialized weather forecasts</p> <p>Public demand for assessment reports</p> <p>Number of visits and re-visits to the GreenLane</p>
<p>Contribute to the competitiveness of Canadian businesses in the global market</p>	<ul style="list-style-type: none"> • Develop targeted products and services that enable clients in economic sector to adapt their economic and social decisions to changing environmental conditions, and find economic opportunities • Pilot project for forecasts of water levels and quantity (1997) • Work with the insurance sector so that it can make informed decisions in light of climate change 	<p>Marine industry and Mariners</p> <p>Insurance sector</p>	<p>Demand for specialized products</p> <p>Extent to which industry adopts voluntary measures for climate change actions</p> <p>Cooperative development, and use of, EC's scenarios of possible future states of the environment</p>
<p>Warn Canadians of environmental risks to their health and safety</p>	<ul style="list-style-type: none"> • Introduce forecasts of air quality in partnership with other governments • Improved detection and warning systems to reduce Canadians' risk from severe weather • Advances in national weather program will provide atmospheric drivers for environmental predictions on a local scale 	<p>Provinces</p>	<p>Number of agreements on air quality indices and cooperative monitoring and reporting efforts</p>

Goal C: To give Canadians the tools they need to make sound decisions in a changing environment (cont'd)

Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
<p>Predict a wider variety of environmental parameters on various time scales</p>	<ul style="list-style-type: none"> • Climate research on finer temporal and spatial resolution to understand local impacts of global changes • Enhance predictive capacity for modeling future states of environment • Based on models, identify risk areas and transfer necessary information and tools to Canadians to enable them to integrate environmental considerations into decisions • Combine meteorological and hydrological expertise to provide predictions for water levels in basins to minimize flood danger while maximizing the potential of water reservoirs 	<p>Academic community</p> <p>Science based federal departments, academic community</p> <p>Provinces, hydroelectric utilities</p>	<p>Cooperative research efforts and progressively accurate scenarios</p> <p>Reliability of models and scenarios</p> <p>Demand for models and scenarios</p> <p>Accuracy and demand for water level predictions</p>

Goal D: To set a good example in the greening of government operations

Initiatives	To Achieve Near-Term Results	With a Focus on influencing Key Partners	As Measured by
<p>Lead by example in implementing sound environmental management</p>	<ul style="list-style-type: none"> • Begin implementation of environmental management system in all regions and services (1997) • Achieve and maintain 80 percent diversion of office waste from landfill • Seventy-five percent reduction of energy and water use, conversion of vehicles to alternative fuels (1998) • Purchase 15-20 percent of EC's energy from renewable sources by 2010 and commence green power pilot projects 1998-99 • As stated in EC's environmental policy, be in compliance with all federal environmental regulations and legislation, ensure compatibility with statutes, regulations and standards for the jurisdiction in which operations and facilities are located and promote the same throughout the "federal house" under CEPA • Green accommodation standards met in EC facilities and leased facilities through Master Occupancy Agreement • Introduce tools to help buy green and monitor the use of tools 	<p>EC managers and staff</p>	<p>Continued participation in collaborative mechanisms and take up of best practices and policies for greening operations.</p> <p>Trend in waste reduction</p> <p>Fleet status: actual and anticipated size. Actual and anticipated conversion of vehicles to alternate fuels.</p> <p>Rates of conversion to energy efficient technologies</p> <p>Number of green power contracts entering into force</p>
<p>Work with other government departments to share best practices in green government operations</p>	<ul style="list-style-type: none"> • Federal Buildings Initiative in up to 100 buildings • Continue to draw the federal community together to develop best practices and collective frameworks for common issues, and to share information. 	<p>PWGSC</p> <p>EC-TBS Environmental Accountability Partnership, Federal Council on Environmental Management Systems</p>	<p>Federal energy and water consumption</p> <p>Participation in cooperative fora and take-up of best practices.</p>
<p>Advocate green operations across domestic and international organizations</p>	<ul style="list-style-type: none"> • Continue to work with OECD to advocate green government operations internationally 	<p>OECD</p>	<p>Degree of Canadian influence on greening international organizations.</p>

The initiatives and near-term results listed above are intended to contribute to the achievement of

Environment Canada's long-term results commitments listed in the following chart.

Departmental Results Commitments (Long-Term)

<i>Work with Canadians to provide:</i>	<i>To be demonstrated by:</i>
A Healthy Environment	
A reduction of the negative impacts on the atmosphere and to help Canadians better understand and adapt to these consequences	<ul style="list-style-type: none"> Greenhouse gas emissions reduced and stabilized in Canada and international actions to reduce global concentrations promoted Consumption of ozone-depleting substances stabilized, reduced or eliminated and the beginning of ozone layer recovery Canadian levels of smog and inhalable particulates reduced Negative impacts from acid rain minimized Consideration of sustainability increased in all Canadian energy decisions The environmental stress caused by transportation is reduced Knowledge of atmospheric processes improved to anticipate and cope with future atmospheric changes
Elimination of the threat posed by toxics	<ul style="list-style-type: none"> Sources and quantities of toxic substances, effluents, emissions and wastes requiring management identified, based on sound scientific research and assessment, to Canadians in a timely and effective manner Management actions implemented toward virtual elimination of persistent, bioaccumulative toxics resulting from human activity Management actions implemented to prevent, reduce or eliminate the risks posed by toxics that do not meet all the Toxic Substances Management Policy Track 1 criteria, and by other substances of concern
Fairly and effectively enforced environmental laws and regulations	<ul style="list-style-type: none"> A high level of compliance with laws and regulations Improved enforcement capacity Canadians understand the law, know what is expected of them and believe the law to be effectively enforced Federal government departments and agencies understand the law, know what is expected of them and act accordingly
Conservation and enhancement of Canadian and global biodiversity	<ul style="list-style-type: none"> Positive recovery trends achieved for threatened or endangered species Targeted wildlife populations, under federal jurisdiction, sustained at or increased to healthy levels Significant wildlife habitat and ecosystems protected and enhanced Canada's leadership and expertise advances the international biodiversity agenda National framework in place to guide the effective conservation of Canadian biodiversity
Conservation and restoration of ecosystems	<ul style="list-style-type: none"> Ecosystem science undertaken, scientific tools created and information transferred in support of ecosystems management initiatives A modern affordable management capacity and infrastructure to ensure the effective delivery of quality ecosystem science programming Vulnerable or priority ecosystems identified and conserved through the development of ecosystem, regional, sectoral and other strategies/initiatives Canadians responding to challenges to clean up and prevent pollution and to conserve Canada's water resources Ecosystem initiatives of national priority implemented to improve the health and sustainability of targeted ecosystems across Canada

Departmental Results Commitments (Long-Term) (continued)

<i>Work with Canadians to provide:</i>	<i>To be demonstrated by:</i>
Safety from Environmental Hazards	
Weather and environmental predictions as well as timely and accurate warnings of severe weather events to Canadians	<ul style="list-style-type: none"> • Timely and accurate weather forecasts and warning • Effective decisions by adapting to changing weather and climate • Scientific capacity to assess the impacts of social and economic decisions on future states of environment
Prevention or reduction in the frequency, severity and environmental consequences of emergencies which affect Canada	<ul style="list-style-type: none"> • Accidental releases prevented • Preparations made for handling of accidental releases • Advice and specialized support provided to lead responders
A Greener Society	
Promotion of responsible environmental citizenship by helping Canadians to effectively use timely environmental information and advice	<ul style="list-style-type: none"> • Canadians receive products and services from Environment Canada that meet their needs • Products and services developed that help Canadians to make environmentally responsible decisions • Broad public support for the services provided by Environment Canada
Tools to prevent pollution and develop green technologies and capacity that create social, economic, and environmental benefits	<ul style="list-style-type: none"> • Increasing emphasis on pollution prevention domestically (e.g., governments, public, industry) and internationally • Green technologies, know-how and expertise transferred to the public • Industrial sectors become more "eco-efficient" by adopting green technologies and services, international obligations are met, and economic growth and jobs are fostered at the same time • Environment Canada in compliance with the Canadian Environmental Assessment Act and Cabinet Directives regarding environmental assessment of policies and programs the department's agenda for environmental assessment and other environmental issues advanced • Public and other stakeholders mobilized and have access to departmental activities, environmental information and other tools for understanding issues, making decisions and advancing Canada's environmental agenda
Mobilization of effective partnerships nationally and a strong international voice to build a sustainable development agenda	<ul style="list-style-type: none"> • Visible Federal leadership and action in integrating sustainable development into government policies and operations • Partnerships established to promote, develop and rationalize environmental policies and practices • International agreements and fora promote and protect Canada's interests and foster the resolution of globally common issues.



Appendices to the Strategy

Appendix A: Departmental Profile

Mandate

The Department of the Environment was created in June 1971 following the proclamation of the Government Organization Act in 1970. The department was created by combining various entities within the federal government responsible for the natural environment.

EC is responsible for administering the following acts:

- the Canada Water Act;
- the Canada Wildlife Act;
- the Canadian Environmental Assessment Act;
- the Canadian Environmental Protection Act;
- the Canadian Environment Week Act;
- the Department of the Environment Act;
- the International River Improvements Act;
- the Lac Seul Conservation Act;
- the Lake of the Woods Control Board Act;
- the Migratory Birds Convention Act, 1994;

- the National Wildlife Week Act;
- the Weather Modification Information Act; and
- the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act.

The Department of the Environment Act recognizes that preserving and enhancing the environment is not solely the responsibility of the Minister of the Environment. It gives the Minister broad advocacy responsibilities to promote and encourage practices that lead to environmental enhancement, and to cooperate with others having similar objectives. Science is the foundation of the department's policies, programs and regulations, and is essential to achieving every result.

EC's services to Canadians include: the protection, conservation and restoration of the environment; federal environmental legislation, regulations and policy making; and warnings of and protection from environmental risks.

In recent years, sustainable development has become a national goal, a key policy thrust of the Government of Canada, and a shaping assumption for environmental management in this country. EC's mission is to foster a national capacity for sustainable development that will

result in a safe and healthy environment and a sound and prosperous economy.

Canadians are focusing increasingly on entire ecosystems rather than on specific or isolated environmental problems. We recognize the global dimensions of environmental concerns and are learning that there are limits to what government can do. Fiscal pressures require an increasingly strategic approach to the expenditure of public funds. Although legislation is one of the tools the department has traditionally used to influence behaviour, many environmental issues cannot be solved by legislation or regulation alone.

Beyond the growing knowledge of the complexity of environmental issues is the recognition that the environment and the economy are inextricably interconnected. This means that the environment can only be managed effectively within the broader context of economic and social development.

Structure

EC plans, administers accountabilities and reports on its performance through three results-focused business lines: A Healthy Environment; Safety from Environmental Hazards; and A Greener Society. The first two primarily address environmental issues of today, while the third focuses on building societal capacity to sustain the environment for the future.

EC undertakes and promotes programs to sustain the environment and reduce risks to human health, to provide weather forecasts, warnings and emergency preparedness services, and to give Canadians the tools to build a greener society. Administration provides corporate leadership, integrated systems and common services that support these lines.

A Healthy Environment: Canadians are concerned about risks to the environment from human activities and the danger these risks pose to human health and the sustainability of the environment. They expect environmental risks to be understood, monitored and prevented or controlled. In this business line, EC responds to these risks by: providing scientific knowledge and expertise; developing national strategies and standards with its partners; and establishing federal environmental laws and regulations and ensuring that they are vigorously enforced.

Safety from Environmental Hazards: The lives and property of Canadians are threatened by naturally-occurring and human-induced environmental hazards, ranging from severe weather to oil spills and tire fires. EC provides information services to enable Canadians to minimize these risks and protect themselves from hazards by providing timely weather and environmental warnings, predictions of probable future environmental states, and services aimed at reducing the frequency and severity of environmental emergencies.

A Greener Society: Through its third business line, the department seeks to reconcile environmental and economic interests, remove barriers to environmentally-responsible action, and foster the capacity of all sectors of society to act on their environmental values and responsibilities. The department provides Canadians with useful and accessible information, readily applicable technologies and tools, and policies that integrate social, economic and environmental considerations.

Externally, EC's accountability is by its business lines. Internally, the management of resources and delivery of results is carried out by responsibility centers within existing organizational structures that cross-cut these business lines. EC is organized into seven headquarters services (Office of the Minister and

Deputy Minister; Atmospheric Environment Service; Environmental Conservation Service; Environmental Protection Service; Corporate Services; Policy and Communications; and Human Resources Directorate) and five integrated regions (Atlantic; Quebec; Ontario; Prairie and Northern; and Pacific and Yukon). EC has approximately 4900 employees, and a current budget of \$546 million.

EC is changing the way it does business. As a result, departmental strategies and instruments are changing in rather fundamental ways. The department formerly managed a wide range of issue-driven program interventions. To secure high leverage and multiple benefits from its interventions, it is now moving towards targeted actions based on science, comprehensive monitoring, and the careful assessment of relative risks.

EC provides leadership in integrating sustainable development into structures of governance at the international, national, and local levels; building shared agendas with other sectors of Canadian society; and promoting and protecting Canadian interests internationally.

Partners

Strong partnerships are required to make sustainable development a practical reality. EC believes that implementing the principles of sustainable development is a responsibility shared by individuals, governments, industry, Aboriginal people and non-governmental organizations (NGOs).

Partnerships between EC and all federal departments will be strengthened, to promote greater integration of economic, natural environment and social policy interests. Particular attention will be paid to building shared agendas with the departments of Finance, Industry, Foreign Affairs and International

Trade, Natural Resources, Agriculture and Agri-Food, Fisheries and Oceans, Indian Affairs and Northern Development, Canadian Heritage, Health, and Human Resources Development.

Provincial and territorial governments will continue to be essential partners in achieving sustainable development across Canada. Individual provinces and territories are developing regional and local examples of sustainable development.

The Canada-Wide Accord on Environmental Harmonization, through which federal, provincial and territorial governments are working in partnerships to achieve the highest standards of environmental quality across the country, will also provide a solid foundation for a cooperative and coordinated effort to achieve sustainable development. Effective partnerships with municipal governments have been established and should be strengthened.

Business is a vital partner in ensuring that development is sustainable. This sector has taken a proactive role through its national associations, as well as through such national and international forums as the World Business Council on Sustainable Development, the National Round Table on the Environment and the Economy, and the International Institute for Sustainable Development. All of these are bringing together diverse interests in working towards sustainable development.

With the settlement of land claims and the implementation of self-government, Aboriginal people are taking on an increasingly large role in the environmental management of their lands. EC will need to build new partnerships and strengthen linkages with Aboriginal people to assist them in achieving and maintaining a clean, healthy and productive environment on these lands.

NGOs and other community groups contribute to the attainment of sustainable development in many ways. They offer insights into environmental issues, are closely linked to communities, and can help build public awareness. It is crucial for EC to maintain its relationships with these groups, because they contribute to a mutual understanding of shared issues and solutions.

International cooperation aimed at integrating considerations of the world economy and the shared environment is required to promote sustainable development on a global scale. Canada's interests are promoted through the selective use of international institutions and laws and bilateral and multilateral arrangements. EC supports Canadian participation in international conventions (e.g. climate change, biodiversity), environmental, economic and financial organizations (e.g. United Nations Environment Program, OECD, World Bank), and international scientific networks (e.g. International Geosphere-Biosphere Program, International Council of Scientific Unions). EC also works with other countries, such as the United States, to address shared interests and challenges.

Appendix B: Consultations Summary

The need to develop and implement sustainable development strategies in an “open and transparent manner” — as specified in *A Guide to Green Government* — makes consultation an important part of the preparation process. EC’s intent, in conducting its internal and external consultations, was to receive a broad range of informed comments and views without trying to reach consensus. As a basis for the consultations, the department prepared a discussion paper in the fall of 1996. This paper discussed EC’s vision of sustainable development, how it was being addressed in departmental programs and activities, and key issues and challenges surrounding sustainable development. It also proposed priorities for action in the context of the SDS. A second round of consultations, based on a draft of the SDS, was undertaken in February 1997.

Consultations with Partners, Clients and Stakeholders

Consultations were carried out with clients and stakeholders as well as with the provinces, territories and other federal departments. To get as broad a range of views as possible from interests outside government, representatives of Aboriginal people, business, NGOs, women’s groups, labour, youth and academia were specifically invited to take part in the consultations process. The EC SDS discussion paper was sent to 123 individuals and organizations in the fall of 1996. All invited participants were also provided with copies of *A Guide to Green Government*, the Amendments to the Auditor General Act, and EC’s *Business Plan and Action Plan*. The draft SDS was sent to

178 individuals and organizations in February 1997. A list of stakeholders is presented in Appendix C.

EC offered the consultations process by electronic means, posting its discussion paper and draft SDS on its Internet site and creating an SDS forum to encourage dialogue. Hard copies of documents were made available to key clients and stakeholders who did not have access to the necessary technology.

The electronic approach to consultations was perceived to have many potential advantages: it allowed access to additional individuals and groups, eliminated geographical barriers to participation, and was more environmentally friendly and cost effective than traditional methods. The electronic approach was also intended to give all interested Canadians the opportunity to access the discussion paper, provide comments, and take part in the SDS forum.

Consultations on the draft SDS took place between February 7 and March 3, 1997. Interested parties were also invited to participate in face-to-face information sessions in designated cities across Canada.

Youth Consultations

Information sessions on the SDS were held for EC’s summer students in August 1996 in all EC regions. The purpose of this initiative was to build interest in the project and to give students the opportunity to take part in the consultations.

Eighty-five students expressed an interest in participating in the consultations following the presentation, and a total of 26 responses were gathered nationally. Comments covered a wide range of issues, including the importance of education, the federal role, linkages between the environment and the economy, and the format and organization of the discussion paper. Most students agreed with the concept of sustainable development put forth; their main concern was the lack of specifics with regard to how proposed targets were to be met. Students also expressed the view that the discussion paper did not explain how members of the general public could be involved in implementing sustainable development principles. Many also suggested that the strategy should identify barriers to implementing sustainable development.

Joint Consultations on the North of 60° SDS

The Department of Indian Affairs and Northern Development invited other federal government departments to join it in a coordinated consultation on sustainable development strategies involving Aboriginal and territorial governments and other stakeholders in the North. Four departments, including EC, agreed to participate. A North of 60° issues paper was produced and used as the basis for consultations. The paper contained a core section detailing many issues facing the North, as well as separate chapters that described some of the key sustainable development issues and activities each department wished to address. Two workshops in the Northwest Territories (Yellowknife and Iqaluit) and one meeting in Yukon (Whitehorse) took place in December 1996. A total of 24 organizations participated in the three meetings and are listed in Appendix C.

The consultations in the Northwest Territories produced a number of consistent themes. It was felt that the success or failure of a sustainable

development strategy in the North would depend upon coordinated communications and consultations at the community level, and between governments and stakeholders. Workshop participants acknowledged that the five federal departments at the table were demonstrating unprecedented cooperative consultation and encouraged them to continue this type of approach.

Aboriginal groups supported the continued use of traditional knowledge in scientific investigation. In the interest of gender equality, and since many of the impacts of sustainable development are felt first in the home and by women, these groups also stressed the need for government to ensure participation by women and women's groups in future consultations.

There were strong messages regarding the need for education and empowerment, especially for youth, so that northern Canadians can make sustainable decisions in their day-to-day lives. In order to make information on sustainable development understood at the community level, governments were encouraged to carry out more face-to-face education and communication initiatives.

Workshop participants also felt a need to bolster northern scientific expertise and application in support of sustainable development. There were concerns that many decisions on northern science were based on a short-sighted, deficit-fighting perspective that would result in negative long-term impacts and a significant loss of capacity. Specific issues raised included: the need for regulatory reform to give industry a clear picture of requirements in relation to sustainable development; sustainable energy sources; the importance of land claims resolution; full-cost accounting of development; contaminants in the North; and the need for more ecosystem studies.

Comments and Reactions

From business and non-governmental sectors:

Although there was relatively little response to the draft strategy from non-governmental sectors, comments received were positive and supportive. Interest was expressed in participating in the development of sustainable development indicators, and in conducting research on the concept of measurable parameters in the context of eco-efficiency. Suggestions were provided for a framework within which to look at the social aspects of sustainable development.

From provincial and territorial governments:

Response from provincial and territorial governments was generally positive and supportive. Some provinces saw the SDS as an opportunity to work together in the context of sustainable development. Others identified the need to more clearly define the roles and responsibilities of EC's partners in achieving sustainable development. Concerns were expressed about the implications of sustainable development on Canadian trade and competitiveness, and comments were made about the social and cultural aspects of sustainable development.

From other federal departments and agencies:

There was general agreement that EC had taken an appropriate approach to developing its sustainable development strategy, and that its efforts were a useful example for government. There was strong support for working collaboratively on sustainable development issues, specifically in areas such as increasing resource efficiency, determining measures of eco-efficiency, assessing the social and economic dimensions of sustainable development, and ecosystem-based approaches.

Internal Departmental Arrangements

Internal consultations started early on in the process of preparing the SDS. A senior level steering committee was put in place to provide overall direction. A departmental working group, with representation from all services and regions, was created to provide a point of departmental coordination and to ensure that policy, planning and operational perspectives were included in the Strategy. Draft versions of the document were provided to the working group, as well as to other EC employees who expressed interest. A notice about the draft Strategy was sent electronically to all departmental employees, with an invitation to provide comments.

Internal consultations also consisted of several sessions held in different departmental offices in fall 1996 and February 1997. The sessions were designed to discuss any new or outstanding issues related to the Strategy, to confirm strategic directions and objectives, and to identify deliverables and related performance indicators and measures.

One of the main points raised at the workshops was the need to make the SDS meaningful to departmental employees. EC staff echoed the need for a plain language version of the Strategy and asked that more work be done to define the broad sustainable development objectives and the means identified for achieving them. It was suggested that the Strategy should identify its intended audience, and the department's limitations and expectations regarding sustainable development. EC's Environmental Management System was also identified as an essential component of the Strategy.

Interdepartmental Arrangements

EC has taken a strong interest in encouraging and supporting interdepartmental cooperation and coordination on issues related to sustainable development. Of particular interest, is the way in which issues that are shared across departments — due to shared interests, mandates or responsibilities — will be addressed in departmental sustainable development strategies. Some of these issues are discussed in Appendix F. It will be important to promote a degree of consistency and coherence among the departmental strategies.

Mechanisms in place to promote coordination include the Deputy Ministers' Sustainable Development Coordinating Committee, the Environmental Accountability Partnership (which includes several working groups, such as the Federal Committee on Environmental Management Systems) and the Interdepartmental Network on Sustainable Development Strategies.

Appendix C: Lists Related to EC's SDS Consultations

Mailing List for Consultations

Aboriginal groups

Assembly of First Nations
 Carcross Tagish First Nation
 Champagne/Aishihik First Nation
 Congress of Aboriginal People
 Council for Yukon First Nations
 Dawson First Nation
 Dene National Office
 Federation of Saskatchewan Indian Nations
 First Nations Resource Council
 First Nations Summit
 Grand Council of Treaty 8 First Nations
 Inuit Tapirisat of Canada
 Inuit Women's Association
 Kluane First Nation
 Kwanlin Dun First Nation
 Liard First Nation
 Métis Nation
 Métis National Council
 Na-cho N'yak Dun
 Native Women's Association of Canada
 Ross River Dena Council
 Selkirk First Nation
 Ta'an Kwachan Council
 Teslin Tlingit First Nation
 Ts'awhjik Dun First Nation
 Union of BC Indian Chiefs
 United Native Nations
 Vuntut Gwitchin Tribal Council
 White River First Nation

Academic Groups

** members of Canadian Centres for Sustainable Development Research (CCSDR)*

University of British Columbia, Sustainable Development Research Institute*
 Brock University, Institute of Urban and Environmental Studies*
 University of Calgary, Environmental Science Program*
 Carleton University, Department of Sociology
 Dalhousie University, School of Resource and Environmental Studies
 David Suzuki Foundation
 Université Laval, Groupe d'Études et de Recherches sur les Politiques Environnementales*
 University of Manitoba, Natural Resources Institute
 University of Manitoba, Department of Sociology
 McGill University, Centre for Society, Technology and Development*
 McGill University, Department of Sociology
 Université de Moncton, Chaire d'études K.-C. Irving en développement durable
 Université du Québec à Montréal, Institut des sciences de l'environnement
 University of New Brunswick, Environment and Sustainable Development Research Centre
 University of Ottawa, Institute for Research on Environment and Economy*
 University of Ottawa, Department of Sociology
 Saint Mary's University, Atlantic Canada Centre for Environmental Science*
 St. Mary's University, Department of Sociology

Simon Fraser University, Community and
Economic Development Centre*
Simon Fraser University, Department of
Sociology
University of Toronto, Institute for
Environmental Studies
University of Waterloo, Faculty of
Environmental Studies*
York University, Faculty of Environmental
Studies
York Centre for Applied Sustainability

Business Groups

British Columbia Forestry Association
Business Council on National Issues
Business Development Bank of Canada
Canadian Association of Petroleum Producers
Canadian Bankers' Association
Canadian Chamber of Commerce
Canadian Chemical Producers' Association
Canadian Electrical Association
Canadian Environmental Industry Association
Canadian Forestry Association
Centre patronal de l'environnement du Québec
Canadian Petroleum Products Institute
Canadian Pulp and Paper Association
Canadian Solar Industries Association
Canadian Standards Association
Canadian Wind Energy Association
Dofasco Inc.
Dow Chemical Canada Inc.
Forest Alliance of British Columbia
Insurance Bureau of Canada
Laidlaw Inc.
Manitoba Environmental Industries Association
The Mining Association of Canada
Motor Vehicle Manufacturers' Association
Noranda Inc.
Novacor Chemicals Ltd.
Stelco Inc.
Yukon Chamber of Mines

Environmental and Labour Organizations

Alberta Wilderness Association
Alsek Renewable Resources Council
Association québécoise pour l'évaluation
d'impacts
Box Valley Naturalists
British Columbia Environmental Network
Canadian Arctic Resources Committee
Canadian Circumpolar Institute
Canadian Environmental Education and
Communications Network
Canadian Environmental Network
Canadian Federation of Labour
Canadian Labour Congress
Canadian Parks and Wilderness Society
Canadian Society of Environmental Biologists
Centre for Indigenous Environmental
Resources
Centre québécois du droit de l'environnement
Centre patronal de l'environnement du Québec
Concerned Citizens of Manitoba Inc.
Confédération des syndicats nationaux
Ecology North
Fort Whyte Centre for Environmental Education
Fraser Basin Management Program
Fraser River Estuary Management Program
Friends of Oak Hammock Marsh
Friends of the Earth
Friends of Yukon Rivers
Greenpeace Canada
Manitoba Eco-Network
Manitoba Federation of Labour
Mayo Renewable Resource Council
Nature Saskatchewan
NORNET
Pembina Institute for Appropriate Development
Planetary Association for Clean Energy, Inc.
The Pollution Probe Foundation
Resource Conservation Manitoba
Rocky Mountain Ecosystem Coalition
Royal Society of Canada, Canadian Global
Change Program
Saskatchewan Eco-Network
Saskatchewan Environmental Society

Sierra Club of Canada
 Sierra Club of Western Canada
 Soil Conservation Canada
 Soil and Water Conservation Society
 Solar Energy Society of Canada Inc.
 Sustainable Futures
 Teslin Renewable Resources Council
 Time to Respect Earth's Ecosystems
 Toxics Watch Society
 Union québécoise pour la conservation de la nature
 United Fishers' and Allied Workers' Union
 United Steelworkers of America
 Vuntut Gwitchin Renewable Resource Council
 Western Canada Wilderness Committee
 West Coast Environmental Law Association
 Wilderness Tourism Association
 Wildlife Society of Manitoba
 Winnipeg Water Protection Group
 Yukon Conservation Society

Non-governmental organizations

Association of Canadian Community Colleges
 Canadian Association for Business Economics, Inc.
 Canadian Association for the Study of International Development
 Canadian Climate Program Board
 Canadian Council for International Co-operation
 Canadian Institute of Planners
 Community Economics Newsletter
 Community Planning Association of Canada
 Federation of Canadian Municipalities
 Globe Canada
 International Centre for Sustainable Cities
 International Institute for Sustainable Development
 North-South Institute
 Ontario Soil and Crop Improvement Association
 Union of British Columbia Municipalities
 Urban Development Institute Canada
 Yukon Fish and Game Association
 Yukon Trappers' Association

Women's Groups

Association of Women in Engineering and Science
 Canadian Association for Women in Science
 Canadian Biodiversity Institute
 Condition féminine Canada
 Miriam Wyman Associates
 Women and Environmental Education and Development Foundation
 Women in Science at Trent

Youth Organizations

Canadian Unified Student Environmental Network
 Canadian University Students Environmental Network
 Canadian Youth Foundation
 Cree Nation Youth Council
 Environnement JEUnesse
 Environmental Youth Alliance
 Jeunesse Canada Monde
 Youth Action Network

Social Organizations

Caledon Institute on Social Policy
 Canadian Council on Social Development
 Choices — A Coalition for Social Justice
 Learning for a Sustainable Future
 Ontario Social Development Council
 Ontario Municipal Social Services Association
 Opportunities 2000
 University of Toronto, Faculty of Social Work
 LIFT (Low Income Families Together)
 West End Community Ventures

National Round Table on the Environment and the Economy

Other Federal Departments and Agencies

Provincial and Territorial Governments (Environment and Natural Resources Ministries)

List of Respondents to EC's SDS Discussion Paper or Draft Strategy*

Provinces and Territories

Alberta
 British Columbia
 Manitoba
 New Brunswick
 Northwest Territories
 Nova Scotia
 Ontario
 Quebec
 Saskatchewan
 Yukon Territory

Other Federal Departments and Agencies

Atlantic Canada Opportunities Agency
 Federal Office of Regional Development, Quebec
 Department of Agriculture and Agri-Food
 Department of Canadian Heritage
 Department of Citizenship and Immigration
 Department of Finance
 Department of Fisheries and Oceans
 Department of Foreign Affairs and International Trade
 Department of Health
 Department of Human Resources Development
 Department of Indian Affairs and Northern Development
 Department of Industry
 Department of Justice
 Department of National Revenue

Department of Natural Resources
 Department of Public Works and Government Services
 Department of the Solicitor General
 Department of Transport
 Department of Veterans Affairs
 Department of Western Economic Diversification
 Statistics Canada
 Treasury Board

Stakeholder groups

British Columbia Environmental Network
 Caledon Institute of Social Policy
 Canadian Centres for Sustainable Development Research
 The Canadian Chemical Producers' Association
 Canadian Environmental Network
 Canadian Institute of Planners
 Canadian Labour Congress
 Canadian Pulp and Paper Association
 Canadian Standards Association
 Centre patronal de l'environnement du Québec
 Dalhousie University, School of Resource and Environmental Studies
 DELPHI Group
 Dow Chemical Canada Inc.
 Federation of Saskatchewan Indian Nations
 Forest Alliance of British Columbia
 Grand Council of Treaty 8 First Nations
 Kluane First Nation
 Laidlaw Inc.
 Learning for a Sustainable Future
 National Round Table on the Environment and the Economy
 Nova Scotia Environmental Network
 Prince Edward Island Environmental Network
 Soil and Water Conservation Society
 Université de Moncton, Chaire d'études K.-C. Irving en développement durable
 University of Manitoba, Natural Resources Institute
 Western Canada Wilderness Committee

* up to the date of printing

List of Participants in DIAND's North of 60° SDS Workshops

** Participants were consulted on the basis of the DIAND North of 60° Issues Paper, in which EC contributed a departmental chapter.*

Métis Nation*
 Dogrib Treaty 11*
 Treaty 8*
 Dene Nation*
 Native Women's Association of the NWT*
 Inuvialuit Joint Secretariat*
 Inuvialuit Game Council*
 Nunavut Tusaavut*
 Arctic Council Secretariat*
 Canadian Arctic Resources Committee*
 World Wildlife Fund*
 NWT Council on Status of Women*
 Inuit Circumpolar Conference*
 Nunavut Wildlife Management Board*
 Inuit Heritage Trust*
 Qikiqtaaluk Wildlife Board*
 Nunavut Tungavik Inc.*
 Qikiqtaaluk Corporation*
 Arctic College*
 Nunavut Research Institute*
 Aurora Research Institute*
 BHP Diamonds*
 NWT Chamber of Mines*
 Canadian Polar Commission*

Appendix D: Greening Government Operations

EC will demonstrate sustainable development leadership within the federal government by adhering to the following operational environmental guiding principles. Senior managers, along with every employee in EC, will be responsible for ensuring that these principles are fully integrated into their day-to-day activities.

Operational Environmental Guiding Principles

Pollution Prevention: We will use and develop processes, practices, materials, products and energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health and the environment.

Procurement: We will purchase products and services that meet environmental specifications wherever these are available, and consider product life-cycle costs when making purchasing decisions. We will also expect high environmental standards from our suppliers.

Resource Stewardship: We will reduce our consumption, make efficient use of renewable and non-renewable resources, and reuse and/or recycle waste materials wherever feasible.

Legal Compliance: We will ensure that all of our operations and facilities meet or exceed federal environmental statutes, regulations and standards, and are compatible with provincial, territorial, municipal and First Nations environmental statutes, regulations and

standards for the jurisdiction in which they are located.

Assessment and Remediation: We will consider the potential environmental impacts of all new undertakings and contain, mitigate or remediate risks arising from our past actions.

Employee Awareness and Training: We will integrate sustainable development principles into our existing training programs and, where necessary, develop new programs and tools to guide our sustainable development thinking.

Monitoring and Reporting: We will monitor and measure our progress towards achieving sustainable development on a regular basis and report this information to Canadians in a timely and forthright manner.

Sharing Knowledge: We will openly share our knowledge of environmental management and promote the use of sustainable development principles.

Environmental Auditing: We will regularly conduct environmental site audits and environmental management systems audits and respond to the findings and recommendations of these audits in a timely manner.

Continuous Improvement: We will work to continuously improve our environmental performance and the integration of sustainable development principles into our planning process.

Background

EC employees have implemented internal practices to reduce waste and conserve resources in their day-to-day operations on a selective and ad-hoc basis since the department was formed.

In 1992, the government adopted the Code of Environmental Stewardship as a commitment to the concept of sustainable development and a pledge to integrate environmental considerations into day-to-day operations. The April 1995 policy on Greening Government Operations took the concept of environmental stewardship a step further by stating that the government would adopt a pollution prevention approach, meet or exceed federal environmental regulations, emulate recommended best practices in various key priority areas, and develop and implement environmental management systems (EMS) as a method of ensuring that environmental objectives are properly considered and implemented.

The Code also initiated a more formal approach to greening operations. Many regions and facilities in EC established teams to accelerate the introduction of green practices and to identify local opportunities for action. The Greening Operations Branch, formed in early 1994, has provided leadership and coordination for greening activities, and fostered corporate, regional and facility-level action.

In June 1995, with the publication of the guidance document *A Guide to Green Government*, federal departments were directed to take actions to "green" their operations, policies and programs. Later that summer, EC's Office of Federal Environmental Stewardship published *Directions on Greening Government Operations*, which provided departments with a comprehensive approach to achieving sustainable operations.

Formalizing Environmental Management and Green Operations: Selecting an EMS Model

In 1994 the department began looking at options for developing a comprehensive and systematic method of managing environmental obligations associated with internal operations. Based on that review, and on Canada's extensive involvement in the development of standards for environmental management through the International Organization for Standardization (ISO), the department elected to follow the EMS model outlined in ISO 14004.

EC launched its EMS process in June 1995. A national EMS team was formed to design the department-wide system and to begin implementation. The national team includes an EMS coordinator for each of the department's five geographic regions, one for each of the three program services, and one in headquarters who provides coordination and technical support.

Key Features of EC's Environmental Management System

Although EC's EMS is based on the ISO 14004 model, it also possesses a number of other unique characteristics. It is:

- designed collaboratively by headquarters, regions and services;
- based on department-wide system guidelines and minimum requirements that are to be followed consistently across the department, but that provide reasonable flexibility for specific implementation mechanisms and timelines;
- operationally decentralized and modular, consisting primarily of a coordinating

- framework made up of five regional, one headquarters and three service environmental management systems;
- focused on the internal operations of the department;
- organized around 23 priority environmental risk areas (e.g. underground storage tanks, ozone depleting substances) and green improvement opportunity areas (e.g. vehicle fleets, building energy conservation) referred to by ISO 14004 terminology as environmental aspects;
- fully integrated with existing departmental and regional management systems;
- designed to recognize and incorporate existing greening initiatives in areas such as vehicle fleet, solid waste, and building energy;
- aimed at ensuring compliance and preventing environmental risks, and at pursuing opportunities to green operations to achieve continuous improvements in environmental performance; and
- structured and resourced to accommodate an initial design and development phase and an implementation and maintenance phase.

Description and Status of Major EMS Components

EC has assigned corporate responsibility for developing its EMS to the Assistant Deputy Minister of Corporate Services. The Environment Management Board (EMB) and Regional Management Boards (RMBs) are responsible for reviewing and approving components of the system. For example, they have approved the Operational Environmental Policy and Guiding Principles on how the

department will conduct its operations to minimize its impact on the environment. Communicating this policy and producing a clear statement of senior management commitment and expectations were important early steps in engaging all employees.

An Initial Environmental Review (IER) commenced in early 1995. All regional and site components of the IER, including initial site reviews of representative types of different facilities, are expected to be completed by Spring 1997, with documentation to be collated by headquarters staff. The information gathered has been fundamental to the design of the EMS, to the identification of both national and regional priorities for action, and to the documentation of a number of sound practices already in place but not systematically managed. A review of relevant federal legislation and government policy with which EC must comply was also carried out as part of the IER, with each region responsible for identifying provincial environmental legislation relevant to its jurisdiction.

An annotated list of 23 national environmental aspects (priority risk and opportunity areas) has been finalized. The aspects are: fumehood, boiler and incinerator emissions; ozone-depleting substances; wastewater discharge; solid waste management; hazardous waste generators; landfill; water and energy conservation; other hazardous substances; PCBs in use and in storage; aboveground and underground storage tanks; ground transportation; land use management; potentially-contaminated sites; environmental irritants; spills; procurement; human resource management; and environmental assessment. These will help to provide focus and operational structure for the ongoing planning and implementation components of the EMS.

Aspect-specific working groups will use EC's EMS framework and specific guidance documents to complete the planning, implementation and measurement steps of sound environmental management (in short, a mini-EMS). This will be accomplished by: developing environmental objectives and targets; developing environmental performance indicators for each aspect; developing specific action plans or procedures to reach targets; and measuring and reporting on results to both operations staff and senior management using the indicators selected.

The EMS Framework Document outlines the specific responsibilities of key departmental positions, the EMB and RMBs, EMS coordinators, and EMS teams and committees for various aspects of the EMS. These responsibilities are specified for both the initial design and development phase as well as for the ongoing operation and maintenance of the EMS. Aspect-specific procedures or action plans, or facility operation guidelines will detail specific environmental protection responsibilities associated with operations managers and specific employee positions.

Other key components of the EMS include continued selective use of environmental audits on large facilities, periodic department-wide environmental performance reporting, EMS operational documentation and records management, ongoing legislative tracking and updating responsibilities, and procedures for the audit and review of the EMS itself.

Greening Government Internationally

The Government of Canada is clearly showing international leadership when it comes to the greening of government operations.

Following are several examples of how Canada is cultivating a heightened international interest in this issue:

- greening government was included as an agenda item at a meeting of G-7 environment ministers in Hamilton in 1995;
- EC has played a key role in discussions and carried out a great deal of work (including the creation of a special Web site) as a member of the OECD working group on greening government;
- an international workshop, co-hosted with Japan, was held on greening government operations at Globe 96 in Vancouver; and
- green procurement has been the topic of various international workshops and will be the focus of an OECD conference in Geneva in the spring of 1997.

EC has been and continues to be an active participant in the development and utilization of ISO environmental standards. These standards will help to raise the level of environmental performance for Canadian industry and will also help to minimize barriers to trade. The department has also been instrumental in the design of a national certification scheme to ensure the effective use of these standards. Though these standards have not been aimed strictly at government, the Government of Canada is adopting them.

Planning for Action

EC has undertaken many actions over the years. Following are examples of these, along with specific targets that have already been set:

Waste: The department has implemented an innovative waste reduction initiative that fosters behavioural change among employees. No Waste has diverted 72 percent of the total waste generated at EC's office facilities in the National Capital Region from landfill (its goal is 80 percent by end of 1997-98). The program has

been exported to regional offices as well as numerous other government departments, and has received considerable recognition on the international scene. Information kits have been forwarded to representatives from Japan, the United States, the United Kingdom, France, Spain and other OECD countries.

Fleet: An action plan and policy for fleet management are already being applied. EC is working jointly with Natural Resources Canada (NRCan) to convert many of its vehicles to alternative fuels (more than 10 percent have already been converted). Green Driver training has been developed and provided in all regions. The Department has also disposed of many vehicles in the past several months, and will continue to do so. Its goal is to reduce the departmental fleet from 771 vehicles (in August 1995) to 540 by the year 2004, by which time an estimated 75 percent of new vehicles will operate on alternative fuels.

Energy: The first Energy Performance Contract (EPC) under the Federal Buildings Initiative (FBI) was awarded for a retrofit of the Canada Centre for Inland Waters (CCIW) in Burlington. This project, which also included the installation of an electrical co-generation unit, is expected to provide energy savings of \$850,000 annually after a seven-year payback period.

EC is a tenant in two Public Works and Government Services Canada (PWGSC) owned facilities that are currently undergoing FBI program retrofits: the facility at 4905 Dufferin Street in Downsview, and the Harry Hays Building in Calgary. Each project is expected to produce annual savings of over \$275,000. An FBI project has also been approved for Place Vincent Massey, the first effort of its kind in the federal government to take place in a leased facility.

An opportunity analysis was carried out to determine the feasibility of using the FBI program to make all EC-owned facilities energy and water efficient. As a result of an Expression of Interest that was recently issued for a national set of facilities, the department will be going forward with a Request for Proposal (RFP) this summer. EC was also instrumental in bringing to fruition a PWGSC-managed light replacement project for the 66,000 ballasts in Hull's Terrasses de la Chaudière. This project is an example of a situation where a full FBI project would not have been cost effective. This will save the Crown over \$200,000 per year.

Water: The FBI project at the Canada Centre for Inland Waters also included water efficiency measures, such as using water directly from Hamilton Harbour for landscaping, and using a reverse osmosis system to decrease (by 80 percent) the amount of water needed to produce distilled water for experiments. These measures also generated substantial cost savings. Other initiatives include using drought-resistant plants in a relatively new office in Kelowna, British Columbia, and the installation of water-saving devices such as low-flush toilets and showerhead restrictors in many buildings. Similar measures are planned for all FBI projects.

EC has been a driving force in this country behind more efficient water use and related issues (e.g. realistic water pricing, water metering, demand management). Formed in December 1990, the Interdepartmental Advisory Group on Water Conservation at Federal Facilities (WCFF), chaired by EC, developed the Water Conservation Plan for Federal Government Facilities and the accompanying Manual for Conducting Water Audits and Developing Water Efficiency Programs at Federal Facilities. The WCFF was also instrumental in amending the plumbing fixtures section of the National Master Specifications to

reflect water efficiency, and in including water efficiency measures in the FBI program.

Procurement: EC has already developed and issued a green procurement policy. An electronic green products directory has been implemented in Prairie and Northern region, with a National Capital Region version soon to be released. EC's green accommodation standards have been accepted as part of its Master Occupancy Agreement with PWGSC, who will use them as standards across the public service. The greening of government operations was also part of the Material Management National Workshop EC chaired in May 1996. In the fall of 1996, the Department organized a national green procurement workshop that involved the participation of federal, provincial and municipal jurisdictions, as well as suppliers. It will be followed by the creation of a federal-provincial green procurement panel aimed at positioning green purchasing as a tool for achieving wider government objectives.

Compliance: Environmental audits have been conducted on all major facilities and remedial actions taken in a number of cases of compliance-related issues. The department has a complete inventory of PCBs in use and in storage, and participated in the first shipment of federally-stored PCBs for destruction. Almost all remaining PCBs in storage have already been sent for destruction. Ontario region has created a management strategy for ozone-depleting substances in federal facilities that has been successfully piloted at the River Road Environmental Technology Centre and is being rolled out to other EC facilities. The Department has completed an inventory of its contaminated and potentially-contaminated sites, developed a framework for managing these sites over the coming years, and commenced containment and remediation activities.

Labs and Institutes: The laboratory community within EC has long recognized the need to consider the environmental hazards and consequences of the things it does and the way it does them. There have been many efforts to green EC's day-to-day lab operations, including the handling of lab wastes and the design and operation of lab facilities. In the case of operations, many policies with beneficial environmental impacts have been implemented. The quantities and types of chemicals used are being reduced and new technologies (some of which have been patented and are now generating revenue for the Department) are helping to reduce chemical and energy consumption. In the area of waste management, a variety of means are being employed to prevent, reduce and dispose of waste. These include solvent recycling, on-site solvent repurification and re-use, and the donation of excess chemicals to other labs and institutions. Building maintenance and upgrading have also presented many opportunities for environmental stewardship. Among these are the use of direct groundwater heating and cooling; fume hood upgrades that significantly reduce energy and operating costs; direct digital controls on air handling systems; low-energy lighting; and the inspection, replacement and removal of underground storage tanks.

Conclusion

EC recognizes that it must have its own house in order if it is to effectively promote the greening of government operations to others. The Department will continue to demonstrate leadership by taking concrete actions on many different fronts. Similar initiatives by other federal organizations, made possible through the capacity-building efforts of the past several years, will result in shared leadership across the federal family.

Appendix E: Issue Scan Summary

An issue scan was undertaken as a preliminary step in the development of EC's SDS, as specified in *A Guide to Green Government*. This scan was based on a review of existing domestic and international analyses and on departmental consultations. Its goal was to identify the key issues affecting the department's ability to make further progress towards sustainable development.

The central premise of the scan is that the increasing scale and diversity of sources of environmental pressure (e.g. population growth, industrialization), and the increasing magnitude and complexity of environmental risks (e.g. climate change, environmental security) require government, EC and Canadians themselves to take a proactive role in defending the public interest. The following summary presents an overview of the conclusions of the scan, according to five main questions.

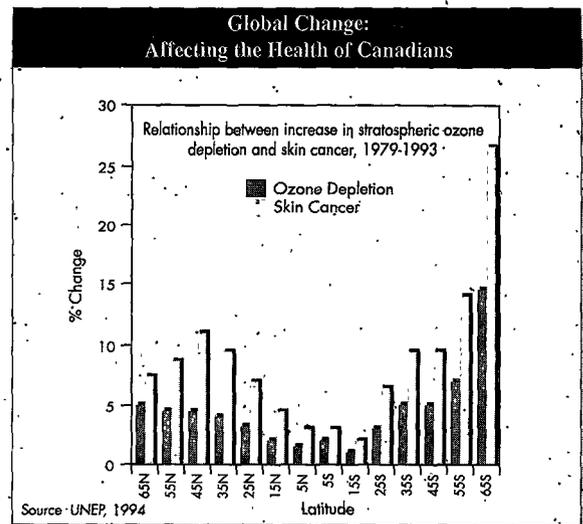
Question 1: Will the quality of the Canadian environment increasingly be determined by actions beyond our borders?

The following pressures will increase in the future as global population and the level and distribution of manufacturing and other economic activities also increase:

- long range transport of airborne pollutants such as mercury and PCBs;
- cross border air and water pollution such as SO₂, NO_x, and VOCs;

- loss of migratory species habitat in the Americas; and
- global issues such as climate change, ozone depletion and biodiversity loss.

Figure 1

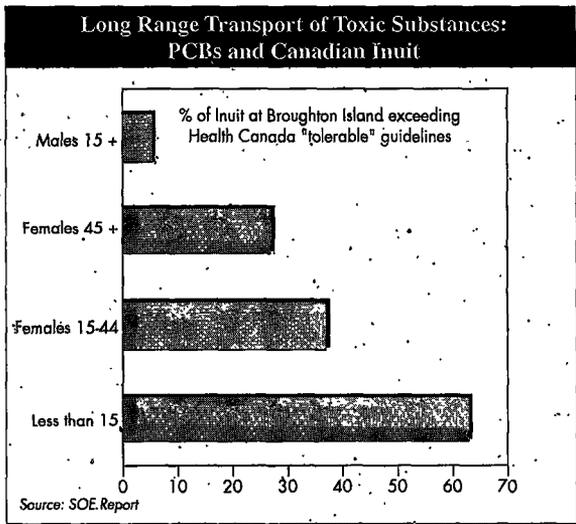


These trends emphasize the need for EC to pursue:

- a coordinated international strategy;
- active engagement in multilateral and bilateral accords;
- opportunities to influence the implementation of commitments at home and abroad;
- an aggressive technology development and export promotion strategy; and

- cooperation on priority setting and implementation within the federal government and with provinces.

Figure 2



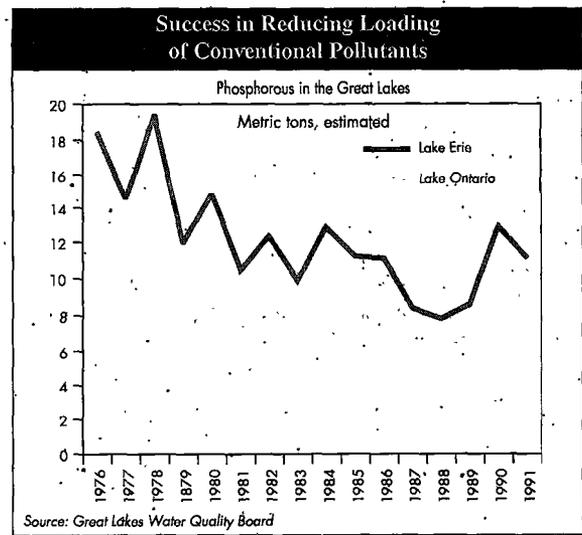
Question 2: Will maintaining past rates of progress in the face of increasing resource demands require preventative strategies?

Although we are still in the process of cleaning up pollution and reversing environmental damage, we will gradually enter a phase in which the main task will be prevention. The "easy" steps have already been taken, and significant reductions have been achieved in the loading of conventional pollutants — such as phosphates, heavy metal and organochlorine contaminants in our water and SO₂, VOCs and lead in our air—from key point sources.

However, the rate of progress has slowed in recent years. Point sources now account for only 10 percent of total pollutant loading in the Great Lakes. Air quality improvements of recent years are forecast to level out largely due to increases

in total energy use. Canada now confronts the more complex and less easily remedied problems like non-point sources of pollution, global change, site remediation and the invasion of exotic species. These emerging problems share the characteristic of being deeply rooted in our social and economic systems, and are not susceptible to exclusively command and control approaches.

Figure 3



This emphasizes the importance of promoting systemic and preventative strategies. EC's approach, therefore, should concentrate on:

- influencing social and economic factors through a broad range of policy instruments;
- encouraging the widespread adoption of approaches such as pollution prevention, ecosystem management, integrated land-use planning and sustainable production and consumption; and
- moving from end-of-pipe solutions for dealing with pollution towards those

involving cleaner technology and production.

Figure 4

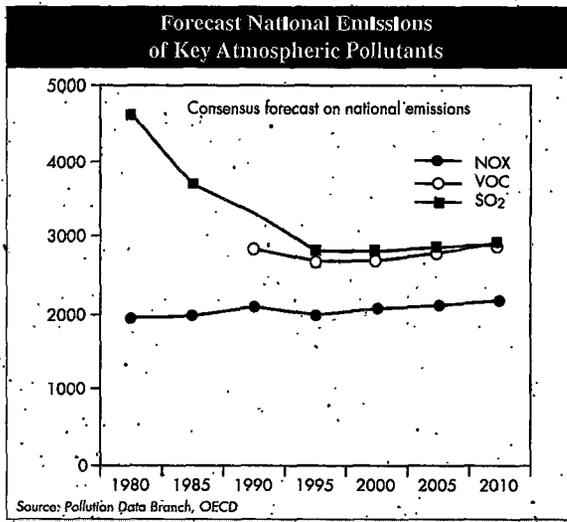
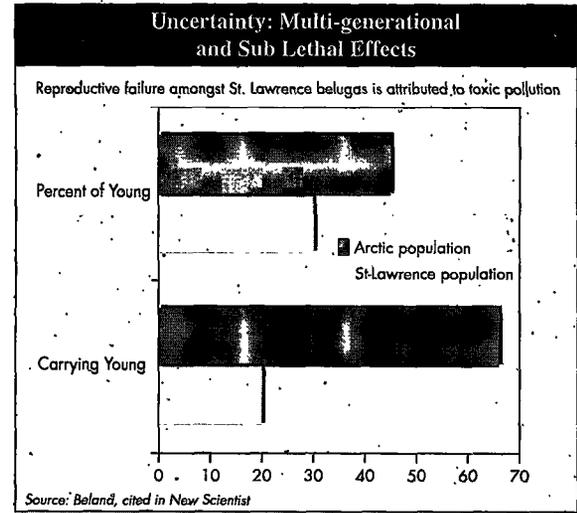


Figure 5

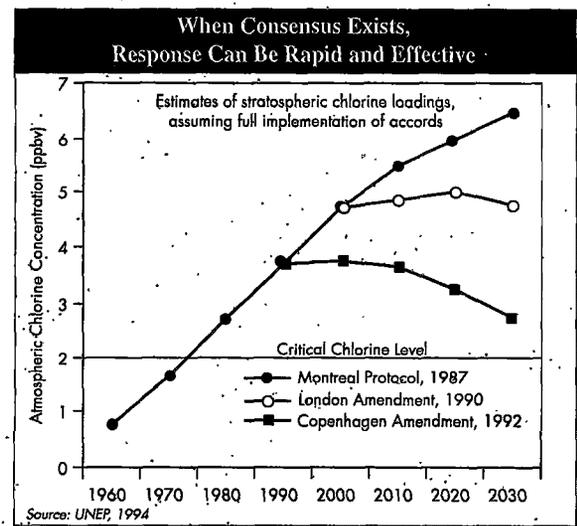


Question 3: Will the creation and dissemination of knowledge remain critical to building societal consensus on issues and alternatives?

52

The departmental knowledge base has been key to setting direction and targets in areas such as air quality, water quality, species conservation, climate change and weather forecasting. When consensus exists, response can be rapid and effective, as demonstrated by the phasing out of... Lack of societal consensus on dominant risks, threats and opportunities remains a significant obstacle to further progress. Our knowledge in some significant areas — particularly in economic and social antecedents and consequences, health-related effects, and the dynamics of ecological change — is fragmentary and uncertain.

Figure 6



EC's challenge, therefore, lies in building consensus under conditions of imperfect information. This entails a need to strengthen the link between information and decision-making by:

- expanding on its base of scientific knowledge;
- communicating effectively with the public;
- fostering an evidence-based decision-making culture;
- measuring performance through the development and integration of indicators by monitoring changes and assessing the success and failure of policy and program alternatives;
- broadening the base of information to which decision-makers have access;
- integrating and synthesizing information across a broad range of physical and socio-economic disciplines; and
- applying tools like risk assessment in priority setting.

industries and by creating an attractive investment climate.

Figure 7

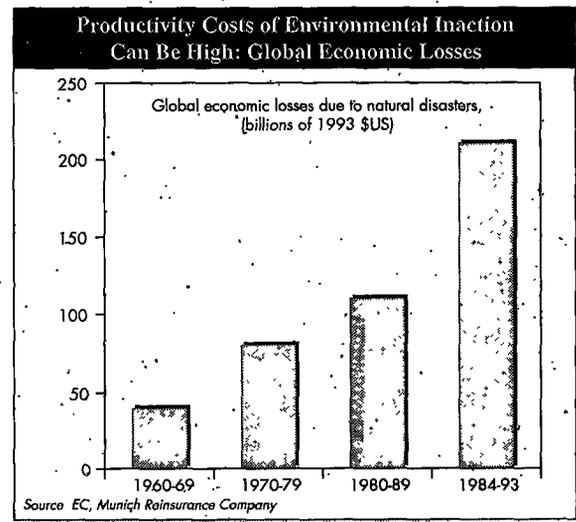
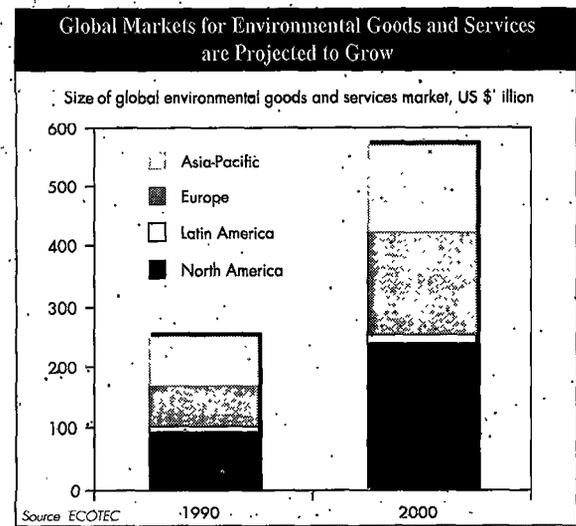


Figure 8

Question 4: Will fear of the effects of environmental protection on competitiveness remain a significant challenge in building consensus on action?

Societal consensus is lacking on the effects of environmental protection on competitiveness. On the one hand, environmental action has the potential to affect both investment climate and the cost position of industries, firms and regional economies. These sectoral effects will be significant factors in the negotiation of goals and approaches. On the other hand, the societal costs of environmental inaction can be high. Canada spends money to care for pollution-related illnesses, repair the damage caused by natural disasters, and remediate contaminated sites. Environmental action has been demonstrated to lead to economic gains for Canadian society by stimulating the growth of environmental

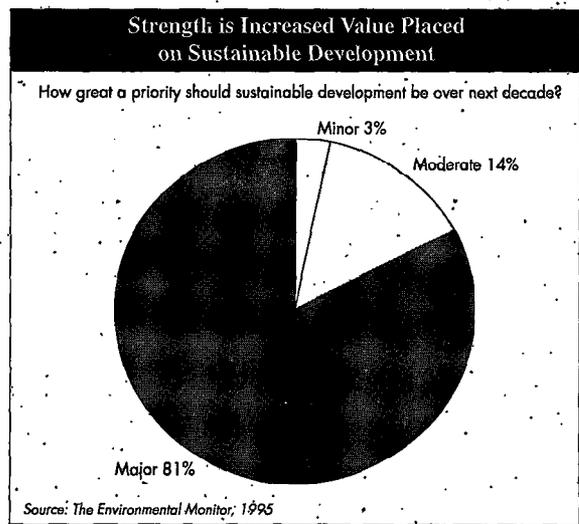


EC, therefore, needs to pursue a strategy wherein environmental goals are achieved in a cost-effective manner that creates jobs and improves national productivity over the long term. This can be accomplished by:

- improving understanding and communication of competitiveness effects;
- developing policies and programs that demonstrate and deliver value for money; and
- ensuring a level playing field, both domestically (through consistent inspection and enforcement) and internationally (through international trade rules and standards).

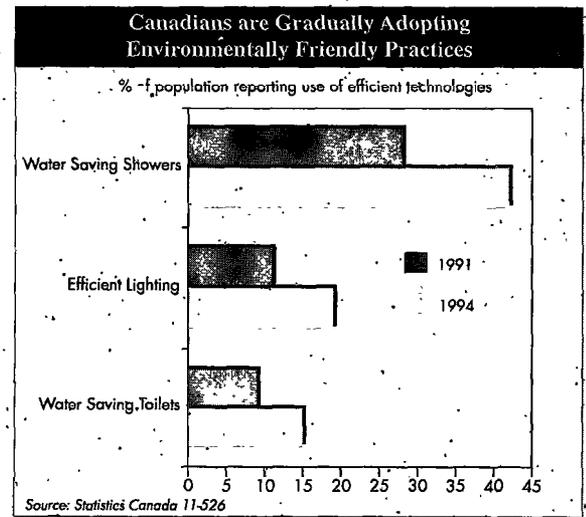
Question 5: Will progress towards achieving sustainable development depend on building society's capacity to anticipate and prevent?

Figure 9



Sustainable development is a goal that requires the involvement of all Canadians. In recent years, the engagement of members of the public, industry and government in environmental activities has increased significantly. Community action has been critical to progress made restoring sites in the Great Lakes/St. Lawrence, Atlantic, and Fraser River Basin regions. Industry initiatives have contributed to a significant reduction in toxic effluents and emissions. Canadians are using more environmentally-friendly technologies. In spite of these successes, however, the level of environmental literacy of Canadians in general and key stakeholders in particular remains low, and will be an obstacle to progress on complex long-term issues that lack media visibility.

Figure 10



The strategy needed is one that focuses on building partnerships and influencing behavior and decision making by:

- strengthening and building better mechanisms for listening to and consulting with stakeholders before policies are adopted or reformed;

- forming new alliances with Aboriginal people, youth, industry and others, some of whom have been underrepresented in the past, to build a constituency for change;
- ensuring that information is easily available to policy makers, citizen groups and the general public (e.g. NPRI, right to know legislation); and
- continuing to support community-initiated action.

Issue Scan Conclusions

EC's success in dealing with the foregoing issues will depend on its ability to:

- evolve its departmental capacity to mediate, facilitate, coordinate and catalyze consensus building;
 - develop a shared understanding among Canadians, other government departments and industry of competitiveness effects, the role of government, and the nature of ecological risks;
 - put its environmental protection role into a socio-economic context by developing strategies to influence social and economic actors, both domestically and internationally, and by accounting for socio-economic effects in the design of policies and programs; and
 - strengthen partnerships with key societal actors, including other government departments, other governments, industry, academia and community groups in order to set priorities and implement international commitments.
-

Appendix F: Cross-Cutting Issues

Many issues that are significant for sustainable development are broad in scope and cut across the interests and mandates of government departments. Examples of such cross-cutting issues include climate change and variability, the North, science and technology, the federal freshwater strategy, and biodiversity. Because government coherence on sustainable development is essential to the SDS process, these kinds of issues will be addressed in all departmental strategies. The following is a brief description of the nature of these cross-cutting issues and the steps being taken to address them within government.

1. Climate change and variability, and sustainable development

56

Context

Although greenhouse gases (GHGs) such as water vapour (H₂O), carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) are transparent to solar energy, they trap much of the heat radiation re-emitted by the earth's surface. They serve, therefore, as an insulating blanket that keeps the surface of the planet warm.

Since the beginning of the Industrial Revolution 200 years ago, the activities of a rapidly expanding and industrializing human population have added more GHGs to the atmosphere. These increases in concentrations are causing profound changes to the earth's climate system.

Climate change is a major sustainable development issue that calls for the integration of social, economic and environmental concerns.

It demands concerted action across all sectors of Canadian society, including government, the private sector and the general public. Federal departments and agencies are launching new initiatives and building on existing ones to implement an effective climate change agenda.

Response

The Government of Canada takes a three-pronged approach to leading the way on this issue. It participates in national and international efforts to better understand the science of climate and climate change. It sets an example to others by getting its own house in order. Most importantly, it encourages action by others across all sectors of the economy through strong partnerships and a range of voluntary and regulatory initiatives.

The National Action Program on Climate Change (NAPCC) was developed and agreed upon by all federal and provincial/territorial energy and environment ministers. It sets the strategic course Canada will take to limit GHG emissions. Ministers met December 12, 1996, to review progress being made under the NAPCC and at that time over 40 federal actions to address climate change were announced. These ranged from actions on science and new regulations for energy efficiency to strengthening voluntary programs and undertaking climate change outreach initiatives that will help the public better understand what the problem is and how to help solve it.

Science underpins Canada's response to climate change. EC scientists, along with scientists in

other federal departments and universities, have been furthering knowledge in areas such as climate monitoring, climate process research (e.g. global carbon cycle, atmospheric chemistry), climate modeling, and climate impact and adaptation research. Canada participates in international, collaborative projects such as the Boreal Ecosystem-Atmosphere Study, the Global Energy and Water Cycle Experiment, and the Global Climate Observing System. EC leads the Canada Country Study, which is a national, integrated assessment of the social, biological and economic impacts of climate variability and change in Canada.

Because climate change is a global, multi-disciplinary issue, coordination across departments, sectors and nations is imperative. The federal government encourages scientists, including social scientists and economists, to participate in the Intergovernmental Panel on Climate Change (IPCC), the United Nations organization responsible for developing consensus assessments of the scientific and technical aspects of climate change. In December 1995, the IPCC completed its second Assessment Report, in which Canadian science and experts played a significant role. The complete assessment totals some 2000 pages, involved over 2000 scientists and technical experts, and took almost three years to complete. The IPCC provides critical scientific input for international negotiations under the Framework Convention on Climate Change.

The Program on Energy Research and Development (PERD) is an interdepartmental funding program led by Natural Resources Canada that is responsible for coordinating much of the federal government's energy research and development. Its annual budget of approximately \$60 million is distributed among 10 departments and agencies. In the mid-1980s, PERD focused a portion of its budget on the

issue of greenhouse gases and climate change, allocating part of its budget to climate change prediction and detection, impacts, and sequestration and disposal. EC is a key participant in the climate change research done through PERD. The department is also an active participant in transportation issues, renewable energy sources, energy efficiency, and environmental issues related to the production and end use of hydrocarbons.

Climate change and variability is one of the issues being addressed under a Memorandum of Understanding signed by the four natural resources departments. An interdepartmental working group has developed consensus among stakeholders on the state of the science of climate change. In 1996-97, the working group prepared a document based on the key findings of the 1995 Report of the Intergovernmental Panel on Climate Change and relevant Canadian studies. The document focuses on the physical science and does not include detailed information on the possible impacts of climate variability and change. The next challenge is to develop a process to prepare a common document on the potential impacts of climate change in Canada.

The Climate Change Voluntary Challenge and Registry (VCR) program is a federal/provincial initiative that encourages industry, government and public institutions to take voluntary actions to limit or reduce net greenhouse gas emissions. The VCR is central to Canada's National Action Program on Climate Change (NAPCC). A November 1996 progress report, released by Natural Resources Minister Anne McLellan, highlights the commitment of over 600 firms in all economic sectors to address climate change. The Government of Canada's submission to the VCR, the Federal Action Program on Climate Change, commits the federal government to reduce its own emissions of GHG by 20 percent by 2005. EC is working to inform Canadians

about the causes and sustainable development impacts of climate change and to engage the public, industry and other levels of government in taking action to reduce emissions of GHG.

2. Canada's North and sustainable development

Context

Canada's North is a vast and diverse region that contains some of our largest river systems, extensive forested areas, open tundra and unspoiled wilderness. This area comprises 40 percent of Canada's total land mass and is surrounded by two thirds of Canada's marine coastline. Despite the fact that much of the North is considered a "cold desert" because of the low precipitation it receives, more than 30 percent of our freshwater resources are found in this area. Although fewer than one percent of Canadians live in this region, it is home to many Aboriginal societies. For generations, these societies have come to depend on the land as a basis of their culture, and have relied on its resources for food, clothing and income.

The challenges for sustainable development in the North are many. They include protecting the option of pursuing a traditional Aboriginal lifestyle, facilitating the move to a more cash-based economy, and ensuring that economic development and growth of populations are sustainable and do not harm northern ecosystems. The traditional dependence of Aboriginal people on the land and its resources forms the basis of their society, culture, and economy. Change, occurring most notably through Aboriginal land claims, provides unique opportunities for the integration of environment, economy, and social/cultural considerations in all phases of decision making.

Some initiatives for sustainable development in

the North are underway at community, territorial, federal, and international levels. These include Aboriginal land claim agreements (including co-management arrangements), the establishment of protected areas, and the national Arctic Environmental Strategy.

Response

The Government of Canada launched the \$100-million, six-year Arctic Environmental Strategy (AES) in 1991. The strategy is one of the primary federal vehicles for promoting sustainable development in Canada's North. Its goal is to preserve and enhance the integrity, health, biodiversity, and productivity of northern ecosystems for the benefit of present and future generations. It has four key components:

- **Contaminants:** The Northern Contaminants Program, aimed at reducing and, where possible, eliminating contaminants in traditional foods, has helped to identify the long-range transport of pollutants as a major source of contamination. A comprehensive assessment of contaminants in northern ecosystems and their effects on the consumption of traditional foods is now in progress. More than 100 research projects, designed to answer questions about the sources, pathways and sinks of various environmental contaminants have been conducted with the full participation of northerners.
- **Waste:** The goal of this program is to eliminate hazardous and unsightly material and equipment abandoned in the North. About 900 waste sites have been identified, and more than 400 have been cleaned up. Aboriginal and community groups have lent support and local contractors have been employed in a large number of the projects. Two major projects were cost shared with EC's National Contaminated Sites

Remediation Program, for a total federal allocation of \$3.9 million. About one third of those funds were devoted to the assessment of DEW Line/NWS sites, and another third to remediating tailings at the abandoned nickel mine at Rankin Inlet.

- **Water:** This component has developed a comprehensive aquatic ecosystem program that combines water quality, water quantity, snow, contaminants, and biological monitoring sub-programs in both territories. The program responds to local, Aboriginal, and industrial concerns about the productivity, health, and safety of northern aquatic ecosystems. Over 100 monitoring stations have been built to assess water quality and quantity. Another initiative has been the Northern Aquatic Food Chain Contamination Database, to help manage the extensive data being generated in recent years and to make them readily accessible to researchers in Canada's North and Kalaallit Nunaat. Data distribution began in early 1994.
- **Environment/economy integration:** This program promotes cooperative, short-term projects at the community level that will provide long-term environmental and economic benefits. Projects that develop and use traditional values, knowledge, and resources are emphasized. More than 45 northern communities have designed and carried out their own environmental action projects, such as commercial fisheries and ecotourism.

Northern S&T Strategy

In May 1996, an ADMs' Committee on Northern Science and Technology (S&T) was established to provide a forum to facilitate the development of a federal S&T strategy for the North. The Committee, chaired by DIAND, is intended as a

forum to exchange information, collaborate on meeting the urgent needs for northern science and technology and develop a federal strategy. The strategy will be geared to maximizing the return on federal science and technology investment so that the activities and results address the needs of sustainable development for the North and all of Canada. The strategy will, when fully operational and in consultation with Northerners, enable federal departments and agencies to carry out their Northern science responsibilities in a more effective and efficient manner.

3. Memorandum of Understanding on Science and Technology (S&T) among the Four Natural Resources Departments

Context

Sustainable development is one of the seven principles set out in the report on the federal science and technology review, *Science and Technology for the New Century*.

The four natural resources departments (Agriculture and Agri-Food Canada, EC, Fisheries and Oceans Canada, and Natural Resources Canada) signed a Memorandum of Understanding (MOU) on science and technology for sustainable development. The MOU, signed by the Deputy Ministers of the four departments, is renewable every three years.

The MOU unites the departments in finding ways to optimize the use of S&T to achieve sustainable development goals. It is an agreement among the departments to increase coordination, to work together on joint projects and to implement a framework for sustainable development S&T in the natural resources sector. Under the MOU, the four natural resources departments agree that S&T for sustainable development should contribute to

one or more of the following objectives:

- the development of a knowledge base on ecosystems, the natural limits of resource use, and the risks associated with resource development;
- an understanding of the relationships between the resource base, ecosystems, and the health and stability of Canadian communities;
- the management of public health and environmental risks, including those stemming from resource exploitation activities, in an economically-achievable manner;
- the equitable distribution of costs and benefits from resource use among present and future generations of Canadians;
- the efficiency of renewable and non-renewable resource extraction and utilization; and
- the development of value-added products derived from the resource base.

The MOU has been implemented through a series of committees. The senior steering committee is comprised of Assistant Deputy Ministers from the four departments. A Directors General's committee was also established, which meets on a regular basis to review and steer the efforts forward. Reporting to the DG's committee are various working groups that plan and coordinate the work towards achieving the goals and objectives of the MOU. Working groups have been established to address the following issues:

- Metals in the Environment
- Climate Change and Variability

- Communicating Science through the Internet
- Value of Natural Capital
- Atlantic Region Pilot Project
- R&D Priority Setting
- Ecosystem Effects of UV-B Radiation
- Coastal Zone Management

Because of interest and regulatory responsibilities, an additional working group is being established to examine the environmental effects of endocrine modulating substances. It is very likely that a group will also be organized to examine issues relating to the uses and effects of nutrients and fertilizers.

The four natural resources departments' MOU is also a good instrument for moving other government initiatives forward. The S&T Personnel Mobility Program follows in the wake of the wider human resources effort led by Treasury Board. Under this program, each of the four natural resources departments has agreed to create assignments for the secondment of scientists from the other natural resources departments.

Conclusions and Next Steps

The MOU has proven effective in enhancing cooperation among the four natural resources departments on S&T and, as such, has made a significant contribution to the Government of Canada's plan to implement sustainable development. As well, representation from Health Canada on some of the new working groups (i.e. Metals, Endocrines) has added further value to the MOU process.

With increased cooperation on S&T issues

among the four departments, there is interest and confidence in sharing specific management practices. There could be substantial benefit to EC and other departments in applying specific elements, lessons learned and the best practices of others in the management of S&T.

The MOU is highly supported as a model for cooperation among departments. The MOU may also prove to be a stepping stone toward integrating sustainable development S&T programs throughout the federal government. The MOU could enhance cooperation on a government-wide basis should membership be gradually expanded to include other departments whose mandates touch on specific projects.

4. Federal freshwater strategy and sustainable development

Context

Water is an essential part of all ecosystems, from the functions and life-support provided by lakes, rivers and streams, to the role of the hydrological cycle in sustaining water in its various forms. Access to adequate supplies of clean water is critical to our health, our quality of life, and Canada's competitive position. Much of our economy and jobs are tied directly or indirectly to our supplies of water — from farming, forestry, and industrial development to tourism and recreational sectors. Growth in these areas will depend on sustaining the benefits of adequate and clean water resources.

Water is clearly a horizontal policy issue linked to aspects of health, economy and environment. Responsibilities for its management are shared by all levels of government. There are at least 11 federal departments whose programs and policies either directly or indirectly affect water. This situation is mirrored, to varying degrees, within provincial and territorial governments. As a result, it is often unclear where responsibilities

for particular water issues lie.

There is a need to focus policies and actions to reflect current government priorities and directions. These include: implementing sustainable development and ecosystem approaches in water management; clearly articulating our international and transboundary commitments related to global water issues; sharing technologies and promoting Canadian business opportunities; providing the science and information needed to address new or emerging issues (e.g. climate change, exotic species); and addressing policy and program gaps in an efficient and effective manner (e.g. ground water, water export).

Response

EC, in cooperation with other departments, is developing a federal freshwater strategy.

The challenge will be to achieve consensus and commitment on a realistic approach to managing and conserving freshwater resources. It is proposed that the strategy focus on clarifying the federal role with respect to water by:

- establishing a coherent policy environment on the various aspects of freshwater management across both the department and the federal government;
- ensuring the orderly and effective implementation of government downsizing and restructuring as related to freshwater;
- refocusing efforts on current and emerging priority areas and addressing policy and program gaps in collaboration with other jurisdictions; and
- establishing or revitalizing the mechanisms

and processes for coordinating and integrating decision making on water.

The objective of the freshwater strategy process will be to engage the full range of key partners in working to define the federal role.

5. Biodiversity and sustainable development

Context

Biodiversity refers to the variety of life and its habitats at the genetic, species and ecosystem levels. It is important that life remain diverse for its own survival and recruitment, as insurance for the future, and for long-term human health and prosperity. Although scientists are only now beginning to understand this complex web of life, they recognize the critical role that biodiversity plays in supporting life on this planet, and acknowledge it as the biological foundation of sustainable development.

As stewards of these biological resources and systems, we cannot afford to take for granted the benefits and services we derive from biodiversity. The impact of human activities can now be felt across the globe as humanity appropriates an increasing amount of the earth's biological productivity to feed, clothe and shelter itself; leaving less for the survival and recruitment of all other species. These impacts include: the massive conversion of grasslands to agriculture; increasing numbers of endangered species and habitats; the destruction and fragmentation of temperate and tropical forests; the introduction of harmful alien species that disrupt normal ecosystem function and productivity; the overharvesting of all of the world's major commercial fish species; the conversion of wetlands; freshwater pollution; climate change; and the long-range transport of contaminants.

Canada contains a remarkable diversity of species, with scientists recording 71,000 different species of plants and animals. Many of these are found at the northern limits of their range and, accordingly, are specially and uniquely adapted. The reason these populations exist in Canada today is because of the presence of suitable habitats for migration, breeding, rearing and wintering. Almost half of Canada is forested land, representing about 10 percent of the world's forests. About 23 percent is tundra, and about 20 percent was once covered by natural grasslands. Canada receives about nine percent of the world's annual freshwater runoff and has the world's longest coastline. It also contains about 25 percent of the world's remaining wetlands. Together, these ecosystems support a unique and rich flora and fauna.

While estimates of the overall status of Canada's biological resources and rates of loss are not available, one needn't look far to find evidence that many of our land use activities are not sustainable from either an ecological or economic perspective. Nine wildlife species in Canada are known to have been extirpated and an additional 276 species of mammals, fish, birds and plants are at risk of extinction.

Recognizing that biodiversity loss is one of the most serious threats facing humanity, the world community responded in 1992 with the development of the United Nations Convention on Biological Diversity. Canada played an active role in shaping the Convention and was one of some 90 countries that signed it. The Convention, which entered into force in 1993, is about sustainable development involving the conservation of biodiversity and the sustainable use of land and resources. It conveys an understanding of the relationship between human activity and the natural world and the need to sustain living organisms, genetic diversity and the diversity of ecosystems.

Response

In 1995, Canada developed a national strategy for implementing the Biodiversity Convention. The Canadian Biodiversity Strategy (CBS) builds upon existing conservation and sustainable use efforts, and provides a cohesive policy framework for advancing biodiversity conservation within and across jurisdictions. It adopts an ecosystem-based approach and contains specific measures for the conservation and sustainable use of flora and fauna and their habitats. Particular attention is placed on the key role that must be played by resource-based sectors such as forestry and agriculture to ensure biodiversity conservation in the broader landscape.

The CBS is a good example of inter-jurisdictional cooperation, cross-sectoral integration, and non-governmental participation from international negotiations through to national planning and implementation.

The federal report on the implementation of the CBS, due out this year, will also reflect the collegial approach being adopted by departments in responding to the CBS. Together with provincial and territorial reports, this will provide a strong foundation for cooperative national action.

Appendix G: Selected Indicators of EC's Performance against the Department's Long-Term Results

EC uses the following selection of indicators of environmental, social, cultural and economic changes to assess its performance against its accountability framework of long-term results. These indicators are used in the department's annual performance report:

Healthy Environment

Carbon dioxide emissions from fossil fuel use in Canada
 Carbon dioxide emission trends per capita and per unit of GDP
 New Canadian supplies of ozone-depleting substances
 Global atmospheric concentration of ozone-depleting substances
 NO_x and VOC emissions in Canada
 Urban trends in median benzene concentrations
 SO₂ emissions in Eastern Canada
 National annual releases of dioxins and furans from pulp mills
 Concentrations of DDE and PCBs in double-crested cormorant eggs in the Great Lakes
 Comparison of DDT/DDE residue levels in the breast milk of women in the Canadian Arctic and Southern Canada
 Voluntary emission reductions of toxic substances under the ARET Program
 Hectares secured and enhanced under the North American Waterfowl Management Plan
 Population index for mallards
 Recovery of peregrine falcon pairs
 Percentages of different types of protected areas in Canada
 Number of species listed as being at risk in Canada
 Point source reductions of toxic effluent under the St. Lawrence Action Plan
 Trends in the restoration of degraded areas
 Trends in national enforcement activities

Safety from Environmental Hazards

Quality of numerical weather prediction
 Verification of marine warnings

Accuracy of public weather forecasts
 Client surveys of Environmental Emergencies Services
 Numbers of calls received at Environment Canada's Environmental Services Offices

Greener Society

Number of licences issued for Environment Canada's intellectual property
 Distribution of Action 21 funding over EC's areas of program priority
 Trends in percentage of population reporting use of environmentally efficient technologies
 Waste reduction in EC
 Reductions in federal fleet and rates of conversion to alternative fuels

Proposed and/or under development

Trends in application and sharing of best practices in "green operations"
 Indicators of adaptation to social and economic impacts of changing weather and climate
 Accuracy of scenarios of possible future states of the environment
 Trends in commercialization and uptake of green technologies and practices
 Job creation in the environmental sector
 Trends in export of green technologies
 Proxy measures of capacity and trends for environmentally responsible decision making
 Rates of conversion to energy efficient technologies
 Trends in the level of Canadians' environmental knowledge
 Trends in environmentally responsible consumer behaviour
 Trends in the valuation of natural capital