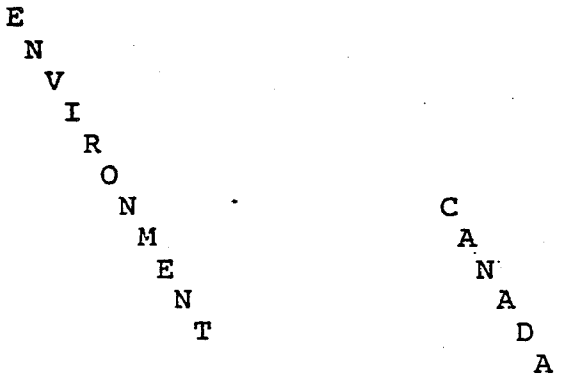
ENVIRONMENT

CANADA

Office of International Activities
U.S. Environmental Protection Agency

April 1977



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PREFACE

This is a brief report on the organization and management of environmental activities on the national level in Canada. Reports on Japan, Luxemburg, Belgium, Great Britain, the Netherlands, Spain, Australia, the Federal Republic of Germany, Sweden, and Switzerland have already been distributed. Similar reports on other countries will be available soon. These reports, which are background papers for EPA staff involved in international activities, are not for distribution outside the Agency.

Emphasis is on policy and regulatory functions of national environmental agencies as well as on legal instruments for environmental control. Research and development, often under the auspices of other departments, for example, science and technology, are not covered in these reports.

Source documents for the reports, received under the International Documents Exchange, are available in the EPA Headquarters Library. English summaries of the foreign documents are published in the monthly bulletin "Summaries of Foreign Government Reports."

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overall government structure

The Canadian government is a federal system in which the respective jurisdictions of the federal government in Ottawa and the ten provincial governments are defined by the British North America Act, 1867. The federal government is formally a parliamentary monarchy based on British constitutional law. The principle of parliamentary supremacy in relation to the executive and judicial branches of government, characteristic of the British system, is also an integral part of the Canadian system.[1*] The executive function is formally vested in the Governor-General, the Queen's representative in Canada. In practice, however, the Governor-General acts only on advice of the Prime Minister and his Cabinet. Together they must command majority support in the House of Commons. Thus, the executive authority is derived from Parliament. The judiciary, on the other hand, is more independent. Though the courts were established by statutes which could theoretically be amended by Parliament, there is a well-founded tradition of judicial independence which cannot be easily ignored.[2]

Provincial governments are patterned after the federal government with a lieutenant-governor representing the Crown, an elected unicameral legislative assembly, and a premier with an executive council serving at the discretion of the legislature in roles analogous to those at the federal level. Jurisdictional disputes between federal and provincial governments and interprovincial conflicts are resolved in federal courts.

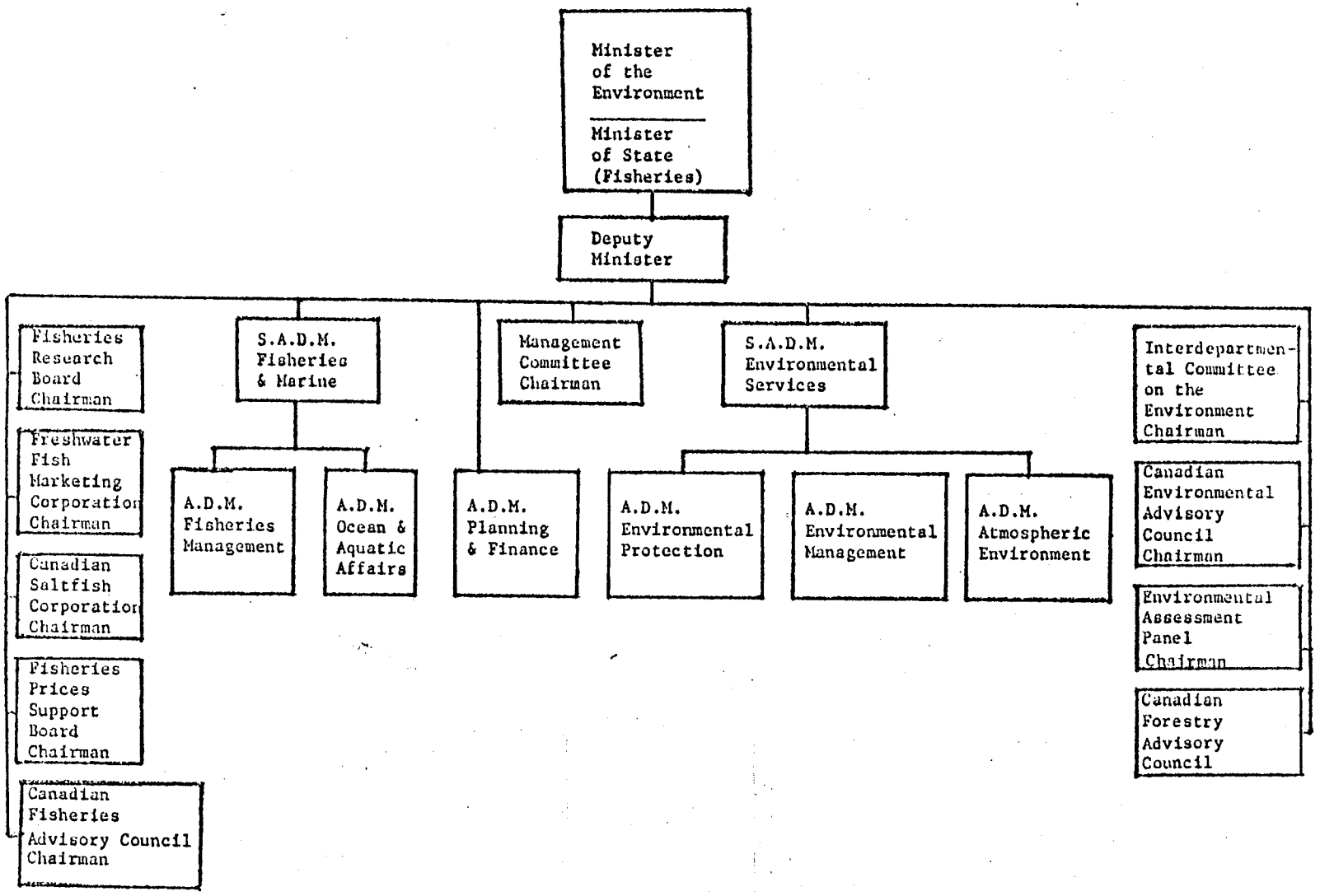
national environmental agency

The Department of the Environment, commonly called Environment Canada, went into service on June 11, 1971, in accordance with the Government Organization

*All reference notes will be found beginning on page 27.

Act, 1970, which consolidated under the new department all of the functions of the former Department of Fisheries and Forestry as well as most environmental protection responsibilities previously vested in other federal ministries. The Minister of the Environment, who serves concurrently as the Minister of Fisheries, acquired at the outset the authority, administrative machinery and prestige of a long-standing federal cabinet ministry. Within Environment Canada there are two divisions, each headed by a senior assistant deputy minister: the Fisheries and Marine Services and the Environmental Services.[3] (See Organization Chart, page 2a). The former administers oceanographic activities, regulates fishing operations and fisheries development in marine and inland waters, and conducts fisheries research in conjunction with the Fisheries Research Board. The board is directly under the Deputy Minister of the Environment.

The Division of Environmental Services coordinates activities of the various services concerned with environmental programs. In addition to its meteorological functions, the Atmospheric Environment Service is establishing a nationwide network for monitoring air quality and is conducting a wide range of research on atmospheric pollution and noise pollution. Regulations and standards dealing with water and air pollution, noise control, solid waste disposal and ecological disruptions are established by the Environmental Protection Service, which administers federal environmental control activities, operates an emergency pollution center, and is generally responsible for liaison with industry and other levels of government.[4] The Environmental Management Service, which administers federal programs on land, forests, and wildlife management, includes the Inland Waters Directorate, the Canadian Forestry Service, the Canadian Wildlife Serivce, the Lands Directorate, and the Policy and Program Development Directorate.[5] The Planning and Finance Service provides support for the departments in the areas of administration, financial management, technical information, educational and public relations.



DEPARTMENT OF THE ENVIRONMENT

January 1, 1975

S.A.D.M. . Senior Assistant Deputy Minister
A.D.M. Assistant Deputy Minister

An Environmental Advisory Council with a permanent secretary directly responsible to the Minister has been established to provide a forum for representatives of industry, the universities, the scientific community, and public groups and organizations concerned with environmental problems. A Special Adviser of Renewable Resources reports to the Minister and Deputy Minister on matters related to development of renewable resources.

As of April 1, 1974, the Department established the Environmental Assessment Panel in response to a 1973 Cabinet decision prescribing an Environmental Assessment and Review Process to ensure that adequate studies are carried out for all federal projects and activities likely to have a significant effect on the Environment. The Panel operates in an advisory capacity to the Minister of the Environment.

other federal agencies with environmental responsibilities

Although many environmental responsibilities were consolidated under Environment Canada to provide a unified structure for a comprehensive national program, certain functions were left with other ministries with special jurisdictional competence. The Ministry of Transport is generally responsible for regulating pollution caused by vehicles operating on land and by navigation on inland waterways and territorial oceans, while the Department of Indian and Northern Affairs is charged with protection of northern inland waters and the Arctic seas against pollution and harmful development.[6] Pesticide and agricultural chemical regulations are administered by the Department of Agriculture under the Pest Control Products Act and the Fertilizers Act. Radioactive substances are regulated by the Atomic Energy Control Board, established under the Atomic Energy Control Act. The Board is under the direction of a designated minister, currently the Minister for Energy, Mines and Resources.[7]

federal-provincial relationship

The relationship between the federal and provincial governments with regard to environmental protection is determined by their respective proprietary rights and legislative jurisdictions as defined by the British North America Act (BNA Act) in 1867. Provincial governments have proprietary rights, and thus legislative authority, over most publicly owned natural resources within their respective provinces including land, water, minerals, forests and wildlife. Ownership of public resources provides a firm constitutional basis for provincial environmental law. Many provinces have their own environmental protection agencies and well developed bodies of environmental law. The provinces have jurisdiction over all matters which are entirely local in nature. In other cases, they often share jurisdiction with the federal government. It is important to note that where valid federal and provincial laws are in conflict, the federal law takes precedent.[8] Federal ownership of resources within the provinces is limited to national parks, harbors, canals and other property purchased or expropriated for official purposes. In addition, the federal government owns all public resources lying outside of provincial boundaries such as those in the northern territories or under coastal waters. Thus, federal authority to enact environmental legislation on the basis of proprietary rights is restricted in the provinces, but virtually unlimited with regard to northern territories and coastal waters.[9]

In addition to authority derived from its proprietary rights, the federal government can enact environmental legislation under certain headings of the British North America Act. Though the scope of federal authority in this respect has not yet been clearly defined due to the vagueness of the act and often contradictory judicial interpretations, there are certain clauses under which the federal government is clearly competent to enact important environmental legislation.[10] Environmental problems, such as pollution affecting public health, spillover from pollution

sources across provincial or international boundaries, and hazards accompanying the use of radioactive substances, have been dealt with under the power to make laws for the peace, order and good government of Canada. This had been broadly interpreted to mean matters which are inter-provincial in scope and affect Canada in general, providing there is no encroachment upon clearly established provincial prerogatives.[11] Further authority to enact environmental legislation is derived from the power of the federal government to regulate certain specific activities such as navigation and shipping; marine and inland fishing; harbors, rivers and lakes improvements; certain mining operations, waterworks and similar undertakings; and some aspects of agriculture.[12] General authority to enact legislation concerning the criminal code, trade and commerce, taxation, and expenditure of public funds can also be used to strengthen national environmental programs. Because of the broad impact of environmental programs and the complicated jurisdictional problems that arise, Environment Canada has adopted a policy of establishing cooperative environmental programs at all levels of government. Provincial authorities are consulted when federal legislation is being drafted, and responsibility for implementation and enforcement is left as far as possible at the local level.[13]

federal-local relationship

Both the federal and provincial governments have constitutionally defined jurisdictions which are subject only to court interpretation. Municipal governments, on the other hand, exist entirely at the pleasure of provincial governments. Federal environmental programs for the cities, such as grants and loans for construction of sewage treatment plants, are administered through the provincial governments.

II. Environmental Laws

legislative system

Major legislation enacted by Parliament generally originates within the executive establishment. When agreement has been reached within the ministry concerned with a piece of legislation, a bill is drafted by the Department of Justice and returned to the responsible Minister to be submitted to Parliament. Since ministers are almost always members of the House of Commons, it is there that government bills are introduced. After approval in the House, a bill is considered in the Senate, which technically has the authority to amend or defeat it. However, the Senate is an appointed rather than elected body, and in practice, enjoys no significant powers.[14] After perfunctory approval in the Senate, the bill is submitted to the Governor-General for royal assent, which is almost always automatic. Bills which are introduced without government sponsorship by individual members of Parliament to publicize proposals absent from or contrary to government legislation receive only perfunctory consideration and do not play a major role in the legislative process.[15] Bills dealing with the affairs of private or corporate individuals may be introduced into the Senate and then sent to the House for final approval, but these do not affect government policy. Though the Canadian Parliament is technically bicameral, real legislative authority rests with the House of Commons.

highlights of water laws

Though Canada does not have a unified federal environmental code, comprehensive national legislation has been enacted to control water and air pollution. Federal authority to control water pollution traditionally stems from its responsibility for marine and inland fishing, which was assumed by Environment Canada when it was established. Under the Fisheries Act, it is prohibited to dump certain deleterious substances into waters or on shores of waters inhabited by fish. The Minister may make regulations to control pollution hazardous to fish. A 1970 amendment

to the act increases penalties for violations and expands the power of the Minister to control discharge of harmful substances into fishing waters, authorizing him to review plans for works or undertakings likely to cause water pollution and to require modifications if necessary, or to proscribe them altogether.[16]

With the passage of the Canada Water Act in 1970, federal authority to control water pollution was significantly broadened. Environment Canada is authorized to enter into cooperative agreements with the provinces, individually or severally, as the case may require, in order to designate inter-jurisdictional water bodies as water management areas and to establish water quality management agencies responsible for the development of comprehensive water management programs. The first such agreement, signed by Environment Canada and the province of New Brunswick in 1970, provides for the federal government to pay 90 percent of the cost of developing a comprehensive water management program for the Saint John River Basin.[17] If federal and provincial governments fail to reach an agreement on a water basin of national concern, the Minister may himself designate the region as a management area and unilaterally set up an agency. The Minister may also establish such agencies for waters which are located entirely within the federal jurisdiction, such as in the northern territories. Each agency is to conduct necessary research and surveys, and submit a plan including recommendations on: water quality standards; quantities and types of wastes which may be discharged; necessary sewage treatment facilities; required types of treatment before disposal of wastewater; and fees and charges to be paid by polluters to cover the costs of treatment, sampling and analysis. When such a plan is approved by the Environment Minister and any appropriate provincial ministers, the agency may construct and operate sewage treatment facilities, collect effluent discharge fees and other charges, monitor water quality and inspect public or privvate treatment facilities throughout the area. The Minister may make regulations and guidelines prescribing methods and procedures to be followed by the agencies.

The Act also prohibits manufacture, sale or use of cleaning agents or conditioners containing nutrients in concentrations greater than those prescribed by the Minister.

The Minister of the Environment was given considerable authority to control dumping in water by the June 19, 1975 Ocean Dumping Act. This act prohibits all dumping or disposal into the ocean or internal waters of Canada except in accordance with the terms and conditions of permits. Permits are granted by the Minister upon receipt of an application after such factors as the total amount and average composition of substances dumped, the toxicity and persistence of the substances, the characteristics of dumping sites, and the methods of disposal have been taken into account. Schedules I and II of the act prescribe those substances for which permits may not be granted and those whose dumping must be restricted. The act further provides for the establishment of a Board of Review for complaints regarding the granting of a permit or its terms. The November 17, 1975 Ocean Dumping Control Regulations, passed in pursuance of this Act, contain instructions regarding the application for permits to dump substances at sea under the foregoing act.

Some important water pollution legislation is administered by departments other than Environment Canada. The Arctic Waters Pollution Prevention Act of 1970, which set an important precedent in international law by extending Canadian jurisdiction in the Arctic, for the purpose of pollution control, to 100 nautical miles,* is administered by a designated minister, currently the Minister of Indian and Northern Affairs.[18] The deposit of wastes or harmful substances in Arctic waters is proscribed except in accordance with regulations under this act. Polluters are liable for damages and for costs of cleaning up illegally dumped wastes. Liability

* For a discussion of this aspect of the act, see Albert E. Utton, "The Arctic Waters Pollution Prevention Act, and the Right of Self-Protection," University of British Columbia Law Review, vol. 7, 1972, pp 221-234.

extends to ship owners and cargo owners as well as to persons directly involved in operations causing pollution, and does not depend on proof of fault or negligence. Shipping safety zones may be established to regulate navigation. Ships may be required to carry insurance when sailing in protected waters. The Minister may appoint pollution prevention officers with powers to board and inspect ships, and in case of violation of this act, to seize and hold them until matters are resolved in court.

The July 11, 1972 Arctic Waters Pollution Prevention Regulations, passed in implementation of this act, deal with the deposit of domestic or industrial wastes in Arctic Waters or any place in the Canadian Arctic. Any violations or conditions that could lead to unauthorized depositing of wastes are to be reported. The regulations also detail the civil liability of ships for the deposit of wastes in Arctic Waters. The October 5, 1972 Arctic Shipping Pollution Prevention Regulations contain construction and personnel requirements for ships operating in these waters and provide for the deposit and reporting of oil or oily waters in Arctic Waters under emergency conditions. Finally, the August 2, 1972 Shipping Safety Control Zones Order, also passed pursuant to this act, designates the location of such zones.

The Minister of Indian and Northern Affairs is also responsible for implementing the Northern Inland Waters Act of 1970, which establishes a Yukon Territory Water Board and a Northwest Territories Water Board responsible for licensing, diversion, storage or use of water, and disposal of wastes into waters within water management zones in the territories. Such diversion of water or disposal of wastes is prohibited unless a license has been issued in accordance with regulations set by the Minister. Regulations were issued pursuant to this Act in September 1972.

The Canada Shipping Act, administered by the Minister of Transport, provides for implementation of the International Convention for Prevention of Pollution

of the Seas by Oil, and prohibits dumping of solid or liquid wastes from ships into Canadian waters. Under the Navigable Waters Protection Act, the Minister is also responsible for preventing illegal disposal of rubbish or solid wastes likely to obstruct waterways.

highlights of air pollution laws

The air pollution control effort of the federal government is administered primarily by Environment Canada under provisions of the Clean Air Act of 1970, which authorizes a multifaceted federal program. A nationwide system of air pollution monitoring stations has been established by Environment Canada under the act to furnish continuous data on pollution patterns throughout the country. In January 1976, such stations were operating in 45 cities in all ten provinces and the Territories. The federal government may conduct research on air pollution and provide support and financial assistance to other governments, institutions or private individuals engaged in similar research. National air quality objectives may be formulated pursuant to the act, delineating tolerable, acceptable, and desirable air quality levels. Immediate attention will be focused on areas below or within the tolerable range. Eventually, all parts of the country are to be brought within the desirable range.[19]

In addition, Environment Canada may regulate emissions from all enterprises operated by the federal government, from enterprises operated by private individuals or other governments if a pollution hazard of national or international scope is involved, and from other establishments within a province which has agreed to national emission guidelines worked out cooperatively by the federal and provincial governments. Standards on composition of fuels and on maximum concentrations of additives in fuels manufactured or imported for use in Canada are also set by the Minister. Regulation of emissions from motor vehicles, locomotives and ships remains the responsibility of the Minister of Transport under the 1970 Motor Vehicle

Safety Act, the Railway Act, and the Canada Shipping Act.

other program areas

noise

The Motor Vehicle Safety Regulations, as amended, provide noise standards for heavy-duty motor vehicles, light-duty vehicles, off-road utility vehicles, and motorcycles and minibikes. Federal noise regulations applicable to the working environment have been issued as the Canada Noise Control Regulations under the Safety of Employees section of the Canada Labor Code.

pesticides

Pesticides are controlled by the Pest Control Products Act, 1968-1969, which regulates the manufacture, storage, display, distribution, packaging, labelling, advertising, import and export of such products. Under the act, products must be registered with the Minister of Agriculture, and the registration requirements are described in the 1972 Pest Control Products Regulations. The 1957 Fertilizers Act provides that all fertilizers must be registered prior to sale or import. If a fertilizer is registered under this act and contains a pest control product, it may, under circumstances, be considered registered under the Pest Control Products Act. The 1969 Fertilizers Regulations stipulate that no fertilizer or supplement may contain any substance in quantities likely to be harmful to vegetation (except weeds), domestic animals or public health when used according to directions. Furthermore, no fertilizer may contain any substance, which, when applied according to instructions, could leave a harmful residue in plant tissue contrary to the Food and Drugs Act.

radiation

The Atomic Energy Control Act applies to all energy derived from or created by the transmutation of atoms. It establishes the Atomic Energy Board and empowers it, with approval of the Governor in Council, to make regulations to: a) encourage

research in regard to atomic energy, b) develop, control, supervise, and license the production, application and use of atomic energy, c) supervise the mining and prospecting for prescribed substances, and d) regulate the production, import, export, transportation, refining, possession, ownership, use or sale of prescribed substances. The 1974 Atomic Energy Control Regulations contain health and safety provisions for those working in nuclear installations as well as for the general public. They state rules regarding the issuance of licenses for prescribed substances and nuclear installations and make requirements for the maintenance of records and for inspection.

In addition, the 1970 Radiation Emitting Devices Act and the pursuant 1972 Regulations apply to X-rays and other radiation sources not primarily designed for the production of atomic energy. The act prohibits the sale, lease or import of devices for which standards have been set unless the devices and their parts comply with those standards.

The Nuclear Liability Act, as amended, requires the operator of a nuclear installation to prevent injury to another person or damage to another's property from nuclear material in his installation, from nuclear material that has left his installation but not yet entered the control of another operation, or from nuclear material en route to his installation from outside of Canada, or in storage prior to transportation to his installation. The Governor in Council may enter into agreements with reciprocating countries on matters of liability.

solid waste

Waste collection and disposal have traditionally been municipal or local functions under the supervision of provincial public health acts. Such provincial supervision is limited mainly to nuisance aspects and disease control.[20] Federal provisions regarding solid wastes are included in laws regulating federally supervised areas and may be found, for example, in the National Parks Act, the 1968

National Parks Garbage Regulations, and the 1974 Indian Reserve Waste Disposal Regulations, as amended. The Criminal Code also contains a section on nuisances applicable to waste disposal.

toxic substances

The December 2, 1975 Environmental Contaminants Act, which came into force April 1, 1976, empowers the Minister of Environment and the Minister of National Health and Welfare to conduct investigations and make recommendations regarding environmental and human health dangers caused by the release of substances into the environment. If the quality, concentration or conditions of discharge of a substance lead the Ministers to believe it poses a "significant danger" to health or the environment, the Minister of Environment may demand certain information of anyone dealing in or producing the substance or class of substances in question. After various preliminary conditions have been fulfilled, the Governor in Council may add the substance or class of substances to the schedule to be appended to the Act and may issue regulations regarding the substance or class of substances.

promulgation

Federal statutes are officially published in the Revised Statutes of Canada 1970 and its supplements. More recently they appear in the Acts of the Parliament of Canada. Regulations and standards appear in the Canada Gazette, part II.

III. Standards

status of water pollution standards

A number of regulations governing significant water pollution sources have been issued by Environment Canada. Regulations prescribing comprehensive standards for effluents from various industries issued under the Fisheries Act, include: the Petroleum Refinery Liquid Effluent Regulations,[21] the Pulp and Paper Effluent Regulations,[22] and the Chlor-Alkali Mercury Regulations.[23] The Petroleum Refinery Regulations prescribe limits on discharge of oil and grease, phenols, sulfides, ammonia nitrogen, acids, and alkalis, and apply to all refineries that went into operation after November 1973. The majority of older plants are expected to be in compliance by 1978 and the several remaining plants by 1980.[24] The Pulp and Paper Regulations, which apply to all mills that started operations after November 24, 1971, set limits for effluents on total suspended solids, oxygen-demanding decomposable wastes and chemicals toxic to fish. The mercury regulations limit the quantity of mercury discharged by chlor-alkali plants to .005 pound per ton of chlorine produced. Liquid effluent guidelines for Fish Processing Plants were issued in June 1975. Regulations and/or guidelines are presently being developed for other industrial sectors. The Phosphorus Concentration Control Regulations, issued by the Environment Minister under the Canada Water Act, limit content of phosphorus compounds in laundry detergents to 21.2 percent by weight expressed as elemental phosphorus.[25] Effluent discharge fees and charges for use of sewage treatment facilities are set by some municipalities in Canada.

Regulations set by the Minister of Transport under the Canada Shipping Act include the Oil Pollution Prevention Regulations. They prohibit discharge of oil into Canadian Waters except in emergencies, forbid dumping of oil by Canadian ships at sea, and prescribe procedures to prevent spillage during loading and unloading of tankers.[26] The Garbage Pollution Prevention Regulations prohibit discharge

of solid wastes from ships into Canadian waters.[27] Regulations have also been issued under the Arctic Waters Pollution Prevention Act establishing shipping safety zones,[28] and prohibiting disposal of domestic and industrial wastes into Arctic waters.[29] The new Ocean Dumping Act (1975) prohibits (without a permit) the dumping at sea of any substance which is highly injurious to the marine environment.

status of air pollution standards

In the May 14, 1974 Ambient Air Quality Objectives and the January 16, 1975 Ambient Air Quality Objectives, No. 2 issued under the Clean Air Act, Canada established national objectives for the maximum acceptable and maximum desirable levels of sulfur dioxide, suspended particulate matter, carbon monoxide, oxidants (ozone), and nitrogen dioxide in the air. (See Appendix I.) Maximum tolerable levels for these five pollutants were proposed in late 1976. The proposed levels are: particulates, 400 micrograms per cubic meter (24-hour average); sulfur dioxide, 800 micrograms per cubic meter (24-hour average); carbon monoxide, 20 milligrams per cubic meter (8-hour average); oxidants (ozone), 300 micrograms per cubic meter (1-hour average); and nitrogen dioxide, 300 micrograms per cubic meter (24-hour average).[30] Maximum acceptable and maximum desirable levels for hydrogen sulfide and hydrogen fluoride were also proposed in late 1976. For hydrogen sulfide, the maximum desirable limit proposed is 1 microgram per cubic meter, while the maximum acceptable limits suggested are 15 micrograms per cubic meter (continuous 1-hour average) and 5 micrograms per cubic meter (continuous 24-hour average). For hydrogen fluoride, the maximum desirable concentration proposed is 0.40 micrograms per cubic meter (24-hour average), and the maximum acceptable limit proposed is 0.85 micrograms per cubic meter (24-hour average).[31] The maximum acceptable level of a pollutant in the air is regarded as a realistic objective for all parts of Canada today. If it is exceeded, regulatory agencies (largely provincial) are expected to take control action. The maximum desirable level defines the

long-term goal for air quality in Canada and provides the basis for preventing deterioration of unpolluted parts of the country and developing control technology. The maximum tolerable level is that level of airborne contaminants which, if exceeded for designated periods of time, would pose an intolerable public health hazard.[32]

National emissions guidelines have been developed by Environment Canada, with the help of the ten provinces pursuant to the Clean Air Act, for the asphalt paving industry, the cement industry, and the metallurgical coke manufacturing industry. National emission standards are prescribed by the government as federal regulations if air contaminants are emitted in such quantities as to pose a significant health danger.[33] Such national emissions regulations have been developed for secondary lead smelters and have been proposed for asbestos mining and milling[34] and for mercury from chlor-alkali plants.[35]

Canadian regulations issued under section 22 of the Clean Air Act, stipulate separate maximum concentrations for lead in leaded gasoline and in lead-free gasoline. Under the October 30, 1973 Lead-Free Gasoline Regulations, the maximum quantity of lead in this type of gasoline is to be 0.06 grams per imperial gallon when measured in the designated fashion. Similarly, the maximum concentration of phosphorus in phosphorus-free gasoline is to be 0.006 grams per imperial gallon. The July 30, 1974 Leaded Gasoline Regulations prescribe the maximum permissible concentration of lead in gasoline to which lead has been added during the manufacturing process as 3.5 grams per imperial gallon as of January 1, 1976.

Emission standards for gasoline-powered or diesel engine vehicles are contained in the June 27, 1974 amendment to the 1970 Motor Vehicle Safety Regulations. Effective January 1, 1975 when subjected to approved test methods, the exhaust emissions of gasoline- or diesel-powered light duty vehicles are not to exceed per vehicle mile: 2 grams of hydrocarbons, 25 grams of carbon monoxide, and 3.1 grams of nitrogen oxides. For heavy-duty gasoline or diesel-powered vehicles,

emissions per brake horsepower hour are not to exceed 16 grams of hydrocarbons combined with nitrogen oxides and 40 grams of carbon monoxide. The evaporative emissions from a gasoline-powered light-duty vehicle having an engine displacement of 50 cubic inches or more are not to exceed 2 grams of hydrocarbons under approved test methods. The opacity of exhaust emissions from a diesel-powered heavy-duty vehicle engine are not to exceed 20 percent during engine acceleration, 15 percent during engine lugging and 50 percent during peak conditions of engine acceleration and engine lugging.

For several years, Canada followed a policy of matching U.S. automobile emission standards, requiring the same control devices. However, this is no longer the case. Canada recently extended standards in effect in 1976 until 1980.

status of noise pollution standards

The 1970 Motor Vehicle Safety Regulations, as amended, also prescribe the maximum noise levels that may be emitted from motor vehicles. Effective January 1, 1976, noise from a heavy-duty vehicle may not exceed 83 db(A) when measured in the prescribed manner. Noise from a light-duty vehicle (excluding a motorcycle or a minibike) and from an off-road utility vehicle is not to exceed 80 db(A) when measured in the designated fashion. Noise from a motorcycle or a minibike should not exceed 78 db(A). Vehicles must also have a noise level that conforms to ECE Regulation No. 9: Uniform Provisions Concerning the Approval of Vehicles With Regard to Noise of October 1968.

how standards are set

Regulations and standards governing many sources of air and water pollution and other environmental hazards are issued by the Minister of Fisheries and the Environment and other ministers responsible for implementing environmental laws. Regulations are generally drafted within the department administering an act, in consultation with industry and provincial governments, then submitted to the Governor

in Council for approval, and published in the Canada Gazette, taking effect immediately or within a specified time period. Ministers are often authorized to set up advisory committees to provide expert opinion on means of implementing an act and to represent views of interested parties. Provincial environmental authorities may establish more stringent standards to protect local areas that are extremely sensitive to contamination or are already overburdened by pollution problems. Likewise, in areas under federal jurisdiction, the federal government may establish special standards to protect sensitive areas.[36]

IV. Enforcement Procedures

court system

The provincial and federal court systems are ingetrated, with cases generally originating in the privincial courts and moving up to the federal level on appeal except in certain cases where the federal courts have original jurisdiction. While some environmental cases, such as those involving infraction of certain provincial laws or violation of the federal Criminal Code, may originate in the minor provincial courts, most are tried in the superior provincial courts. The superior provincial courts in Ontario, for example, include the county courts and the Supreme Court of Ontario. The county courts have original jurisdiction in civil and criminal cases and hear appeals in criminal cases from the lower courts. The Supreme Court of Ontario has two divisions, the High Court of Justice and the Court of Appeals. The High Court of Justice has concurrent jurisdiction with the county courts in civil and criminal cases and has exclusive jurisdiction in the most serious criminal cases. The Court of Appeals hears cases referred from the High Court of Justice, the county courts, and, sometimes from the minor provincial courts.

The federal court system includes the Federal Court, which has a trial division and an appeals division, the Supreme Court of Canada, and the territorial courts. The trial division of the Federal Court hears cases involving the Crown, disputes between the federal government and the provinces or between the provinces, and violations under certain federal statutes. Environmental cases involving violation of the Canada Shipping Act are tried in this court.[37] The appeals division hears cases referred from the trial division and from federal boards and commissions. The Supreme Court of Canada hears appeals in major cases from the superior provincial courts and from the appeals division of the Federal Court. It may also hear any cases referred to it by the Governor-General.

general

Generally, prosecutions may be brought against any polluter by the government or by citizens under section 176 of the federal Criminal Code. This section prohibits, under penalty of two years' imprisonment, nuisances endangering public health or obstructing the public in the exercise of rights common to all.

water pollution - enforcement mechanisms and penalties

Under the Canada Water Act, water management agencies, established by Environment Canada, alone or in cooperation with the provinces, operate public sewage treatment facilities and collect effluent discharge fees from polluting enterprises. They are also responsible for monitoring water quality and inspecting public or private sewage treatment facilities within the area of their jurisdiction. Inspectors, in enforcement of the act, may enter and search establishments suspected of discharging wastes into waters regulated by the act, take samples of wastes, and obtain copies of pertinent records and documents. Detergents and water conditioners containing excessive amounts of phosphate compounds in violation of regulations issued pursuant to the act may be seized by inspectors. Violators of the Canada Water Act are subject to fines of $5,000 for each day on which an offense occurs. In addition to fines, courts may issue restraining orders to prevent future violations.

Federal inspectors may be appointed to enforce pollution control regulations issued under the Fisheries Act. Violators of these regulations are subject to $5,000 fines. The water boards set up under the Northern Inland Waters Act are responsible for enforcing good water management practices in areas of the northern territories. Pollution prevention officers appointed under the Canada Shipping Act and the Arctic Waters Pollution Prevention Act may seize ships suspected of discharging wastes in violation of these acts and hold them until matters are resolved in court. Persons or ships found in violation of these acts are subject to various fines up to $100,000.

Finally, under the Ocean Dumping Act, anyone who dumps, or loads for dumping, any substance on a ship, aircraft, platform or other man-made structure, except in accordance with the terms of a permit is liable to a fine of up to $50,000, $75,000, or $100,000 for each day of the offense, depending on the nature of the substance dumped or intended for dumping. A person who disposes of a ship, aircraft, platform or other man-made structure at sea, except in accordance with the terms of a permit, is subject to a fine of up to $75,000. An inspector appointed to enforce this act may enter any place in which he reasonably believes a substance intended for dumping is being loaded on board a ship or aircraft if he believes the craft has a substance intended for dumping aboard. In implementation of his duties, he may take samples, require records, travel on any craft loaded with a substance for dumping and detain any ship or aircraft for a reasonable time. If he believes an offense has been committed, an inspector may also seize the ship or aircraft with the consent of the Minister of the Environment.

air pollution - enforcement mechanisms and penalties

Cooperation between the federal and provincial governments is a basic principle behind the implementation and enforcement of national air pollution legislation. In absence of such cooperation, however, there are strong measures that can be taken by the federal government to enforce compliance at the provincial and municipal levels. Under the Clean Air Act, the Minister of the Environment is authorized to enter into agreements with the provincial governments to facilitate formulation and implementation of pollution abatement programs. In the absence of such an agreement, however, the federal government may unilaterally issue national emission standards for enterprises causing air pollution hazardous to public health or resulting in violation of international air pollution abatement agreements.

The Minister may require polluting enterprises, under penalty of a $5,000 fine, to submit on a regular basis any information necessary to determine whether

such standards are being met. Furthermore, works operated by the federal government are directly regulated by the Minister, who may set specific emission standards for such enterprises. Federal inspectors, appointed by the Minister, may shut down federal works in violation of standards or require them to take remedial action. They may also veto or require modifications in plans for alteration or construction of these works. Failure to comply with an inspector's order is subject to a $5,000 fine. Violation of emission standards carries a maximum fine of $200,000 for each day on which the offense occurs. In addition, violation of standards on fuel composition and concentrations of additives in fuels produced or imported for use in Canada carries a $5,000 fine. Together, these provisions constitute federal authority to control serious sources of air pollution on a nationwide basis and provide a strong inducement for federal-provincial cooperation in implementation and enforcement of uniform air pollution standards throughout Canada.

agricultural pollution - enforcement mechanisms and penalties

Pollution associated with agriculture is regulated by the Department of Agriculture under the Fertilizers Act and the Pest Control Products Act. The Minister acts in cooperation with other ministers to implement measures, related to agriculture, under other environmental legislation. Inspectors are appointed by the Minister to enforce regulations on the manufacture, distribution, storage and use of agricultural chemicals. Violators are subject to fines and imprisonment of up to two years. Standards on management of effluents from livestock and poultry operations are also being elaborated.[38]

toxic substances - enforcement mechanisms and penalties

The Environmental Contaminants Act provides for fines of up to $100,000 or imprisonment for up to two years for persons or companies found guilty of not meeting specified standards. Inspectors, appointed by the Minister of the Environment, have the right to enter premises, take samples, and examine records in the enforcement of the provisions of this act.

environmental impact assessment

The Environmental Assessment and Review Process, established by the Cabinet in 1973, is mandatory for federal projects and recommended for others. The agency initiating a project is to determine through preliminary screening, and with the aid of the Regional Coordinating and Screening Committees of Environment Canada, whether the project carries a significant impact on the environment. If such is the case, the agency will request Environment Canada's Environment Assessment Panel to formulate guidelines for the preparation of an impact statement and subsequently to submit the statement with recommendations and public comments to the Minister of the Environment and the minister of the sponsoring agency. The ministers are then to make a joint decision on the project, with the Cabinet making the final decision in cases of disagreement.[39]

The federal initiative for environmental assessment is in support of similar action by provincial governments and includes provisions to establish joint review boards with the provinces.[40] Ontario recently enacted the Environmental Assessment Act which requires environmental impact statements on all major projects in the province.[41] This legislation represents an innovative and significant step forward in environmental planning.

V. Interrelationships Between Government and Industry

general

Recognizing that control of industrial pollution by regulation alone puts the entire responsibility for pollution abatement on the government, Environment Canada encourages cooperation with industry in the prevention of environmental degradation. Industries are urged to participate actively in developing environmental protection regulations and pollution control methods.[42] Advisory committees representing industry, as well as other segments of society, may be established by the Environment Minister under the Canada Water Act and the Clean Air Act to provide information on related matters.

who pays?

The principle of making polluting industries pay the costs of pollution abatement is embodied in the sewage treatment charges and the effluent discharge fee provided for in the Canada Water Act and in the Maritime Pollution Claims Fund Regulations[43] issued under the Canada Shipping Act. The sewage charges and effluent fees help cover costs of operating public treatment plants and provide an incentive to reduce the amount of wastewater discharged. Tax relief on installation of pollution control and monitoring equipment has provided a further incentive to reduce discharge of industrial wastes. All water and air pollution control equipment is exempted from a 12 percent sales tax and, if installed by 1976, is entirely deductable under an accelerated two-year depreciation allowance.[44] The Maritime Pollution Claims Fund is supported by a tax of 15 cents per ton of oil shipped into or out of Canada. The Fund is to be used to pay for clean-up costs and damages from oil spills in cases where costs cannot be fully recovered from responsible parties.

major industries and how they are monitored

As a highly industrialized country with low population density, Canada faces industrial pollution problems of a lesser degree than those in the United States.

Industries which have received particular attention from Environment Canada include shipping, petroleum refining and transport, metal mining and smelting, chlor-alkali chemicals, pulp and paper, hydro-electric and thermal-electric generation, and agricultural industries.[45] Regulations affecting these enterprises are generally enforced by inspectors representing Environment Canada or the provincial pollution control agency. In addition, industries are required under some regulations to maintain facilities for monitoring discharge of wastes and to report regularly to appropriate authorities. Daily effluent records must be kept open for inspection or forwarded to the Environment Minister on a monthly basis by industries subject to the Chlor-Alkali Mercury Regulations, the Petroleum Refinery Liquid Effluent Regulations, and the Pulp and Paper Effluent Regulations. Under the Clean Air Act, the Environment Minister may require that any enterprise suspected of releasing emissions into the air submit regular reports on the quantities and types of substances discharged. The Canada Shipping Act requires all ships sailing in Canadian waters to maintain, for inspection by pollution prevention officers, an oil record book detailing times, locations, and amounts of oil discharged. Likewise, the Arctic Waters Pollution Prevention Act requires ships sailing in Arctic waters to report any discharge of oil or other wastes.

The new Environmental Contaminants Act allows the Environment Minister to monitor development of chemical substances posing dangers to health and the environment before they go into production. The Act empowers the Minister of the Environment and the Minister of National Health and Welfare to obtain data on possible environmental and public health consequences of their use, and, if necessary, to restrict the commercial uses and disposal of such substances.

liaison practices

In order to carry out its responsibility for initiating action to prevent and combat pollution, the Environmental Protection Service of Environment Canada

maintains close contact with industry and provincial governments. Liaison with industry and other governments is primarily the responsibility of this Service.[46]

Reference Notes

Numbers in brackets following entries are the identification numbers assigned to documents which have been abstracted for the Foreign Exchange Documents Program of the EPA Office of International Activities. Copies of documents are filed under these numbers at the EPA Headquarters Library in Washington, D.C.

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18. Statistique Canada, op. cit., p 552.

19. Canada and the Human Environment, op. cit., p 22.

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44. Canada and the Human Environment, op. cit., p 27.

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46. Environment Canada, Its Organization and Objectives, op. cit.

Air Contaminants	Concentrations	Range of Quality
sulfur dioxide	a) 0 to 30 micrograms per cubic meter annual arithmetic mean	
	b) 0 to 150 micrograms per cubic meter average concentration over a 24 hour period	Desirable
	c) 0 to 450 micrograms per cubic meter average concentration over a one hour period	
sulfur dioxide	a) 30 to 60 micrograms per cubic meter annual arithmetic mean	
	b) 150 to 300 micrograms per cubic meter average concentration over a 24 hour period	Acceptable
	c) 450 to 900 micrograms per cubic meter average concentration over a one hour period	
suspended particulate matter	0 to 60 micrograms per cubic meter annual geometric mean	Desirable
suspended particulate matter	a) 60 to 70 micrograms per cubic meter annual geometric mean	
	b) 0 to 120 micrograms per cubic meter average concentration over a 24 hour period	Acceptable
carbon monoxide	a) 0 to 6 milligrams per cubic meter average concentration over an 8 hour period	
	b) 0 to 15 milligrams per cubic meter average concentration over a one hour period	Desirable

Air Contaminants	Concentration	Range of Quality
carbon monoxide	a) 6 to 15 milligrams per cubic meter average concentration over an 8 hour period	
	b) 15 to 35 milligrams per cubic meter average concentration over a one hour period	Acceptable
oxidants (ozone)	a) 0 to 30 micrograms per cubic meter average concentration over a 24 hour period	
	b) 0 to 100 micrograms per cubic meter average concentration over a one hour period	Desirable
oxidants (ozone)	a) 0 to 30 micrograms per cubic meter annual arithmetic mean	
	b) 30 to 50 micrograms per cubic meter average concentration over a 24 hour period	Acceptable
	c) 100 to 160 micrograms per cubic meter average concentration over a one hour period	
nitrogen dioxide	0 to 60 micrograms per cubic meter annual arithmetic mean	Desirable
nitrogen dioxide	a) 0 to 100 micrograms per cubic meter annual arithmetic mean	
	b) 0 to 200 micrograms per cubic meter average concentration over a 24 hour period	Acceptable
	c) 0 to 400 micrograms per cubic meter average concentration over a one hour period	

National Ambient Air Quality Objectives

APPENDIX II

ENVIRONMENTAL LAWS AND REGULATIONS INCLUDED IN THIS REPORT

	ID No.*
GENERAL	
Government Organization Act, 1970	02011A
Criminal Code	00839A
AIR	
Clean Air Act, 1970	00356A
Ambient Air Quality Objectives, 1974	00356J
Ambient Air Quality Objectives, No. 2, 1975	00356D
Secondary Lead Smelter National Emission Standards Regulations, 1976	00356K
Cement Industry National Emission Guidelines, 1974	00356C
Asphalt Paving Industry National Emission Guidelines, 1975	00356G
Metallurgical Coke Manufacturing Industry National Emission Guidelines, 1975	00356G
Lead-Free Gasoline Regulations, 1973	00356E
Leaded Gasoline Regulations, 1974	00356B
Motor Vehicle Safety Act, 1970	00358A
Motor Vehicle Safety Regulations, 1970	00358A,B,C
Motor Vehicle Safety Regulations Amendment, June 27, 1974	
Canada Shipping Act	01661A
Railway Act	
NOISE	
Motor Vehicle Safety Regulations Amendment, June 27, 1974	
Canada Noise Control Regulations	00984A

*These are the identification numbers assigned to documents abstracted for the Foreign Exchange Documents Program of the EPA Office of International Activities.

PESTICIDES

Fertilizers Act, 1957	00594A
Fertilizers Regulations, 1969	00595C
Pest Control Products Act, 1968-1969	00595B
Pest Control Products Regulations, 1972	00595A

RADIATION

Atomic Energy Control Act	00708A
Atomic Energy Control Regulations, 1974	00708H
Radiation Emitting Devices Act, 1970	00706A
Radiation Emitting Devices Regulations, 1972	00706B
Nuclear Liability Act	00705A

SOLID WASTE

National Parks Act	00838A
National Parks Garbage Regulations, 1968	
Indian Reserve Waste Disposal Regulations, 1974	

TOXIC SUBSTANCES

December 2, 1975 Environmental Contaminants Act	03631A

WATER

Fisheries Act, as amended	00512A
Pulp and Paper Effluent Regulations, 1971	00512D
Chlor-Alkali Mercury Regulations, 1972	00512B
Petroleum Refinery Liquid Effluent Regulations, 1973	00512E
Fish Processing Plants Liquid Effluent Guidelines, 1975	
Canada Water Act, 1970	00521A
Phosphorus Concentration Control Regulations, 1970	00521B
Arctic Waters Pollution Prevention Act, 1970	00514A
July 26, 1972 Arctic Waters Pollution Prevention Regulations	00514B

October 5, 1972 Arctic Shipping Pollution Prevention Regulations	
August 2, 1972 Shipping Safety Control Zones Order	00514C
Northern Inland Waters Act, 1970	00517A
Navigable Waters Protection Act	00513A
Canada Shipping Act	00370A
Oil Pollution Prevention Regulations, 1971	00370D
Garbage Pollution Prevention Regulations, 1971	00370E
Ocean Dumping Act, 1975	03070A
Ocean Dumping Regulations, 1975	03070B