

A FRAMEWORK FOR DISCUSSION ON THE ENVIRONMENT



"Your destiny is a mystery to us. What will happen when the buffaloes are all slaughtered? And what is it to say goodbye to the swift pony and the hunt? The end of living and the beginning of survival.

"We love this earth as a newborn loves its mother's heartbeat. Care for it as we have cared for it. Hold in your mind the memory of the land. Preserve the land for all children and love it."

**Chief Seattle,
in a letter to the
President of the United States, 1852.**

"The ozone layer has a hole, our water is polluted, our forests are disappearing, and the animals are also affected by this pollution. We would like to save our planet, if that is possible."

**Aaron Meyers,
age 10,
Montreal.**

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Introduction

Since the mid-1980s, Canada has taken the leadership in the definition and the application of sustainable development. In the 1990s, the Government of Canada is determined to consolidate this leadership role in the field of environment. Ultimately, our goal is to unite Canadians in a great common cause:

To make Canada, by the year 2000, the industrial world's most environmentally friendly country.

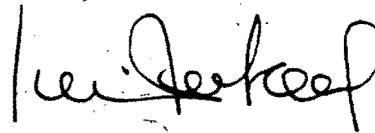
To reach this objective, we believe that:

- the Government of Canada must lead by example;
- sustainable development depends on individual Canadians changing their behaviour as it affects the environment;
- a healthy environment and a strong economy must be recognized as being mutually dependent;
- environmental action must be undertaken in a fiscally responsible manner;
- public policy must be developed and implemented on the basis of full consultation and partnership with those affected;
- innovative science and technology must be supported.

In the following pages, we propose concrete measures to reach our objective. The reflection and discussion which this document invites will influence the order of priority in the Government's action plan (*The Green Plan: A National Challenge*) which will be released before the end of the year.

I hope we will reach an early consensus on the key elements of this action plan. Like many Canadians, I am impatient to act — to make up for the decades of environmental oversight.

We are now at a critical stage of Canada's evolution toward sustainable development. We owe our thanks to many partners who have helped us reach this point. I hope they will speak out clearly in the dialogue which we are now beginning. I thank them for their support. I am now calling on all Canadians to join us in this great social commitment to ensure for our children the future that they have a right to expect — a future in harmony with a restored natural environment.



Lucien Bouchard
Minister of the Environment

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Preface

Later this year, the Government of Canada will release *The Green Plan: A National Challenge*. It will inform Canadians about the most serious environmental problems they face in the coming years and will describe some of the programs, laws and other actions the Government will implement in order to address those problems. The plan will also describe the vital role private sector groups and individuals must play if we are to reverse years of environmental abuse and prevent future environmental degradation.

However, if *The Green Plan* is to succeed, it must take into account the concerns of interested Canadians. In order to ensure that all those who have views are given the opportunity to express them, the Government of Canada is holding a series of consultations across the country, beginning this spring. This document, *Framework for Discussion on the Environment*, summarizes the issues that will be addressed in *The Green Plan*. It also outlines specific environmental problems and explores options for dealing with them.

The *Framework* sets out possible — not preferred — solutions. It is meant to stimulate ideas, not to foreclose debate.

A reading of this document will make it clear, however, that the Government of Canada has a specific goal in mind. That goal is to ensure that the activities of businesses, individuals, communities and government are consistent with the concept of sustainable development.

The idea of sustainable development was first articulated by the World Commission on Environment and Development (the Brundtland Commission), a body sponsored by the United Nations, which presented its report

in 1987. Sustainable development holds that the world must pursue “development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs”. In other words, despite the serious environmental problems we face, the challenge can be met.

One of the toughest problems in dealing with the environment is the degree to which it is an integrated system — a delicate whole in which a change to one part affects all the others. This makes it difficult to set priorities for environmental action. Environmental problems do not easily lend themselves to that kind of ranking. If, for example, water pollution were to be the first issue tackled, what would happen to initiatives to deal with air pollution, which is itself a primary source of pollutants in water?

Notwithstanding these difficulties, it is clear that priorities must be set. One of the key purposes of the *Framework* is to canvass the views of Canadians as to what those priorities should be.

That is not to say that there are no priorities in what you are about to read. There are. The Government of Canada believes that today's environmental problems are the result of the failure of Canadians at all levels of society — as individuals, in their business lives, and through our political institutions — to make decisions that fully take the environment into account. This failure is not one of willful irresponsibility. Indeed, Canadians have increasingly expressed their concern about environmental issues and have, over time, demonstrated a willingness to take concrete action to address them. The challenge is to integrate environmental considerations into decision-making in a more systematic, focused

and co-ordinated way. The Government's first priority, therefore, is to help change the way decisions are made at all levels of society.

In the past, choices were often made without adequate knowledge or understanding of the ways in which economic development affects the environment. Therefore, the Government believes that strengthening the foundations of decision-making should be a priority. Through better science, technology, education, and dissemination of information, and through the appropriate use of regulation and economic incentives, improved decision-making will result. In turn, this will mean more effective solutions to the environmental concerns of Canadians.

In distributing this *Framework for Discussion on the Environment* and in holding meetings with interested groups and individuals, the Government is looking for clear responses to specific environmental issues. Discussions should tell us all — government and citizens — whether Canadians are prepared to make — and to have their governments make — the tough decisions necessary if sustainable development is to be a workable reality for Canada.

This discussion paper is divided into three sections. Section one provides a statement of the challenge, in both its global and domestic dimensions. Section two offers a long-term policy strategy for moving toward sustainable development in Canada, emphasizing the need for better decision-making. Section three addresses the environmental issues and related health concerns uppermost in the minds of Canadians, including toxic substances, environmental emergencies, atmospheric change and water quality.

Understanding the Challenge

INTRODUCTION

A thinning ozone layer; the threat of climatic disruption on a global scale; toxic chemicals in the air and in our water; dramatic environmental emergencies that capture our attention and arouse our indignation; the disappearance of plant and wildlife species that are the fundamental biological resources of our planet — these are the symptoms of the global environmental problems that increasingly preoccupy Canadians.

These problems lead us to fear for our own health and that of our children. They cause us to wonder whether the planet we pass on to future generations will be worth inhabiting. They make us question whether the material standard of living we have worked so hard to achieve can be sustained for ourselves and our descendants and shared with the majority of the world that still lives in poverty.

GLOBAL SCOPE

Our planet sustains life through a delicate and intricate web of ecological systems. People are a product of the environment, a participant in its evolution and a significant factor in its present character. Every litre of gasoline we burn, every tonne of ore we mine and transform through industrial technology, and every crop we sow and harvest affects the environment in some way. All of the world's inhabitants share the global ecosystem — an interdependence that makes environmental problems and solutions the joint concern of all nations.

The activities of an ever-growing number of human beings impose steadily heavier burdens on environmental resources:

- World economic activity has increased 20-fold since 1900.
- World population increased from 2.5 billion in 1950 to 5.2 billion today, and will double again by 2050.
- Global industrial production currently increases each year by an amount equal to the total production of Europe in the 1930s.
- Our current consumption of fossil fuels is 30 times greater than it was in 1900; most of this increase has taken place since 1950.
- More land has been cleared for cultivation in the last 100 years than in all preceding human history.
- Global water use doubled between 1940 and 1980 and is expected to double again by the year 2000.

Beyond the use of environmental resources, however, are the unprecedented physical, chemical and biological stresses that result directly from human activities:

- Our annual consumption of fossil fuels is about a million years' worth of nature's production.
- We currently unleash more than 15 billion tonnes of carbon dioxide annually into the atmosphere, up from 1.5 billion tonnes in 1900.
- If clearing continues at the present rate, the South American rain forest will be gone in less than 30 years.
- It is estimated that plant or animal species become naturally extinct at the average of one a year. Today the rate is one a day.

THE FIGHT AGAINST POVERTY: AN ENVIRONMENTAL IMPERATIVE

In the poorest countries, economic problems are frequently both a symptom and a cause of environmental degradation. Economic necessity leads to overgrazing and deforestation, reducing the productivity of land and soil, increasing the frequency of floods and droughts, causing greater poverty and deeper despair. The poorest become trapped in a downward cycle of rapid population growth, environmental degradation and falling economic standards. Unable to grow economically because of the pressure of population, many developing countries find population control difficult because they lack the benefits and social services that are possible in a sound economy.

The infrastructure necessary to provide running water and sewage disposal for individual households is simply beyond the capacity of the majority of developing countries. Many in the early stages of development use inexpensive but outdated industrial technology that may be wasteful of resources and produce very high levels of pollution.

The Brundtland Commission said that a five- to ten-fold increase in economic activity would be necessary to achieve reasonable standards of living for the majority of the world's population that lives in poverty. Yet the diminishing pool of environmental capital that characterizes the world ecosystem will simply not support the resource-hungry road to prosperity already taken by countries like ours.

The great challenge of the 21st century will be to accommodate the legitimate economic aspirations of the world's population while

remaining within the limits imposed by the global ecosystem. Hard questions, difficult choices — answerable ultimately in a global context — these are the fundamental realities of the debate on environmental policy that will dominate the 1990s.

Can we, in fact, succeed in achieving development that meets the needs of today without compromising the opportunities available in the future? Sustainable development will require new ways of thinking and new institutions that recognize the global nature of environmental problems. It will require a conscious change in philosophy and action unprecedented in human history. Unlike the spontaneous and largely unconscious agricultural and industrial revolutions of more environmentally naive times, sustainable development will be a matter of forethought and planning at every level.

CANADIAN DIMENSIONS

In both material and environmental terms, Canadians are enormously wealthy by comparison with much of the world. Nature has provided us with an abundance of natural resources that support a very high standard of living. Moreover, relative to our small population, we have an enormous endowment of environmental resources — large open spaces, huge forests, innumerable lakes and rivers, vast coastlines and oceans.

- We are responsible for nine per cent of the planet's renewable water supply.
- Forty-nine per cent of the total Canadian land mass is forested, accounting for ten per cent of the world's forest resources.

- Canada is the world's third-largest producer of minerals, with annual production worth \$21.6 billion.

Much of Canada's material well-being is based on its endowment of renewable and non-renewable natural resources. Resource industries are a significant factor in the Canadian economy. More than four million people — one in every three working Canadians — are employed in our five main resource-based industries: agriculture, forestry, fishing, mining and energy. Forestry, fishing and energy, in particular, are major export industries and the basis of substantial foreign exchange.

Our resource wealth has driven the evolution of the Canadian economy.

- Canadians are the heaviest users of energy on a per capita basis in the world, partly because of our long distances and cold climate, but also because we grew up as a nation assuming that the natural environment was virtually inexhaustible.
- In the process of burning fossil fuels, Canadians are the world's fourth-largest producers of carbon dioxide on a per capita basis.
- The average Canadian produces almost two kg of solid waste per day, more than any other citizen in the world, yet less than ten per cent of Canada's solid waste is recycled.
- A Canadian family of five produces, on average, more than 2,000 litres of wastewater each day.

Canadian governments, businesses and individuals have not been indifferent to environmental issues. Working together, we have

enjoyed some notable successes. In summer, volunteers — some of grade school age — band together to clean up rivers and to plant trees. Volunteer organizations are rehabilitating wildlife habitats and helping to reintroduce wildlife species to renewed areas. The run-away success of community-based Blue Box recycling programs and the increased interest in community composting projects show how ready Canadians are to make sound environmental decisions, and to act to stop environmental degradation.

Many Canadian farmers are making greater efforts to adopt production and waste management practices that will prevent contamination of surface water and groundwater. Some farm operations are also encouraging soil conservation.

In addition, many businesses and associations have recognized the need to adopt codes of practice and decision-making methods that formally recognize their environmental responsibilities. For example, there is the Responsible Care program of the Canadian Chemical Producers Association and the Environmental Code of Practice of the Canadian Petroleum Association.

In June 1988, the Government of Canada passed the Canadian Environmental Protection Act (CEPA) in order to protect the environment and to safeguard Canadians against toxic substances. Under CEPA, toxic compounds are controlled from development and production, through transportation, distribution and usage, to ultimate disposal.

Federal and provincial governments have been co-operating to regulate the quality of the air in urban centres: federal/provincial agreements have been implemented; regulations and

guidelines have been put into place. The results have been impressive: lead in gasoline is being phased out; automobile emissions have been regulated; and federal/provincial agreements on acid rain have reduced Canada's emissions of sulphur dioxides. As a consequence of all those efforts, the presence of five major air pollutants has been drastically reduced in the air of Canada's cities: concentrations of sulphur dioxide, nitrogen dioxide, carbon monoxide, suspended particulates and lead have declined by 40 to 60 per cent.

These efforts have involved millions of individual Canadians, many Canadian businesses, and Canada's federal, provincial and territorial governments. They have often involved years of careful scientific effort, detailed consultations and the painstaking development of remedial measures. Yet the symptoms of environmental degradation continue and multiply. As conventional air pollutants are reduced, science discovers the importance of ground-level ozone in determining urban air quality. More recently, advances in measurement technology have shown how industrial airborne toxic chemicals can lead to chemical contamination of the food chain in Canada's once pristine Arctic — and add to stubborn pollution problems in the Great Lakes and the St. Lawrence.

Clearly, we are going to have to change some of our most deeply ingrained assumptions and habits if we are to live up to our responsibilities as stewards of a large portion of the world's environment, and continue to enjoy the quality of life to which we have become accustomed.

We cannot afford the costly react-and-cure approach to dealing with environmental problems — problems that are becoming more complex and pervasive and more difficult and expensive to clean up after the fact. Nor can we any longer afford to ignore environmental considerations in properly assessing our economic performance. Environmental degradation and mismanagement of our environmental resources impose social and economic costs.

But let us be clear. Canadians will face some difficult choices. People are likely to see the costs of environmental protection reflected in higher prices and, perhaps, regional dislocation as some plants are closed in response to more stringent environmental safeguards. These costs will be offset by improvements in the quality of our air, water and, ultimately, in human health. Moreover, new economic opportunities will be provided by a growing environmental industry sector — opportunities that Canada must explore, given the challenges of an increasingly integrated and more competitive world economy. The Government believes that, in the final analysis, the economy will experience net gains as a result of integrating environmental considerations into decision-making.

Improving Decision-Making

THE BASIS FOR ACTION

We face environmental challenges because we have closed our eyes on the bill to be paid for the ravages caused by pollution, the depletion of natural resources, and the destruction of our ecological heritage. If we are to achieve sustainable development, we must understand that the origins of environmental problems can be found in the way we make decisions, at all levels of society. It is the countless day-to-day choices made by individual Canadians, acting alone or within business, government and other organizations, that shape the economy of our country. In turn, the flow of energy, materials and waste set in motion by these decisions determines the impact of our actions on the natural world and, ultimately, on our own health and well-being.

Implementing sustainable development in Canada will require fundamental changes in the way we make decisions:

- as individuals, managing households and choosing lifestyles;
- in our working lives, making choices about production processes, energy use, waste disposal and packaging, and
- through our elected governments, in setting the rules for economic activity and environmental management and in pursuing and responding to a complex international environmental agenda.

Our decisions must reflect the true value of our scarce environmental resources and the fragile ecosystem on which we depend for our health and well-being. That is what "sustainable development" is about — changing the way we see the environment and its relationship to our activities.

THREE STEPS TO CHANGING DECISION-MAKING

There are three basic steps to correcting existing failures in decision-making. First, we must *improve the factors* that affect decision-making. Second, we must change decision-making *processes and institutions*. Third, we need to strengthen and build *partnerships*. Such changes are crucial if we are to meet successfully the challenges posed by problems that transcend geographical and political boundaries.

Factors that Affect Decision-Making

There are five key factors that will lead us to better decision-making.

1. Better Science

Good science is essential for good environmental policy and sound regulation. Environmental science encompasses both the social and physical sciences and includes fundamental research, applied research, monitoring and development of new technologies. Carried out by governments, universities and the private sector, science helps us measure progress and identify new problems. It also offers economic opportunities by helping to develop new industries.

The Government proposes to increase significantly its commitment to environmental science and technology.

There is a need within all levels of government for more environmental science in support of their legislative and stewardship responsibilities, particularly as they relate to such priority issues as environmental health, toxicology, agriculture, fisheries and forestry, and water and air pollution.

The Government also recognizes that, to promote better science and technology, it must work with its partners: other governments, the private sector, universities and colleges.

Accordingly, the Government will promote co-operative environmental science efforts. For example, a federal government panel, similar to the existing Panel on Energy Research and Development, is being considered to identify priorities and mobilize public and private sector resources.

The Government is also considering a new program, to be administered by the three national granting councils (Natural Sciences and Engineering Research Council, Social Sciences and Humanities Research Council, Medical Research Council), to promote fundamental environmental research at Canadian universities. Consideration may be given to other mechanisms to encourage new and innovative research, for example, to a program for funding research proposals originating from outside the Government.

Commercially attractive environmental technologies are essential to solving environmental problems. However, there may be market impediments to commercialization. Often, for example, the returns on such investments are too risky to attract private investors.

The Government will put in place mechanisms to promote the demonstration and commercialization of environmental technologies. One possibility is a government/private sector, cost-shared technology demonstration fund.

Co-operative international scientific efforts need to be expanded to provide a sound basis for developing global solutions. The Government has identified a number of priority areas for the next five years, including toxicology, climate change, ozone layer depletion and acid rain.

2. More Information about the Environment

Good decisions require good information. Canadians want to receive information about the environment in the same systematic manner they receive information about the economy. Good information is essential if we are to avoid a short-term crisis mentality and focus on long-term management of the environment. Environmental reporting — the timely delivery of environmental information in a form readily understood by all — provides objective data on which decisions can be based and on which the decisions of others can be evaluated.

The Government is committed to improving the technical quality, consistency, reliability and public accessibility of environmental information. Environmental reporting, however, is at an embryonic stage, with basic work

still to be done to develop better data bases and improved methods of presenting information.

Accordingly, the Government is considering how best to organize its efforts and to work co-operatively with other governments, the private sector and other groups.

Canada has taken a leading role in extending national economic accounting to incorporate environmental concerns, using Environmental Satellite National Accounts.

To further develop satellite accounts, the Government will launch a pilot project and take part in work under way with the World Bank and other international organizations.

The Government of Canada provides Canadians with a detailed state-of-the-environment report every five years. The next report will be published in 1991.

The Government will supplement the five-year reports with less detailed but more frequent reporting: for example, an annual environmental outlook and policy statement.

Environmental information must be readily accessible to all Canadians. The Government is considering a number of options to meet this need, including a national environmental library. This might consist of a publicly accessible referral system, a central data base system and a regionalized computerized information network.

3. Education

A third requirement for good decision-making is better environmental education, helping to translate environmental awareness into action. The object is to create an environmentally educated population which will demand that all sectors of society meet a high level of environmental responsibility. Education will also help develop the skilled workforce required to understand and resolve the complex issues confronting it. There are many opportunities to increase environmental literacy, both formally, through the school system, and informally, in the community, the workplace and elsewhere.

The Government recognizes that it must co-operate with the provinces to establish priorities for action in environmental education. How can governments best work together to identify priorities and address needs?

Communities, non-governmental organizations, and the private sector can play an important role in environmental education. The federal government's Environmental Partners Fund has been successful in promoting co-operative community-based efforts to clean up the local environment. Similar programs could be established to promote local environmental education initiatives.

4. Legislation and Regulation

The Government believes that effective laws, vigorously enforced, are needed to protect public health and environmental resources. Legislative and regulatory instruments set rules regarding the use of, and access to, the environment. The purpose of these

rules is to ensure that environmental factors are considered in decision-making. They do so through prohibition, standards, guidelines, permits and the like.

The Government believes that, despite recent and ongoing federal legislative initiatives — most notably the Canadian Environmental Protection Act and the proposed Canadian Environmental Assessment Act — there are still important gaps in the Government's environmental legislation, particularly in regard to protecting wildlife, assuring the safety of drinking water and responding to concerns about pesticides. The Government also intends to strengthen the regulatory provisions of existing acts. These are discussed in more detail in the next section of this paper.

There is a growing concern about the adequacy and consistency of enforcement of Canadian environmental laws. With respect to consistency of regulation, the Government is committed to defining with the provinces the distribution of roles and responsibilities in accordance with CEPA. The establishment of a co-operative national training program for enforcement officers is being considered.

The Government is also committed to strengthening its enforcement capability. Should the Government emphasize compliance (i.e., advising firms on how to meet requirements) or enforcement (i.e., inspecting and initiating legal actions as required)?

The federal government has established a regulation development process that includes pre-notification of regulations under development and public consultation.

Some Canadians are concerned about the process, its accessibility and its length. How can regulatory procedures be clarified and streamlined?

5. Economic Instruments

Economic instruments that reflect environmental costs will encourage decision-makers to take the environmental consequences of their actions into account. Possible measures include effluent taxes, tradeable emission rights, deposit/refund systems and user charges. Sustainable development, with its focus on anticipating and preventing environmental degradation before it occurs, means increased emphasis on appropriate resource pricing and economic instruments to achieve environmental objectives. Used properly, these can ensure that the environment is more fully considered in production and consumption decisions made at all levels of society.

The Government believes that economic instruments can be an effective complement to, and in some cases a substitute for, environmental regulation. However, given limited experience in Canada and other countries with such instruments, the Government believes that further work is needed to assess fully the merits of using economic instruments in pursuit of environmental objectives.

Following the release of The Green Plan, the Government intends to initiate a detailed discussion of the advantages and disadvantages of economic instruments, involving individuals, environmental non-governmental organizations (ENGOS), business and the university community.

Further, there may be a need for a special program to stimulate applied research into the application of economic instruments to environmental problems — perhaps through a specialized university network.

Changing Decision-Making Processes

It is not enough to improve the quality and availability of factors that affect decision-making. The existing structures, institutions and processes that use information must also be changed. Environmental considerations must be formally recognized as essential decision-making criteria within government and private sector organizations.

Governments have two major decision-making roles: as businesses and as policy-makers. Considered as businesses, they are among the largest employers and economic agents in Canada. Their day-to-day decisions on such matters as procurement can have a significant impact on the environment.

More important, as policy-making bodies, governments establish the rules that influence the way citizens make use of environmental resources and help determine the nature, location and extent of economic activity.

The Government of Canada has introduced a number of reforms in its policy-making process to achieve a better integration of environmental and economic considerations. For example, it recently created a new Cabinet Committee on the Environment and it established a National Round Table on the Environment and the Economy.

The Government will table this spring legislation to strengthen application of the federal Environmental Assessment and Review Process (EARP). In accordance with the new law, the Government will not approve, without a rigorous environmental assessment, initiatives that could have an impact on the environment.

The Government also administers thousands of existing laws, policies and regulations designed to achieve important national and regional economic and social objectives that may have a significant — albeit inadvertent or unanticipated — impact on the environment.

The Government of Canada will systematically review its policies, laws and regulations and propose modifications as necessary.

As the largest single “business” in Canada, the Government has important responsibilities related to the environmental impact of its own operations. Over the past two decades, the Government of Canada has become markedly more sensitive environmentally. For example, the Government has reduced energy consumption for its own activities by more than 24 per cent over the last decade.

To ensure greater accountability in decision-making and a more consistent commitment to environmental protection, the Government is proposing to adopt a code of environmental stewardship that will set specific goals and establish operating procedures.

It is clear that businesses will also be expected to operate according to demanding environmental standards. In addition to regulatory requirements, private sector behaviour will be subject to greater scrutiny by environmentally aware consumers and the general public. This will pose challenges for business. It will also create new opportunities. Good environmental management will increasingly make good business sense.

As a result, environmental considerations will have to become an integral part of overall business strategy. For many firms, it means that corporate decision-making practices will have to be changed and improved. A number of industries have already recognized this need and have begun to develop codes of environmental practice and environmental audit procedures. These are examples of the kinds of tangible measures that businesses can adopt to promote sustainable development in Canada.

Should environmental audits for industry and the Government be made compulsory and should the results be made available to the public?

Strengthening Partnerships

Better environmental decision-making will require co-operative efforts at all levels.

At the international level, global problems require global solutions. They will be effective only if they are built on international partnerships, both bilateral and multilateral.

Strong international institutions and laws are essential. Organizations such as the United Nations Environment Programme, the World Meteorological Organization and the World Health Organization will be effective instruments of change only if they are supported by all countries. International conventions and protocols, such as the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, can ensure a common commitment to action. Traditional ideas of national sovereignty must be adjusted to reflect the need for international solidarity to achieve environmental security.

One of the greatest challenges to achieving sustainable development on a global scale will be to reconcile the legitimate economic demands of developing countries with the need to protect our global environmental resources. Canada believes that developed countries must accept their responsibility to work with developing nations in their search for environmentally sustainable development options.

The Government proposes to strengthen its support of international efforts to address environmental problems. Possibilities include greater funding to support the activities of international environmental institutions, and funding and technology transfer to help developing countries overcome environmental problems.

Canada has long common land or water boundaries with many nations, including the Soviet Union, Denmark and the United States. The protection of these shared environmental resources must be built on co-operative bilateral efforts. Otherwise, efforts to protect and improve our respective portions of the environment may be at cross-purposes.

Among those countries with which Canada shares environmental resources, none is more important than the United States. We have many common resources, such as the Great Lakes water basin and large coastal areas. The way each of us uses these resources has an impact on the other.

Within Canada, the Government's partnership with the provinces is of special significance. Co-ordinated federal/provincial action is absolutely essential if we are to address Canadian environmental problems. Both levels of government have long recognized this shared responsibility. Provincial governments have important constitutional responsibilities and powers that can be used to manage the environment. Ownership of natural resources — lands, minerals, trees — and exclusive jurisdiction over property and civil rights provide the provinces with the authority to regulate much business and industry activity.

There are, however, limitations on what the provinces can be asked to do. For example, they cannot control activities outside their own borders. They cannot regulate pollution carried by wind and water from other provinces or countries.

The Government of Canada recognizes that the provinces have an essential role in protecting the environment and will continue to

respect provincial jurisdiction on environmental matters. The Government will not shirk its leadership responsibility to define policy on national environmental issues.

It is *federal/provincial co-operation* — as well as co-operation with the private sector — that has been the basis of environmental actions to date.

The Government is committed to continuing and strengthening federal/provincial and territorial co-operation to reduce uncertainty, avoid duplication and increase the effectiveness of its environmental efforts.

To that end, the federal government will propose administrative agreements with the individual provinces and territories, incorporating nationally applied standards, to address environmental issues of mutual concern.

There are many other important partnerships that need to be fostered. *Business* is an essential partner in the search for, and implementation of, effective solutions to environmental problems. *Labour* has an important role in changing the way decisions are made and in working with governments and the business community to achieve environmental objectives. *Women*, individually and through the many organizations of which they are a part, are also key to changed decision-making.

These partnerships will be essential to the long-term goal of achieving sustainable development. How can more effective partnerships be forged?

Canada's *environmental non-governmental organizations* (ENGOS) are playing a central role in educating people about environmental issues and environmental activity. They are essential to an active and balanced discussion of environmental issues.

The Government of Canada is examining ways of increasing the effectiveness of Canada's ENGO community. What can governments and ENGOS do to ensure an effective role for such organizations?

Individuals and communities have the most important role to play in bringing about changes in decision-making. The success of community Blue Box programs is testimony to the willingness of Canadians to make changes. Governments play an important role in encouraging individual and community actions. The Government's new Environmental Partners Fund, for example, provides a springboard for co-operative community efforts to protect and preserve the environment. The Environmental Choice Program will help consumers make environmentally informed purchasing decisions.

Further actions will be needed to encourage individuals and communities to act. For example, a national program similar to PARTICIPaction and other health promotion programs could be considered to encourage environmentally sound decision-making.

Today's youth are tomorrow's decision-makers. If they are to play a meaningful role in environmental decision-making and diplomacy, they must develop environmental literacy as well as leadership skills. The Government proposes to take measures to ensure that Canada's youth will have the opportunity to channel their energy and talents toward achieving environmental objectives.

The Government plans to support summer employment, training and career development in environmental conservation and protection, and to support international youth exchanges and conferences. Options include a federal government summer employment program; a private sector co-op program; and a youth conference in preparation for the 1992 U.N. Conference on Environment and Development in Brazil.

Canada's *aboriginal peoples* are often the first to experience changes made to the natural environment by human activities. Those changes have sometimes threatened their traditional and close relationship to the land.

The Government is committed to co-operative efforts with Canada's aboriginal peoples to address environmental issues of concern to them. For example, the Government is considering the establishment of an environmental advisory committee composed of representatives of First Nations to ensure that federal initiatives are sensitive to the concerns of native peoples and supportive of their efforts to manage their own affairs.

The Government will also consult with aboriginal peoples about other possible initiatives, including measures to support activities of natives that enhance or protect the environment and a special native component of the Government's youth employment initiatives.

New partnerships are needed to respond to the complex array of environmental issues. The various national, provincial and community Round Tables are good examples of an innovative approach to partnerships: they bring together representatives of all major sectors in Canada to share information and ideas.

Improved decision-making, which takes full account of environmental considerations, demands that all these partnerships be strengthened and expanded!

Action on Environmental Issues

The Government of Canada believes that action on environmental problems should be targeted at five broad areas.

A. Responding to key stresses on the environment and human health:

- the more subtle but pervasive stresses: **Toxic Substances and Waste;**
- the very visible and unpredictable stresses caused by human activity, including chemical and oil spills, as well as by natural hazards: **Environmental Emergencies.**

B. Addressing issues associated with our use of the global commons, those environmental resources — air and water — that we share and for which we are responsible collectively: problems associated with Atmospheric Change (global warming, ozone depletion, acid rain, toxic air pollutants and local air quality), and the misuse and degradation of **Water** resources.

C. Managing our renewable soil, forest and fishery resources on a sustainable basis: Agriculture, Forests and Fisheries.

D. Preserving and protecting Canada's unique ecological and heritage resources: Parks and Heritage Resources, and Wildlife.

E. Protecting Canada's fragile Arctic.

A. ENVIRONMENTAL STRESSES

Toxic Substances

There are more than 100,000 commercial chemical substances in the world marketplace today and more than 30,000 are in use in

Canada. Between 100 and 200 new chemicals are introduced into this country each year. It is clear that the use of chemicals provides substantial benefits. They are important tools in maintaining the standard of living Canadians enjoy. At the same time, we are becoming increasingly aware that the use and abuse of chemicals pose major risks. The improper management of toxic substances threatens human health, degrades the natural environment and threatens the health of wildlife. While all sectors of Canadian society are now aware of the threat, and some progress has been made, the problem continues to grow.

Real success in protecting the environment and human health from the dangers of toxic substances will depend on new tools that can be used in partnership with all sectors. In 1988, the Government of Canada passed sweeping legislation — the Canadian Environmental Protection Act — designed to deal with the threat of toxic substances. As part of CEPA, a priority list of 44 substances has been identified for assessment within the next four years.

CEPA also complements the environmental protection provisions of several other pieces of legislation, including the Fisheries Act, the Pest Control Products Act and the Transportation of Dangerous Goods Act, and is the basis for federal/provincial co-operation in environmental protection.

Notwithstanding these measures, more needs to be done on toxic substances. Areas to be addressed include:

- *more rapid assessment of priority substances;*

- *more comprehensive monitoring of toxic substances, and*
- *increased research.*

Governments, industry and universities also need to co-ordinate scientific efforts to assess toxic substances; one option is to develop a national toxicology network.

Consultations are now under way regarding national standards for effluents and toxic wastes from pulp and paper mills; they will be put in place later this year.

Based on the assessments of substances on the priority substances list, the Government will move towards national standards under CEPA for other major industries such as metal mines and mills, smelters, power generation plants, hazardous waste facilities, textile factories, petroleum refineries, chemical production plants and steel plants. Each regulatory initiative will be accompanied by appropriate consultations with the public and industry.

Meeting environmental standards may affect some firms in some regions more than others. What options are available in cases of hardship?

In addition to problems of toxic chemicals, there is some concern about the sound management and control of the products of the biotechnology industry. Although many products of biotechnology are safer than, and will replace, older toxic chemicals, it is critical that mistakes made with chemicals not be repeated.

The Government is now considering, as a priority, a preventive framework for regulating the biotechnology industry, including, within five years, national regulations on products and byproducts.

Waste Management

On a per capita basis, Canadians produce more waste than citizens of any other country in the world and have a poor recycling record. Results include landfills stretched to capacity, problems with storage of hazardous waste, and degradation of the natural environment.

Canada's environment ministers have agreed to set a national goal of reducing waste generation by 50 per cent by the year 2000. Notwithstanding any future Canadian success in reducing, reusing or recycling waste products, the reality is that a substantial amount of waste, both hazardous and non-hazardous, will continue to be generated. It will have to be managed. New waste disposal sites will have to be found and facilities for disposing of hazardous waste will have to be built. Public concern about siting of facilities is an increasingly formidable challenge to the economic management of waste.

Recognizing that local and provincial governments have a major role in waste management, the Government is interested in finding new ways to facilitate co-operative action and to encourage waste reduction and recycling.

Canadians need to explore the ways governments, industry and individuals can best contribute to a 50-per-cent reduction in waste. One mechanism is

an Office of Waste Management to expand the national waste exchange program and to promote waste reduction and recycling.

National regulations to control packaging and to require recycling are an option for addressing the waste issue. Alternatively, emphasis could be placed on educational measures, voluntary action, and pricing to reduce waste.

The federal government has defined four essential requirements in locating hazardous waste treatment facilities:

- provision of scientifically based information;
- community self-selection for facilities;
- community veto of particular sites, and
- respect of requirements under the Environmental Assessment and Review Process.

Are there additional steps governments can take to address the legitimate concerns of Canadians with respect to locating waste management facilities, while meeting the growing need for such facilities?

Environmental Emergencies

We are often shocked into an awareness of the powerful, unpredictable and life-threatening stresses that we impose on the environment — spills of oil and other hazardous substances — and that the environment imposes on us — earthquakes, tornadoes and

other extreme weather conditions. Sometimes man and nature combine with devastating effects.

The risk of environmental emergencies, whether naturally occurring or as the result of human activity, can never be eliminated. Pollution accidents are inevitable in a world dependent on substances such as oil and chemicals. While we can mitigate the impact of natural hazards, we cannot prevent them from occurring.

The first response to man-made catastrophe must be *prevention* and *preparedness*.

Preventive action must be taken to minimize the risk of pollution accidents and to prevent deliberate discharges of oil and other hazardous products directly into the environment. But, equally important, we must be prepared to respond to emergencies quickly — those we cause and those that occur naturally. Both demand quick and co-ordinated action that will minimize the threat to life and the possible environmental and economic damage.

The Government of Canada has an important role in dealing with environmental emergencies, but, in most cases, carries out this role in conjunction with other jurisdictions and interested parties.

The Government has taken a number of steps to reduce the risks associated with natural hazards in Canada, including extreme-weather warning services and relief measures.

The Government of Canada plans to upgrade its ability to provide more timely and effective warnings of natural hazards such as blizzards, tornadoes and marine storms — hazards

that are themselves often linked to pollution emergencies. Options include:

- improved techniques for understanding and detecting natural hazards;*
- better communications, and*
- enhanced public education about the impacts of severe weather.*

Several federal acts, including the Canadian Environmental Protection Act and the Canada Shipping Act, provide for measures to reduce the risk of pollution emergencies and to ensure effective responses. The Government also advises on such matters as environmental impact, containment procedures, clean-up technology and remedial action. Federal response is co-ordinated by different agencies, depending on the type and location of the emergency. For example, the Canadian Coast Guard co-ordinates response to ocean spills.

In March 1989, the Government ordered a comprehensive review of Canada's capability to deal with marine spills. A review panel — the Public Review Panel on Tanker Safety and Marine Spills Response Capability — was appointed to conduct public hearings and to make recommendations to the Government of Canada. The panel's final report is expected later this spring.

The Government of Canada plans to introduce a comprehensive environmental emergency program to cover the production, transportation and

disposal of oil, chemicals and other potentially hazardous substances. As a priority, it will address recommendations of the Public Review Panel on Tanker Safety and Marine Spills Response Capability.

What role could Canada's military play in this regard?

How can the participation of volunteers be enhanced?

The Health Dimension

In recent years, people have begun to realize that health is not only an individual responsibility, but also involves interactions among individuals and communities and between them and the environment. Pollution, whether it is long-term or arises from environmental emergencies, affects human health. Therefore, maintaining and improving health is not simply a function of the health care system, or of individual behaviour, but is affected by environmental and economic decision-making.

That means protecting health by paying closer attention to the environment, whether it be through more stringent environmental regulations or by taking other steps to encourage individuals and communities to incorporate environmental considerations into decision-making. A more benign approach to the environment will pay dividends in the form of improved human health.

The Government of Canada recognizes the links that exist among environment, economy and health. In addressing environmental problems, therefore, it intends to take effective measures that respond to health concerns. Specific initiatives to address the links between environment and health are under development and will be discussed in the course of consultations.

B. THE GLOBAL COMMONS

Atmospheric Change

The potential for climatic disruption on a global scale, the thinning ozone layer, ongoing damage from acid rain and the emerging problem of toxic air pollutants all have economic implications, and pose threats to human health and the health of the environment.

Global Warming

For more than a decade, there have been warnings that we are polluting the atmosphere at a rate that threatens to alter dramatically the world's climate. Research suggests that the temperature of the earth could rise by as much as 3.5°C over the next century. Such a rapid change would be unprecedented in human history; it would likely result in major shifts in weather patterns and would cause more frequent severe weather conditions.

Responding to the problem of global warming will be a formidable challenge. Effective action must be based on sound information and on an accurate diagnosis of the problem, but serious gaps remain in our scientific knowledge. At the same time, if we wait for all the answers, we will no doubt be too late.

Canada is taking part in international scientific efforts looking into climate change, but the scope and nature of Canada's participation needs to be considered. Options include establishing a centre for climate change research, to enhance Canadian understanding and detection of climate change and its impact on Canada. Such a facility could be established as a government institution, or as a co-operative venture between government, the private sector and the academic community.

Global warming is an international problem. While efforts by individual countries are needed, co-operative and co-ordinated international action is required for a lasting solution. Canada is pressing for a global convention on climate change, to be implemented as soon as possible. There have been many calls for countries to commit themselves to setting quantitative targets and schedules that will control global emissions of carbon dioxide and other greenhouse gases. Canada insists on a worldwide investigation into the feasibility of such targets.

On a national basis, the Government is committed to a comprehensive approach to greenhouse gases.

Should Canada commit itself to greenhouse gas emission targets? If so, on what basis should the targets be determined? Should targets include an allowance for Canada's forests as carbon sinks? Should Canada commit itself unilaterally or only as part of concerted international action?

What mechanisms should be used to achieve the appropriate reductions? Options include regulation, economic instruments (e.g., environmental taxes, tradeable emissions permits, etc.) and support for new environmental technologies.

A task force under the aegis of federal and provincial ministers of energy is examining the options for and the likely effects of a commitment to reduce carbon dioxide emissions. However, there will be a price to pay for reducing greenhouse gas emissions.

Controlling sources of greenhouse gases will impose economic costs and ultimately may require dramatic lifestyle changes, particularly for any nation that takes action unilaterally. How far should we go? What is the best way to ensure that Canadians are in a position to make informed choices?

Energy ministers have already indicated that significant reductions in carbon dioxide emissions can be achieved only through major shifts in the ways we produce and consume energy in Canada — key elements of the economic structure of this country. Virtually all sources of energy carry their own environmental risks.

What role, therefore, should nuclear energy and hydro-electric power play in reducing greenhouse gas emissions? What role can and should energy efficiency and alternative energy play?

Are energy megaprojects consistent with a commitment to greenhouse gas reductions?

Transportation is a major source of carbon dioxide. The Royal Commission on National Passenger Transportation will be examining environmental issues as part of its own work on the future of transportation in Canada. Building on that work and in consultation with the provinces, the Government will develop a long-term strategy for transportation in this country, taking into account the important role that the sector can play in responding to environmental needs.

The world's forests are an important sink for carbon, thereby helping to limit the build-up of carbon dioxide in the atmosphere. However, many of those forests are being threatened as land is cleared for agriculture and settlement in developing countries. In the process, tonnes of carbon dioxide are released into the atmosphere.

Canada assists developing countries to adopt sustainable forestry practices, using measures such as the Tropical Forestry Action Plan. The Government is considering additional measures.

As the steward of nearly one-tenth of the world's forests, Canada has a responsibility to manage its own forests on a sustainable basis. Some Canadians have proposed that governments and industry review logging and cutting practices and commit themselves to a program of forest replacement.

Ozone Depletion

In many ways, Canada's efforts in combating ozone depletion could serve as a model for approaching a variety of environmental issues. Our approach combines effective science, international co-operation and domestic measures to implement agreed-on programs.

Despite its success, the Government of Canada believes that further action is needed to limit ozone depletion. Gaps remain in our understanding of the ozone problem and in the range of technological alternatives to chlorofluorocarbons (CFCs). Evidence indicates that the problem is continuing to worsen.

The Government of Canada proposes to eliminate Canadian production and importation of CFCs and halons and is considering eliminating other ozone-depleting substances by 1999.

As part of its overall science program, the Government is considering a significant increase in its financial support for ozone research. One option is to establish a permanent Arctic ozone observatory.

Ozone depletion is a global problem and will require the co-operative efforts of all nations, including developing countries. Canada is prepared to contribute to that effort. It needs to consider how to help developing countries protect the ozone layer, while they meet their aspirations for economic development. Possibilities include technology transfer and dedicated funding to assist compliance with efforts to combat ozone depletion.

Acid Rain

In 1985, Canada launched a major Acid Rain Control Program to reduce acid rain-causing emissions. Under co-operative agreements with the seven easternmost provinces, measures have been implemented to reduce sulphur dioxide emissions by 50 per cent by 1994.

The effective control of acid rain, however, depends on action in both Canada and the United States: more than half the acid deposition in eastern Canada originates from U.S. emissions. Canadian emissions contribute between ten and 25 per cent of depositions in the northeastern U.S.

For this reason, the Government of Canada has been pressing the U.S. government to pass acid rain legislation that will meet Canadian needs. The Government will negotiate with the United States a Transboundary Air Quality Accord in an effort to codify commitments to deal with the acid rain problem. The Government is also participating actively in negotiations under the Economic Commission for Europe to develop international agreements for controlling the transboundary flow of sulphur dioxide.

Canada's acid rain control program has been a good example of the success of joint federal/provincial action to control an environmental problem. The first phase of the program will be completed in 1994.

What additional control measures should be taken to reduce acid rain for the period beyond 1994, and, if there are any, how should they be implemented? For example, should the federal government and the seven

easternmost provinces work to cap sulphur dioxide emissions at their 1994 levels? Should the Government of Canada seek to establish similar agreements with the three westernmost provinces, with emissions capped at an appropriate level?

The Government plans to continue, in co-operation with the provinces, the research program on Long-Range Transport of Airborne Pollutants (LRTAP). What additional work is required to verify the effectiveness of the current acid rain program and to determine the need for future measures?

Air Quality and Toxic Air Pollutants

Significant reductions in concentrations of many air pollutants, such as lead and particulates, have been achieved. Nonetheless, there are still serious problems with local air quality from ground-level ozone, or smog. Each summer, about half the Canadian population is routinely exposed to ozone in excess of maximum acceptable levels.

While attention has focused on acid rain, the airborne transport of other toxic substances is also emerging as a major concern. The Government of Canada and the provinces, through the Canadian Council of Ministers of the Environment, are now engaged in public consultations on a comprehensive ten-year plan to manage emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) — pollutants that are central to the chemical reactions that produce smog. A number of actions and initiatives are under consideration to reduce emissions. For example, federal and

provincial environment ministers announced last October that they intend to reduce emissions resulting from the use of transportation fuels.

The Government of Canada has proposed to establish California emission standards for 1994 model-year cars.

The Government is interested in the views of Canadians on methods of achieving our environmental goals with respect to NO_x and VOCs. In particular, it would like to explore the possible use of economic instruments to complement regulatory controls in reducing emissions. Perhaps the principal advantage of such economic instruments as tradeable permits systems and emission charges is their potential for realizing environmental goals in the most cost-efficient manner.

As is the case with acid rain, and in spite of the sometimes localized nature of the problem, Canadian actions alone will not be sufficient to reduce air pollutants. Ozone and other toxic air pollutants in Canadian cities and regions originate both from inside Canada and from the U.S. The Government will pursue negotiations with the United States under the Transboundary Air Quality Accord to incorporate both countries' commitments to controlling the transboundary flow of toxic air pollutants. Further, the Government will participate in negotiations under the auspices of the Economic Commission for Europe to produce international agreements on control of the transboundary movement of airborne toxic pollutants and volatile organic compounds.

Water

Canadians are concerned about the quality of the water they drink and about the link between the degradation of water resources and their health. They are also concerned about the health and productivity of major freshwater systems such as the Great Lakes, the St. Lawrence and the Fraser, and our coastal waters. They worry about the continued ability of our water resources to support domestic consumption; accommodate existing and emerging economic activity, and provide recreation. They are also concerned about the health of fish and their habitat.

Progress has been made through the adoption, in 1987, of a Federal Water Policy and an Oceans Strategy. Important legislative instruments such as the Canadian Environmental Protection Act and the Fisheries Act have been used to develop regulations aimed at controlling water pollution. In addition, federal/provincial agreements have been reached to clean up nationally important bodies of water such as the Great Lakes and the St. Lawrence River. The St. Lawrence Centre is the most recent result of these agreements.

Despite these efforts, much remains to be done.

Some options include:

- *increased efforts in water-related research with a particular emphasis on toxics, including the effect of airborne pollutants, and on climate change;*
- *increased monitoring programs, enhanced ability to forecast trends in water quality and availability, and*

the preparation of a National Water Atlas;

- *promoting the development and demonstration of water-saving and non-polluting technologies, and*
- *undertaking educational and awareness initiatives to encourage water conservation, modelled on the PARTICIPaction program.*

While the key to successful water quality management is prevention of pollution before it occurs, clean-up efforts such as those under way in the Great Lakes and St. Lawrence must continue.

The Government has identified the Fraser River as a priority for clean-up action and will consult with the province, industry and communities along the river to determine the best approach.

The Government has also concluded that there are important legislative gaps that need to be remedied.

Legislative measures include:

- *a Drinking Water Safety Act that will provide the authority for establishing, inter alia, standards for drinking water (procedures for their application by provincial governments will need to be developed in consultation with the provinces), and*

• a Canada Oceans Act to provide for the protection and preservation of the marine environment.

The Government recognizes the responsibility of provincial and municipal governments to provide secure and self-sustaining water and wastewater treatment systems. There is considerable scope for encouraging more efficient water use in Canada through economic instruments. In particular, realistic water pricing is a necessary element of any solution to the problems of municipal water treatment and supply infrastructure. The Government also remains committed to the "polluter pays" principle.

The Government wishes to encourage environmentally sound water management through the use of economic instruments, including water pricing, and is considering sponsoring a national conference with the provinces and other interested parties.

C. SUSTAINING OUR RENEWABLE RESOURCES

Many of Canada's most important economic activities rely on maintaining healthy and productive resources: land, forest, and fisheries.

Agriculture

Increasingly, farmers and governments recognize the necessity of implementing measures that take into account the impact of agriculture on the natural environment — especially soil, water resources and wildlife — and of addressing environmental problems of special concern to agriculture, such as acid and toxic rain.

Nevertheless, the development of economically and environmentally sustainable agriculture poses difficult issues for all participants in the agri-food industry, from the farmer to the consumer.

Consultations are under way to develop a comprehensive framework for a wide range of economic, environmental and health issues of concern to the agricultural sector.

The Government is seeking views on its paper, *Growing Together — A Vision for Canada's Agri-Food Industry*, released in November 1989. The document provides a policy framework based on four principles of reform: more market responsiveness, greater self-reliance, recognition of regional diversity and increased environmental sustainability.

Recognizing the important contribution that the agricultural sector can make to enhancing environmental quality, the Government wants to ensure that all Canadians have an opportunity to express their views on the priority of sustainable agriculture in *The Green Plan*. This will assist the federal government, through the Department of Agriculture, in considering a program to promote sustainable agriculture in Canada.

In what ways can farm producers be encouraged to adopt practices that promote soil conservation and regeneration?

What agricultural and waste management practices should be put in place to ensure that resources used by others e.g., surface water and groundwater, are not unduly degraded?

Given that consumers are the ultimate arbiters of food quality and standards, what role can they play in supporting environmentally sound agriculture?

Forests

Forestry is amongst Canada's largest industries. Properly managed, forests contribute to a variety of environmental and economic objectives: soil stability, water supply, biological diversity and wildlife habitat; they are a sink for carbon dioxide emissions, and provide a basic resource for Canada's largest export activity. Improperly managed, forests create a host of environmental problems: soil erosion, polluted water, and loss of wildlife.

The evidence suggests that Canada's forest resources are not yet being managed and protected in a fully sustainable manner. The preservation of old-growth forest is of special concern. Improved management, however, often raises difficult short-term trade-offs between economic growth and job creation and long-term environmental and economic benefits.

The federal and provincial governments, through the Canadian Council of Forest Ministers, have endorsed both a National Forest Sector Strategy for Canada and, more recently, the concept of sustainable development in the forest sector. For its part, the Government has created a new Department of Forestry that includes the concept of sustainable development in its enabling legislation.

In what ways can Canada move toward better protection, better use, effective restoration and improved understanding of its forest resources in the context of sustainable development?

In what ways can the federal government best contribute while respecting the jurisdictional prerogatives of the provinces? For example, should it place an emphasis on the scientific aspects of sustainable forest practices?

Fisheries

Canada's marine and freshwater fisheries support a substantial harvesting and processing industry — the economic backbone of some coastal regions — and provide an important source of recreation for almost six million Canadians. The fishery is both a source of food for, and an important element of the culture of, many of Canada's aboriginal peoples.

Fish stocks are now threatened by excessive harvesting in marine fisheries both inside and outside Canada's exclusive fishing zone. In the freshwater fisheries, the major problem is the destruction or pollution of the habitat on which the stocks depend.

Outside the 322-km fishing zone, overfishing of Atlantic groundfish by European Community and other fleets has seriously damaged straddling stocks. Within the Canadian zone, the low level of penalties under the Fisheries Act means that the fines for illegal fishing are little more than a cost of doing business. In the Pacific Ocean, foreign driftnet fleets operating 1,000 km beyond the Canadian fishing zone indiscriminately trap and kill thousands of fish, seabirds and marine mammals.

Managing these threats to sustainable development of the resource will require a variety of responses: regulatory and enforcement action;

international diplomacy; a greater science effort; innovations in fisheries management, and development of environmentally sustainable economic opportunities.

The Government will bring forward amendments to the Fisheries Act this year to increase substantially the penalties for illegal domestic fishing and for destroying fish habitat.

What further legislative and regulatory measures are required to ensure that the fishery resource within the Canadian zone is conserved and protected? How can enforcement be strengthened and compliance with the law be improved?

How can the federal government best ensure that fish habitat is protected, particularly in those regions where provincial authorities administer the freshwater fishery?

What are the priority areas for further improving the Government's fisheries and ocean sciences capacity?

Internationally, Canada has been pressing European countries to abide by the management rules set out by the Northwest Atlantic Fisheries Organization. Canada co-sponsored the recent U.N. resolution calling for an immediate ban on South Pacific driftnet fishing and a possible moratorium on all high-seas driftnetting by 1992.

What further international action is needed to deal with the pressing problems of foreign overfishing and driftnetting?

D. PRESERVING ECOLOGICAL AND HERITAGE RESOURCES

National Parks and Historic Sites

Protection of heritage areas provides a tangible and enduring demonstration of Canada's commitment to the environment. The Canadian Parks Service is active in every province and both territories, managing 34 national parks and park reserves, one national marine park and 112 national historic sites. Our parks and historic sites are seen as models of environmental quality and are an important legacy for future generations. By protecting natural ecosystems and wildlife habitat, the parks are also important reservoirs of natural species and gene pools.

The long-term goal of the Government is to represent each of Canada's natural regions and major historic themes in the systems of national parks, national marine parks and national historic sites. Accomplishing this goal will not be easy, and major gaps exist. For example, only 21 of the 39 terrestrial regions are currently represented. Land use and jurisdictional conflicts will have to be resolved, and the concerns of local residents addressed, before further expansion can take place. In some instances, native land claims are an important factor.

There are many pressures on national parks and historic sites, particularly in a time of budget constraint. Ecological integrity must be assured. Cultural resources require careful management. Facilities should be well maintained and services should reflect changing visitor needs.

The Government proposes to establish at least five new parks by 1995, and will continue planning to meet its commitment to complete the national parks system by the year 2000; to establish three new marine parks by 1995, and to commemorate seven key historic themes by 1995.

Given budget constraints and the high cost of upkeep, what should be the priority for maintaining levels of service to the public in new and existing parks? For protecting natural and cultural resources?

Are there additional priorities? For example, would an expansion of existing park interpretation programs be an effective means of promoting environmental awareness?

Are there innovative ways of financing new and existing parks?

Wildlife

Wildlife is integral to the Canadian heritage and is an essential element in ensuring the continued productivity and diversity of ecosystems.

Many northern economies are based on wildlife. It is an indicator of environmental health and acts as an early warning signal on the effects of human activity on the environment. However, habitat loss and destruction, overuse and poaching, and toxic contamination are posing severe threats to many wildlife species. Currently, at least 180 wild animal and plant species are on the brink of extinction in Canada.

Addressing these threats will be a challenge. Preserving wildlife will require a better understanding of the ecological links between humans, their activities and the environment. New programs will impose costs, and priorities will have to be established, but the Government is committed to maintaining and enhancing wildlife populations for the benefit of all. In particular, Canadians must ensure that the subsistence of our native populations is secured.

In order to achieve these goals, the Government is considering implementing a program to protect wildlife populations and their habitat.

Wildlife research and monitoring should be strengthened. Where should the Government concentrate its efforts and how should the efforts of governments, industry and universities be co-ordinated? For example, should networks of co-operative research centres be established? A network of wildlife laboratories at Canadian veterinary colleges?

The Government is considering a Wild Animal and Plant Protection Act to control international traffic in endangered wildlife. Should the Government consider further legislative initiatives such as an Endangered Species Act to protect endangered species in Canada?

The Government is actively participating in negotiations leading to a global convention on biodiversity.

E. PROTECTING THE ARCTIC ENVIRONMENT

The fragile Arctic ecosystem is under stress from a wide range of human activities. There is increasing pressure from resource activities such as mineral and petroleum development. Toxic pollutants are accumulating in the food chain. As in other parts of the country, rising resource-use conflicts and increasing environmental degradation are raising difficult questions: how do we reconcile economic aspirations with the protection of the environment?

Protecting the Arctic environment presents challenges that differ from those in more temperate parts of the country.

The Canadian Arctic is an integral part of the circumpolar region; the United States, the Soviet Union, Finland, Denmark, Iceland, Norway and Sweden are our neighbours in the Arctic. Wildlife migratory patterns often cross international boundaries; marine mammals, caribou, and many birds spend important parts of their life in other countries. The region is affected by pollution problems that originate in distant parts of the world. Some persistent chemical waste has shown up in the food staples of Canada's aboriginal peoples who make the Arctic their home.

There are significant gaps in our understanding of Arctic ecosystems and the impact of human activities. The harsh environment and remoteness also make scientific research more difficult and more costly than comparable activities in southern Canada.

Native peoples have a special relationship to the land. Despite the many changes that have occurred in the last century, the harvest of the land remains a source of subsistence and income for northern communities, and continues to provide social, nutritional and cultural benefits. The Government is working with native organizations, through the land claims process and by co-operative management agreements, to give aboriginal peoples greater responsibility for managing the northern environment.

To meet the growing challenges of protecting the environmental integrity of our Arctic regions and to foster a new co-operative ethic, the Government of Canada will be bringing forward a Federal Arctic Environmental Strategy. The strategy will focus on four broad areas (economic development, resource management, pollution and protected regions) and will include specific actions.

The Federal Arctic Environmental Strategy will be founded on long-term partnerships involving governments, non-governmental organizations and the public.

The Government proposes to place more emphasis on the sustainable development of renewable northern resources.

The Government intends to pursue a strategy and research program to:

- 1. identify and deal with pollution sources and their effect on the Arctic environment and northern people;***
- 2. monitor Arctic ecosystems, and***
- 3. develop a systematic approach to defining protected areas.***

In particular, recent events in provinces bordering the north have emphasized the urgent need to protect northern freshwater resources. This requires the completion of transboundary water management agreements and the substantial enhancement of existing water quality monitoring programs.

Hazardous and solid wastes have been abandoned at a number of locations throughout the Arctic. This situation is unacceptable and the Government is determined to launch a full-scale clean-up operation.

Consultations on the Federal Arctic Environmental Strategy will proceed in conjunction with consultations on the Government's Green Plan.

Postscript

The Government of Canada believes that sustainable development offers the promise of a lasting solution to environmental problems. To bring about sustainable development, Canadians and their governments must proceed together to develop an action plan that removes obstacles to better decision-making. This plan must address immediate environmental problems and related health concerns of Canadians, and provide a long-term strategy to deal with environmental issues as they arise and evolve over time. In both cases, action should focus on three closely related considerations:

- improved decision-making, including better science, environmental information, education, regulation and the use of economic incentives;
- reformed decision-making processes and institutions, and
- new and stronger partnerships.

Achieving sustainable development will not be easy. It will require changes in our attitudes and behaviour towards the environment. Indeed, environmental considerations will have to become a forethought, not an afterthought, in the decision-making process.

This *Framework for Discussion on the Environment* outlines the Government's broad approach to environmental problems and suggests specific issues that need to be addressed as it develops its *Green Plan*.

Sustainable development is not, however, an issue for, or a responsibility of, the federal government alone. It demands a commitment on the part of all Canadians acting individually and collectively. Canadians may wish to go beyond commenting on specific questions raised in the *Framework* to deal with broad and fundamental questions. Among them:

- *Are the priorities that emerge — better decision-making, partnerships — the most useful ones?*
- *Given the reality of budget constraints, how can we achieve our environmental objectives?*

The views of Canadians on these and other issues raised in this paper will help transform the Government's *Framework for Discussion on the Environment* into *The Green Plan: A National Challenge*.