ENVIRONMENT CANADA BUSINESS PLAN 1995/96 – 1997/98

JUNE 1995

Environment Canada | Environnement Canada

Canada

A MESSAGE FROM THE DEPUTY MINISTERS

Despite the profound changes that are taking place in all modern governments, we are very proud of the many accomplishments of Environment Canada over the past year.

From a policy perspective, sustainable development has been moved closer to the centre of the government's agenda with the proclamation of the Canadian Environmental Assessment Act, the decision to establish the office of the Commissioner for the Environment and Sustainable Development, and introduction of the concept of departmental Sustainable Development Strategies, including a greening of government initiative. From a program perspective, we have moved the international and national agendas forward on a number of fronts, including climate change and other air issues, biodiversity and endangered species, toxics and pollution prevention.

From a management perspective, we have moved to results-based Main Estimates, managed a difficult and challenging Program Review which preserved most critical activities, and produced this, our first Business Plan under the government's new Expenditure Management System.

This document is much more than just a plan. It is what we as a department will be held accountable for over the next three years, including the results and key deliverables which we have undertaken to deliver, and our accountabilities with respect to implementing Program Review. We will, therefore, be taking each and every one of these commitments to the government and to Canadians very seriously.

We believe this Business Plan gives us a strong and relatively stable framework within which to build. Over the coming months, the senior management team will be focusing on strengthening broad direction within that framework. We will be calling upon both our clients and our staff to help us build a stronger and more integrated array of results and deliverables consistent with that direction, so that next year's Business Plan will be even better. We will be seeking new and innovative ways to serve our clients better.

We are confident that we can meet our commitments, and that as a consequence, Canadians will continue to value the department's contribution to the environment and to their daily lives.

Mel Cappe
Deputy Minister

Janice Cochrane
Associate Deputy Minister

June 1995

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CHAPTER 1
DEPARTMENTAL OVERVIEW

Outlines the evolution of Environment Canada's role and business lines; identifies key challenges affecting its service lines; and sets out new directions to deal with change, and a spending profile by business line for the three year period covered by this Business Plan.

ENVIRONMENT CANADA'S EVOLVING ROLE

Environment Canada'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.

Since its inception in 1971, Environment Canada's services to Canadians have encompassed: the protection, conservation and restoration of the environment; federal environmental regulation and policy making; and warnings of, and protection from environmental risks.

Environment Canada's mandate has not changed; but the range and character of the issues with which it must deal have evolved considerably. For example, issues like toxics, stratospheric ozone and biodiversity are inextricably linked, and cannot be managed in isolation from each other. Issues have also become increasingly intractable; biodiversity and climate change, for example, are not amenable to short term solutions or localized control. Increasingly, environmental problems are becoming global in scope as the unsustainable practices of every nation are recognized to affect the well-being of all.

In response to these changes, Environment Canada's **focus has had to evolve** from largely unilateral efforts to control the sources of environmental damage and clean up past mistakes, to the **prevention of environmental degradation through responsible decision-making by all Canadians**. Given the global scope of many environmental issues, the geographic scale of Environment Canada's interest has necessarily shifted to increasingly large national and international ecosystems, and the representation of Canada's national interests on the international stage.

The recognition that the environment and the economy are inextricably interconnected means that the environment can only be managed effectively within the broader context of economic and social development. This broader perspective changes the very nature of how we must address both problems and opportunities.

The response of Canada and many other nations has been to embrace the vision of sustainable development (at its core: the integration of environmental, economic and social considerations in responsible decisions "from the kitchen table to the Cabinet table") and to employ a strategy of engaging citizens as partners in shared responsibility for sustaining the environment. Sustainable development does not set aside the traditional roles of governments in protecting environmental integrity, but builds upon and encompasses them.

The mission of Environment Canada is to *foster a national capacity for Sustainable Development*. According to the 1992 Earth Summit blueprint, ***Agenda 21***, a "national capacity for sustainable development" would include a comprehensive framework of environmental regulation and enforcement, accessible environmental information and education, a distributive capacity for environmental science and reporting, economic

instruments and incentives, and institutions for public decision-making. Just as the creation of democratic institutions, economic infrastructure and social services defined Canadian nation-building at the beginning of this century, fostering a national capacity for sustainable development could be described as nation-building for the twenty-first century.

Sustaining the environment is a shared responsibility, and so too is the creation of a national capacity for sustainable development. The contribution of the federal government and its environment department is to provide leadership in fostering such a capacity. **Environment Canada's leadership** is based on its demonstrable strengths in:

- The environmental **sciences**;
- The ability to **establish policy directions** of governments and to build shared agendas with its partners, nationally and internationally; and
- The **integrated** delivery of **services**.

For Environment Canada, the challenge is to contribute leadership in building the national capacity for sustainable development, while continuing to meet its traditional responsibilities for environmental integrity. Environment Canada will balance its longstanding and emerging roles: by enforcing environmental regulations while encouraging compliance and voluntary initiative; by making the case for environmental sustainability while at the same time stimulating economic opportunity and global competitiveness; by remediating past mistakes while promoting preventive measures; and by conducting fundamental environmental science while providing Canadians with the environmental information that is timely and appropriate to their needs.

THREE BUSINESS LINES

Drawing on the department's organizational strengths and capacity for leadership, accountability for the delivery of results is managed organizationally through the department's three key program activities, namely:

- Atmospheric Environment;
- Environmental Protection; and
- Environmental Conservation.

The work of the department, however, is carried out on an ecosystem basis and its services, the services which make it visible and valued in the lives of Canadians, are grouped in three mutually reinforcing lines of business:

- Reducing Risks to Human Health and the Environment;
- Weather Forecasts and Warnings and Emergency Preparedness Services; and
- Giving Canadians the Tools to Build a Greener Society.

Environment Canada will respond to the requirements described above through its business lines:

1. ***Environment Canada reduces risks to human health and the environment.*** The department advances science and applies it to shape international agendas e.g. climate change, investing in long-term understanding which pays off over periods as long as 15-25 years from the identification of the environmental problem through to its resolution. It brings into being national strategies such as pollution prevention and biodiversity, which would otherwise not exist. Environment Canada plays a unique role in conceiving and promoting national standards, such as those for managing, reducing and preventing toxic

substances under Canadian Environmental Protection Act. It ensures within its legislative mandate that environmental protection standards are achieved and regulations vigorously enforced.

2. ***The department provides timely weather forecasts and warnings and emergency preparedness services*** to permit Canadians to protect their lives and property. The department has a strong and continuing commitment to the safety of all Canadians. It contributes measurably to safety and well-being through the provision of severe weather and environmental health warnings. Its weather services are also a vital part of the economic infrastructure of Canada, essential to the safe and efficient operation of the marine, transportation, agricultural, resource and construction sectors.

3. ***Environment Canada gives Canadians the tools to build a greener society.*** The department focuses on aligning environmental and economic policy agendas (e.g., through economic instruments) and fosters a vital environmental industries sector (e.g., through Canadian Environmental Technology Advancement Centres). As well, it provides environmental information and positive solutions, offers best practices for government operations, and formulates policies and strategies for use across the federal government and in conjunction with industry, provincial, and international partners. It works to create an efficient and stable regulatory climate which reduces disruption and costs associated with regulations and increases their overall effectiveness by promoting compliance.

If Environment Canada is successful in contributing essential leadership for sustainable development, the outcomes will be the continued health and safety of Canadians, healthy ecosystems, and sustainable economic prosperity. But Environment Canada faces three challenges to the effective fulfilment of its leadership role: the intensifying environmental challenge; the challenge of delivering results in the context of shared responsibility for the environment; and the management challenge of both implementing major reductions in its budget and delivering effectively with significantly fewer resources.

KEY CHALLENGES

1. **Environmental:** ***While the environment may be improving in certain respects, the overall state of the global environment continues to decline.*** For example, in Canada, while water quantity and quality are adequate for most purposes, serious problems pertaining to water on First Nations reserves remain. Toxic chemicals continue to challenge the ingenuity of pollution control authorities, and assigning responsibility for non-point sources of pollution remains difficult. There is growing concern about the long term effects of exposure to trace amounts of persistent toxic substances. Waste prevention is beginning to take hold but by international standards, waste generation per capita is very high. Canada has reached its domestic emission reduction targets for some air pollutants, and indicators of overall ambient urban air quality have improved. However, Canada remains one of the top per capita emitters of SO_2, NO_x and CO_2.

   The level of protection afforded by law to large ecosystems and endangered species is not very extensive; increasing the level of environmental protection will require a strategic mix of voluntary measures and the enforcement of regulations.

2. **Leadership:** ***In a complex jurisdictional context, Canadians nonetheless expect environmental leadership from the federal government.*** Canadians draw a strong connection between the environment, their health and the legacy for future generations. Indeed, one in two Canadians suspect their health has already been adversely affected by the environment. **Because the environment and the harm which is done to it respect no boundaries, it is difficult to make significant domestic progress without co-ordinated international and federal-provincial approaches.** Canadians look to the federal government to provide leadership in promoting international co-operation in establishing national standards for environmental protection, and in developing a comprehensive approach to the environment based upon the principles of sustainable development. Playing a leadership role in the context of shared environmental responsibility is a challenge both in terms of the department's capacity for governance, and in terms of its accountability for results which are measurable, time-bounded and visible to Canadians.

3. **Fiscal:** ***The capacity of Environment Canada to respond to the first two challenges is inextricably linked to its success in managing within a substantially reduced fiscal envelope.*** Even before Program Review, Environment Canada was faced with the requirement to reduce its budget by $99M; $72M in sunsetting programs and $27M from prior budget cuts. Program Review imposed an additional reduction of about $131M, for a total reduction of about $230M to be made by 1997-98. Cumulatively, these reductions will necessitate a reduction in the department's workforce by 1300 FTEs by 1997-98. Nothing that Environment Canada does will be unaffected by reductions of this magnitude. The department will implement the reductions and track their progress, while at the same time attempting to mitigate any negative impacts. Beyond the challenge of implementing Program Review and related reductions, Environment Canada must also deal with new pressures arising from human resource adjustments subsequent to Program Review (see p. 46). Finally, the department must anticipate new environmental demands, and seek to enhance its resilience in the face of continuing uncertainty, as described in Chapter 4.

SETTING DIRECTIONS AND PRIORITIES

For each of the three business lines, the department has established a primary strategy and a set of priorities for the planning period.

1. Reducing Risks to Human Health and to the Environment

This business line addresses the concerns people have about the water they drink, the air they breath, the food they eat, and the legacy we are leaving for future generations. In the simplest terms, Environment Canada is focused on stopping pollution and preserving nature at the same time. The key strategy is to ensure the establishment and application of **national standards based on sound science**.

Priorities over the planning period include:

- Focusing on long-term and potentially irrevocable risks such as loss of species (biodiversity) and loss of the capacity of the environment to regenerate itself (climate change, persistent bioaccumulative toxic substances);
- Ensuring international negotiations and national strategies and standards are based on sound ecosystems science; and

- Building an even more efficient and stable regulatory regime which will be vigorously applied where violations occur.

2. Weather Forecasts and Warnings and Emergency Preparedness Services

This business line addresses short-term challenges posed by severe weather and environmental emergencies, such as marine oil spills. The essential objective is safety, and the primary Environment Canada strategy is **the provision of timely warnings.**

Priorities over the planning period include:
- Modernizing and rationalizing weather services at an accelerated pace, so that increasingly timely warnings will minimize health and safety risks;
- Promoting pollution prevention as the most effective means of reducing the risks arising from chemical spills, oil spills and other emergencies; and
- Developing standards of service in collaboration with key clients to ensure Environment Canada products meet their needs.

3. Giving Canadians the Tools to Build a Greener Society

According to recent surveys of public opinion, the vast majority of Canadians both recognize and accept the primary responsibility they have to protect and enhance the environment in their daily activities. All Canadians are environmental decision-makers, and all require sound information and advice in determining what to do. Their needs are quite different however, requiring a robust and accessible array of data, information, and field-tested advisory solutions. The primary strategy is to **align economic and environmental policy directions, and ensure information and other services are consistent with that objective.**

Priorities over the planning period include:
- Creating new export and environmental opportunities by fostering green technologies both within the federal government and in the private sector;
- Getting our own house in order by providing advice on the greening of government operations and the preparation of departmental sustainable development strategies; and
- Reaching out to Canadians and providing them with comprehensive environmental information, technologies and tools, to encourage self-reliance and support democratic participation in environmental decision-making.

Chapter 2 sets out the fiscal changes each business line will undergo, and defines what environmental and leadership results the department expects to achieve. Chapter 3 describes key transition projects to position the department to better exercise leadership within its new fiscal framework.

To support management decision-making and evaluate performance, the department will increasingly need timely and relevant information on the impact of policies and programs. To assist in this regard, the department's Review function will plan and conduct reviews on selected priority programs and functions, as well as disseminating lessons learned. As part of corporate management, the Review Branch will focus on accountability arrangements for proposed financial and other flexibilities.

RESOURCE PROFILES

The Program Review was carried out at the level of about 100 program elements. The elements were aggregated according to the three cross-cutting functions of science, policy or governance, and service delivery in order to seek out synergies and efficiencies. In so far as its clients - Canadians - are concerned, and in building an integrated ecosystemic approach, the 100 program elements can be more usefully aggregated according to reducing risks to human health and the environment, weather forecasts and warnings and emergency preparedness services, and giving Canadians the tools to build a greener society.

The resource shifts within the three primary business lines over the 1994/95 to 1997/98 period are expected to be as follows:

RESOURCE SHIFTS

Business Line	1994/95 $ Millions	1997/98 $ Millions	% Shift
Reducing Risks to Human Health and to the Environment			
. Atmospheric Change	53.9	41.3	-23.4%
. Toxics*	74.4	38.3	-48.5%
. Enforcement	13.1	13.1	0.0%
. Biodiversity/Wildlife	39.3	33.3	-15.2%
. Preserving Ecosystems	133.9	72.3	-46.0%
Weather Forecasts and Warnings and Emergency Preparedness Services			
. Weather Forecasts and Warnings	142.8	102.5	-28.3%
. Emergency Preparedness	10.1	6.3	-37.9%
Giving Canadians the Tools to Build a Greener Society			
. Information Products and Services			
. Technologies and Know-how	33.9	14.0	-58.8%
. Partnerships	84.8	54.2	-36.1%
	16.2	16.2	0.0%
Departmental Items			
. Program Infrastructure not Allocated to Service and Business Lines **	15.0	19.0	+26.7%
Administration * **			
. Administration	68.5	51.9	-24.3%
. Employee Benefit Plans	39.5	33.0	-16.3%
Total	725.6	495.4	-31.7%

There may be discrepancies due to rounding.

* Most of the reduction in the toxics category can be attributed to previously planned sunsetting of the contaminated sites clean-up and PCB destruction activities. Without these two items, the reduction in toxics is in the order of 20%.

** Unallocated items include, for example, IT infrastructure renewal, replacement of financial systems, educational leave and skills training, and a translation envelope.

*** About 15% of the department's budget lies outside the primary business lines. Of that amount, about 10% covers areas like finance and administration, informatics, legal services, human resources, and corporate and regional management.

Global shifts, which are not immediately apparent from the above table include:

- Reductions in science and policy will be relatively smaller than reductions in service delivery;
- Relatively smaller reductions (and in some cases no reductions) will be made in critical environmental protection activities such as atmospheric issues, internal toxics work, and enforcement;
- Those aspects of water and migratory bird management considered to be mainly local in nature and therefore more of a provincial concern, will be reduced relatively more than integrated ecosystem and biodiversity initiatives;
- While the science envelope is decreasing overall, as a proportion of the reduced envelope in-house research will increase relative to monitoring, and both research and monitoring will be conducted in more integrated ways;
- Technology development will increasingly support private sector initiatives; and
- Impacts on service levels will be minimized through consolidation and automation of routine activities.

DEVELOPING PERFORMANCE INDICATORS FOR ENVIRONMENT CANADA

Over the nearly twenty-five years of Environment Canada's existence, it has devoted substantial effort and attention to delivering value for money to Canadians, and has been continuously subject to the normal accountability and program evaluation regimes. A number of individual sectors, such as the Canadian Wildlife Service and the Weather Service, have conducted specific studies to document the economic return which their investments and activities yield for Canadians.

It is clear, however, that in a climate of continuous program review, the indicators that measure impacts of resource adjustments in the quality and level of services to clients should be broadened to include:

- Trending of indicators of Canadian environmental quality compared with other industrial countries, and indicators of environment-related incidence of health problems, e.g., respiratory diseases, genetic deformities, certain cancers;
- Timeliness and accuracy of environmental risk assessments, and weather and emergency warnings;
- Length and complexity of regulatory processes and environmental assessment processes;
- User satisfaction data based on surveys, and public awareness of Environment Canada roles, responsibilities, and tangible services;
- Sustainable development indicators associated with environmental resources; per-unit energy and waste indicators for industrial production.

In the future, Environment Canada intends to make indicators of this type available as part of its decision support system.

THE BUSINESS PLAN AND ACCOUNTABILITY

This Business Plan is a necessary, but not entirely sufficient context for managing accountabilities within Environment Canada. As in past years, this plan along with more detailed deliverables in individual responsibility centres, will be used as a basis for management contracts and performance reporting.

At the same time, it is recognized that, as a necessary part of an ongoing resource reallocation process, a more definitive performance measurement framework will be put in place to in order to maximize value added in all areas of the department's operations and administration.

CHAPTER 2
BUSINESS LINE PRIORITIES AND RESULTS

This chapter identifies the principal areas in which the department will expend its human and financial resources over the planning period, along with a sampling of the expected results and key deliverables that will be used to track performance.

This year's business plan builds on Environment Canada's Business Plan for 1994-99 which set out directions and results for portions of the Environment Program and an agenda for managing change. Business planning decisions were based on a number of factors, including:

- Broad priorities as set out in chapter 1 of this year's plan;
- Management strategies as set out in chapter 3;
- Value for money considerations; and
- Other considerations, such as the regional distribution of expenditures and response to broader government-wide reviews.

In defining appropriate responses to environmental issues at any given time, it is important to understand that issues are managed in the context of the goal of sustainable development and that such issues tend to mature, often over a period of fifteen to twenty-five or more years, through a relatively predictable life cycle.

At the federal level, and in many provincial and municipal governments, sustainable development is a priority which is being integrated into the mandates of all departments.

Environment Canada plays a number of unique roles with respect to sustainable development. It contributes leadership in fostering a national capacity for sustainable development, but it also constitutes an important part of that national capacity. The strategies within its three business lines, which will be discussed later, are designed to both foster and be an effective part of Canada's national capacity for sustainable development.

Regarding the maturing of environmental issues, they normally come to light as a result of some relatively local episode, or the work of one or more scientists. This is followed by a period of understanding and consensus-building in the international scientific community, leading to consensus by governments, stakeholders and the population at large regarding appropriate solutions.

The resulting consensus in turn leads to the development of a strategy at the national level, the development of regulatory or other frameworks or rules, and finally the implementation of solutions at a quite local level. At full maturity, issues may move at least partially beyond the purview of governments to either voluntary or market-driven approaches.

For illustrative purposes, the biodiversity issue might be considered to be at an embryonic stage, climate change at the consensus-building stage, toxics at the national strategy and regulatory stage and more mature issues like eutrophication largely devolved back to the local level.

In the pages which follow, results and key deliverables are provided for the ten components of the three business lines, each of which is at a different state of maturity. It is also important to note that the department is increasingly integrated in the way it does business, business lines themselves are highly interdependent and that program elements included

under one business line may support, in some measure, many other objectives. For example, acquiring data for use in weather forecasting (Business Line 2) is then used to define the climate of Canada (Business Line 1); similarly, EC's ecosystems initiatives (Business Line 1) yield numerous information products and services for distribution to Canadians (Business Line 3).

The first business line, "Reducing Risks to Human Health and to the Environment", includes atmospheric change; toxics; enforcement; biodiversity/wildlife; and preserving ecosystems. The second "Weather Forecasts and Warnings and Emergency Preparedness Services", includes weather services and environmental emergencies. The third, "Giving Canadians the Tools to Build a Greener Society", includes information products and services; technologies and know-how; and partnerships and co-operative agreements, including voluntary compliance.

Definitions of Terms

For each component of a business line, the following terms have been employed:

Long-term Objectives

Long-term objectives represent what the department ultimately wants to achieve or see achieved. They are the broadest, highest level desired outcomes sought by a program on behalf of its clientele or society in general. Objectives at this level often transcend organizational and jurisdictional bounds. Responsibility for achieving them is usually shared with others inside and outside the department.

Strategies

Strategies represent the approaches adopted by the federal government to meet the desired outcomes. The strategies represent the application of the federal role to an issue and are fully within the scope and mission of the department although they may involve the use of partnerships.

Results Visible to Canadians

These results describe how success in achieving the long term objectives will be demonstrated to the public. They should be measurable and demonstrate the effectiveness of the department's strategy.

Key Deliverables

Deliverables are the things that the department does to implement its strategy and to contribute to the results and long-term objectives. They are quite specific - a completed plan or report, an event, or a product. Although partnerships may be used to deliver these outputs, accountability rests with an individual manager, who is also accountable for maintaining a clear connection between the output and client need.

The key deliverables included in the business plan represent that sub-set of the full spectrum of deliverables which is considered most critical to the attainment of the results and objectives.

BUSINESS LINE 1: Reducing Risks to Human Health and the Environment

The environment provides the basic life-support systems for ourselves and other species. These systems include clean air and water, fertile land, climatic stability and genetic diversity. Their maintenance constitutes a form of life insurance for the planet, and Canadians are increasingly worried about the quality of the environment in which they live.

Much of this concern stems from anxiety about the impact of their activities on the environment and the possible danger to human health posed by pollution. People are concerned about the water they drink, the air they breathe and the food they eat.

Priority issues to be addressed by this business line include: atmospheric change, toxics, biodiversity/wildlife, preserving ecosystems and enforcement. To meet the concerns of Canadians and their expectations of the federal government, the key strategy selected for this category is to ensure national standards are set and met based on sound science.

With respect to atmospheric change, that strategy is translated into policy frameworks, regulatory actions and adaptation measures based on atmospheric sciences. For toxics, it is science-based pollution prevention measures aimed at the virtual elimination of persistent bioaccumulative toxic substances from the environment. For enforcement, it is ensuring science-based standards and regulations are rigorously enforced. For biodiversity, it is science and consensus-building in the context of the Canadian Biodiversity Strategy. For preserving ecosystems more generally, it is the co-ordination and harmonization of scientific, regulatory and other measures to address issues in nationally significant ecosystems.

As a result of Program Review, total expenditures in this business line will be reduced from $314.6M in 1994/95 to $198.3M in 1997/98. Information on the reductions in individual components is provided within the component descriptions.

The over-riding concern in making the cuts was to maintain enough resources to deal effectively with long-term and potentially irrevocable risks. As a result:

- Consistent with the high priority on broad international issues like atmospheric change and biodiversity, reductions in these areas will be much smaller than average. In fact, expenditures related to the biodiversity strategy and endangered species are actually expected to increase. In order to maintain these priorities, it will be necessary to reduce efforts with regard to localized aspects of water and migratory bird management.
- Critical aspects of internal science will be maintained, and will become increasingly focused on ecosystems. Maintaining that scientific core, however, made it necessary to eliminate or drastically reduce support to external research (e.g. the eco-research and environmental innovations).
- To maintain a reasonable presence in all regions, federal-provincial initiatives in large ecosystems (e.g. Atlantic Coastal Action Plan, St. Lawrence River, Great Lakes, Northern Rivers, Fraser River) will be reduced by approximately the same percentage as the overall reductions, and rationalized into a single funding envelope. The new envelope will cover all current and new agreements of this type.
- In the toxics area, it will be necessary to exit localized clean-up initiatives such as contaminated sites remediation and PCB destruction in order to maintain a core capacity related to national standards and strategies.

Specific transition strategies are described further in chapter 3, and the following sub-sections set out the results which are expected to be achieved with the reduced level of funding. More particularly, the challenge of scientific renewal is more fully addressed in "Scientific Renewal" in the Human Resources Management section of Chapter 3.

ATMOSPHERIC CHANGE

Stratospheric ozone depletion, smog, acid rain, hazardous air pollutants and climate change are five interconnected issues that need to be addressed in a holistic fashion in order to protect the health and safety of Canadians and to prevent disastrous socio-economic repercussions in the future.

Man-made emissions into the atmosphere including stratospheric ozone-depleting substances, sulphur and nitrogen oxides, volatile organic compounds, and greenhouse gases such as carbon dioxide, are causing significant atmospheric changes to take place. These changes are leading to increased health risks to Canadians and damage to critical elements of our ecosystems. Since the atmosphere can transport pollutants far from their original sources, national and international response strategies are required to reduce and mitigate the impacts. Canada is a leading player among the nations of the world in addressing these issues. We are committed to a wide range of obligations under international agreements, such as the Montreal Protocol, the Framework Convention on Climate Change, and the Canada-U.S. Air Quality Accord. Real progress is now evident. For example, in March 1994, Canada ratified the 1992 Copenhagen Amendment to the Montreal Protocol to *accelerate* the phase-out schedule for ozone-depleting substances. Canada has also met major acid rain reduction targets ahead of schedule.

In the coming years, Environment Canada will continue to focus on reducing the negative impacts of human activities on the atmosphere, while helping Canadians to understand and adapt to the impacts of atmospheric change. It will do this by investing in science to measure and understand the nature and magnitude of the problems that we face, by developing policy options to deal with risks to the atmosphere, and by contributing to the development of national and international protocols to deal with problems as they are identified. Within the context of Program Review, the department placed a lower priority on grants and contributions programs that yield only a limited return in terms of the department's vision and program strategies.

While efforts in the area of atmospheric change are considered a key departmental priority, Environment Canada will nevertheless be faced with difficult challenges as a result of the budgetary reductions necessitated by Program Review. Challenges include detecting critical changes early enough to react or contribute to international protocols, and the possibility that provincial governments are unable or unwilling to implement strategies to solve emerging problems when they, too, are facing budgetary constraints. These challenges will be managed both internally and externally. Internally, the department will increase emphasis on integrating activities related to atmospheric change across the department. Externally, EC will work closely with the provinces and the universities in Canada and will pursue agreements and protocols with other countries.

ATMOSPHERIC CHANGE	Revised Budget 1994	Total Shift	1995-96		1996-97		1997-98	
		%	Shift $	Budget $	Shift $	Budget $	Shift $	Budget $
Climate Issues based research (AE)	16,747.0	24.3%	2,895.0	13,852.0	3,900.0	12,847.0	4,076.0	12,671.0
WMO Research Trust Fund (AE)	376.0	100.0%	376.0	0.0	376.0	0.0	376.0	0.0
Ecosystem effects of atmospheric change (EC)	2,709.3	23.8%	344.6	2,364.7	646.0	2,063.3	646.0	2,063.3
Air quality based research (AE)	20,388.0	24.5%	1,139.0	19,249.0	2,874.0	17,514.0	4,994.0	15,394.0
Ecosystem adaptation (AE)	2,206.0	28.1%	270.0	1,936.0	450.0	1,756.0	620.0	1,586.0
Atmospheric science based assessment (AE)	2,155.0	20.0%	215.0	1,940.0	370.0	1,785.0	431.0	1,724.0
Urban smog response (EP)	3,035.5	20.0%	131.1	2,904.4	243.7	2,791.8	607.2	2,428.3
Stratospheric ozone response (EP)	1,571.4	16.4%	45.2	1,526.2	90.4	1,481.0	257.4	1,314.0
Global warming & climate change response (EP)	2,841.8	0.0%	0.0	2,841.8	0.0	2,841.8	0.0	2,841.8
Acid rain response (EP)	1,907.5	30.8%	38.9	1,868.6	77.8	1,829.7	588.0	1,319.5
Total - Atmospheric Change	**53,937.5**	**23.4%**	**5,454.8**	**48,482.7**	**9,027.0**	**44,909.6**	**12,595.6**	**41,341.9**

Long-Term Objective

Reduce the negative impacts of human activities upon the atmosphere while helping Canadians to understand and adapt to the impacts of atmospheric change.

Strategy

Apply the environmental sciences to understand atmospheric change and its impacts upon the health, safety and economic prosperity of Canadians. Develop mitigation and adaptation strategies.

Results Visible to Canadians

- Human consumption of ozone-depleting substances is stabilized, reduced or eliminated by target dates and the stratospheric ozone layer begins to recover;
- Emissions of sulphur dioxides, oxides of nitrogen and volatile organic compounds are reduced by target dates and levels of smog continue to be reduced;
- Persistent organic pollutants and heavy metals in the atmosphere are reduced;
- Canada's greenhouse gas emissions are stabilized at 1990 levels by the year 2000;
- Knowledge of atmospheric processes is improved and Canadians have sufficient information to anticipate and cope with future atmospheric changes.

Key Deliverables

- The National Action Programme on Climate Change evaluated and specific measures identified for federal-provincial discussions. A federal action plan on climate change developed;
- Phase out of CFCs and methyl chloroform completed by January 1996;
- By March 1996, national tracking system implemented to monitor NOx/VOCs control measures and emissions reductions;
- In 1995-96, national policy and action plan for motor vehicle emission standards and fuels formulation presented to CCME, and guidelines developed to reduce federal vehicle fleet emissions;
- With federal and provincial energy and environment ministers, a national strategy on acid rain is developed by April 1997, making recommendations on feasibility of implementing further emission reductions;
- Consultations are held with partners and stakeholders to create a national strategy for

managing hazardous air pollutants and other toxics by 1996;
- Preparation of the 1996 Canadian Acid Rain Deposition Science Assessment Report;
- Development of new CEPA guidelines on halons and revised guidelines on CFC recycling;
- Improved understanding and modelling of atmospheric change, including loadings, transport, transformation and deposition of contaminants into ecosystems;
- Knowledge of the impacts of atmospheric change upon human activities and ecosystems which leads to adaptation and mitigation strategies. The Mackenzie Basin Study of the impacts of atmospheric change on ecosystems to be completed by 1997;
- Climatological study of UV radiation completed by 1996;
- Network of Canadian cities pledged to reduce greenhouse gas emissions by 20%;
- Continued delivery of smog advisories and forecasts of ultraviolet radiation;
- Monitoring and research on the risks to ecosystem health from climate change, UVb increases, acid rain, persistent organic pollutants and heavy metal transport.

TOXICS

Over the past 20 years, scientists have learned much about the detrimental effects of toxic substances. We know that some have the ability to remain in the environment, be transported through the air over long distances and, while present in only barely detectable amounts, build up in tissues of animals we rely on for food. These "persistent" toxic substances can bioaccumulate to a point where they represent a danger to our health, the health of future generations, and the health of ecosystems. The volume and nature of other substances can pose hazards and risks to human health and to the environment (eg. man-made waste, biotechnology products). There are also economic consequences to be considered. For example, the costs associated with the disposal of wastes and remedial measures, impose a substantial economic burden on Canadians.

In 1994, a parliamentary review of the *Canadian Environmental Protection Act* (CEPA) was initiated, as required by statute. The Standing Committee on the Environment and Sustainable Development has now been fully briefed and will be issuing its recommendations in June 1995. Environment Canada will then have 150 days to prepare the government's response, in co-operation with other federal departments.

In March 1994, a challenge was issued to Canadian industries and government departments by the Accelerated Reduction/Elimination of Toxics (ARET) Committee to take voluntary action to achieve, by the year 2000, a 90% reduction in releases of persistent bioaccumulative toxics, as well as a 50% reduction in releases of other ARET substances. Over 120 companies have submitted action plans, representing three-quarters of the members of the large industry sectors in Canada. The mining industry, for example, has agreed to reduce toxics by 70% by the year 2000. Six federal government departments have also responded.

In April 1995, the first national pollutants release inventory (NPRI) report was released and a new electronic database on the release of pollutants into the environment was unveiled. The inventory is the first publicly accessible electronic database of its kind, including Internet access. It supports the government's commitment to ensure affordable, accessible, and responsive government services. It provides comprehensive national data on the annual release and transfer of specified substances into the air, water, and land and will help the federal government identify priorities for action on toxic substances. The NPRI program was developed by Environment Canada in co-operation with representatives from 9 industry associations, labour, health, and environmental groups, and provincial and other federal government departments.

The Program Review exercise confirmed that the department's toxics programs were an ongoing priority and would focus on the department's strengths in providing scientific knowledge and expertise, developing national policies, setting national standards and managing transboundary issues. Significant savings were achieved through scheduled sunsetting of programs and exiting of other programs. For example, programs related to federal PCB destruction and federal or orphaned contaminated sites will be sunsetted by April 1996. Funding for the CEPA review, currently under way in accordance with statute, will be sunsetted in 1997-98. In addition, certain responsibilities will be rationalized with or transferred to other federal departments (eg. pesticides – Health Canada; ocean dumping, shellfish monitoring, coastal ecosystem pollution prevention – Fisheries and Oceans Canada). Environment Canada will continue to target toxics through national and international

initiatives, select approaches, implement solutions and track results, all within the framework of the Toxic Substances Management Policy.

The largest challenges over the next three years relate to Program Review resource reductions. The reduction associated with science related to toxics or other substances of concern raises the possibility that the CEPA Priority Substance assessment may take longer and that emerging issues may not be identified early enough to prevent increased expenditures to resolve issues. The reduction in resources for hazardous waste activities poses other risks. The most significant relate to maintaining an ability to influence the international agenda, and continue in partnership with the provinces. Environment Canada will focus support for the development of national strategies for control of hazardous waste on transboundary movement, federal land, and development of national inventories.

TOXICS	Revised Budget 1994	Total Shift	1995-96		1996-97		1997-98	
			Shift	Budget	Shift	Budget	Shift	Budget
		%	$	$	$	$	$	$
Toxic measurement research (EP)	5,357.0	18.6%	368.9	4,988.1	681.3	4,675.7	997.9	4,359.1
Toxic substances (EC)	8,664.7	20.1%	741.5	7,923.2	1,221.2	7,443.5	1,744.3	6,920.4
Toxicology network (EP)	2,971.0	39.5%	1,174.0	1,797.0	1,174.0	1,797.0	1,174.0	1,797.0
Scientific assessment of substances (EP)	3,824.2	19.1%	486.2	3,338.0	557.0	3,267.2	731.6	3,092.6
Toxics and other pollutants (EP)	11,283.6	22.7%	1,883.8	9,399.8	2,078.5	9,205.1	2,561.3	8,722.3
Pesticides (EP)	1,510.0	+113.1%	(1,873.0)	3,383.0	(2,847.0)	4,357.0	(1,708.0)	3,218.0
Hazardous waste (EP)	3,310.8	30.2%	500.0	2,810.8	700.0	2,610.8	1,000.0	2,310.8
Biotechnology (EP)	1,680.4	13.9%	130.9	1,549.5	130.9	1,549.5	233.2	1,447.2
CEPA review (EP)*	1,100.0	100.0%	0.0	1,100.0	0.0	1,100.0	1,100.0	0.0
PCB destruction (EP)*	4,584.3	100.0%	4,468.7	115.6	4,584.3	0.0	4,584.3	0.0
Contaminated sites (EP)*	21,369.2	100.0%	13,357.1	8,012.1	21,369.2	0.0	21,369.2	0.0
Ocean dumping (EP)	2,245.2	27.0%	605.2	1,640.0	605.2	1,640.0	605.2	1,640.0
Coastal ecosystems (EP)	218.0	26.9%	58.6	159.4	58.6	159.4	58.6	159.4
Shellfish area monitoring (EP)	2,566.2	26.9%	689.6	1,876.6	689.6	1,876.6	689.6	1,876.6
Risk management (EP)	3,736.9	26.3%	558.7	3,178.2	709.8	3,027.1	983.6	2,753.3
Total - Toxics	**74,421.5**	**48.5%**	**23,150.2**	**51,271.3**	**31,712.6**	**42,708.9**	**36,124.8**	**38,296.7**

* Sunsetting (without these reductions, the overall shift is about 20%).

Long-term Objective

To maintain/enhance environmental quality through virtual elimination of persistent bioaccumulative toxic substances (PBTS) and life-cycle management of other toxic substances, hazardous wastes, and other substances of concern.

Strategy

Manage substances of concern through preventive and precautionary approaches.

Results Visible to Canadians

- Measurable progress is made toward the virtual elimination of PBTS and life-cycle management of other toxic substances and hazardous wastes;
- Canada's obligations under Basel Convention, OECD Acts and Canada-U.S. Agreement on Transboundary Shipment of Hazardous Waste are fulfilled;
- All federal PCBs in storage are destroyed and high-risk contaminated sites (abandoned or on federal land) are cleaned up;

- Federal framework is in place to regulate products of biotechnology;
- Understanding of toxic chemical impacts on ecosystems is improved through targeted monitoring and research.

Key Deliverables

- By 1995, federal toxic substances management policy released;
- Key elements identified of the global action plan for persistent organic pollutants (POPs) for use in United Nations fora, through an international meeting of experts in June 1995;
- Second national pollutants release inventory report (NPRI) released by March 1996;
- In consultation with other government departments, government's response to the recommendations of the Standing Committee on the Environment and Sustainable Development's review of CEPA prepared by November 1995;
- Strategies created in 1995-96 for managing CEPA toxics through the strategic options process;
- Computerized tracking system for transboundary movement of hazardous wastes operational by March 1996;
- Existing projects under National Contaminated Sites Program completed by March 1996;
- By July 1995, CEPA New Substance Notification Regulations for Biotechnology: Microorganisms published;
- Targeted research and science/policy advice on priority pollutants provided on an ongoing basis.

ENFORCEMENT

Questions about environmental regulations and the state of compliance arise from such issues as global competition, environment-economy alignment, federal-provincial harmonization and international trade agreements. Environment Canada is accountable for more than 30 environmental regulations. Ensuring compliance, monitoring and updating of these regulations is a challenging responsibility. The department recently achieved an important milestone in this area with the development of an Enforcement Activity Tracking System to provide data on current enforcement activity and to allow users to track inspections, investigations and compliance histories. The system will be implemented over the next year.

Within the context of Program Review, the department's enforcement activities were deemed to be key ongoing priorities. Accordingly, resources for enforcement will be maintained at their current levels. Emphasis will continue to be on increasing compliance with pollution and wildlife regulations and with widely accepted standards and norms where regulations do not exist.

Environmental policies will be tightened up and the enforcement priority will shift to uniquely federal responsibilities, such as the prevention of smuggling of endangered species and banned substances. Promotion of compliance with environmental laws will also be aggressively pursued.

The department will need to address the risk associated with the assumption that provinces will be willing and able to take on more responsibility for the enforcement of federal regulations to provide better service to clients. It is expected that the workload devolved to the provinces through federal-provincial agreements will be balanced by an increase in workload to meet new federal requirements.

ENFORCEMENT	Revised Budget 1994	Total Shift %	1995-96 Shift $	1995-96 Budget $	1996-97 Shift $	1996-97 Budget $	1997-98 Shift $	1997-98 Budget $
Enforcement (EP)	13,132.0	0.0%	0.0	13,132.0	0.0	13,132.0	0.0	13,132.0
Total - Enforcement	**13,132.0**	**0.0%**	**0.0**	**13,132.0**	**0.0**	**13,132.0**	**0.0**	**13,132.0**

Long-term Objective

To enhance protection of the Canadian environment through rigorous enforcement of environmental laws.

Strategy

Increase emphasis on innovative ways to achieve results through partnership with other enforcement agencies, and on co-ordinating enforcement responsibilities with provincial agencies.

Results Visible to Canadians

- Respect for environmental laws is increased by publishing the prosecution and conviction of individuals or organizations who are found to be breaking the environmental and wildlife laws;
- Environmental laws are applied fairly and in a consistent manner;
- Enforcement capacity is strengthened through international co-operation, federal-provincial agreements, and interdepartmental Memoranda of Understanding;
- Information on enforcement activity is readily available to the public.

Key Deliverables

- Import and export of endangered species and banned substances are priorities for inspection and investigation in 1995;
- Worst offenders receive special attention and strategies developed using one or more federal, provincial, and international organizations for joint operations;
- Compliance agreements negotiated with willing provinces;
- Memoranda of Understanding negotiated with several departments (e.g. RCMP, Customs) in delivering enforcement responsibilities;
- An electronic enforcement activity tracking system implemented by March 1996.

BIODIVERSITY/WILDLIFE

Biodiversity is declining globally at an alarming rate. The transboundary nature of many species, the illicit harvesting and international trade of endangered species, and the ramifications of habitat loss, destruction and pollution all mean that the sustainable use of biological resources can be achieved only through national and international cooperation.

In December 1992, Canada ratified the International Convention on Biological Diversity. Environment Canada is leading the development of a Canadian Biodiversity Strategy as the basis for determining how policies or programs should be changed to best address biodiversity conservation. The proposed strategy will be presented to federal and provincial environment ministers for approval this spring. At the federal level, the Biodiversity Strategy will be implemented through a variety of wildlife and ecosystem health-related programs.

Canada played a leading role in negotiating the Convention on Biological Diversity and continues that role in the follow-up period. If Canada were not to meet the biodiversity challenge effectively, this could severely affect its international credibility, as well as having adverse impacts on sustaining our environmental, economic and social health and well-being. For these reasons, and as the focus shifts from managing individual wildlife species to the more general biodiversity issue, Environment Canada resources supporting development of the biodiversity strategy and the conservation of endangered species, will increase over three years. At the same time, however, resources supporting individual wildlife programs, such as migratory bird and wildlife conservation and the highly leveraged habitat conservation programs, will be reduced. Every effort will be made to minimize the associated risks to national wildlife objectives, for example, through the exploration of opportunities to co-manage responsibilities with the provinces.

BIODIVERSITY/WILDLIFE	Revised Budget 1994	Total Shift	1995-96		1996-97		1997-98	
		%	Shift $	Budget $	Shift $	Budget $	Shift $	Budget $
Biodiversity/international wildlife convention (EC)	1,409.0	+130.4%	(1,714.0)	3,123.0	(1,920.5)	3,329.5	(1,837.4)	3,246.4
Wildlife socio-economics (studies,, etc.) (EC)	811.7	8.1%	65.6	746.1	65.6	746.1	65.6	746.1
Wildlife habitat/ecosystem conservation (EC)	4,856.1	+28.4%	(1,760.7)	6,616.8	(1,526.0)	6,382.1	(1,378.6)	6,234.7
Wildlife toxicology (EC)	5,469.1	29.6%	1,437.8	4,031.3	1,617.6	3,851.5	1,617.6	3,851.5
Endangered wildlife (policies & partnerships/species oriented) (EC)	1,212.5	+75.8%	(38.6)	1,251.1	(24.3)	1,236.8	(918.7)	2,131.2
NAWMP (leadership and co-ordination/regional joint ventures) (EC)	7,274.6	27.7%	1,759.0	5,515.6	1,966.7	5,307.9	2,016.7	5,257.9
Migratory bird and wildlife management and science (EC)	17,008.0	32.9%	1,087.8	15,920.2	5,097.1	11,910.9	5,600.2	11,407.8
Aboriginal participation (EC)	553.5	25.9%	(211.4)	764.9	(165.4)	718.9	143.6	409.9
Crop damage prevention (EC)*	676.0	100.0%	676.0	0.0	676.0	0.0	676.0	0.0
Total - Biodiversity/Wildlife	**39,270.5**	**15.2%**	**1,301.5**	**37,969.0**	**5,786.8**	**33,483.7**	**5,985.0**	**33,285.5**

* crop damage prevention agreements to be funded out of NAWMP.

Long-term Objective

To sustain Canadian and global biodiversity and ensure that biological resources are used sustainably.

Strategy

Collaborate nationally and internationally in support of biodiversity/wildlife conservation, and increase focus on integrated and ecosystem-based approaches.

Results Visible to Canadians

- Canadian Biodiversity Strategy is implemented;
- Legislation is implemented to prevent illegal trade in wildlife, protect Canadian ecosystems from harmful introductions, and comply with foreign conservation laws;
- Migratory bird populations are sustained or increased;
- Wildlife and associated socio-economic cultural benefits are sustained through the wise use of habitat and ecosystems;
- Endangered species are recovered and conserved.

Key Deliverables

- National and regional biodiversity action plans completed by March 1996;
- Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act proclaimed in 1995-96;
- Protocol to amend Migratory Birds Convention to allow for responsive regulation of traditional and other hunting of waterfowl by aboriginal peoples negotiated with U.S. and ratified in Canada in 1995-96;
- Habitat conserved including addition of 550,000 hectares to protected areas network and NAWMP implemented;
- Federal legislation introduced in 1995-96 for the conservation of endangered species.

PRESERVING ECOSYSTEMS

In support of the government's commitment to sustainable development, Environment Canada is playing a key role in adopting and implementing an ecosystems approach to dealing with regional, national and international issues. Such an approach is appropriate because it incorporates environmental, social and economic considerations - the three pillars of sustainable development.

Beginning in the late 1980s, Environment Canada launched a series of ecosystem initiatives as the most effective means of discharging its responsibilities in each of its five regions. From a departmental perspective, nationally significant ecosystems are those in which the federal government has significant jurisdictional responsibilities (e.g. transboundary, interprovincial, involving anadromous fisheries); and where there are opportunities to work with external partners in co-ordinated action for sustainable development. By refocusing the department's activities in this area and negotiating certain federal-provincial sub-agreements under the various initiatives, savings of $20M will be yielded. The need to create a stable envelope to support ongoing and future initiatives is seen as a high priority.

In the area of ecosystem science, there will be greater emphasis on preserving in-house expertise engaged in conducting science for the "public good", strengthening partnerships with stakeholders and harmonizing environmental R&D with the provinces in order to identify common priorities, reduce overlap and improve the allocation of resources. Within this context, a liaison office will be established for support to external science. On the other hand, grants and contributions programs yielding a limited return have been deemed a lower priority. Consequently, funding activities such as the eco-research program will be significantly reduced.

The Program Review also provided an opportunity to confirm shifts already initiated in certain programs, such as a move away from direct resource management where others are in a better position to play that role. Within this context, federal-provincial cost-sharing agreements for water monitoring will be renegotiated, 4 water survey offices and 1110 water quality sites will be closed and decommissioned. Clearly there are risks associated with the larger resource reductions in the preserving ecosystems envelope. For example, if water monitoring negotiations with provinces are unsuccessful, other approaches (eg. alternative delivery mechanisms) will need to be explored.

PRESERVING ECOSYSTEMS	Revised Budget 1994	Total Shift	1995-96		1996-97		1997-98	
		%	Shift $	Budget $	Shift $	Budget $	Shift $	Budget $
Ecological science and assessment network (EC)	1,763.9	21.4%	184.0	1,579.9	378.0	1,385.9	378.0	1,385.9
Eco-research program (EC)	11,011.6	89.4%	2,828.0	8,183.6	5,355.1	5,656.5	9,848.3	1,163.3
Science in support of large ecosystems initiatives (EC)	9,935.1	22.0%	885.8	9,049.3	1,548.4	8,386.7	2,187.1	7,748.0
Large ecosystem initiatives (EC)	52,609.7	39.1%	12,467.3	40,142.4	16,664.9	35,944.8	20,559.5	32,050.2
Water programs (EC)	8,849.3	63.5%	3,090.2	5,759.1	4,871.4	3,977.9	5,615.7	3,233.6
Water quality and quantity monitoring (AE)	13,782.0	57.0%	3,223.0	10,559.0	6,525.0	7,257.0	7,861.0	5,921.0
Fed./prov. agreements - cost sharing (AE)	5,877.0	100.0%	5,877.0	0.0	5,877.0	0.0	5,877.0	0.0
Resource sector sustainability	5,621.5	20.3%	354.3	5,267.2	750.8	4,870.7	1,139.2	4,482.3
Sustainable sectors (EC)	4,405.7	73.9%	2,265.2	2,140.5	3,258.0	1,147.7	3,258.0	1,147.7
Regional ecosystems/national perspectives (EC)	490.3	13.3%	22.0	468.3	65.0	425.3	65.0	425.3
Operation of research facilities - NWRI, NHRI, NWRC (EC)	19,539.0	24.8%	5,940.7	13,598.3	6,212.9	13,326.1	4,836.8	14,702.2
Total - Preserving Ecosystems	**133,885.1**	**46.0%**	**37,137.5**	**96,747.6**	**51,506.5**	**82,378.6**	**61,625.6**	**72,259.5**

Long-term Objective

To sustain the integrity of Canadian ecosystems

Strategy

To support environmentally responsible decision-making through understanding and evaluating ecosystem health and stressors, developing indicators of environmental sustainability and promoting conservation and sustainable use strategies.

Results Visible to Canadians

- ACAP communities take responsibility for restoring and conserving affected coastal areas;
- St. Lawrence ecosystem is restored and protected;
- Great Lakes ecosystem is restored and protected;
- Effects of existing and proposed developments on Northern Rivers (Peace-Athabasca Basin) are known;
- Fraser River Basin is restored and protected;
- National/international partnerships and strategies promote ecosystem approaches;
- Canada's resource-based economic sectors are developed sustainably;
- The effects of toxic chemicals on Arctic ecosystems are known.

Key Deliverables

- Environmental quality assessments completed for 13 ACAP sites;
- Effluent from 39 targeted plants in the St. Lawrence ecosystem characterized by March 1996;
- Plans finalized for remediation of beneficial uses in 17 areas of concern in Great Lakes and stakeholder agreements obtained on roles and responsibilities for implementation by 1996;
- Final report of Northern Rivers Study Board issued;
- Persistent toxic substances reduced and health of aquatic ecosystems assessed in up to 20 reaches of the Fraser River Basin;
- Long-term strategic plan for ecosystem initiatives developed by March 1997;
- Agreements developed with key sector groups to support ecosystem sustainability;
- Review conducted of national activities related to the management of fresh water resources including water, fish, other aquatic wildlife and their habitat; federal role in this area re-examined to ensure that national objectives are met;
- Co-produce with DIAND, an Arctic assessment report on sources, pathways, and fate of northern contaminants by January 1996.

BUSINESS LINE 2: Weather Forecasts and Warnings and Emergency Preparedness Services

This business line is intended to protect Canadians from both naturally occurring and human-induced environmental hazards. Environment Canada's information and warnings dealing with severe weather and environmental emergencies limit negative impacts on life and property, and contribute to economic prosperity.

These activities have matured considerably over the past few decades. For example, the accuracy of weather forecasting has improved significantly, particularly in the two-to-five day range, thanks mainly to better atmospheric models and supercomputer power. Current 60-hour forecast maps are now as accurate as the 36-hour forecast maps were in the mid-1980s.

The overall strategy in this category is one of timely warnings. For example, with the maturing of weather forecasting technology, it is now considered feasible to consolidate and automate many routine functions, and to locate professional expertise closer to clients, in order to provide both timely warnings of severe weather, and services better designed to meet their needs.

Similarly, the national environmental emergencies capacity has matured to the point where the federal government can now focus more clearly on its own direct responsibilities, and at the same time devote a relatively larger proportion of its overall effort to prevention, preparedness, and the issuance of timely warnings.

As a result of Program Review, total expenditures in this business line will be reduced from $152.9M in 1994/95 to $108.8M in 1997/98. Information on the reductions in individual components is provided within the component descriptions.

The over-riding concern in making the reductions was the safety of Canadians. Therefore these were made through technology improvements and rationalization, with essential services maintained as much as possible. As a result:

- Funding for weather prediction and warnings will be reduced by only 10%. Moderate reductions will be made to supporting research, but more drastic reductions will be made in dissemination systems, by replacing 56 local weather offices with electronic dissemination systems. Safety will also be protected by devoting appropriate human effort to the provision of severe weather warnings.
- Emergency response will be better rationalized with the provinces, with a clearer focus on improving preparedness policies and standards in areas of federal responsibility.

Specific transition strategies are described further in chapter 3, and the following sub-sections set out the results which are expected to be achieved with the reduced level of funding. More particularly, the challenge of scientific renewal is more fully addressed in "Scientific Renewal" in the Human Resources Management section of Chapter 3.

WEATHER FORECASTS AND WARNINGS

In 1987, Environment Canada began to implement major improvements to its weather warning and forecasting program. These improvements are made possible by the availability of cost-effective informatics and remote-sensing technologies, together with significant advances in the science of meteorology. As a result, professional meteorologists, located in 17 Eco-Action Offices across Canada, will be able to focus their efforts on forecasting significant weather, including severe weather events, while automated systems produce most routine weather forecasts and products.

Environment Canada will work closely with the commercial media to disseminate weather services. It will also ensure that Canadians have ready access to weather warnings through its own Weatheradio and Weathercopy networks. (Weatheradio is a network of low-power FM radio stations which broadcast weather and environmental information. Weathercopy allows weather information to be copied onto a printer from special receivers). As a result, the department will be able to provide more efficient dissemination of weather warnings and forecasts throughout the country. These improvements in dissemination technologies will permit the department to phase out 56 local weather information offices over the next three years.

Local weather observations are becoming increasingly automated, resulting in significant financial savings (approximately $18 million) to the department. At the same time, greater reliance will be placed upon remote-sensing technologies such as satellite and radar observations. Research is also leading to even more effective methodologies such as wind profilers (to provide information on wind patterns above the earth's surface) that will become significant elements of the weather warning system within the next decade.

The federal Program Review process is accelerating these changes. There is some risk that the accuracy and reliability of weather forecasts will decline in the short term. Continued investments in science and technology will allow the department to reduce the risk while we develop a more affordable weather warning program. The department will consult with its clients during the next several months to ensure that service standards are in place and properly reflect the needs of Canadians to the extent possible within a significantly reduced budget.

WEATHER FORECASTS AND WARNINGS	Revised Budget 1994	Total Shift %	1995-96 Shift $	1995-96 Budget $	1996-97 Shift $	1996-97 Budget $	1997-98 Shift $	1997-98 Budget $
Forecast & warning prediction system (AE)	64,462.0	10.0%	236.0	64,226.0	4,696.0	59,766.0	6,456.0	58,006.0
Systematic measurement network (AE)	50,861.0	36.1%	9,397.0	41,464.0	15,793.0	35,068.0	18,383.0	32,478.0
Dissemination & delivery systems (AE)	15,189.0	80.2%	4,997.0	10,192.0	10,106.0	5,083.0	12,189.0	3,000.0
WMO Assessment (AE)	1,693.0	0.0%	0.0	1,693.0	0.0	1,693.0	0.0	1,693.0
Program co-ordination & direction (AE)	1,005.0	30.0%	245.0	760.0	302.0	703.0	302.0	703.0
Policy & program development (AE)	1,571.0	33.0%	255.0	1,316.0	442.0	1,129.0	518.0	1,053.0
Strategic numerical & environmental prediction research (AE)	8,060.0	31.2%	1,000.0	7,060.0	1,900.0	6,160.0	2,512.0	5,548.0
Total - Weather Forecasts & Warnings	**142,841.0**	**28.3%**	**16,130.0**	**126,711.0**	**33,239.0**	**109,602.0**	**40,360.0**	**102,481.0**

Long-Term Objective

To protect Canadians from the impacts of severe weather.

Strategy

Using the atmospheric sciences, informatics, telecommunications and remote sensing technologies, Environment Canada will modernize the weather warning production and delivery system.

Results Visible to Canadians

- Canadians receive timely and accurate warnings of severe weather;
- Canadians understand how to respond to warnings of severe weather;
- Weather conditions are monitored.

Key Deliverables

- The production and delivery of weather warnings and forecasts will be consolidated into 17 locations across Canada by 1998. These offices will provide a community focus for many Environment Canada services and will be important points of contact with the public. Fifty-six local weather information offices will be phased out by 1998;
- Professional meteorologists will focus their efforts on the production of weather warnings and forecasts of significant weather. This will become increasingly evident over the next three years as most routine forecasts become automated;
- Through partnerships with media, provinces, and Emergency Preparedness Canada, advise Canadians on how to reduce dangers posed by severe weather;
- Expand the weather warning alert system by adding eleven Weatheradio and six Weathercopy transmitters by 1996. With these additions, more than 75% of the Canadian population will be within the reach of Weathercopy and 95% will be within the reach of Weatheradio;
- Optimize observing networks and systems by automating, choosing more effective observing strategies, and seeking out new data sources. Fifty automated observing systems will be deployed for a total of 99 advanced, automated systems by 1997.

EMERGENCY PREPAREDNESS

Environmental emergencies involve accidental releases into air, land, or water, which may cause adverse effects on human health or the environment. Currently, there are more than 20,000 spills of varying degrees of severity, reported annually in Canada. Pollution events may span national boundaries (eg. nuclear fallout, volcanic eruptions, and the release of toxic substances into the atmosphere).

While Environment Canada has, in recent years, improved its ability to respond to these events, much of the direct response to environmental emergencies rests with provincial and local authorities. Both the public and governments feel strongly that all polluters must be held to account. Within this context, Environment Canada has made considerable progress in fostering public and private-sector partnerships. Examples include the Major Industrial Accident Council (MIACC) and the Federal Committee for Environmental Emergencies.

In 1992-93, the WMO designated the Canadian Meteorological Centre (CMC) as a specialized international centre for computer modelling of the movement of pollutants released into the atmosphere. A global operational model, "CANERM" (Canadian Emergency Response Model), serves to track radioactive clouds or, immediately following an eruption, volcanic ash. In 1994-95, the operational capability of CANERM was improved through routine testing and international exchange of results in real situations.

Environment Canada will continue to co-ordinate nationally and internationally the development and transfer of improved pollution emergencies technologies. Such work promotes improved delivery of operational spill prevention and response programs, and contributes to the development of the pollution emergencies sector of the Canadian environmental industry. The associated specialist science and technology expertise and facilities will be used to support lead agencies at home and abroad through the delivery, for example, of emergency meteorological data, modelling of pollution emergencies and assessment advice.

Environment Canada will also continue to provide, on a cost-recovery basis, advice and assessment in response to accidental incidents to enable lead response organizations to deal with such events effectively. The program emphasis on prevention and preparedness will be advanced through international fora, to influence the international agendas for environmental emergencies, policies, and science.

The emergencies program will be reduced by almost 40% during the planning period, from $10.0M to $6.2M. The primary risk associated with these reductions is the unpredictable occurrence of major pollution emergencies, which would put enormous pressure on the response assessment advisory component of the program — on which the reductions are focused. Spill response times for response assessment advice would be increased significantly.

EMERGENCY PREPAREDNESS	Revised Budget 1994	Total Shift	1995-96		1996-97		1997-98	
		%	Shift $	Budget $	Shift $	Budget $	Shift $	Budget $
Emergencies (prevention/response) (EP)	10,099.1	37.9%	1,032.9	9,066.2	2,426.9	7,672.2	3,826.3	6,272.8
Total - Emergency Preparedness	**10,099.1**	**37.9%**	**1,032.9**	**9,066.2**	**2,426.9**	**7,672.2**	**3,826.3**	**6,272.8**

Long-term Objective

To protect Canadians and the environment by reducing the frequency and severity of environmental emergencies induced by humans.

Strategy

Make pollution prevention and improved science and technology central to reducing the frequency and severity of environmental emergencies.

Results Visible to Canadians

- Technologies are available for the prevention, measurement, control and remediation of pollution emergencies;
- National and international standards to improve environmental emergency capacity are advanced;
- Collaborative and harmonized efforts for environmental emergencies are advanced;
- Deaths, illness and property damage resulting from human-induced hazards are reduced or prevented.

Key Deliverables

- International policy and standards advanced for environmental emergency prevention and preparedness through Arctic Environmental Protection Strategy, International Maritime Organization, UN Committees and OECD groups, by March 1998;
- Environmental emergencies agreements negotiated with provinces by the end of 1995;
- Technologies and new knowledge developed, transferred and commercialized on spill prevention, modelling, measurement, containment, recovery, remediation and disposal;
- Timely warnings of pollution events, advice on volcanic and nuclear fallout incidents and information on the dispersion of toxic gas releases provided;
- Direct meteorological and sea state support provided to environmental emergency response organizations.

BUSINESS LINE 3: Giving Canadians the Tools to Build a Greener Society

In the ***Red Book***, the environment is recognized as an area of shared responsibility between governments and their citizens. Canadians are beginning to accept that they must shoulder their share of responsibility. But they expect from Environment Canada leadership and influence through the provision of information, technology and tools, and through polices which improve economic and environmental decision-making.

Just as environmental issues mature through a natural cycle, so too does giving Canadians the tools to build a greener society. For example, information, technology and tools were once designed primarily to support governmental decisions. They now serve a much broader range of stakeholders, and some have even matured to the point where they have commercial value. Canada has been especially successful in informing people about the environment; Canadians recently scored first among respondents from twelve industrial nations for knowledge of environmental issues.

Environment-economy linkages are an increasingly important part of everyday decisions. Environmental management increasingly represents a strategic mix of regulatory and non-regulatory initiatives.

The primary output from this business line is influence in building shared frameworks, and the over-riding strategy is **the alignment of economic and environmental policy directions.** That alignment is achieved by better integrating socio-economic and environmental information and advice, through integrating tools like environmental assessment and marketplace instruments, by aligned policy frameworks, and through compliance regimes which contribute to economic competitiveness.

As a result of Program Review, total expenditures in this business line will be reduced from $134.9M in 1994/95 to $84.4M in 1997/98. Information on the reductions in individual components is provided within the component descriptions.

The primary concern in making the reductions was to maintain sufficient resources to ensure economic and environmental policy directions are aligned, and equally importantly to ensure that the information, tools, and services provided by the department are supportive of the intent of the policies. As a result:

- To increase the accessibility and utility of environmental information, new approaches are being designed to transfer information to Canadians (the Green Lane on the information highway, Eco-Action Offices). This will mean we can discontinue hard copy state-of-the-environment reporting following issuance of the 1996 report.
- Because of the importance of leveraging community-based action, some activity in this area will continue. To meet affordability constraints, two existing initiatives (Partners Fund and Action 21) are being combined into a single more community-based initiative.
- Enforcement of protection and wildlife regulations will be maintained at its current level. Agreements will be put in place with individual provinces to permit more effective use of combined enforcement resources. By eliminating overlap and minimizing duplication in the regulation of the environment, the objectives are to encourage compliance and foster a competitive economy.
- Environment Canada needs the capacity to participate in international negotiations and develop national frameworks (Sustainable Development Framework, CEPA, CEAA). Sufficient capacity will be retained by accelerating the withdrawal of seed funding for the Globe Conferences and the Montreal Biosphere, which are becoming more self-sufficient.

The International Institute for Sustainable Development is being given an extension in its seed funding to assist it in making the translation to self-sufficiency.

- Sustainable Development Strategies will be key instruments for assessments by the new Commissioner for the Environment and Sustainable Development.[1] The recent "greening of government" initiative will enable Environment Canada to reduce its expenditure in support of federal stewardship as other departments move forward with their respective initiatives.
- Because the environmental industry is a government priority, enough resources will be retained to fund most existing green technology programs, maintain three environmental technology centres, support the Environmental Industry Initiative, provide technical training as an international marketing tool, and add an industry support specialist to each regional office.

More specific transition strategies are described further in chapter 3, and the following sub-sections set out the results which are expected to be achieved with the reduced level of funding. More particularly, the challenge of scientific renewal is more fully addressed in "Scientific Renewal" in the Human Resources Management section of Chapter 3.

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[1] *Commissioner for the Environment and Sustainable Development: A commitment in "Creating Opportunity" was the establishment of an Environmental Auditor General. With the tabling of legislation to amend the Auditor General Act, this delivers on the commitment by creating a Commissioner for the Environment and Sustainable Development who will report directly to the Auditor General. Departments will be required to develop sustainable development strategies and table them within two years after the amendments come into force. The Commissioner will monitor performance of departments and report to Parliament annually. These changes will promote sustainable development across all federal departments.*

INFORMATION PRODUCTS AND SERVICES

Environment Canada provides information and advice on a broad range of environmental issues. This helps Canadians to understand environmental issues and enables them to make responsible social, economic and environmental decisions both to correct past mistakes and to make responsible decisions in the future. Frequently, environmental information is also used to enhance our social and economic capacity, resulting in a safe and healthy environment and a sound and prosperous economy.

By working closely with our clients to understand their information needs, we are able to help them integrate environmental information into their social and economic decisions. For example, meteorological and hydrological information is used by hydro utilities to adjust electrical generation capacity and water storage requirements; weather information is used by airlines to select routes for safety purposes and to save fuel; information on ice floes allows ships to avoid ice-infested waters, resulting in faster and safer voyages. The economic value of short-range weather forecasts alone is estimated to be in excess of one billion dollars each year.

Environment Canada also provides Canadians with integrated environmental, social and economic information in the form of comprehensive state of environment reporting, indicator bulletins, and fact sheets. Such information enables Canadians to monitor progress and make better decisions in support of sustainable development.

To improve the practical usefulness of environmental information, the department is developing a client-centred focus as way of doing business to help Canadians solve problems by means of environmental information. It is optimizing the delivery of information and advice in a manner that permits the easy integration of environmental, social and economic perspectives in support of sustainable decision-making.

Advances in technology also permit effective management and distribution of environmental information and advice. For example, the Internet will be used to provide timely access to information on the state of Canada's environment.[2] Another example is the use of informatics technologies to integrate weather information directly into aviation flight planning. Within a few years, the department will be able to establish a "virtual presence" in communities throughout the country, making information available on demand, but without the costly infrastructure of physical offices in many locations.

The challenge is to compensate for budgetary reductions by using advances in technologies and new approaches to service delivery to reduce costs and enhance effectiveness and efficiency. For example, a viable commercial services sector will be developed to provide value-added services and increase commercial revenues. The SOE unit dedicated to the preparation of the 1996 national SOE report will be closed and responsibilities will be redistributed across the department for continuous reporting on the health and integrity of

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[2] *Green Lane on the Information Highway: Environment Canada's Green Lane allows people to access information by computer on regional weather, climate, and atmospheric research as well as other environmental information. There are electronic access points in both Atlantic Canada and Ontario and more sites will be opening up on the electronic highway in the coming months. Environment Canada's Green Lane is one of the newest and most comprehensive sites established on the Internet to-date by any of Canada's federal government departments. The Green Lane provides direct access to the Minister, other Environment Canada sites across the country, and to various other environmental sites on the Internet. The Internet address is "http://www.doe.ca/".*

Canada's ecosystems. The department's information infrastructure will also be upgraded both to reach out more effectively to Canadians and to better respond to internal management needs.

While new technologies require fine-tuning and adaptation on the part of users, Environment Canada intends to consult closely with clients to ensure that expectations regarding the new technologies, expressed in service standards, are realistic. In addition, as the department moves from single, comprehensive and integrated reports on the state of the environment toward more frequent reporting on issues of immediate concern, there is a risk that an appropriate degree of integration of environmental, economic and social considerations as they apply to ecosystems will be lost.

INFORMATION PRODUCTS AND SERVICES	Revised Budget 1994	Total Shift %	1995-96 Shift $	1995-96 Budget $	1996-97 Shift $	1996-97 Budget $	1997-98 Shift $	1997-98 Budget $
Sustainability indicators (EC)	943.3	26.3%	104.0	839.3	248.5	694.8	248.5	694.8
SOE reporting (EC)	4,643.7	100.0%	219.1	4,424.6	2,732.9	1,910.8	4,643.7	0.0
Environmental Information Network (EC/P&C)	9,887.2	38.7%	4,783.2	5,104.0	4,887.2	5,000.0	3,826.0	6,061.2
Domestic response to international commitments (EC)	475.4	23.1%	78.3	397.1	109.8	365.6	109.8	365.6
Climate and air quality advice (AE)	10,236.0	78.5%	2,893.0	7,343.0	5,947.0	4,289.0	8,036.0	2,200.0
Ice services (AE)	7,747.0	40.0%	1,147.0	6,600.0	2,572.0	5,175.0	3,099.0	4,648.0
Total - Information Products and Services	**33,932.6**	**58.8%**	**9,224.6**	**24,708.0**	**16,497.4**	**17,435.2**	**19,963.0**	**13,969.6**

Long Term Objective

Canadians use integrated environmental, social and economic information to achieve sustainable benefits.

Strategy

The department will work more closely with its clients in order to better understand their information needs. It will provide accessible and integrated environmental, social and economic information. Specialized services will be provided on a cost recovery basis.

Results Visible to Canadians

- Canadians have access to integrated environmental, social and economic information, including a comprehensive report on the state of Canada's environment;
- Canadians have ready access to a comprehensive set of environmental indicators for tracking progress and making better decisions in support of sustainable development;
- Canadians have access to, and use, timely and accurate information on weather, water, and ice conditions;
- Industry clients are provided with specialized services on a user-pay basis.

Key Deliverables

- Beginning in 1995, the third national report on The State of Canada's Environment will be released chapter by chapter through the Green Lane of the Information Highway; the report will be completed by mid-1996 and individual chapters and the comprehensive version will

be produced and marketed through on-demand printing in co-operation with the private sector;

- In co-operation with private sector and industrial partners, a global information system designed to track environmental trends;
- The development of a national set of environmental indicators and a system to regularly update and deliver them completed by December 1996;
- Improve client access to data and create one-stop shopping by linking environmental data bases across Canada;
- Tailor weather, water and ice services to the needs of economic sectors (agriculture, forestry);
- Technology to improve accuracy of automated weather forecasts by 1998;
- Prepare Canada's national report to the United Nations Commission for Sustainable Development (UNCSD) for 1995 in partnership with Foreign Affairs and International Trade and the Canadian International Development Agency;
- Establish a Canadian node on the Green Lane for information exchange on biodiversity, the endangered species program, and the National Pollutant Release Inventory;
- Increase commercial revenues by $6 M by 1997/98;
- Service standards, based on a lower-cost program and consultation with clients, by 1996.

TECHNOLOGIES AND KNOW-HOW

Scientific and technical information does not necessarily prompt or guarantee environmentally responsible action by government, industry, communities or individuals. It is necessary to bridge the gap between knowledge and action by providing tools, techniques and technologies[3] to guide and direct action. Environment Canada uses environmental assessment, for example, as a tool to assess detrimental impacts of development in the public and private sectors, as well as to assess government policies and programs.

Environment Canada has already had considerable success in fostering the capacity for responsible action outside the department and, indeed, outside government. For example, in September 1994, the department together with Industry Canada launched the Canadian Environmental Industry Strategy, which sets out a vision and establishes an action plan to achieve, through a wide range of partnerships, a cleaner environment and more dynamic, competitive environmental industry in Canada. In partnership with provincial governments, environmental industry associations and the private sector, a series of Canadian Environmental Technology Advancement Centres has been established to provide advice on a range of technical and business services to small and medium-sized enterprises. Other examples include the department's success with initiatives such as the Environmental Partners Fund, pollution prevention agreements with industrial sectors, and the recent proclamation of the Canadian Environmental Assessment Act. Over the next three years, even greater emphasis will be placed on capacity-building.

Program Review focused the department on activities where it could make the greatest strategic contribution by providing leadership. For example, national partnerships, pollution prevention, and green technologies fall into this category and will be supported with budgets that anticipate higher levels of activity in the future. Where the department has developed successful programs with commercial potential, every effort will be made to move these programs to the private sector as a means of alternative delivery (eg. Environmental Choice Program, Wastewater Technology Centre).

Reordering of program priorities identified programs with a limited return in terms of the department's vision and strategies (eg. funding programs, local clean-up initiatives). As a result, the Environmental Innovations Fund, Life Cycle/Recycle Promotion, Incentive Programs, international partnerships (funding program), and community-based partnerships will be discontinued or scaled back.

As the department moves forward with the implementation of its program review decisions, it will face a number of challenges. There is a challenge related to the department's ability to maintain national consistency in areas such as packaging and recycling programs. There are also challenges associated with the commercialization schedule of the government-owned, contractor-operated Wastewater Technology Centre (GOCO). When

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[3] *Micro-wave Assisted Process (MAP): The federal government signed licensing deals in January 1995 worth $550,000 for commercial applications of a new environmentally friendly micro-wave extraction technology developed by Environment Canada scientists. The market potential for this technology is very high and initial agreements were signed with Pronatex of Quebec, CWT-TRAN of Alberta, and CEM Corporation of the U.S. The micro-wave assisted process technology uses micro-wave heat to extract chemicals from various substances - such as extracting the vanilla essence from vanilla beans. Dr. Jocelyn Paré, an Environment Canada scientist, led the development of the process which shows great promise for use in a multitude of applications including treating contaminated soils and analyzing toxic chemicals.*

similar commercialization projects have been attempted in the past, they have inevitably failed when the process has been accelerated beyond what is practically possible. If commercialization of the GOCO is to succeed, private sector support for wastewater programs will be essential.

TECHNOLOGIES AND KNOW-HOW	Revised Budget 1994	Total Shift %	1995-96 Shift $	1995-96 Budget $	1996-97 Shift $	1996-97 Budget $	1997-98 Shift $	1997-98 Budget $
Environmental assessment (EP)	6,480.0	13.5%	874.8	5,605.2	874.8	5,605.2	874.8	5,605.2
Community-based partnerships (EP)	14,673.0	31.8%	3,830.0	10,843.0	4,265.4	10,407.6	4,673.0	10,000.0
International partnerships (EP/EC/P&C):								
. International Institute for Sustainable Development (P&C)	2,375.0	91.6%	75.0	2,300.0	675.0	1,700.0	2,175.0	200.0
. Montreal Protocol/Global Environmental Facility (EP)	620.0	0.0%	(1,378.0)	1,998.0	(1,378.0)	1,998.0	0.0	620.0
. Globe conferences (EC)	560.6	100.0%	(100.3)	660.9	12.6	548.0	560.6	0.0
National partnerships (P&C):								
. Canadian Environmental Network (P&C)	600.0	0.0%	0.0	600.0	0.0	600.0	0.0	600.0
. Canadian Council of Ministers of Environment (P&C)	835.0	9.9%	83.0	752.0	83.0	752.0	83.0	752.0
Pollution prevention (EP)	8,953.6	18.8%	791.9	8,161.7	934.1	8,019.5	1,682.4	7,271.2
Env. Choice (EP)	1,309.0	100.0%	(1,473.0)	2,782.0	536.0	773.0	1,309.0	0.0
Life cycle/recycle (EP)	1,364.0	100.0%	640.4	723.6	1,007.0	357.0	1,364.0	0.0
Unsolicited proposals (Environment Innovations Program) (EC)	3,462.0	100.0%	1,017.9	2,444.1	2,035.8	1,426.2	3,462.0	0.0
Green technologies (EP)	7,737.7	22.5%	1,175.3	6,562.4	1,575.3	6,162.4	1,737.3	6,000.4
Technology development and demonstration (EP)	0.0	-	(1,200.0)	1,200.0	(1,100.0)	1,100.0	(1,000.0)	1,000.0
Incentive programs (EP)	975.9	100.0%	765.0	210.9	875.0	100.9	975.9	0.0
Wastewater Technology Centre/GOCO (EP)	5,519.6	30.4%	555.5	4,964.1	1,116.6	4,403.0	1,677.7	3,841.9
National facilities capital (EP)	7,192.0	49.1%	3,847.9	3,344.1	3,847.9	3,344.1	3,530.4	3,661.6
Energy research and development - PERD (AE/EP/EC)	7,660.0	31.1%	195.0	7,465.0	1,994.0	5,666.0	2,384.0	5,276.0
Program co-ordination (EP/EC)	9,644.3	27.7%	1,119.8	8,524.5	995.9	8,648.4	2,674.0	6,970.3
Issue co-ordination (EP)	4,853.0	50.6%	1,455.8	3,397.2	1,555.8	3,297.2	2,455.8	2,397.2
Total - Technologies and Know-how	**84,814.7**	**36.1%**	**12,276.0**	**72,538.7**	**19,906.2**	**64,908.5**	**30,618.9**	**54,195.8**

Long-term Objective

Canadians take individual and collective responsibility for the environment by making consideration of environmental impact an essential factor in decision-making.

Strategy

Provide Canadians with the tools, techniques and technologies to build their capacity, and foster partnerships allowing a wide range of players to learn better ways to achieve sustainable development.

Results Visible to Canadians

- Decisions are improved through the use of environmental assessment;
- Canadian environmental industries are fostered nationally and internationally;
- Canadian communities have the capacity to address environmental and sustainability issues effectively;
- Demand for products and services that are less stressful to the environment is intensified, while the supply is improved;
- Public and private sectors take joint responsibility for environmental protection through

- Public and private sectors take joint responsibility for environmental protection through pollution prevention;
- 35% reduction in packaging waste achieved by 1996.

Key Deliverables

- Nationally consistent and legally sound interventions for environmental assessment public panels related to government decision-making prepared;
- A national Certification Program implemented in 1997 to help Canadian environmental industries compete more successfully in the global marketplace;
- 100 communities assisted in developing environment/health action plans during 1995-96;
- Environmental Choice Guidelines developed for additional 25 product categories in 1995-96;
- Environmental Management System Guidelines and Standards (eg. ISO 14000 series) completed in 1997-98;
- Federal Pollution Prevention Strategy released in 1995;
- National solid waste inventory is updated in 1995.

PARTNERSHIPS

Over the past decade, sustainable development has become a key goal of public policy, within Canada and internationally. Individuals, business, voluntary groups, the scientific community and governments have been exploring how to move from sustainable development as a concept to a practical guide for action.

In the past, environmental policy was generally reactive, responding to problems after they have developed. Environmental protection was also viewed by some as a barrier to economic development. Increasingly Canadians have come to understand that their health and economic prospects are being influenced by the state of the environment. Similarly, a healthy economy provides jobs and incomes, and the wealth needed to develop the science and technology and make the investments that are necessary to ensure a healthy environment. An integrated approach to planning and decision-making will ensure progress on the social, economic, and environmental dimensions of sustainable development.

Environment Canada is playing a key role in promoting integrated decision-making. For example, in 1994-95, the government responded to the report of the Standing Committee on Environment and Sustainable Development, agreeing to establish a Commissioner within the Office of the Auditor General. The Canadian Council of Ministers of the Environment established as their top priority the elimination of unnecessary duplication and the rationalization of overlap of responsibilities of environmental programs in Canada. The first meeting of Environment Ministers from the Asia-Pacific Economic Forum was held in Vancouver. The World Trade Organization's Trade and Environment Committee was established to examine the relationship between environmental measures and trade rules. And the report[4] of the Task Force on Economic Instruments and Barriers and Disincentives to Sound Environmental Practices was presented to the Finance Committee and distributed to Canadians as part of pre-Budget consultations.

Program Review reinforces the need for Environment Canada to continue to work with its national and international partners to build consensus on integrated planning and decision-making, and to act on that consensus. For example, with the establishment of the Commissioner for the Environment and Sustainable Development, over the next two years, all federal government departments will prepare and release sustainable development strategies. Environment Canada will provide assistance to those departments as well as preparing its own strategy.

Environment Canada's stewardship program was identified as being ultimately the responsibility of other departments. Consequently, stewardship services to other departments will be terminated by 1997-98. The department will then focus on continuing support for the overall "Greening of Government" initiative.

Eliminating duplication and minimizing overlap with the provinces and territories is crucial to the successful achievement of our national objectives in environmental management.

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[4] *Economic Instruments and Disincentives to Sound Environmental Practices: "Creating Opportunity" (Red Book) noted that environmental and economic policy must go hand-in-hand. The Report of the Task Force on Economic Instruments and Barriers and Disincentives to Sound Environmental Practices lists a number of potential applications of economic instruments, both short-and long-term, and a number of specific government policy barriers or potential barriers to the achievement of goals. It also outlines a framework for a comprehensive review of barriers and their potential removal over a longer time frame. The report was provided to the government in December 1994 in time for consultations leading top the 1995 Budget. The task force was composed of experts in a variety of environmental, industrial, and academic fields.*

Current discussions among the members of the CCME represent a significant effort to ensure maximum co-operation in providing a nationally consistent and high level of protection for the environment. Opportunities to deliver programs and activities in the most effective manner by provincial, territorial or local governments will be explored. Discussions are currently underway to harmonize delivery of the environmental assessment program with the provinces and territories.

Resource reductions associated with Program Review will however, create a number of challenges for the department. EC will need to exercise leadership through the strength of its ideas and the persuasiveness of its arguments, rather than through the financial resources that it brings to the table. Delays can also be expected in the development of alternatives to command-and-control regulation.

PARTNERSHIPS	Revised Budget 1994	Total Shift	1995-96		1996-97		1997-98	
		%	Shift $	Budget $	Shift $	Budget $	Shift $	Budget $
NAFTA/NAACEC/NACEC (Trade-related env. prot. response) (EP)	1,882.0	+287.9%	(4,018.0)	5,900.0	(5,418.0)	7,300.0	(5,418.0)	7,300.0
Alternative environmental management tools (EP)	1,932.2	58.6%	266.2	1,666.0	592.7	1,339.5	1,132.4	799.8
Policy and communication (P&C)	10,488.0	22.3%	1,921.0	8,567.0	2,342.0	8,146.0	2,342.0	8,146.0
Economic Instruments (P&C)	300.0	100.0%	150.0	150.0	270.0	30.0	300.0	0.0
Stewardship/greening of government (EP/CS)	1,643.0	100.0%	0.0	1,643.0	143.0	1,500.0	1,643.0	0.0
Total - Partnerships	**16,245.2**	**0.0%**	**(1,680.8)**	**17,926.0**	**(2,070.3)**	**18,315.5**	**(0.6)**	**16,245.8**

Long-Term Objective

Environmental, economic, social and foreign policy are mutually reinforcing.

Strategy

Build consensus with national and international partners on integrated planning and decision-making, and acting on that consensus.

Results Visible to Canadians

- All federal government departments incorporate sustainable development considerations in their policies, programs and operations; sustainable development strategies are developed in consultation with clients and stakeholders;
- Environmentally and economically sound response strategies are available to address priority pollution problems;
- International institutions more effectively address global environmental and sustainable development challenges;
- Barriers to sound environmental practices are removed, and greater use made of market-based mechanisms to achieve environmental objectives;
- Canada's trade and environmental policies mutually compatible.

Key Deliverables

- "Greening of Government" leadership demonstrated through assistance to federal departments to comply with federal and provincial regulations and adopt state-of-the-art management practices;
- Sustainable Development Framework to guide establishment of sustainable development strategies by all federal departments in 1995;
- EC's Sustainable Development Strategy prepared by September 1996;
- An intergovernmental agreement regarding the North American Agreement on Environmental Cooperation (NAAEC) concluded and implemented with the provinces;
- Through the Trade and Environment Committee under the World Trade Organization, recommendations developed to make trade and environment policies mutually supportive;
- Working with other countries, the effectiveness of key international environmental and sustainable development institutions enhanced, including the financing of international agreements;
- DOE's compliance with Internal Trade Agreement ensured by cataloguing measures in contravention by July 1997 for further action; and, assisting in preparation of CCME manual to guide managers in all jurisdictions in designing future environmental measures, for distribution in July 1995;
- Government response provided to the Task Force on Economic Instruments and Barriers and Disincentives to Sound Environmental Practices; the response will be the government's action plan on economic instruments and disincentives;
- Socio-economic analysis undertaken to support the development of seven regulations under CEPA and two regulations under the Fisheries Act;
- Tax disincentives to secondary material manufacturing addressed in 1996.

CHAPTER 3
MANAGING THE TRANSITION

This chapter describes several transition projects aimed at making Environment Canada a more modern, affordable department.

With a drastically reduced level of federal expenditure, the Canadian environment will only be safeguarded if the collective resources of all sectors of society are effectively brought together and aligned to common purposes. To exert the leadership that will bring this about, the department will have to change the way business is conducted in a number of important ways, for example:

- In the "Reducing Risks to Human Health and the Environment" business line, the collective resources of the federal and provincial governments will continue to be better aligned in their policies and through the **elimination of duplication and the rationalization of overlap** of responsibilities; and **science and technology partnerships** will have to be strengthened with all sectors of society;
- In its "Weather Forecasts and Warnings and Emergency Preparedness Services" business line, the department will have to **accelerate the streamlining and modernization of the Weather Service**;
- In its "Giving Canadians the tools to build a greener society" business line, the department will have to **reach out to Canadians** through modern technologies and in other innovative ways, to provide them with information and assist them in making decisions beneficial for the environment; and
- In all business lines, the department will have to **increase commercialization and revenue generation** from specialized services, to reduce costs and at the same time increase the relevance of the services provided; and ensure that **human resource renewal** enables the department to draw upon a personnel pool with the skills needed in the contemporary world.

The necessary transition will be accomplished through six transition projects.

WORKING BETTER WITH THE PROVINCES AND TERRITORIES

The elimination of unnecessary duplication and the rationalization of overlap of responsibilities in federal-provincial/territorial matters, and the need to re-define working relationships between orders of government, the private sector and the public have become fundamental issues in the Canadian political context. As such, Canada's first ministers have agreed that federal, provincial and territorial governments will continue to work closely together to improve efficiencies and provide better service to the Canadian public.

Canada's environment ministers recognized the need to work more efficiently to ensure better and more consistent standards of environmental protection. This is being achieved through federal-provincial discussions aimed at rationalizing our work in environmental protection. The discussions are being conducted multilaterally through the Canadian Council of Ministers of the Environment (CCME), and if successful will eliminate unnecessary duplication and rationalize overlap, and provide Canadians with a consistent and high level of environmental protection.

Environment Canada views these discussions as vital in helping to ensure national consistency in standards and enforcement, accountability of all governments to the Canadian public, one-window access to government and to promote the most efficient use of government resources.

Environment Canada will focus more on our strengths such as national environmental policies and standards, providing scientific knowledge and expertise for decision-making and managing transboundary issues. Programs and activities that can be better delivered by provincial, territorial or local governments will be rationalized or reduced as appropriate. There will be no devolution of federal responsibility or authority.

Under another initiative to rationalize approaches to the management of migratory birds and the protection of endangered species, the trend evident is that other orders of government will assume greater responsibility for public resources through permits, licenses and legislative compliance.

CONSOLIDATION OF WEATHER FORECAST PRODUCTION AND NETWORK RATIONALIZATION

Since 1987, Environment Canada has been proceeding with changes in the way it provides weather information to Canadians, with the aim of creating a more streamlined and modern Weather Service. The federal Program Review process is significantly accelerating these changes. With our long-term investments in science and technology, Environment Canada will continue to provide Canadians with an affordable, innovative Weather Service.

Timely warnings of significant and sometimes dangerous weather conditions as well as routine weather forecasts will be the prime concern, in keeping with EC's main preoccupation - protecting the health and safety of Canadians and their environment. Implementation of the weather services modernization plan depends heavily upon automated telecommunications and delivery systems to ensure public accessibility to weather services.

Forecast Production and Delivery

All 56 weather information offices will be closed and routine delivery functions will be automated. A communications plan will be implemented to assure Canadians that they will still receive weather and environmental warnings and information (radio, TV, newspapers, automated telephone answering devices (ATADs) accessible through 1-900 and 976 phone numbers, computer bulletin boards, and Weatheradio). Site-specific strategies will be developed for each closure and the environmental impact of closing sites as well as the cost of remediation, containment and mitigation, and opportunities to rationalize space will be assessed.

Forecast production and delivery will be consolidated in 17 Eco-Action Centres. Development of computer-generated public, agriculture and marine forecasts will be accelerated and a strategy to shift the focus to production of warnings will be implemented.

Climate, water and air quality advice services will be funded 100% through commercial revenues or cost recovery. The department will exit services which are not likely to be profitable and will develop agreements to recover revenue if products/services are resold by the client.

Monitoring Network Rationalization

The department will move from 450 weather stations down to 300 including 21 contracted stations and will automate the remainder of its surface weather stations (until safety considerations have been addressed, a moratorium on the automation of weather observing will continue). It will contract out, close or relocate its upper air stations, reduce its buoy network and delay the purchase and installation of Doppler radars until at least 1998/99.

The department will close 1110 federal and federal shared water quality/quantity stations. Over the next three years, there will be closures of 400, 400, 310 sites respectively, with 890 sites remaining by the end of 1997/98. 4 water survey offices will be closed at Fort St. John, Terrace, Nelson and The Pas with reductions in the remaining 18 offices. The department will advise provinces as soon as possible that it will be renegotiating federal/provincial agreements and that the provinces may have to take on more water resource responsibilities without federal funding. The department will advise Canadians that water is mainly a provincial responsibility and that the federal government does not require as many stations to assure Canadians of their safety and security from floods and to meet water-related federal responsibilities.

The department will close 1300 climate stations including all 350 contract stations - reductions of 500, 500, and 300 stations in each year, respectively, will leave 1300 stations remaining at the end of the three year period. The climate archive will become contractor operated. The department will negotiate with provinces for climate data, advise contractors as soon as possible that contracts will not be renewed and assure Canadians that the department will still have enough information to detect climate change, ensure a safe building code and support economic efficiency.

The department cost recovers ice services provided to Coast Guard, in accordance with Treasury Board policy. Ice data will be commercialized and the automation of reconnaissance (Radarsat) will be phased in. Clients will be assured that the quality of data services will be unaffected and that revenue is essential to maintain this level of service.

Informatics

The department will rationalize its informatics investments, consolidate system development and accelerate implementation of SCRIBE (computer generated public forecasts). The department will also invest in its information infrastructure:

- Information Technology Renewal: To improve personal productivity and facilitate communication within the department and with its partners, an integrated office technology infrastructure is being modernized across the department. This will provide end-users with an integrated suite of products linked across the department and with access to external telecommunications networks.
- Management Information: Projects are underway to provide managers and others with easier access to information from legacy systems, such as finance and human resources, using modern computer-based tools. This will allow managers to obtain information quickly and to analyze current and past data for better decision-making, for example, improved budget reporting and salary forecasting systems completed.

INCREASED COMMERCIALIZATION AND REVENUE GENERATION

In its Program Review, certain reductions were made in areas where it was considered appropriate for services to be provided on a cost recovered basis only. For example, charges will be levied for services to users of specialized weather information such as ski resort owners, snow removal firms, insurance companies, legal firms, the construction industry, engineers, consultants and the transportation industry.

More generally, however, it is recognized that governments need to carefully distinguish between those services which are in the public good and provided as a public service; and those which are specialized services produced for selected clients, the cost of which should be recovered.

In order to develop a complete commercialization and revenue generation plan, the department will first have an independent study conducted by a consultant to:

- Assess the department's current commercialization efforts;
- Develop a framework for the management of commercialization both at the level of policies and strategies, as well as operational management; and
- Make recommendations which will guide EC commercialization initiatives and allow the department to adapt to future management challenges.

Following that study, the department will develop an action plan to improve its business practices, and at the same time hopefully create some of the flexibility it will need to respond to new environmental challenges. It is estimated that new revenues raised will be at least $ 6 million per year by 1997/98, including but not limited to the sale of specialized information and advice, the sale of new science and technology (S&T) services, and the sale or licensing of intellectual property to third parties.

SCIENCE AND TECHNOLOGY PARTNERSHIPS

Environment Canada is predominantly a science-based department. According to the very broad definition adopted in the government-wide Science and Technology (S&T) Review, S&T expenditures constituted 90% of Environment Canada expenditures in 1994/95. Of the 90% however, only 15% was research and development (R&D), with the other 75% devoted to science-related activities such as monitoring, weather services, emergency response, and technical studies.

As a result of Program Review, the department's 1994/95 S&T expenditure of $666M will be reduced to $428M by 1997/98. The R&D reduction however, is smaller than average so it will move from its current 15% to about 20% of S&T expenditures by 1997/98. The net S&T adjustment will result in a reduction of 1102 S&T Full-Time Equivalents (FTEs). Without mitigating measures, reductions of this magnitude would obviously have some serious consequences, including:

- A more limited capacity to manage risk for emerging issues;
- A reduced capacity to anticipate emerging environmental problems;
- Substantially reduced support to universities and the non-governmental organizations (NGO) sector, with the reduced level of support provided in a more directed and leveraged fashion;
- A reduced capacity to assist the resource sectors in the development of sustainable development strategies; and

- Substantial reduction of the resources for comprehensive state-of-the-environment reporting after completion of the third national report in 1996.

In designing an approach to the transition, the department was guided by the priorities articulated in the government-wide S&T Review, namely: encouraging innovation and the rapid commercialization of new ideas; complementing and building partnerships with the private sector and other levels of government; improving environmental quality and contributing to sustainable development; and activities which are necessary for carrying out federal functions in areas of national priority.

Taking the above factors into account, Environment Canada has developed a detailed Action Plan for Managing S&T which features:

- Strengthening the ecosystems approach to environmental science;
- Working in partnership with other levels of government, business, industry, environmental groups, universities and others;
- Automating many labour intensive and routine tasks;
- Building the capacity of all sectors of society by sharing information and encouraging the development of new technologies;
- Harmonizing environmental R&D with the provinces in order to identify common priorities, reduce overlap, and improve the allocation of resources;
- Through a Deputy Ministerial level committee on S&T in support of sustainable development in the natural resource sectors, co-ordinating and co-operating to establish joint priorities and conduct joint research; and
- Aggressively pursuing commercialization opportunities.

There is at least one outstanding item which will affect the S&T Action Plan, that is ongoing deliberations on the transfers of freshwater and marine responsibilities between Fisheries and Oceans and EC. It is anticipated that those transfers, once completed, will offer further opportunities for rationalization.

REACHING OUT TO CANADIANS

If Canadians are to share responsibility for the environment and sustainable development, governments must provide them with:

- Information to help them understand and assess the effects of their actions, including an awareness of relevant laws, regulations and authorities;
- Recognizable opportunities to act in an environmentally responsible fashion in the home, the workplace, the marketplace and the community; and
- The capacity to measure the results of their actions, in order to reinforce their commitment to environmental responsibility.

This transition project is aimed at developing and implementing new approaches to service delivery - approaches which are appropriate to the information age. A key initiative in this regard will be the development and use of the "Green Lane" on the information highway to provide up-to-date environmental information to larger numbers of users. The "Green Lane" is the window to Environment Canada's environmental information on the Internet. Through it, people can have access to a wide variety of Environment Canada services, products, information holdings, programs and policies, as well as provide feedback to the department.

Approaches will include:

- The establishment of Eco-Action Offices in 17 communities to integrate the department's environmental services in the regions (see Transition Project #2 - Consolidation of Weather Forecast Production and Network Rationalization);
- Installing 8 information servers across the country to provide environmental information to our partners and the general public through the Internet;
- Introducing additional Weathercopy, Weatherfax and Weatheradio sites, and new TV crawler services;
- Strengthening of community-based partnerships through a new Action 21 initiative;
- Building strong links to and providing support for the environmental industry;
- Maintaining free public access to basic weather services such as storm warnings and routine weather forecasts; and
- Continuing to support the Canadian Environmental Network, in recognition of the important role played by environmental groups in Canadian communities.

The department will also carefully specify levels of service, standards, and expected results as a key part of reaching out to Canadians in modern and more affordable ways.

HUMAN RESOURCES MANAGEMENT

Reductions

Environment Canada is made up of about 5200 indeterminate staff, of which 36% are in the scientific and professional category, while 26% are in the technical category. Approximately 21% of employees in the department are at least 50 years of age, while the average age of departmental employees is 41. Program Review Full-Time Equivalent (FTE) reductions will be 555 in year one, 391 in year two, and 354 in year three. It is estimated that approximately 326 affected staff will opt for the Early Retirement Incentive (ERI), while 974 will opt either for Early Departure Incentive (EDI) or Reasonable Job Offer (RJO).

Phasing out of the weather information offices will demand full attention to people and client service issues. A very high proportion of technical staff (EGs) are surplus and will require equitable treatment. Employees who remain with the department will need to understand their new role and may require retraining.

The department's strategies for managing human resource reductions include:

- A comprehensive framework to utilize internal as well as external employment opportunities to the maximum benefit of affected employees;
- A systematic review of term and contract employment as a basis for the Work Force Adjustment process;
- A framework for the management of deployment or transfer between affected and non-affected staff;
- Promotion of alternate employment arrangements, and support to affected employees in the development of business plans for moving certain activities to the private sector;
- A tracking system for affected/surplus staff to aid in finding alternate employment;
- A communication strategy to optimize the rapid distribution of information; and
- Detailed training plans to address the needs of affected and surplus employees.

The impact of reductions on employment equity and official languages will be monitored. Strategies for maintaining and enhancing departmental representation will focus on the

management of alternates and innovative recruitment programs to rebuild lost capacity. Internal programs to foster individual and career development, such as the career development program for women and the Adaptive Computer Technology (ACT) Centre will continue.

Risks associated with implementing human resource reductions include: the special difficulties and costs associated with the placement or relocation of the affected employees in the 56 public weather offices slated for closure; the impacts on employees, especially in the technical and administrative support groups, associated with the accelerated introduction of technology; and the increases in grievances and complaints related to Program Review.

Scientific Renewal

Environment Canada is one of Canada's leading knowledge agencies. It not only supplies public information on weather, pollution hazards and wildlife, it also produces new and vital knowledge on such items as our changing climate, the impact of ultraviolet radiation on biota and the concentration of toxic substances in Arctic waters. Departmental employees represent a considerable investment by the government in environmental expertise. EC will lose the expertise of some 40 research scientists and managers and an additional 300 scientific professionals. Every effort is being made to mitigate the impact of losing a significant portion of the department's scientific human resources. Nonetheless, this loss will inevitably reduce Canada's ability to anticipate and prevent new environmental problems and to implement new programs to eliminate or mitigate existing problems.

A special concern will be the issue of improving the general scientific capability of the department. Two action items in the departmental Action Plan for Managing Science and Technology address this. The department will determine the S&T skills needed to meet program objectives, a database of existing skills will be developed, and human resource plans created to address the gaps identified.

The ecosystem approach demands a mix of expertise and management skills which are in short supply. To meet some of its special recruitment needs, the department has been successful in creating sources of atmospheric and ecosystem scientists in university graduate and undergraduate programs through the funding of university chairs, support for post-doctoral fellowships, education leave programs and other initiatives. These efforts to develop external sources of supply of expertise will continue, as internal professional and technical training services disappear. Consideration is being given to establishing a system of Environment Canada Associates for those who are no longer on the payroll but who could contribute to special domestic and international projects. This could be complemented by employees on staff whose services are in part funded by external sources, resulting in keeping more expertise on staff than would otherwise be affordable.

The department must enhance the productivity of its remaining employees, re-engineer its service delivery processes and systems, and redefine the skills mix required for renewal. Professional staff redirected from activities better suited to automation will assume a greater role in consultation, development of partnership arrangements, and commercialization of certain services. New commercial ventures will offer new dimensions for staff involvement. New knowledge will be required to facilitate the development of the environmental industry sector.

Protecting the department's investment in human resources will necessitate a complete reassessment of staff requirements, to ensure that the right blend of professional skills is maintained, and new business-building skills not widely available in the existing population are developed. These skills in marketing, negotiation, economics, innovative business concepts and teamwork are essential to facilitate the establishment of partnerships and joint management with external stakeholders.

Strategies to protect its human resource investments include:

- A departmental framework for continuous learning to upgrade skills of management and staff;
- Revisions to departmental training in light of continuous learning; including strategies for managing organizations in transition and refresher training on ethics and conflict of interest to pave the way for commercialization initiatives;
- Using special programs to build departmental representation in employment equity and official languages for the long term, while in the short term minimizing the negative impacts of Program Review; and
- Identification of present/future skills gaps and requirements for management and staff.

The Human Resources Management Committee (HRMC) with representation from all regions and services, will guide the evolution of human resource policy and practices. The critical success factors for human resource management outlined in the Treasury Board Human Resource Management Accountability Framework (HRMAF) will be used to chart progress toward establishing a renewed employment relationship with staff.

CHAPTER 4
COPING WITH AN UNCERTAIN FUTURE

This chapter briefly outlines the challenges of environmental, managerial decision-making in uncertain times.

As they approach the 21st century, Canadians face major uncertainties, for example:

- On the environmental front, in two short decades, they have seen the environmental focus shift from the local to the regional to the global scale. In that same period, they have witnessed the disappearance of fish stocks, the thinning of the ozone layer, the onset of climate warming, etc. While Environment Canada is tracking emerging environmental trends closely, it is likely that the environmental policy issue of the year 2010 is something not yet fully visible on the horizon.
- On the economic front, few would have predicted in decades past the degree to which national and global economies would be intertwined and interdependent by the year 2000, through trade liberalization and external debt loads. Environment Canada has been shifting major attention to the global trade-environment relationship. In concert with others, it is exploring the implications of environmental decision-making moving upward through international trade arrangements, as it has increasingly tended to do through responses to specific issues like transboundary movement of hazardous substances.
- On the social front, we are witnessing an unprecedented evolution in the relationship between the so-called developed and developing nations, and a rapid shift away from governments doing things for people, to governments helping people help themselves. Environment Canada is an integral part of this process as reflected in its new mission statement. The very role of government in the information society is being questioned - whereas equity of access to land, resources, health and education dominated 20th century governmental agendas, will equitable access to information become the focus of government a decade from now?

The scope of change in recent decades has led some analysts to muse about the capacities of national governments, given the need to work on issues that matter to people at the community level, and also the requirement to have influence in the global context. It is clear that there is no government which can ensure equity of outcomes in any real sense: they are far too removed from communities and cultures. As we move closer to a single global economy and a single global environment, Canadian interests on the international stage can only be effectively represented by a vigorous national government with strong democratic roots in Canada's very diverse communities.

Considering future uncertainties, the critical issues for Environment Canada are:

- In the near term, how the national government and its environment department can maximize their contributions to the health, safety and well-being of Canadians within affordability constraints; and
- In the longer term, how the Government of Canada and Environment Canada can best anticipate and manage environmental, economic and social uncertainty.

The first issue was addressed by the department's Program Review. Taking into account the geographical broadening of environmental issues, the shifting role of modern governments, the emergence of information age technologies, and the growing importance of "knowledge workers", the resource adjustments stressed:

- A geographical emphasis at the international and national levels, and at the level of nationally significant ecosystems; and
- A functional emphasis on strategic science with a critical mass to achieve fundamental

results, and policy frameworks that integrate the efforts of Environment Canada services, federal departments and agencies, federal and provincial governments, and multiple stakeholders.

The most appropriate response to the second issue is efforts to increase resilience both of organizations like Environment Canada and the environment itself.

As a resilient organization, Environment Canada will be continuously scanning the evolution of environmental and economic trends and investing in innovation. We believe we made the right directional shifts in Program Review. We also understand that the societal and environmental evolution will only accelerate. It is therefore essential that flexibility and adaptability be built into all our management systems and practices.

Turning to the natural environment, even in relation to rather well-researched issues like climate change, there is uncertainty about such aspects as the timing and magnitude of impacts on human populations. The ability of Canadians to cope with environmental uncertainty will depend on how much resilience they are able to maintain in Canadian ecosystems.

For example, many actions can be taken which are sound from both economic and environmental standpoints and consistent with the precautionary principle, no matter what the future holds in store, including energy conservation, prudent measures to conserve biological diversity, water, and forests, etc. Environment Canada's substantive program shifts have been, and must continue to evolve in the direction of pollution prevention, conservation of diversity and natural resource stocks, and enhancing resilience of environmental systems.

The way Canada as a nation, and as a member of the international community, deals with it environmental future will be critical to the health, safety and prosperity of future generations of Canadians. With the limited resources available, Canadians must continue to be strategic in their environmental investments, and highly mobile in the way in which they move from one type of investment to another.