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THE ENVIRONMENT



Canada

External Affairs and
International Trade Canada

THE ENVIRONMENT IN CANADA

REFERENCE SERIES NO. 1

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Right Honourable Joe Clark
Secretary of State for External Affairs
Government of Canada, 1989

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Contents

The Canadian scene	5
Jurisdictions	5
Canada's ecological diversity	6
Canadian Environmental Protection Act	6
Air	10
The greenhouse effect	10
The ozone layer	11
Acid rain	12
Water	14
Fresh water	14
Wetlands	15
Oceans	15
Intelligent management	15
Soils	16
Farmlands	16
Other land uses	17
Parks, forests and flora and fauna	19
Parks	19
Forests	19
Flora and fauna	20

Other areas of concern 22

- Eliminating dangerous waste 22
- Environmentally Friendly Products Program 22
- Energy 22
- The city 23

Canada's international role 24

A time for action 25

Further information 26



Air in Canadian cities being cleaned up . . . Maples suffering from acid rain . . . New regulations on toxic waste . . . Chemicals poisoning sea animals . . . Plan to clean up St. Lawrence River . . . Pollution . . . Prairie farming threatened by drought . . . Canada to get rid of CFCs by year 2000 . . .

The environment is headline news in Canada. Canadians have been alerted and are paying more attention to the dangers threatening their surroundings. Surveys indicate that this issue is one of their greatest concerns: a large majority is prepared to accept sacrifices in order to live in a healthy environment.

The traditional antagonism between economic development and environmental protection is losing its hard edge. Where they were once diametrically opposed, the interests of industrial firms and environmental defence groups are beginning to converge as each becomes aware of the close link between lasting development, quality of life and environmental health. Canadians and their governments are showing that now, more than ever, they are determined to find permanent solutions to environmental problems. Prevention is now taking the place of reaction; planning is taking the place of improvisation. It is certainly a great undertaking, but Canada has the will and the resources to take up the challenge.

Jurisdictions

Under Canada's federal system, responsibility for the environment is shared by federal, provincial and municipal governments. The federal government has exclusive jurisdiction over coastal and freshwater fishing, oceans, navigation, federal lands, the Yukon and the Northwest Territories. It is also primarily responsible for any environmental issues that have inter-provincial or international aspects. Provinces own the natural resources within their boundaries, while municipalities, which come under the provinces, provide local services such as garbage removal and water supply. Many environmental problems are of a complicated, multidimensional nature, and their solution requires collaboration by various levels of government.

Canada's ecological diversity is as immense as the country itself. The snow-capped Rocky Mountains are met by the vast plains of the Prairies; dense forests in central Canada give way to the indented coast of the Atlantic. The climate can be very mild in one spot; in another, its harshness takes your breath away. Cities and small towns abound in the south; in the north the population is extremely scattered.

To make it easier to describe and study its surroundings, Environment Canada, the department responsible for implementing Canada's environment policy, has divided the land into 15 ecozones within which environmental characteristics are relatively uniform (see map). Ecozones are defined by physical geography, hydrography, soil, vegetation, fauna, flora, and to a certain degree, human activity. Except for Nova Scotia and Prince Edward Island, these ecozones scorn political borders; several provinces are part of four or five different zones. The largest (the Boreal Shield) is 10 times the size of the smallest (the Atlantic Maritime Ecozone). More than half of Canada's population lives in the second-smallest ecozone, the Mixed Wood Plains.

This publication will take a closer look at the various elements of the Canadian environment and the measures taken to preserve their integrity, both through legislation in Canada and through participation in international pacts for protection of the environment.

Canadian Environmental Protection Act

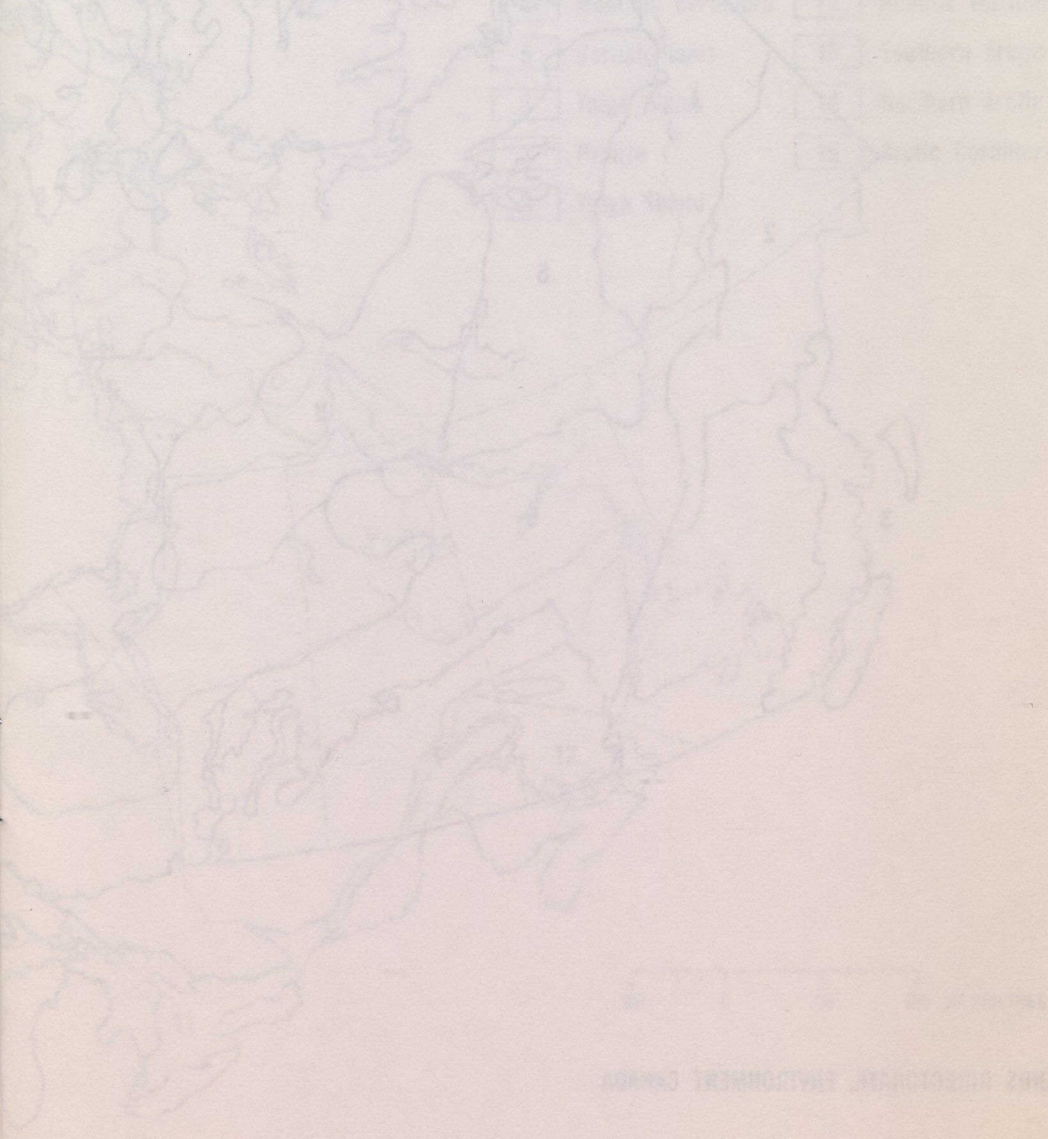
In 1988 Parliament passed the Canadian Environmental Protection Act, an umbrella act to protect Canadians from any form of pollution caused by toxic substances. This comprehensive act covers the entire life cycle of these substances, from preparation to elimination, going through manufacture, transport, distribution, use and storage. Over 30 000 chemicals are currently used in Canada. It is vital to determine which ones should be immediately evaluated as to their effects on the environment and health, in order that the necessary control measures can be taken. Industry is now responsible for providing information that the government needs for these evaluations.

Those who ignore the regulations run the risk of fines as high as a million dollars a day and five years in prison. The act also recognizes the principle of "polluter pays." The courts can order polluting companies to pay for cleaning up. Moreover, for the first time, company executives can be sued and convicted for infractions of the act committed by their company. The company can also be obliged to pay back any profit made from pollution.

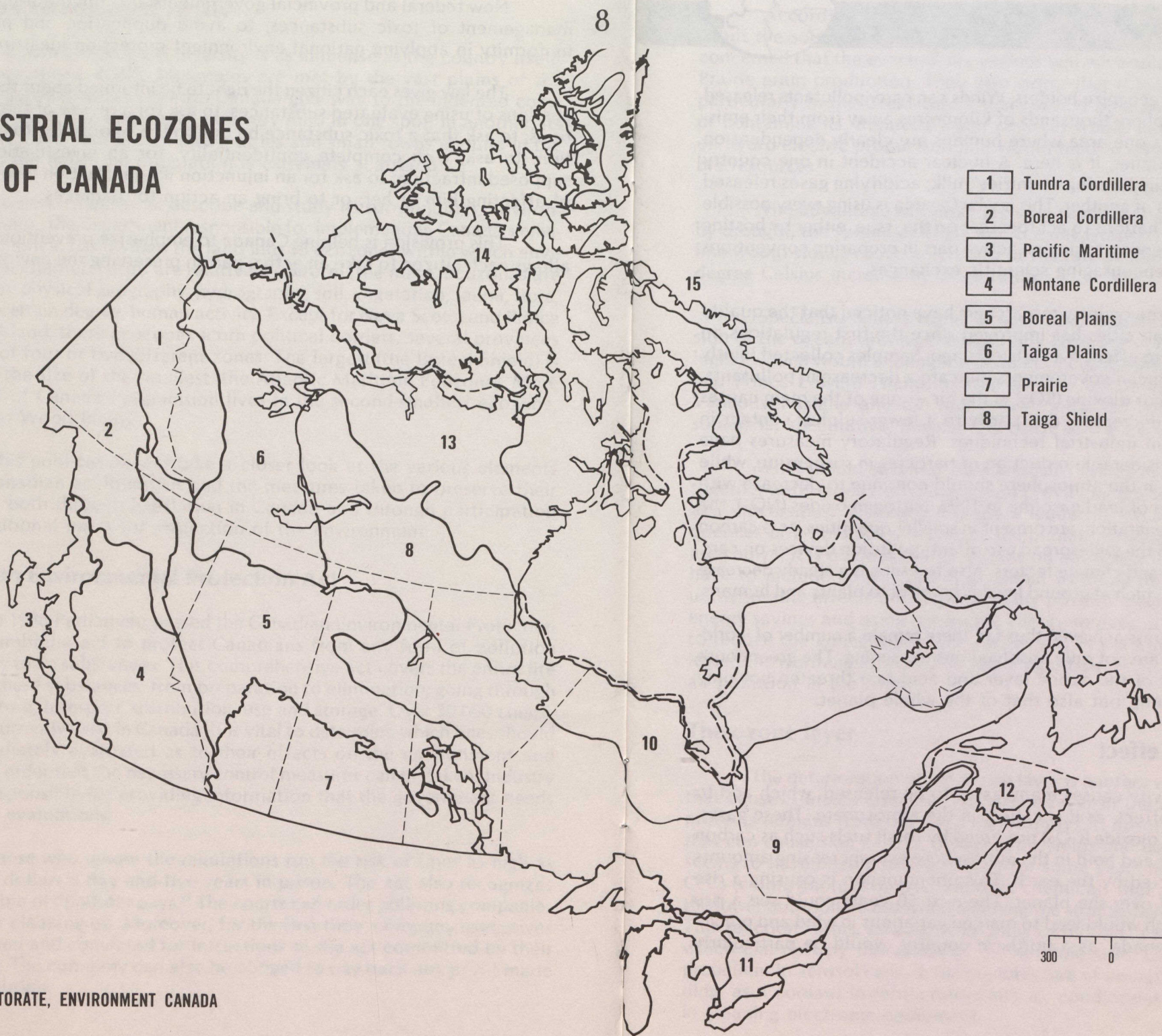
Now federal and provincial governments are collaborating on the management of toxic substances, to avoid duplication and promote uniformity in applying national environment protection measures.

The law gives each citizen the right to be informed about the repercussions of using evaluated substances; to ask for a review of the regulations; to ask that a toxic substance be put on the priority list for evaluation; to ask, with complete confidentiality, for an investigation of a supposed infraction; to ask for an injunction if an infraction is in danger of affecting him or her; or to bring an action for damages.

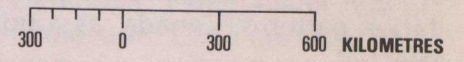
This provision is helping Canada to emphasize prevention; it also allows each citizen to take an active part in preserving the environment.



TERRESTRIAL ECOZONES OF CANADA



- | | |
|----------------------|----------------------|
| 1 Tundra Cordillera | 9 Boreal Shield |
| 2 Boreal Cordillera | 10 Hudson Plains |
| 3 Pacific Maritime | 11 Mixed Wood Plains |
| 4 Montane Cordillera | 12 Atlantic Maritime |
| 5 Boreal Plains | 13 Southern Arctic |
| 6 Taiga Plains | 14 Northern Arctic |
| 7 Prairie | 15 Arctic Cordillera |
| 8 Taiga Shield | |





Nature does not recognize borders. Winds can carry pollutants released into the atmosphere thousands of kilometres away from their emission point. If there is one area where humans are clearly dependent on each other on this planet, it is here. A nuclear accident in one country contaminates the neighbouring countries' milk; acidifying gases released by one kill the forests of another. This is why Canada is using every possible means to encourage nations to act together on the issue, either by hosting international conferences, taking an active part in preparing conventions and treaties, or by encouraging scientific exchanges.

Throughout the country researchers have noticed that the quality of the air in Canadian cities has improved since the first regulations on air pollution went into effect over 10 years ago. Samples collected jointly by federal and provincial governments indicate a decrease in pollutants. The amount of sulphur dioxide (SO_2) in the air — one of the main causes of acid rain — has decreased, due partly to a lower sulphur content in fuels and progress in industrial techniques. Regulatory measures have brought about a considerable reduction of particles in suspension, while the amount of lead in the atmosphere should continue to decrease with the total elimination of lead gasoline in 1990. Nitrogen oxides (NO_x), the first stage of smog generation, are present in smaller quantities, as is carbon monoxide, thanks to the widespread use of anti-pollution devices on cars, energy conservation and climate factors. Also foreseen is a steady decrease in ozone pollution, which at ground level is harmful to plants and humans.

Despite progress achieved thus far, there remain a number of world-wide problems that are not only unsolved but worsening. The greenhouse effect, the thinning of the ozone layer and acid rain threaten not only Canada's environment, but also that of the whole planet.

The greenhouse effect

Human activity causes many gases to be released, which add to the "greenhouse" effect, as it is called, in the atmosphere. These gases, particularly carbon dioxide (CO_2) produced by fossil fuels such as carbon and fuel oil, collect and hold in the atmosphere ever-increasing amounts of solar heat reflected by the earth. This phenomenon is causing a rise in temperatures all over the planet. The next 50 years could see a rise of 1.5 to 4.5°C, which would lead to marked variations in wind and precipitation patterns. Canada, as a northern country, would be particularly affected.

According to forecasts, precipitation will move northward; as a result the southern part of the country will be drier. Climatologists are concerned that the eventual dry periods will adversely affect the plentiful Prairie grain production. They also worry that if water levels go down, particularly in the Great Lakes, there would be a greater concentration of contaminants. Reduced water reserves would have a harmful effect on hydro-electric production and would lead to competition for available resources.

The advantage of longer growing seasons might well be nullified by drought, the spread of blight and the devastations of insects. The tree line would slowly move northward at the rate of about 100 km for each degree Celsius increase in temperature.

Specialists believe higher temperatures would cause thermal expansion of the oceans around the world. By 2050 ocean levels might be 1 m higher, which would endanger a number of coastal areas of Hudson's Bay and Prince Edward Island, as well as river deltas in the lower part of Vancouver Island and the Mackenzie delta. All these predictions are somewhat speculative, however, because of the many factors involved.

What should be done? The Canadian Climate Program, which brings together authorities from federal and provincial governments, industries and universities, has made Canada a leader in the study of the consequences of a possible warming of the planet. Although not all the facts are known, it is obvious that from now on any major economic decisions have to include consideration of global warming in order to minimize unfavourable effects and maximize any possible benefits. By increasing energy savings and using renewable energy sources, it would be possible to reduce the concentration of carbon gas in the atmosphere and thus lessen the warming effect while reducing urban smog, acid rain and even air pollution in the Arctic.

The ozone layer

The deterioration of the ozone layer is another worldwide problem that causes Canada concern. The ozone layer in the upper atmosphere protects humans from the sun's harmful rays. It absorbs ultraviolet rays that can cause skin cancer, reduce crop yields and harm aquatic life. It seems to have been growing thinner for some years now, due mainly to CFCs (chlorofluorocarbons), synthetic chemicals that are quite stable in the lower atmosphere but when reaching the stratosphere, react with gases. This reaction forms, among other things, chlorine, a single molecule of which can destroy thousands of ozone molecules. CFCs are used as a propellant in aerosol cans, in the manufacture of insulation and foam padding, as a coolant in refrigerators and air conditioners, and as solvents in cleaning electronic equipment.

Since 1980 Canada has outlawed the main uses of propellents — in hairsprays, anti-perspirants and deodorants. This has reduced the use of CFCs in aerosol cans by 86 per cent, providing a worldwide reduction of 45 per cent in the use of CFCs on a national scale. Still, their use has begun to rise again because other CFC applications have been gaining popularity.

Recognizing the urgency and significance of the problem, in September 1987, Canada and 33 other countries signed the Montreal Protocol, which provides for a 50-per-cent reduction in CFC use by 1999. However, Canada intends to go much further. By 1999 it expects to reduce use of CFCs by 85 per cent, and if possible eliminate them completely. Canadian industry is applying itself to finding replacement products that will help prevent the ozone layer from thinning even further.

Acid rain

Plants withering, toxic metal concentrates in the food chain, heritage buildings disintegrating at an ever-increasing rate: these are only some of the disastrous effects of the phenomenon called "acid rain." It is caused largely by the release into the atmosphere of sulphur dioxide (SO₂) and nitrogen oxides (NO_x) from a number of industries, such as power plants and foundries, and from internal combustion engines. In the air, the two elements change into sulphate or nitrate particles, then, combining with water vapour, into weak sulphuric or nitric acid. These pollutants are then carried hundreds, even thousands of kilometres away by prevailing winds before falling as rain. It is literally raining acid: rain falling on central and eastern Canada is 10 times as acidic as clean rain.

Although the phenomenon is still being studied, the consequences are more and more obvious. In Quebec the deterioration of maple forests is endangering maple syrup production; in Ontario 48 000 lakes are vulnerable to acid rain and a few hundred are already "dead"; in several rivers in the Atlantic provinces salmon are no longer returning to spawn. Acid rain spares neither aquatic life, vegetation nor human activity.

Four million km², or 46 per cent of Canada's land mass, have aquatic ecosystems that are very sensitive to acid rain. These zones of high vulnerability, mostly in eastern Canada, are also the ones where fresh water is most plentiful — the choice areas for sport fishing and recreation.

The problem does not begin and end in Canada. It is a North American concern. In Quebec, for instance, 50 per cent of acid rain comes from the United States, 25 per cent from Ontario and 25 per cent from Quebec itself. Canada has already committed to reducing its emissions of sulphur dioxide by half before 1994. As part of this program, Ontario is planning to reduce its sulphur dioxide emissions by 45 per cent, compared to the 1986 level, while Quebec will have reduced its emissions 45 per cent by 1990, compared to 1980. Other provinces east of Saskatchewan have adopted similar measures. Canada will lower its nitrogen oxide emissions from moving sources by over 45 per cent between now and the year 2000. In 1988 Canada and 24 other countries signed the Sofia Protocol, aimed at reducing these emissions.

But more has to be done. In addition to short-term remedies such as spreading lime on acidified lakes and soils, it remains extremely important to further pursue negotiations with the United States to come to an agreement on reducing emissions all over the continent.



As with many other natural resources, Canada is well supplied with water, possessing nearly 9 per cent of the planet's fresh water. Rivers and lakes cover almost 8 per cent of the land area, and wetlands (ground inundated or saturated with water such as ponds, marshes, swamps and bogs) take up another 14 per cent. Canada's coastline, the longest in the world, extends over 244 000 km, while its ocean fishing areas cover around 4.7 million km². But here, as elsewhere, figures must be put in perspective. The population is concentrated in southern Canada, and there has been a staggering increase in demand for water over the years. These factors, when added to pollution and other encroachments, are evidence that this seemingly vast resource is in danger. The west of Canada is already suffering water shortages; in the east, water quality is a grave concern.

Fresh water

Freshwater reserves are under attack from all sides. Acidification, agricultural and industrial pollution, dumping of waste water and draining of wetlands are some of the dangers to the quality of Canada's fresh water. Industry discharges at least 30 000 chemicals into the Great Lakes basin; around 800 of these are considered toxic, and many of them remain in the environment.

The evolution of bird and fish populations is evidence of the harmful effects of this contamination. The St. Lawrence River beluga whale, for example, is particularly affected. Tests have revealed the presence of 24 possibly toxic contaminants in this mammal, as well as a high incidence of lesions. This has led to a decrease in fertility and a long-term decline in the beluga population. Scientists believe pollutants are endangering the very survival of belugas.

The federal and Quebec governments have agreed to implement a plan to clean up the St. Lawrence. Quebec has also reached an agreement with major polluters, who have agreed to reduce the volume of toxic wastes they discharge into the river. Governments and industry foresee allocating over five billion dollars between now and the year 2000 to clean up the St. Lawrence.

The Great Lakes form part of the Canada-U.S. border. Canada and the United States are party to the 1972 Great Lakes Water Quality Agreement (modified in 1978), which provides for cleaning up and protecting the largest freshwater reservoir in the world. Although much remains to be done, efforts made over the past few years have allowed a number of fish species to gain a new lease on life, to the point that fishing some species is again possible.

Many municipalities are now purifying their waste water, and limits have been imposed on certain industries. Results are positive. Nearly 85 per cent of Canadians live in areas equipped with sewer systems, and some 80 per cent are supplied with treatment plants for drinking water.

Wetlands

Wetlands are also prey to numerous encroachments: they are filled in to build expressways, drained for agricultural purposes, contaminated and overcultivated. Governments are increasingly aware of the importance of wetlands and are more willing to intervene to protect them. Many environmental defence groups, from ornithologists to waterfowl hunters, are intent on safeguarding wetlands. In 1981, Canada ratified the Ramsar Convention on Wetlands of International Significance; nearly 30 have now been so designated. In 1985, Canada and the United States agreed to a North American waterfowl management plan to protect, conserve and restore bird habitats. This is a comprehensive agreement intended to bring the bird population back to the mid-1970s level of 100 million migrating birds.

Oceans

Canada's maritime ecosystems are also subject to many constraints: overfishing; dams and diversions that stop the flow of water with its many nutrients into estuaries and destroy or block off salmon spawning grounds; the draining of coastal wetlands, which affects the Pacific coast especially; and coastal zone pollution.

To counter these encroachments, the Fisheries Act allows the federal government to take measures to ensure that work or construction affecting fish habitats can be carried out only after a thorough investigation. In addition, the national fish habitat management policy has been established in order to avoid any net loss in production capacity of a habitat. This policy emphasizes prevention through consultation and action plans.

Intelligent management

Canada's water policy aims at replacing the 1970s policy, which was more reactive, with an integrated rational management that will satisfy the social, economic and environmental needs of present and future generations. Canadians are being increasingly sensitized to the importance of water, although it is often taken for granted and undervalued. The government intends to encourage the adoption of a realistic rate structure for water-supply services in order to make people realize the value of water and reduce their consumption. It hopes to promote research and integrated planning, strengthen laws and regulations, and sensitize the population even more. This policy will be implemented in collaboration with the provinces, which have broad constitutional powers in the matter.



Although it is true that Canada stretches over almost 10 million km², only 25 per cent of the land is easily habitable, and that is now all but used up. Moreover, the most suitable land for agriculture or tree growing is in the area best situated for building cities and industries, for transportation and recreation. Therefore, land that is rich in renewable resources is subject to greater and greater pressure.

Farmlands

Around 11 per cent of Canada's land is considered arable, but only 5 per cent is suitable for major crops. In addition, 90 per cent of the best land lies in a radius of 160 km around large urban centres.

Agriculture, Canada's second-largest industry, provides employment for 500 000 persons, including some 300 000 farmers. The best agricultural land lies mainly in the Prairie and Mixed Wood Plains ecozones.

The amount of organic matter and nutrients in the soil are two key factors in its productivity. Losses of organic matter are a cause for worry in many regions. Researchers have noted a decrease of over 40 per cent in the Prairie Ecozone; in the Mixed Wood Plains, losses are over 50 per cent. Research shows that until 1960, crops drew more of their nutrients from the soil than they did from fertilizers. However, by 1980 the situation had reversed itself in all provinces except Alberta and Saskatchewan.

Acid rain and use of nitrogen fertilizers speed up the natural process of acidification. Excessive acidity reduces crop efficiency and can contribute to the release of toxic elements that are likely to accumulate in plants or pollute water courses through run-off.

Irrigation makes it easier for salts in lower soil layers to come up to the surface. The nutritive balance is upset and crops decrease. Salinization is most apparent in the Prairie Ecozone: 100 000 ha have been affected by excessive irrigation in Alberta and Saskatchewan.

The economic value of soil lost each year because of erosion is probably over a billion dollars. Run-off is especially noticeable in areas where wide-row crops are grown, such as corn and potatoes. Sandy soil or fallow land is especially subject to wind erosion. Crop rotation helps to reduce annual losses.

Pesticides can destroy insects but may take with them the insects' natural enemies, as well as many plants and organisms that are important for an ecosystem to function properly. Farmers become part of a vicious circle where they depend more and more on these products. As well, a good part of the pesticides spread into the soil and water where they threaten the health of humans and animals.

Governments are becoming stricter in the control of agricultural chemicals and are diligently searching for alternative solutions. Many farmers are now using an integrated approach to the problem. This calls for a combined use of biological and chemical products, as well as other tactics such as tracking, which allows them to know when an infestation is going to take place. In this way they hope to considerably reduce the need for pesticides.

Scientists are also worried about genetic deterioration, the use of wetlands for farming, increasing urbanization and other economic factors that are compromising the long-term stability of farming.

Federal and provincial governments have joined forces to prepare a national agriculture strategy. They recognize the importance of protecting and refurbishing soil and water through conservation and development programs in order to guarantee farm productivity. The private sector is encouraging these efforts through Soil Conservation Canada, a non-government organization devoted to protecting Canada's soil and water.

Other land uses

Approximately one-third of Canada's population lives in greater Montreal, Toronto and Vancouver, the country's three largest cities. The 1 200-km corridor between Windsor and Quebec City, where 55 per cent of Canadians live, covers only 2 per cent of the land.

Canada's soil is subject to many constraints. Although less than 0.03 per cent of the land is used for mining, the exploration, production and transportation of mineral and energy resources take up over 100 million ha, or around 11 per cent of the total land mass. Urbanization is now claiming a good part of Canada's choice land, as development swallows up the farmland near cities. Quebec, in particular, has adopted strict zoning regulations to protect its best farmlands.

Over the past few years more and more roads, pipelines and power lines have criss-crossed the country, opening up remote areas. However, these wilderness lands have fragile ecosystems. Hydro-electric dams can now hold almost 800 million m³ of water, and the harmful effects of creating huge flood plains extend far beyond the immediate area. Thus, large public works projects are now subject to environmental evaluations on an unprecedented scale.

Governments are now ensuring that planning processes include detailed environmental impact surveys. The Canadian Land Inventory, one of the most exhaustive studies on the subject in the world, has helped to rationalize land use in all areas of the country.



Parks

In 1885, Canada was the third country in the world to set up a network of national parks. There are now more than 30 parks, spread over the 10 provinces and the 2 territories — from the far north to the southernmost point of Ontario, from the Pacific coast to the borders of Newfoundland. The variety of landscapes, flora and fauna to be found delights the millions of Canadians and travellers who enjoy a host of recreational activities in the parks each year.

In addition to the parks system, there are over 100 historic sites in Canada that celebrate people, places and important events in the country's history. Over a dozen parks and historic sites have been designated as world heritage sites by UNESCO (United Nations Educational, Scientific and Cultural Organization). These are locations of exceptional value because of their natural and cultural characteristics. Canada is also creating a network of national marine parks to protect the coastline and seabeds, and a network of heritage rivers to preserve those with natural, historic and recreational value.

In addition to these federal government initiatives, there are also many parks and reserves set up and administered by each of the provinces and territories.

Forests

Canada's forests cover almost 45 per cent of the country and contain over 150 species of native trees. Around half of them — over 250 million ha — are considered productive. Forestry is Canada's most important industry, providing employment for 1 out of 10 citizens. Millions of people also use forests for recreation.

Slow natural growth and thin soil in northern ecosystems make Canadian forests vulnerable. Large areas have not been reforested after trees have been cut down, or the regrowth consists of trees with little commercial value. Almost 12 per cent of forest areas in the Boreal Plains Ecozone and over 7 per cent in the Boreal Shield have trees of this type. Canada has lost nearly all the huge stands of Ottawa Valley white pine and most of the majestic hundred-year-old Douglas firs in the Pacific Maritime Ecozone. Half of Canada's forest land has mainly immature or regrowing trees, which is far from its natural state.

Forests are subject to a large number of aggressors. Some are natural, such as insects, disease and fire. The spruce budworm alone has laid waste over 25 million ha in Ontario, Quebec and New Brunswick, and in the west another insect, the mountain pine beetle, infests some 200 000 ha every year.

The number of trees cut down each year has increased 50 per cent since the 1950s. Industry has overcut the forests, particularly the conifers in the Maritimes and British Columbia. A number of provincial governments, aware of the situation, have worked together with industry to introduce large reforestation programs and have regulated methods of timber cutting.

Air pollution also affects the forest. Acid rain is suspected of being a significant factor in the deterioration of broadleaf trees, especially maples. The presence of too much ozone can also lead to damaged trees and stunted growth.

Canada certainly remains rich in trees, but quality forests are becoming harder to find. Industry is forced further and further away in order to find quality trees or it must make use of less desirable species. There is also competition with countries where trees reach maturity two to four times faster than in Canada. Sensible forest planning and management, fighting pollution and protecting vulnerable forests can ensure a balance in the world's forest ecosystems. With this aim, the Canadian Council of Forestry Ministers developed the first national forestry strategy, derived from the World Conservation Strategy, which advocates integrating conservation and development. Canada is now seeking to use timber resources wisely, ensuring a lasting yield through improved techniques and conservation.

Flora and fauna

Canada is home to 200 species of mammals (5 per cent of the earth's total) and nearly 400 species of birds. There are also 82 species of reptiles and amphibians, over 100 000 species of insects and other invertebrates, and 3 300 plant species.

For thousands of years the aboriginal peoples of Canada depended on this flora and fauna. The hunting, trapping and farming activities of the European settlers soon began to interfere with this way of life. Huge buffalo herds were almost exterminated in the Prairies, and the wild turkey disappeared from eastern Canadian forests well before the end of the nineteenth century. Fortunately, the first animal conservation efforts began at this time, efforts that led to measures that are in effect today.

As a general rule, Canadian animal populations are stable or increasing. However, nearly 30 plant and animal species are in danger of extinction, and some species have been seriously decimated in certain areas, largely because of the destruction of their habitats. A number of rescue attempts have been successful: peregrine falcons raised in captivity have been set free and the wood bison population, which was gravely diminished not so long ago, has increased noticeably thanks to conservation efforts. On the other hand, fish and birds in the Great Lakes and St. Lawrence River basins still show signs of toxic poisoning, in spite of some impressive progress made by limiting the disposal of such substances as mercury.

Besides toxic pollution, the major threats to animals are farm expansion, hunting and trapping, resource development and the climate. But the greatest threat is unquestionably the disappearance of habitats. This is why Canada and the provinces have set aside extensive areas for animal sanctuaries and introduced many programs to evaluate the situation more accurately and preserve endangered species. Canada also has the world's most severe penalties for poaching in its parks and reserves. The law allows up to a \$150 000 fine and six months in prison for offenders.



Eliminating dangerous waste

Canada, working in co-operation with other governments, is exercising increasingly stricter control on the release and disposal of pollutants. The Niagara River Toxics Management Plan (a joint Canada-U.S. initiative), for example, aims at cutting in half, by 1996, the amount of persistent toxic substances dumped on both sides of the river. The government has announced that PCBs (poly-chlorinated biphenyls, a group of extremely toxic synthetic chemicals) will be completely eliminated from Canadian territory by 1993.

Environmentally Friendly Products Program

The federal department Environment Canada has launched the Environmentally Friendly Products Program to identify products that conserve energy, are recycled or recyclable, are biodegradable and are free of ozone-depleting substances. Companies whose products qualify will be able to display a logo certifying that these are "environmentally friendly."

Energy

Energy production is not without consequences for the environment. Fossil fuel use, dam construction, offshore drilling, transporting of oil by sea, automobile exhaust and nuclear waste disposal can all have an adverse effect on people's surroundings.

Canada is trying to fully integrate environmental factors in its energy policy. At first, emphasis was on greater efficiency and energy savings with subsidies for such initiatives as improving home insulation. In 1985, Canadians consumed 58 million fewer barrels of oil than in 1973 and thus avoided releasing 385 000 tons of sulphur dioxide. By improving current technologies it is estimated that energy demand can be further reduced by 20 to 50 per cent. The federal government is also working on perfecting energy substitutes, combustion techniques and techniques for processing coal to minimize sulphur emissions.

Most Canadians live in cities. Besides problems involved in the treatment of drinking water, sewage, household garbage and air pollution, city dwellers are increasingly worried about noise (mostly from vehicles), visual pollution (roadside development) and indoor air pollution (caused by insufficient ventilation in sealed-off or too-well-insulated buildings). Although the latter problems occur only in specific places, they directly affect a large number of people every day.



Canadians can be proud of their country's role as a world leader in environmental protection. In line with the World Commission on Environment and Development (the Brundtland Commission), Canada firmly believes that lasting development must be based on respect for the environment.

Internationally, Canada is placing greater emphasis on projects that present no danger to the environment and is active in establishing legal bodies and mechanisms to guarantee the planet's ecological well-being.

International policy co-ordination on environmental issues is growing, and Canada is playing an important role. The nation is a signatory to such agreements as the Declaration of The Hague on the Protection of the Atmosphere (March 11, 1989), the United Nations Environment Program (UNEP) Convention on the Control of Transboundary Movements of Hazardous Wastes (March 22, 1989), and the 1985 Helsinki Protocol to reduce sulphur pollution, among others. Canada actively participates in the Intergovernmental Panel on Climate Change (IPCC) and fully supports the existing network of international institutions, including UNEP, the World Meteorological Organization (WMO), and the Organization for Economic Co-operation and Development (OECD)/International Energy Agency (IEA)'s energy-environment work. In addition, Canada has contributed significantly to the work of the Tropical Forestry Action Plan of the Food and Agriculture Organization (FAO) of the United Nations.

International discussion on global environmental issues is increasingly being directed towards the important 1992 UN Conference on Environment and Development. Canada strongly supports the convening of the conference and will fully participate in its preparations.



Canadians continue to enjoy a rich natural heritage, a heritage that has shaped their perception of themselves and the rest of the world. The economic growth of the country has been and is still very dependent on developing Canada's natural resources. More and more Canadians admit that this growth has often been at the expense of the natural environment — they have been mortgaging it without thinking of the future. Governments have been able to react in time to solve the most pressing problems, but reaction is no longer enough.

The time has now come to anticipate and prevent. Canada seeks to tackle problems at their roots, as part of a global strategy of sustainable development. To meet this challenge, Canadians will have to change some of their habits and pay heed to the environment in their everyday life. The many environmental defence groups will take on a larger role. Institutions and industry will have to work together so that environmental preservation is an integral part of all economic, social and political decisions.

In so doing, Canadians will be allowing future generations to enjoy the environment, a healthy environment that will bear witness to the wisdom of their choices.



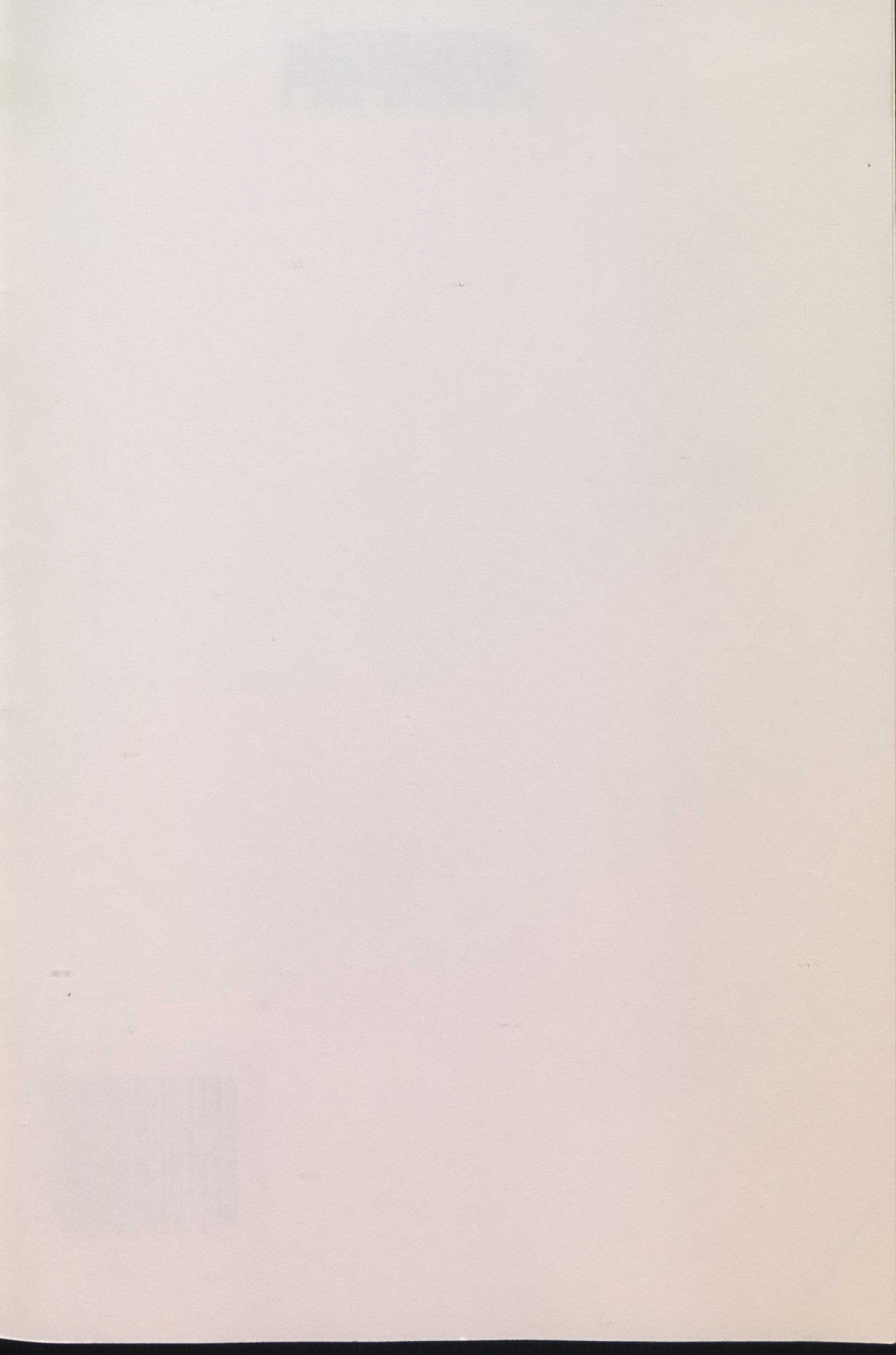
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