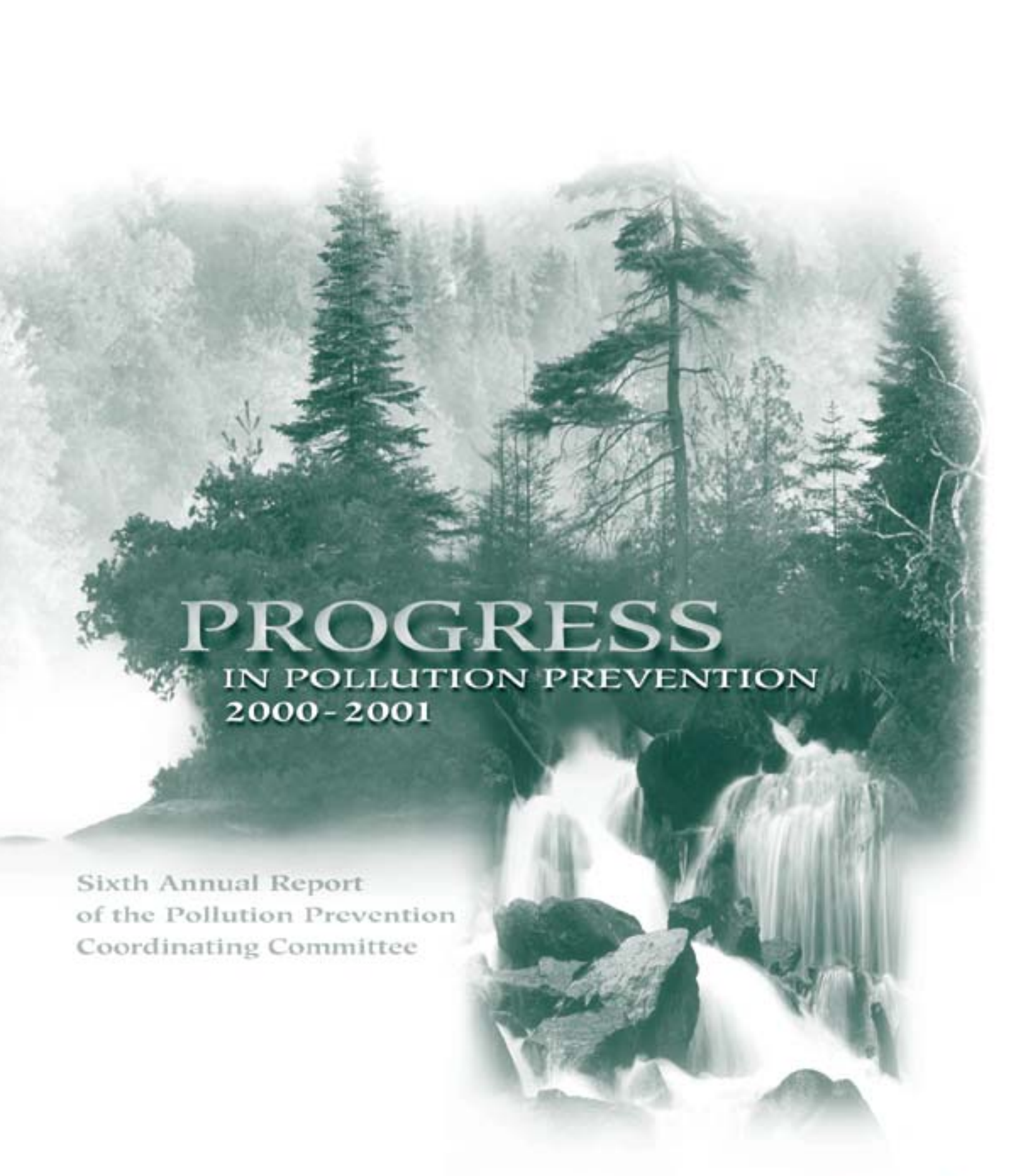

PROGRESS
IN POLLUTION PREVENTION 2000-2001

Sixth Annual Report
of the Pollution Prevention
Coordinating Committee

Government of Canada | Gouvernement du Canada

Canada

Progress in Pollution Prevention 1999-2000: Annual Report of the Pollution Prevention Coordinating Committee

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Sixth Annual Report of the Pollution Prevention Coordinating Committee

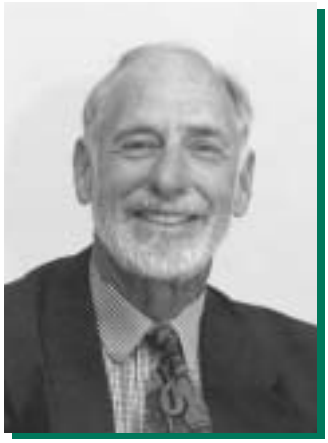
Message From the Minister of the Environment

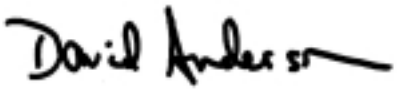
It is my pleasure to present the sixth annual report of the Government of Canada's Pollution Prevention Coordinating Committee (P2C2) - *Progress in Pollution Prevention 2000-2001.*

Pollution prevention is the cornerstone of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). It represents the Government of Canada's first order of defense against pollution and our most favorable option in achieving sustainable growth. Through implementation of pollution prevention concepts and principles, all Canadians can share in the protection of the environment and their health. The positive daily actions and decisions taken by Canadians can make a significant difference in sustaining our environment as a whole.

In 1995, the Government of Canada committed itself to the implementation of pollution prevention within its own government operations, cooperative pollution prevention activities with other levels of government and industry, and the demonstration of leadership and innovative pollution prevention actions with all Canadians, as well as with the international community. Since that time, the Government of Canada has reported to you annually on progress in meeting this commitment. This year's "*Progress in Pollution Prevention 2000-2001*" highlights achievements for projects that either began or reached a major milestone in the period of April 2000 to March 2001.

The Government of Canada has made important progress in promoting pollution prevention within its departments and in engaging new partners to achieve environmental sustainability. For example, over 150 projects, funded by the Climate Change Action Fund program, contributed to raise the awareness of Canadians concerning climate change and to promote action to reduce greenhouse gas emissions. Also, the vehicle industry has achieved reduction of over 400,000 tons of toxic and other substances as a result of a pollution prevention initiative. This year's report illustrates the dedication and commitment that federal departments have made to the pursuit and adoption of a preventive environmental ethic in their own operations.





Honourable David Anderson, P.C. MP
Minister of the Environment

The breadth of this year's report acknowledges that the positive daily actions taken by all Canadians can make a difference in contributing to a cleaner and healthier environment.

Executive Summary

The federal government continues with its commitment to incorporate pollution prevention principles and practices into decisions made throughout Canadian society.

Progress in Pollution Prevention 2000–2001 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the sixth annual report prepared by the federal Pollution Prevention Coordinating Committee. The report focuses on the progress made in the year ending March 31, 2001, against the goals stated in the federal pollution prevention strategy and action plan *(Pollution Prevention — A Federal Strategy for Action)* and demonstrates the federal government's leadership and commitment to pollution prevention.

Pollution Prevention — A Federal Strategy for Action sets priorities for action based on five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community. By directing efforts towards preventing pollution instead of managing pollution after it has been created, the federal strategy works towards the ultimate goal of sustainable development.

Changes to the Format of the Report

This year's report has been designed to more clearly show the linkages to programs and initiatives undertaken in pollution prevention with the federal pollution prevention strategy and action plan. In addition, to better showcase the progress that has been made over the years, these programs and initiatives have been labelled as either "*Update*" for those items that have been reported in previous years or "*New*" for items appearing in this report for the first time. *Progress in Pollution Prevention 2000–2001* also features "upcoming projects" that were initiated in this reported fiscal year, but where the majority of work will occur in coming years.

This Year's Accomplishments

The Government of Canada is advancing pollution prevention through strengthening legislation and regulations, integrating the pollution prevention approach into current programs, designing guidelines and codes of practice for industrial operations, working in partnership with the private sector, other orders of government and communities, supporting non-regulatory initiatives and participating in developing and implementing international agreements.

Progress within the Federal Government

The federal government continues to strengthen its capacity to make pollution prevention a part of its strategies, programs and projects that protect the environment and health of all Canadians.

Managing the *Canadian Environmental Protection Act, 1999* (CEPA 1999) requirements for toxic substances remained a key focus. The CEPA Environmental Registry was unveiled to encourage and support public participation by facilitating access to documents arising from the administration of the Act.

In greening its own operations, federal departments took prevention-based measures to advance progress in waste reduction and management, water and energy conservation, vehicle fleet management, procurement, land management, training and awareness and behaviour change. Collaborative partnerships, such as the Sustainable Development in Government Operations Committee, encouraged the sharing of resources and resulted in more effective and stronger national programs. To encourage environmental decision-making in service delivery, several departments integrated pollution prevention principles into their programs.

Progress with Other Governments

Close cooperation between all forms of government in Canada signifies the continuing importance of environmental protection.

Work continued on the development of regional or Canada-wide strategies for the management of pollutants and toxic substances through the Canadian Council of Ministers of the Environment. Federal and provincial partners collectively took action on a variety of environmental issues, including wastewater, air quality and energy efficiency.

Activities with local governments, such as the City of Toronto, Halifax Regional Municipality and various communities in the Vancouver area, demonstrated how effective action can be when performed locally.

Progress with the Private Sector

Investment in innovation, efficiency and entrepreneurship can successfully promote pollution prevention, as demonstrated through sector-targeted programs.

Several federal departments have been involved in the success of voluntary agreements and programs that focus on industries such as automotive manufacturing, chemical processing, vinyl production and metal finishing. Providing resources towards the delivery of demonstration projects, guidance materials and training programs further advances the adoption of the preventive approach in such sectors as agriculture, dry cleaning, health care, mining, printing, tourism and furniture making.

Financial support was made available to various sectors to advance technological innovation in support of the federal government's commitment to clean air and water. Support remained for delivering training to small and medium-sized businesses on such topics as spill prevention and environmental management systems.

Environment Canada's National Office of Pollution Prevention coordinated the participation of youth representatives at the 2001 Canadian Pollution Prevention Roundtable.

Progress with the Canadian Public

Using improved information tools and resources, Canadians are increasingly taking community-based action in response to environmental challenges.

Expansion occurred in the amount of information available through Internet tools such as the Canadian Pollution Prevention Information Clearinghouse, Canadian Pollution Prevention Success Stories and Auto$mart. With the support of the EcoAction fund, communities across Canada were able to address issues such as pest management, oil spill prevention and wood stove purchasing.

Participation in the Go for Green Active Transportation program resulted in an increased level of awareness of how personal choices reduce the impact made on the environment. Canadian youth were engaged in environmental discussions with decision-makers and pollution prevention practitioners at various roundtables and international forums.

WORKING TOWARDS RESULTS: *POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Target sector	Strategy goal	Examples from 2000–2001
Federal government	Institutionalize pollution prevention across all federal government activities	• *Canadian Environmental Protection Act, 1999* • Greening of government operations • Environment Canada's Pollution Prevention Team project coordination • Changes to Atlantic Canada Opportunities Agency's guidelines for program delivery
Other governments	Foster a national pollution prevention effort	• Canadian Council of Ministers of the Environment's Canada-wide Standards • Memorandum of Understanding between Environment Canada and Nova Scotia Department of Environment • British Columbia pollution prevention planning process • Energy Solutions Centre in City of Whitehorse
Private sector	Achieve a climate in which pollution prevention becomes a major consideration in private sector activities	• Voluntary agreements and programs such as Canadian Vehicle Manufacturing Pollution Prevention Project, Metal Finishing Industry Project and Canadian Industry Program for Energy Conservation • Demonstration projects, guidance materials and training in best management practices for agriculture, dry cleaning, health care, mining, printing, tourism and the wood furniture sector • Technological advancement and support from Technology Partnerships Canada and various federal economic development agencies • Commitment to training and improvement in small and medium-sized businesses through initiatives such as EnviroClub™
All Canadians	Provide access to the information and tools necessary to implement pollution prevention practices	• Go for Green Active Transportation initiative • EcoAction fund • Canadian Pollution Prevention Information Clearinghouse and Canadian Pollution Prevention Success Stories • Auto$mart Program • Youth access to roundtables and international forums
International community	Participate in international pollution prevention initiatives	• International Pollution Prevention Summit • Funding to address persistent organic pollutants • Annex to the Canada–U.S. Air Quality Agreement • Technical assistance on cleaner production, renewable energy sources and ecological farming practices

Executive Summary (continued)

Progress with the International Community

Canada continues to provide leadership and support abroad for the promotion of pollution prevention through international agreements, scientific cooperation and technology transfer.

The first International Pollution Prevention Summit held in Montreal provided an opportunity for national and regional roundtables and cleaner production networks from around the world to explore how pollution prevention could be better understood and implemented.

Work continued through the negotiation of international agreements that target smog and persistent organic pollutants. Several federal departments delivered technical assistance on cleaner production, renewable energy sources and ecological farming practices to countries within Asia and the Americas.

Moving Forward

Progress in Pollution Prevention 2000–2001 demonstrates that the practice of pollution prevention is expanding across the targeted sectors. It also shows that pollution prevention techniques and processes are evolving to address national and global challenges.

The pollution prevention successes achieved in 2000–2001 leave the Government of Canada well positioned to continue promoting pollution prevention as the preferred method for protecting the environment and improving economic competitiveness.

On the Internet, view this report at http://www.ec.gc.ca/p2progress.

The Pollution Prevention Framework

The legislation and policies that form the federal government's commitment to protect human health and the environment establish a strong pollution prevention framework

The federal government defines pollution prevention as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment." The goal of pollution prevention is to eliminate the causes of pollution rather than treat the waste generated. Pollution prevention involves continuous improvement through design, technical, operational and behavioural changes. It also encourages transformations that are likely to lead to lower production costs, increased efficiencies and more effective protection of the environment.

Pollution prevention practices and techniques focus on such areas as substances of concern, efficient use and conservation of natural resources, reuse and recycling on-site, materials and feedstock substitution, operating efficiencies, training, procurement techniques, product design, process changes, product reformulation, equipment modifications and clean production.

Pollution prevention:

- minimizes or avoids the creation of pollutants;
- prevents the transfer of pollutants from one medium to another;
- accelerates the reduction and/or elimination of pollutants;
- minimizes health risks;
- promotes the development of source reduction technologies;
- uses energy, materials and resources more efficiently;
- reduces the need for costly enforcement;
- limits future liability with greater certainty;
- recognizes that waste is a cost that can be reduced;
- avoids costly cleanup in the future; and
- promotes a more competitive economy.

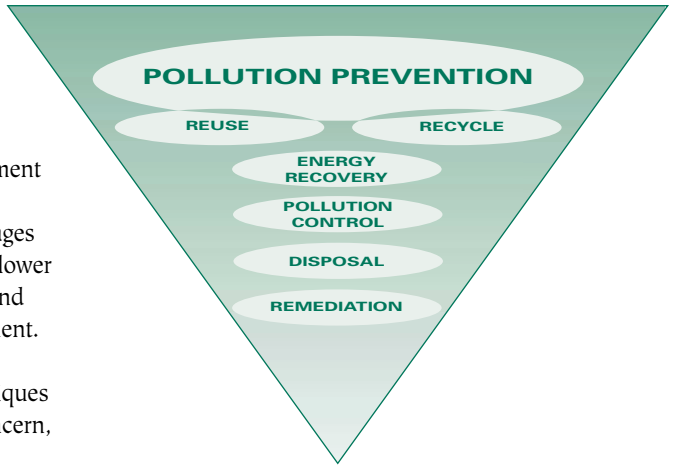
Federal Pollution Prevention Strategy

Pollution Prevention — A Federal Strategy for Action is the Government of Canada's policy framework for advancing pollution prevention as the priority approach to environmental protection. Approved by Cabinet in June 1995, the strategy elaborates on government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community.

The goals of the federal pollution prevention strategy include the following:

- *Within the federal government:* Institutionalize pollution prevention across all federal government activities
- *With other governments:* Foster a national pollution prevention effort
- *With the private sector:* Achieve a climate in which pollution prevention becomes a major consideration in industrial activities
- *With all Canadians:* Provide access to the information and tools necessary to implement pollution prevention practices
- *With the international community:* Participate in international pollution prevention initiatives.

THE ENVIRONMENTAL PROTECTION HIERARCHY



POLLUTION PREVENTION PRACTICES AND TECHNIQUES

Conserving natural resources and using them efficiently

Substituting "clean" and "green" materials and feedstock

Thinking "green" for purchasing, product design and reformulation, process changes, equipment modifications and production

Reducing inputs and waste; on-site reuse and recycling

Training everyone in pollution prevention techniques

Introducing cleaner operating practices

Federal Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee was established in 1992 and is chaired by Environment Canada. It collectively promotes the implementation of *Pollution Prevention — A Federal Strategy for Action* by encouraging the practice of pollution prevention throughout the federal government and with the federal government's clients. The current committee membership, listed in Appendix I, includes representatives from 11 federal departments:

- Environment Canada
- Agriculture and Agri-Food Canada
- Canadian International Development Agency
- Fisheries and Oceans Canada
- Foreign Affairs and International Trade
- Health Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Public Works and Government Services Canada
- Transport Canada.

Progress in Pollution Prevention, the annual report of the Pollution Prevention Coordinating Committee, was first published in 1996. This annual report informs Canadians and government officials of national progress in pollution prevention, highlighting pollution prevention achievements and successes across the country. By relating progress to the five target sectors of the federal pollution prevention strategy and action plan, this report provides a framework for monitoring performance, profiling federal environmental successes and assessing progress made towards the goals of the federal strategy.

Including the members of the Pollution Prevention Coordinating Committee, 17 federal departments and agencies contributed to this sixth annual report *(see Appendix II)*, emphasizing the continued integration of pollution prevention across the federal government and demonstrating federal interdepartmental collaboration. Because of its example as a framework for monitoring performance and reporting on results achieved, *Progress in Pollution Prevention* has been featured in the Treasury Board Secretariat's report *Managing for Results 2000* as an excellent example of results-based reporting.

National Commitment to Pollution Prevention

Within Canada, federal, provincial, territorial, municipal and Aboriginal governments share jurisdiction for the environment. The Canadian Council of Ministers of the Environment (CCME) is Canada's premier forum for intergovernmental discussion and action on environmental issues. The CCME comprises environment ministers from the federal, provincial and territorial governments with a mandate to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of pollution prevention in Canada by releasing the report entitled *National Commitment to Pollution Prevention*. In May 1996, the CCME again addressed the issue by releasing *A Strategy to Fulfill the CCME Commitment to Pollution Prevention*. This strategy sets out a shared vision, mission and goal statement, as well as guiding principles for the implementation of pollution prevention by all provinces and territories and the federal government. As part of the strategy, the CCME jurisdictions adopted a common definition of pollution prevention: "The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes, at the source." As stated in the CCME strategy, pollution prevention is a shared responsibility among governments, individuals and industrial, commercial, institutional and community sectors.

To show its support for pollution prevention, the CCME presents pollution prevention awards annually and maintains a Pollution Prevention Network. The Network serves as a forum for information exchange amongst its members on an ad hoc basis and provides technical support to the CCME Pollution Prevention Awards Program.

The Government of Canada, with stakeholders in the private sector, environmental non-government organizations, communities, labour and academia, is putting pollution prevention into practice through a mix of regulatory, non-regulatory and economic instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, establishing Canada-wide Standards for specific substances, supporting voluntary initiatives, ensuring accessibility of tools and information and implementing international agreements.

KEY POLLUTION PREVENTION POLICIES AND REGULATIONS

Canadian Environmental Protection Act, 1999	2000
Sustainable Development in Government Operations: A Coordinated Approach	2000
CCME Policy for the Management of Toxic Substances	1998
A Strategy to Fulfill the CCME Commitment to Pollution Prevention	1996
Pollution Prevention — A Federal Strategy for Action	1995
Greening of Government Operations Policy	1995
Auditor General Act pertaining to sustainable development strategies	1995
Toxic Substances Management Policy	1995
CCME National Commitment to Pollution Prevention	1993
Canadian Environmental Protection Act, 1999	1988

Progress within the Federal Government

Federal pollution prevention strategy goal: Institutionalize pollution prevention across all federal government activities

FEDERAL CLIMATE CHANGE COMMITMENT

In 1995, the Government of Canada committed to "getting its own house in order" by reducing its operational greenhouse gas emissions by at least 20% from 1990 levels by the year 2005. In 1997, Canada agreed to targets to reduce greenhouse gas emissions set out in the Kyoto Protocol. The Federal Action Plan 2000 on Climate Change strengthened the government's leadership role by increasing the target to 31% below 1990 levels by 2010. To date, the government has already successfully reduced its emissions by over 19% and will continue to reduce emissions by properly managing forests and lands and encouraging innovation and leadership in areas such as energy efficiency and fleet management. Led by Natural Resources Canada, the Federal Buildings Initiative and FleetWise Program have played important roles in helping achieve current reductions. To find out more, visit the Government of Canada's Climate Change website at http://climatechange.gc.ca/english/index.shtml.

Legislation and Regulations

The web-based CEPA Environmental Registry, mandated under Section 12 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999), is a source of public information relating to activities under the Act. The Registry's primary objective is to encourage and support public participation in the environmental decision-making process by facilitating access to documents arising from the administration of the Act. To view CEPA-related public documents such as regulations, notices, orders, policies, agreements and current toxic substances lists, visit the CEPA Environmental Registry at http://www.ec.gc.ca/CEPARegistry. **Update**

The CEPA Environmental Registry encourages and supports public participation in environmental decision-making by facilitating access to documents arising from the administration of CEPA 1999.

Environment Canada published three documents to support the implementation of the pollution prevention planning provisions of Part 4 of CEPA 1999:

- Guidelines for the Implementation of the Pollution Prevention Planning Provisions of Part 4 of the *Canadian Environmental Protection Act, 1999* (February 2001);
- Pollution Prevention Planning Provisions of Part 4 of the *Canadian Environmental Protection Act, 1999*: Frequently Asked Questions (February 2001); and
- Pollution Prevention Planning Handbook (May 2001).

These documents further explain the provisions of Part 4 and offer guidance to their appropriate use, as well as guidance in the methodology of pollution prevention planning for industry. These documents can be found at http://www.ec.gc.ca/nopp/cepa-lcpe/index.cfm. **New**

In addition to preventing pollution from ongoing situations (Part 4), CEPA 1999 also attempts to prevent pollution from spills or other sudden releases (Part 8). In support of the environmental emergency planning provisions of Part 8 of CEPA 1999, Environment Canada published *Implementation Guidelines* for Canadian Environmental Protection Act, 1999, *Section 199, Authorities for Requiring Environmental Emergency Plans*. These guidelines explain the provisions and the requirements of those subject to this section of CEPA 1999. An environmental emergency plan outlines a facility's procedures that reduce the frequency and amount of toxic substances released through emergency prevention, preparedness, response and recovery measures. These guidelines can be found at http://www.ec.gc.ca/CEPARegistry/plans/E2.cfm. **New**

Toxic Substances

National Defence has developed a screening process to identify and eliminate high-risk hazardous products. To date, National Defence has identified 106 such products. In 2000–2001, 17% of these products were eliminated from use through pollution prevention techniques. Since 1998–1999, the overall reduction has been over 50%. **Update**

To prevent the spread of foot and mouth disease to Canadian livestock, the Canadian Food Inspection Agency is ensuring that all passengers entering Canada from countries with the disease disinfect their shoes by walking across a carpet soaked with a disinfectant solution. The traditional

continued on pg. 12

TOXIC SUBSTANCES MANAGEMENT

Under the *Canadian Environmental Protection Act, 1999* (CEPA 1999), the Ministers of Environment and Health have the authority to declare substances "toxic" if they pose a significant risk to the health of Canadians or to the environment. The Toxic Substances Management Policy outlines the federal government's risk management process for toxic substances based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative and primarily the result of human activity (Track 1); and life cycle management of other toxic substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a pollution prevention approach and the precautionary principle to the management of both Track 1 and Track 2 substances. Environment Canada is implementing action plans to virtually eliminate the most dangerous toxic substances, and domestic action has already been taken to limit or ban the production, use, importation or release of these substances.

Forty-four substances on the first Priority Substances List (PSL1) were assessed under the Priority Substances Assessment Program by 1994. Of these 44, 25 were found to be toxic. Management options, developed in consultation with stakeholders through the Strategic Options Process, have already been adopted for a number of toxic substances *(see table below)*, and work is proceeding on those remaining.

TARGETED SECTORS	STATUS IN 2000–2001
Dry cleaning (tetrachloroethylene)	• Regulations under development
Solvent degreasing (tetrachloroethylene; trichloroethylene)	• Regulations under development
Coal-fired power generation (inorganic arsenic compounds; inorganic cadmium compounds; oxidic, sulphidic and soluble inorganic nickel compounds)	• This sector also contributes to the release of dioxins and furans, particulate matter, benzene and smog; all are Canada-wide Standard substances in the negotiation process
Steel manufacturing (benzene; inorganic arsenic compounds; inorganic cadmium compounds; inorganic fluorides; oxidic, sulphidic and soluble inorganic nickel compounds; polycyclic aromatic hydrocarbons; dioxins/furans)	• Codes of Practice scheduled for publication • Canada-wide Standard for dioxins and furans in negotiation process
Base metal smelting (inorganic arsenic compounds; inorganic cadmium compounds; oxidic, sulphidic and soluble inorganic nickel compounds)	• Codes of Practice and Environmental Management Plans under development
Metal finishing sector (hexavalent chromium compounds)	• Proposed regulations
Wood preservation (hexavalent chromium compounds; creosote-contaminated sites; dioxins/furans)	• Code of Practice being implemented

TARGETED SUBSTANCES	STATUS IN 2000–2001
Benzidine 3,3'-Dichlorobenzidine	• Proposed regulations • Agreement with one facility
Refractory ceramic fibres	• Environmental Performance Agreement under development
Dichloromethane	• Draft CEPA 1999 section 56 pollution prevention planning notice
Hexachlorobenzene	• Proposed regulations
Bis (2-ethylhexyl) phthalate	• Additional studies are recommended
1,2-Dichloroethane	• Environmental Performance Agreement under development
Short-chain chlorinated paraffins	• Risk management pending — awaiting results of further assessment

A complete list of the 25 substances declared toxic under CEPA (commonly known as "CEPA-toxic") as a result of the PSL1 assessment can be found, as well as the status of the development of control instruments for each, at http://www.ec.gc.ca/sop.

A second Priority Substances List (PSL2) was published in 1995 with 25 additional substances. During 2000–2001, departments gathered information related to the PSL2 substances and initiated development of risk management strategies. Actions on PSL2 substances will be addressed in a multi-pollutant approach where possible, targeting groups of substances or taking a sector-specific approach. Specific risk management strategies will be released for consultation that will present the approach undertaken, the proposed objectives and the proposed risk management tools. Consultations will also be held during the development of the subsequent risk management tools.

The *Canadian Environmental Assessment Act* (CEAA) promotes pollution prevention practices by ensuring that environmental considerations are incorporated early in the decision-making process. The Atlantic Canada Opportunities Agency and the Canadian Food Inspection Agency have incorporated environmental assessment — a key to pollution prevention — into their policy frameworks and have adopted guidelines based on CEAA. Similarly, the Department of Foreign Affairs and International Trade released a framework for conducting environmental assessments of trade negotiations.

disinfectant is a carcinogenic phenol compound that accumulates in the food chain. Staff at Mirabel, Dorval and Quebec airports implemented procedures to minimize the environmental impact of the used disinfectant. The traditional disinfectant was replaced with a non-carcinogenic product that decomposes into sulphur and potassium and poses little or no threat to the sewage system or the environment. New

An Environment Canada research group at the St. Lawrence Centre in Quebec has developed a protocol for capturing and tagging fish that replaces anaesthetics and sedatives with a natural substance. This natural substance, oil of cloves, is non-carcinogenic and non-mutagenic and produces no chemical or toxic waste. Oil of cloves costs less than most anaesthetic agents. For instance, the average cost of purchasing commonly used anaesthetics and sedatives ranges from $9 to $475 for 150 days of tagging, while the average cost of using oil of cloves is $20 for 150 days of work. New

Clean Air

The National Pollutant Release Inventory (NPRI) provides Canadians with access to pollutant release information for facilities located in their communities. To accelerate public access to NPRI data, Environment Canada released the 1999 data electronically in December 2000. The NPRI also supports pollution prevention initiatives by providing information that assists in identifying priorities for action, encourages industry initiatives and allows for tracking of progress in reducing pollutants. For progress tracking, facilities have been required to report their pollution prevention activities for NPRI-listed substances since 1997. Approximately 33% of all pollution prevention activity reported in 1999 was in the form of "good operating practices or training." "Spill and leak prevention" is the second most popular approach, at 18%. For more information on the NPRI, visit http://www.ec.gc.ca/pdb/npri. Update

The Canadian Food Inspection Agency took an active part in the Ontario Region Corporate Smog Action Plan initiated by Environment Canada, Health Canada and Public Works and Government Services Canada. During a smog alert, the Agency promotes a number of internal actions, including suspension of lawn-mowing activities and of the use of oil-based paints, solvents and cleaners; restriction of gasoline-powered equipment use; and teleconferencing activities instead of driving to meetings. New

Sustainable Development and Environmental Management Systems

The 1995 amendments to the *Auditor General Act* require a number of federal departments to table a sustainable development strategy in Parliament outlining departmental goals for integrating sustainable development into their policies, programs and operations. Departments are required to update their strategies every three years. Environment Canada has led federal efforts through the Interdepartmental Network on Sustainable Development Strategies and coordinated the tabling of updated sustainable development strategies for all federal departments and agencies in February 2001. Departments concentrated their efforts on updating the 1997 strategies using lessons learned from the implementation of the first round of strategies. Update

INTERDEPARTMENTAL ARRANGEMENTS ON POLLUTION PREVENTION AND ENVIRONMENTAL MANAGEMENT

Federal departments and agencies often share interests, mandates or responsibilities for government operations and sustainable development. Participation in interdepartmental groups is essential for developing common tools, coordinating activities and sharing information.

Federal interdepartmental mechanisms in place to promote coordination on environmental management activities include:

- Deputy Ministers' Sustainable Development Coordinating Committee
- Interdepartmental Network on Sustainable Development Strategies
- Federal Committee on Environmental Management Systems
- Sustainable Development in Government Operations Committee
- Pollution Prevention Coordinating Committee
- regional federal councils.

An environmental management system (EMS) provides a systematic framework to help an organization manage its environmental obligations and document, evaluate and communicate its environmental performance. Co-chaired by Natural Resources Canada and Environment Canada, the Federal Committee on Environmental Management Systems continued to promote the effective implementation of departmental EMSs. Some examples of effective implementation appear below:

- The Department of Foreign Affairs and International Trade implemented an EMS to review and improve its environmental performance in Canada and abroad. The department adopted environmental targets and performance measures for 11 priority areas and continued its collection of baseline data. In July 2000, an Environmental Management Policy was approved that includes a commitment to incorporate principles of pollution prevention and adopt best environmental management practices. **Update**
- National Defence's 25 Canadian Forces Supply Depot (25 CFSD) in Montreal maintained an ISO 14001 EMS certification. The development of an EMS at 25 CFSD resulted in the implementation of procedures and controls to reduce the risk of spills and leaks, along with the examination of energy consumption, packaging, goods procurement and wastewater management. During 2000–2001, 25 CFSD reused 5,045 incoming pallets for outgoing shipments, saving over $64,000. Similarly, savings in the reuse of crates, fast packs and other packing totalled $113,500. **New**
- In January 2001, Environment Canada expanded its ISO 14001 EMS pilot project to include the Edmonton Warehouse in Prairie and Northern Region. An implementation manual has been developed to accelerate future implementations. **New**
- The Canadian Food Inspection Agency developed a National EMS Implementation Strategy based on ISO 14001. The EMS received senior management approval in February 2001. **New**
- Citizenship and Immigration Canada (CIC) has made commitments to vehicle fleet management, green procurement and facilities management in its EMS Action Plan. CIC will be consulting with other federal departments to exchange information on existing pollution prevention policies and greening of government activities. **New**

In the event of a smog alert, the Canadian Food Inspection Agency promotes a number of internal actions including suspension of mowing activities and the use of oil-based paints, solvents and cleaners.

Departmental Policy Integration

In December 2000, Environment Canada—Atlantic Region adopted a pollution prevention strategy intended to make pollution prevention increasingly the strategy of choice for its staff and Atlantic Canadians when making decisions that affect the region's environment and economy. A working group was developed to ensure that staff are familiar with the concepts of pollution prevention, to identify priority issues through consultations and to prepare a plan assisting all staff and managers in integrating pollution prevention into regional program activities. **New**

The Atlantic Canada Opportunities Agency, with assistance from Environment Canada, examined its decision-making guidelines and identified opportunities for integrating pollution prevention concepts into its program delivery. As a result of this work, it altered client brochures and internal project evaluation documents to reflect eco-efficiency approaches. **New**

Now in its third year, the Environment Canada Pollution Prevention Team, composed of regional and headquarters staff, coordinated the adoption of pilot regional initiatives by other regional and national campaigns. Examples include CleanPrint Canada, Camp Green, Canada! and small and medium-sized enterprise pollution prevention support. **New**

GREENING GOVERNMENT OPERATIONS

Released in 2000, *Sustainable Development in Government Operations: A Coordinated Approach* builds on the 1995 *Guide to Green Government*, which offers a framework for federal departments preparing their sustainable development strategies. The new document builds on best practices as well as specific performance measures. The interdepartmental Committee on Performance Measurement for Sustainable Government Operations coordinates the development of common reporting indicators that provide an overview of how well the federal government is progressing towards bringing sustainable development considerations into its operations. In the future, a recommended reporting framework is expected. Shown below are examples of pollution prevention and other environmental protection actions taken in 2000–2001 to "green" federal departments and agencies.

WASTE MANAGEMENT

- Waste audits performed and updated annually
- Waste reduction action plans developed and implemented
- Recycling system in place / composting where feasible
- Hazardous waste collected centrally, stored and disposed of safely

ACTIONS TAKEN

Atlantic Canada Opportunities Agency (ACOA) converted 35 common forms to electronic format. ACOA promotes double-sided printing and photocopying to its entire staff.

Western Economic Diversification Canada (WD) and ACOA donated a total of 388 surplus desktop computers (110 from WD and 278 from ACOA) and software to the "Computers for Schools" program.

Environment Canada — Corporate Services replaced 47 mercury manometers. Since 1995, 92% (733 of 800) of mercury manometers have been replaced. The Meteorological Service of Canada undertook the replacement of 65 mercury barometers. In both cases, the mercury was recycled.

WATER/ENERGY CONSERVATION

- Audits performed
- Conservation plans developed and implemented
- Water/energy-saving equipment and devices specified for future purchases, e.g., water-efficient fixtures, energy-efficient lighting and water heating

ACTIONS TAKEN

Canadian Forces Base Gagetown reduced treated water consumption by 12% from 1989–1990 levels. This was achieved through the implementation of reduction plans aimed at minimizing water use.

VEHICLE FLEET MANAGEMENT

- Fuel efficiency maximized and alternative fuels used to conserve energy and reduce emissions
- Number of vehicles for departmental use reduced
- Emission testing and regular maintenance performed
- All used fluids and oils recycled

ACTIONS TAKEN

Agriculture and Agri-Food Canada (AAFC) continued to reduce emissions by introducing alternative fuel vehicles and small electric carts and pieces of farm equipment. Under the AAFC Storage Management Tank Program, all new fuel storage tanks will be compatible with 100% ethanol fuel. Ethanol will be used mostly to fuel vehicles.

Departments such as Transport Canada, Natural Resources Canada, National Defence, Environment Canada and the Royal Canadian Mounted Police reduced their departmental vehicle fleet size and integrated more alternative fuel vehicles into their vehicle inventories. The Minister of the Environment currently uses an alternative fuel vehicle to travel within the National Capital Region.

PROCUREMENT

- "Green" clauses included in service and supply contracts
- Harmful chemical usage minimized (e.g., cleaning products, solvents, oil-based paints)

ACTIONS TAKEN

Health Canada employees in Ottawa have been asked to purchase recycled content copier paper with 30% post-consumer waste instead of virgin paper. Based on the preceding year's paper purchases, recycled paper will result in:

- 1,620 trees being saved; and
- 1,776 kilograms less air pollution.

Health Canada also provided training and awareness materials on green purchasing through its Corporate Services Branch and is a member of the Manitoba Green Procurement Network, a method of sharing information with the material management community. Similarly, 271 Public Works and Government Services Canada (PWGSC) employees received green procurement training; in total, 17.2% of the $1 million of PWGSC purchases made through the Buying Power 2000 initiative were classified as "green."

TRAINING AND AWARENESS

- Staff trained in methods and informed of opportunities to conserve water and energy, reduce waste and make environmentally sensitive purchasing decisions
- Raising employees' awareness to optimize pollution prevention in their activities

ACTIONS TAKEN

Environmental Action Plan (EAP) Online is a web-based tool available for Human Resources Development Canada. EAP Online contains information on government initiatives and training as well as general environmental information.

REMEDIAL ACTIONS

- Equipment using chlorofluorocarbons and halons identified and alternatives introduced wherever possible
- Equipment containing polychlorinated biphenyls (PCBs) are phased out and PCBs not in use are securely stored
- Fuel storage tanks meet the new guidelines and are checked regularly for leakage

ACTIONS TAKEN

PWGSC continued to achieve a downward trend in the ozone-depleting potential and global warming potential of chillers in the Crown-owned PWGSC inventory. Refrigerant losses were 2.11%, well within the targeted maximum of 4%. There are only two PWGSC-owned halon systems left; seven were removed.

Waste Reduction

National Defence has reduced the amount of solid waste sent to landfill by 17% from 1999–2000 levels. Some of this reduction was through increased waste diversion. For instance, Canadian Forces Base Borden has increased reuse and recycling by diverting 11,911 tonnes of asphalt, concrete and gravel, 19 tonnes of corrugated cardboard, 10 tonnes of compost and 133 tonnes of metal and white goods from its landfill. Update

During 2000–2001, 39 of 49 construction and demolition projects (over 2,000 cubic metres in size) carried out within National Defence included waste reduction plans. Similarly, Public Works and Government Services Canada conducted waste audits and diversion activities when undertaking construction, renovation or demolition projects for federal departments such as Health Canada. Update

Human Resources Development Canada headquarters set a target to reduce the waste sent to landfill by 50% over 1988 levels by March 31, 2001. Waste audits at headquarters indicated a reduction of approximately 70% over 1988 levels. Many federal departments have achieved similar results through the implementation of the "No Waste Program," "Papersave Program" and/or ongoing employee awareness initiatives. For example, solid waste diversion services continued to be offered to tenants in Public Works and Government Services Canada Crown-owned facilities. New

At Canadian Forces Base Gagetown, the Eco-Waste Centre houses the second largest in-vessel (enclosed) composter in North America. The compost generated by the Centre offsets the need to purchase fertilizer and pesticides. A second in-vessel composter has been delivered and will be installed at the Centre. Future plans for the Eco-Waste Centre include using the compost for bioremediation of contaminated Absorbal, soil and energetics (unreacted explosives and propellants). New

Energy Efficiency/Water Conservation

The Federal Buildings Initiative (FBI), led by Natural Resources Canada, is a voluntary program that helps federal departments and agencies improve the energy efficiency and water efficiency of their facilities. To date, FBI-type contracts with private sector energy service companies have financed retrofits in more than 6,500 federal buildings, resulting in annual energy savings of about $26 million, significant reductions in greenhouse gas emissions and a healthier, more comfortable work environment. It is expected that these FBI projects will result in a reduction of 16 tonnes of emissions per year from new projects. Update

As the primary custodian of Crown-owned property, Public Works and Government Services Canada has a significant role to play in greenhouse gas reduction and resource conservation. Energy and water conservation initiatives have already been implemented in more than 60% of its Crown-owned inventory by floor area, and more work is targeted. Update

Canadian Forces Base Gagetown replaced oil with natural gas to fire its central heating plant. An annual reduction of 14% or 8,000 tonnes of carbon dioxide equivalent emissions is expected, as well as significant reductions in emissions of sulphur dioxide, a major acid rain precursor. This project began in December 2000, and the new system became operational on April 1, 2001. New

Health Canada introduced several energy efficiency initiatives in 2000–2001. The Atlantic Region constructed three new facilities heated by heat pumps. Several facilities in the Alberta, Northwest Territories and Quebec regions now contain more energy-efficient lighting and automated energy systems regulated by internal conditions. The Ontario Region First Nations' health centres reduced energy consumption (by 60%) as well as carbon dioxide emissions by investing in two geothermal units. There are plans to install three more units at other facilities. New

PRECAUTIONARY PRINCIPLE

The Rio Declaration Precautionary Principle states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Adoption of the Rio definition of the precautionary principle into the *Canadian Environmental Protection Act, 1999* has triggered efforts to prepare a framework for its use in Canada. Federal departments and agencies have discussed what the principle means in the Canadian context.

Operations/Facility Management

National Defence has been active in the removal and replacement of halon fire-extinguishing systems from its infrastructure. In 2000–2001, the last known infrastructure-related use of halon was removed, resulting in 100% elimination. Overall, the department has recovered, recycled and safely stored an estimated 103,400 kilograms of halon. Within the department, there has been a steady decline in halon releases, from a total of 2,200 kilograms in releases in 1994 to a total of 503 kilograms in releases in 2000. This initiative is profiled on Environment Canada's Pollution Prevention Success Stories website at http://www.ec.gc.ca/pp. **Update**

As an owner, operator and landlord of airports, Transport Canada has a responsibility to ensure the proper management of the de-icing fluid, glycol. Samples collected from surface runoff at airports during 1999–2000 were analyzed for glycol concentrations, and the results showed a continuing improvement in the responsible management of glycol effluents from de-icing operations. This improvement can be attributed in part to the detailed glycol management plans that are required from airline and/or ground handling agents at Transport Canada-operated airports and are encouraged from airport authorities before each de-icing season. Glycol recovery systems have also been installed at larger airports that collect excess glycol for reuse. **Update**

Environment Canada — Ontario Region completed three Federal Facility Pollution Prevention Demonstration Site Projects in partnership with Correctional Services Canada, Warkworth Institution in Campbellford, Ontario, the Canada Post Corporation Ottawa Mail Processing Plant and Vehicle Services Depot, and the House of Commons Printing Services. Each project involved the implementation of numerous pilot projects to demonstrate to management and staff how implementing pollution prevention practices could eliminate the generation of hazardous waste and improve efficiency and workplace health and safety. Federal departments were then encouraged to institutionalize successful practices throughout their operations. Examples of successful demonstration projects include the introduction of non-toxic non-emulsifying floor cleaner products and the replacement of organic solvent baths with aqueous parts washers. Canada Post Corporation is now initiating some of the projects throughout its operations due to the successes realized in this program. **Update**

Canadian Forces Base Comox is anticipated to reclaim and reuse approximately 22,000 litres of aviation fuel and reduce the overall amount of hazardous waste generated.

The Department of Foreign Affairs and International Trade has been involved in the design of a new Canadian Embassy in Berlin, Germany. Approval has been granted to proceed with a design that incorporates sustainability principles. Energy efficiency, air quality, building materials, rainwater collection and low maintenance landscaping were all considered in the design. **New**

Environment Canada — Pacific and Yukon Region, Fisheries and Oceans Canada and Public Works and Government Services Canada began an initiative to minimize environmental impacts from the selection of building materials used in the construction of a new federal building in Vancouver. Areas where alternatives were considered include floor coverings; paints, stains and sealers; walls and ceilings; lighting; millwork; furnishings; doors; frames; and plumbing fixtures. **New**

Since 1990, Agriculture and Agri-Food Canada (AAFC) has been involved in the design and pilot testing of carbon treatment units to

handle excess pesticides and herbicides from its spraying operations. The end product of carbon treatment is decontaminated water that has been used to irrigate crops or wash down equipment. The pesticides are absorbed by carbon filters that are sent for reprocessing after use. The technology is already in place at a number of AAFC facilities. New

National Defence's Canadian Forces Technical Orders outlining the fuel dumping testing operations for the CH113 Labrador helicopters have been revised to specify the use of "on-ground" testing procedures versus "in-flight" testing procedures. By testing the fuel systems "on-ground" instead of "in-flight," all the fuel can be recovered. New

Canadian Forces Base Comox has developed a comprehensive system of collection and treatment to process waste aviation fuel and return it to the bulk fuel system for reuse as product. It is anticipated that the system will reclaim approximately 22,000 litres of fuel and will also reduce the overall amount of hazardous waste generated at the base by 23%. New

Early in 2000, Canadian Forces Base Trenton began a review of the gas chlorination system used for disinfecting its wastewater treatment plant effluent. Through the use of pollution prevention techniques, staff considered the alternative technologies available and ultimately selected an ultraviolet (UV) system. By no longer using chlorine, the base eliminated the chlorine residual in the effluent, which was toxic to aquatic life. The UV system also eliminated the need for storage, shipping and handling of chlorine, a corrosive chemical, and the need to monitor and report chlorine residual in the effluent discharge. The UV system became operational in April 2001. New

National Defence made reductions in the level of pesticide active ingredient use.* In 2000–2001, the reported pesticide active ingredient use was 3,262 kilograms, down 47% from the reported pesticide active ingredient use of 6,178 kilograms in 1999–2000. For instance, Canadian Forces Base Gagetown reduced its pesticide active ingredient use 94% from 7,000 kilograms in 1993–1994 to 410 kilograms in 2000–2001. The implementation of integrated pest management plans at various other Canadian Forces bases also played a significant role in the overall departmental reduction. New

Canadian Forces Base Gagetown has the second largest in-vessel composter in North America. The compost generated off-sets the need for the base to purchase fertilizers and pesticides.

Vehicle Fleet Management

Natural Resources Canada reduced its vehicle fleet size by 40% from 1995 figures and has met its objectives for vehicle fleet size reduction. Over 20% of the department's vehicle inventory operates on cleaner-burning alternative fuels. Update

The FleetWise program provides federal fleet managers with information and tools to improve the operational efficiency of their vehicle fleets, reduce emissions from federal operations and accelerate the use of alternative fuels. Under FleetWise, the Toyota Prius sedan, a hybrid electric vehicle (HEV), has been promoted to fleet managers in federal departments and agencies as an alternative fuel vehicle. The main advantage of HEVs is their higher energy efficiency and lower emission of pollutants compared with conventional vehicles. The Prius is expected to use approximately 1.5 to 2.5 times less fuel than an average mid-sized vehicle. The federal government purchased 52 HEVs in 2000–2001, with half of those purchased by National Defence and Transport Canada. Through the Montreal 2000 Electric Vehicle Project, employees at Environment Canada — Quebec Region have travelled over 7,500 kilometres since 1999–2000 using a Solectria Force car, a light 100% electric vehicle. Public Works and Government Services Canada developed the Government Motor Vehicle Ordering Guide to provide information on alternative fuel vehicles. New

Another alternative fuel vehicle commonly purchased by the federal government is the E85. The Department of Foreign Affairs and International Trade purchased three of these vehicles in 2000–2001. E85s are built to use a less-polluting mixture of 85% ethanol fuel with 15% regular gasoline. New

* "Active ingredient use" is a regulatory term determined to be the most appropriate value by which to measure pesticide use. Not all pesticides are used in 100% concentration. In fact, the concentration of active ingredient in pesticide products varies widely. When measuring reductions in pesticide use, active ingredient is a more accurate measure to compare than amount of pesticide product.

ALTERNATIVE FUELS ACT FOR FLEET ACQUISITION

The *Alternative Fuels Act* will accelerate the use in Canada of alternative transportation fuels (ATFs) in motor vehicles and reduce the emission of carbon dioxide and other greenhouse gases. The Act targets the federal vehicle fleet, thus providing the government with a leadership role in the use of ATFs.

For instance, the Act requires departments and agencies to review each new vehicle acquisition in terms of its estimated annual fuel consumption and primary operational tasks and to purchase an ATF vehicle for a minimum of 75% of cases where it would be both cost-effective and operationally feasible.

The Canadian Food Inspection Agency delivered Green Fleet Driving Presentations to its staff. The presentations covered the promotion of green driving practices, including servicing vehicles regularly to optimize performance, reducing the amount of weight that vehicles carry to improve fuel economy, maintaining correct tire pressure and reducing engine idling time. New

Procurement

In 2000–2001, Human Resources Development Canada spent approximately $6.3 million on green purchases. The department has set as its target an increase of 5% in the amount spent on green purchases by March 31, 2002. New

The Canadian Food Inspection Agency has integrated green criteria into its laundry and uniform rental service contracts. Companies are required to outline their efforts on environmental issues related to the work they propose to do for the Agency. The Agency also has an online system highlighting products with "green" qualities that are selected for their recycled material content, fewer polluting by-products and ease of reuse and recycling. In the future, the Agency will issue bulletins to employees on green procurement and will initiate a Green Procurement Strategy. New

Training and Awareness

The Atlantic Canada Opportunities Agency is developing a training package and tools for program officers to assist them in promoting eco-efficiency and environmental management to small and medium-sized enterprises, partners and stakeholders. Update

National Defence continues to deliver its Unit Environmental Officers' Course. Since 1998, over 1,500 personnel have completed the course. During 2000–2001, Canadian Forces Base Borden released a new version of the course. The department also delivers training on environmental awareness, spill prevention and emergency response to various employees and Canadian Forces personnel across the country each year. Update

The Atlantic Canada Opportunities Agency is helping its program officers to promote eco-efficiency and environmental management by developing training packages and tools.

The Department of Foreign Affairs and International Trade delivered training and awareness courses on pollution prevention and other elements of sustainable development to its staff. The courses were incorporated into property management, heads of mission training and orientation sessions for new staff. New

In the Prairie and Northern Region, Environment Canada and Indian and Northern Affairs Canada developed and delivered a Spill Prevention Training Course for the Black Lake and Fond du Lac First Nations in northern Saskatchewan. Over 25 participants attended the course. A training video was also produced and has been distributed to other First Nations and non-Aboriginal peoples in the region. New

Environment Canada offered two Shoreline Cleanup and Assessment Technique courses to emergency response staff from government and industrial organizations in the Atlantic Region. These courses provided attendees with information on less toxic cleanup alternatives (where applicable), preventing or minimizing damage, and implementing appropriate remedial actions following oil spills that impact coastal areas. Course delivery partners include Natural Resources Canada, Canadian Coast Guard, Atlantic Emergency Response Team and Point Tupper Marine Services. Two courses have been delivered each year for the past three years, with about 25 attendees each. Spill prevention is an underlying theme for much of the course, as it is cheaper and easier to prevent spills than to clean up after spills have occurred. New

TRACKING PROGRESS AGAINST *POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION**

Goal: Institutionalize pollution prevention across all federal government activities

Actions:	Status:	Examples:
1. Incorporate pollution prevention into federal legislation	Ongoing	• *Canadian Environmental Protection Act, 1999*
2. Establish and implement green policies	Ongoing	• Greening of government operations
3. Establish a Commissioner of the Environment and Sustainable Development to advance pollution prevention in the federal government	Complete	• Commissioner established following changes to the *Auditor General Act* in 1995
4. Integrate pollution prevention into departmental policies and programs	Ongoing	• Environment Canada's Pollution Prevention Team • Atlantic Canada Opportunities Agency's program delivery • Federal Buildings Initiative • Canadian Forces Technical Orders for fuel dumping testing operations

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention within federal government operations.

UPCOMING PROJECTS

- Public Works and Government Services Canada (PWGSC) is developing a new intranet website called the Green Procurement Network. The purpose of the site is to help federal departments and agencies integrate green procurement into their policies, programs and purchasing processes. More specifically, the site is targeted at material managers, procurement officers and other employees who are directly involved in the purchasing of goods and services. PWGSC continues to incorporate environmentally responsible clauses in the National Master Specification, with special reference to energy, water, and solid and hazardous waste. PWGSC is also the lead department to procure "Green Power" on behalf of the federal government.
- Canadian Forces Base Borden's Integrated Pest Management Plan to coordinate pesticide management was initiated in May 2000 and completed in May 2001. As a result, a database to track pesticide use called PESTMAN was developed in 2000–2001 and will be tested in 2001–2002.
- During 2000–2001, Environment Canada and Canadian Forces Base Kingston signed an agreement to participate in an initiative to assess regulatory compliance and to document and identify pollution prevention opportunities related to the generation and management of hazardous waste. Other federal facilities such as the Royal Canadian Mint, Canadian Forces Base Petawawa and the Royal Canadian Mounted Police will be participating in this Ontario-based Federal Hazardous Waste Pollution Prevention initiative.
- Environment Canada — Quebec Region has taken action to reduce greenhouse gas emissions associated with its own operations. An inventory used to assess the region's greenhouse gas emissions has confirmed that transportation was responsible for over 59% of such emissions. In order to reduce greenhouse gas emissions generated by employees, a two-phase program was set up in 2000–2001. Both phases are to be implemented in 2001–2002. The first phase covers employee travel between residence and place of work, with an objective to promote and facilitate the use of more environmentally friendly means of transportation. The second phase involves business travel by employees and focuses on urban travel in the Quebec City–Windsor corridor. Geo-referencing software developed especially for the program records all employee travel by mode and type, along with the greenhouse gas emissions associated with such travel. This tool will be used to encourage all employees to use the mode of transport with the fewest emissions. The objective of this phase is to reduce greenhouse gas emissions by 10%.

Behaviour Change

A study in 2000 estimated federal employee carbon dioxide emissions from transportation at 1.5 megatonnes per year. In response, Transport Canada, Health Canada and other federal departments promote "green" forms of transportation — walking, biking, public transit and carpooling — to decrease employee-related emissions. For instance, Transport Canada provided new bike racks and security cameras at its Ottawa headquarters. The participation of 43% of Transport Canada employees in the 2nd National Commuter Challenge reduced vehicle emissions by more than 25 tonnes. Health Canada also had a successful Commuter Challenge, with 1,700 employees registered and vehicle emissions reduced by 300 tonnes.

Update

Progress with Other Governments

Federal pollution prevention strategy goal: Foster a national pollution prevention effort

National Partners

In June 2000, the Government of Canada and provincial and territorial ministers on the Canadian Council of Ministers of the Environment (except Quebec) adopted new Canada-wide Standards for Particulate Matter and Ozone. These Standards set ambient air quality concentration targets for ground-level ozone and fine particulate matter for the year 2010. Environment Canada is working with provinces and territories to develop comprehensive emission reduction strategies for a number of major industrial sectors in Canada. The provinces and territories are undertaking other measures focusing largely on existing commercial and industrial sources to ensure that the new standards will be met by 2010. Other important air quality-related Canada-wide Standards either adopted or accepted in principle by federal, provincial and territorial Ministers in June 2000 include mercury, benzene, and dioxins and furans.

Update

Go For Green's Active Transportation program encourages the use of active modes of transportation to reduce greenhouse gas emissions.

2000 CCME POLLUTION PREVENTION AWARDS

The Canadian Council of Ministers of the Environment (CCME) gives national recognition to companies and organizations showing innovation or leadership in pollution prevention. The 2000 CCME Pollution Prevention Awards were presented to the following recipients:

- Hydro One Remote Communities Inc. of Ontario for strengthening its environmental commitment and including pollution prevention in its environmental policy. The company is working with remote communities to explore and implement renewable energy technologies, such as wind turbines and run-of-the-river hydroelectric facilities.
- Irving Pulp & Paper Ltd. in Saint John, New Brunswick, for developing and implementing an innovative and comprehensive process to reduce pollution levels in its wastewater. One of the technologies introduced was reverse osmosis.
- Dow Chemical's Western Canada Operations for eliminating the risk of toxic liquid chlorine spills and ozone-depleting chlorofluorocarbon (CFC) emissions by phasing out chlorine liquefaction facilities and eliminating liquid chlorine inventory and CFC refrigeration systems.
- The Canadian Vehicle Manufacturers' Association for spearheading the Canadian Automotive Manufacturing Pollution Project (an industry–government partnership). Participating companies include DaimlerChrysler Canada Inc., Ford Motor Company of Canada Ltd. and General Motors of Canada Ltd.
- The Refining Division of Irving Oil in Atlantic Canada for its production of low-sulphur gasoline for use by consumers two years ahead of legislative requirements.

Conoco Canada Ltd. of Calgary, Alberta, received the Greenhouse Gas Reductions Award for implementing an air emission reduction program at its Peco Plant. The Greenhouse Gas Reductions Award is new for 2000 and is presented to the company that achieves the greatest overall impact on greenhouse gas emissions through pollution prevention.

For more details on the CCME awards, visit the CCME website at http://www.ccme.ca.

Provincial, Territorial and Municipal Partners

Health Canada supported Go for Green's Active Transportation program by providing contributions to the Federation of Canadian Municipalities for monitoring and evaluating projects. The Active Transportation program encourages municipalities to address the safety and efficiency barriers associated with active modes of transportation. Examples of this year's projects included the Collingwood Trails Project, the District of North Vancouver's Go Green Employee Transportation Choices Pilot and the Planning for Active Transportation Workshops Pilot in New Brunswick. All three projects worked to reduce greenhouse gas emissions from transportation by integrating alternative modes of transportation into the municipal planning process through such activities as development of alternative transportation trails and traffic bylaws. For more information, visit http://www.goforgreen.ca. **Update**

The five-year Georgia Basin Ecosystem Initiative supports key priorities such as protecting air and water quality, developing sustainable communities and building partnerships to maintain the viability of the region in British Columbia. Projects to protect air quality and combat climate change include supporting the development of an airshed management plan for Greater Vancouver and the Lower Fraser Valley. Efforts to improve water quality include working with the Regional District of Nanaimo to develop storm water management guidelines for local governments. Efforts are also under way in Surrey to develop standards and bylaws for sustainable urban development. **Update**

As an alternative to road expansion in Halifax Regional Municipality, TRAX, a project of the Ecology Action Centre (with EcoAction funding), is attempting to reduce single-occupancy vehicle use and expand its trip reduction program in 10 to 15 workplaces. TRAX

The Nova Scotia Department of Environment and Environment Canada signed a Memorandum of Understanding on Pollution Prevention and have committed to working cooperatively to advance pollution prevention through collaborative work plans, joint actions and follow-up reporting.

efforts will contribute significantly to the local government's commitment to a 20% reduction in greenhouse gas production. The two-year goal of this project is to reduce greenhouse gas emissions by 750,000 kilograms per year. For more information, visit http://www.trax.ns.ca. **Update**

The City of Toronto needed to revise its sewer use bylaw after City Council decided to stop incineration and implement 100% biosolids beneficial use by December 31, 2000. On July 6, 2000, the bylaw was passed with limits on 27 toxic organics and more stringent limits on most of the 11 heavy metals found in the Ontario Guidelines for Utilization of Biosolids and Other Wastes on Agricultural Land. Any industry that discharges a subject pollutant to the Toronto sewer system will be required to prepare a pollution prevention plan and a summary of that plan. Environment Canada is providing assistance to the City on the pollution prevention requirements in its new bylaw as well as sponsoring training sessions for City enforcement staff. **New**

Environment Canada — Atlantic Region has invested time and resources in motivating municipal and provincial partners on the advantages and need for at-source control as a vital part of any wastewater management program. Several seminars focusing on at-source control have been provided to communities. As a result, these communities have joined forces to advance opportunities and options for both traditional wastewater treatment and more innovative at-source control. At-source control has been promoted to Environment Canada staff, tasked with drafting a national strategy on municipal wastewater. **New**

In September 2000, the Nova Scotia Department of Environment and Environment Canada signed a Memorandum of Understanding (MOU) on Pollution Prevention. This MOU, the first of its kind in Canada, commits both departments to work cooperatively to advance pollution prevention through collaborative work plans, joint actions and follow-up reporting. The MOU promotes the development of the one-window approach favoured by clients and enhances the ability of both groups to lever additional funding. It is also seen as the first step in encouraging other resource and economic development departments to sign the MOU. **New**

The British Columbia Pollution Prevention Implementation Advisory Committee authored a report recommending a voluntary "compliance-plus" pollution prevention planning process available to any large industrial facility in the province. The process will be overseen and supported by the B.C. Ministry of Water, Land and Air Protection, Environment Canada, industry, labour, regional and local governments, environmental groups and universities. Performance measures such as raw materials consumption, waste emissions, spills and discharges will be a necessary part of participating facilities' pollution prevention plans. **New**

In September 2000, the Governments of Canada and the Yukon signed an agreement for an Energy Solutions Centre in Whitehorse. The Centre opened in December 2000 and provides one-stop shopping for Yukoners' information needs on energy conservation, energy efficiency and renewable energy. It also facilitates delivery of the two governments' specific energy programs, identifies opportunities and provides technical assistance for energy efficiency as well as renewable energy projects in the Yukon. New

In 2000, the federal government released Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities (NPA). The initiative is led by Fisheries and Oceans Canada and Environment Canada and has been prepared through the collaborative effort of the federal, provincial and territorial governments. The NPA will complement federal, provincial and territorial initiatives such as those dealing with integrated management in the coastal zone, coastal marine protected areas and pollution prevention. Key NPA activities include promoting coastal zone management, collaborating on community-based actions, establishing an information clearinghouse, promoting improved sewage treatment, developing guidelines and codes of practice, and preparing annual progress reports. New

TRACKING PROGRESS AGAINST *POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION**

Goal: Foster a national pollution prevention effort

Actions:	Status:	Examples:
1. Review legislation, regulations and policy for opportunities to harmonize approaches to pollution prevention	Ongoing	• Canadian Council of Ministers of the Environment Canada-wide Standards • Memorandum of Understanding between Environment Canada and Nova Scotia Department of Environment
2. Develop practical tools, such as guidelines and codes of practice, to enable people to implement pollution prevention at an operational level	Ongoing	• British Columbia pollution prevention planning process • Energy Solutions Centre
3. Educate the public about pollution prevention and train relevant groups in the technical aspects of pollution prevention	Ongoing	• Canadian Council of Ministers of the Environment Pollution Prevention Awards • Climate Change Action Fund Program

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with other orders of government in Canada.

Progress with the Private Sector

Federal pollution prevention strategy goal: Achieve a climate in which pollution prevention becomes a major consideration in private sector activities

Industrial Pollution Prevention

The Accelerated Reduction and Elimination of Toxics (ARET) program was a multi-stakeholder pollution prevention and abatement initiative involving industry, health and professional organizations, as well as governments across Canada. Through voluntary actions, ARET sought the virtual elimination of 30 persistent, bioaccumulative and toxic substances, as well as significant reductions in emissions of another 87 toxic substances. Overall, there has been a 67% reduction in the release of toxics included in the ARET program from base year levels. Of 316 facilities participating in ARET, 136 have already met or exceeded year 2000 targets for all categories of substances on which they report. A commitment was made by Environment Canada, Industry Canada and other departments and organizations to develop a successor program to ARET. Multi-stakeholder consultations on this new program were held across Canada throughout 2000–2001. **Update**

The Canadian Industry Program for Energy Conservation (CIPEC) represents more than 3000 companies and reports on approximately 90% of total industrial energy demand through 23 task forces. The aggregate CIPEC target is a 1% overall improvement in industrial energy intensity[1] per year through to 2005. From 1990 to 1999, industrial energy intensity improved, on average, by about 2% per year, while emissions for 1999 were confirmed at approximately 2% below the 1990 base case level. Building on CIPEC, Natural Resources Canada is working with industry through the Industrial Energy Innovators Initiative. As of March 2001, this initiative recruited nearly 300 companies, representing about 74% of industrial energy use. These companies achieved savings of $21 million per year in energy costs for investments of $210 million (includes federal government contributions and company contributions) and carbon dioxide reductions of 175,000 tonnes per year. For more information on CIPEC, visit their website at http://oee.nrcan.gc.ca/cipec/ieep/cipec/index.cfm. **Update**

Statistics Canada, through a Survey of Environmental Protection Expenditures in the Business Sector, collects data on the environmental protection investments made by primary and manufacturing industries, electric power generation, transmission and distribution, natural gas distribution, and pipeline transportation facilities. In terms of expenditures in pollution prevention technologies and methods, processes related to reuse and recycling of materials[2] remained the most popular investment (over 65%). Following reuse and recycling were prevention of leaks and spills (59%) and energy conservation (45%). These three methods have remained the most popular pollution prevention investments since 1995. **Update**

FREQUENCY OF POLLUTION PREVENTION METHODS

Year	Percentage of total number declared						
	Product design or reformulation	Substitution or modification of production process	Recirculation, recovery, reuse or recycling	Energy conservation	Material or solvent substitution	Prevention of leaks and spills	Other
1995	9.9	31.8	63.5	36.9	33.0	50.2	4.7
1996	10.9	30.6	66.2	41.7	36.5	49.2	8.4
1997	14.7	24.2	63.6	42.1	37.0	51.2	9.9
1998	16.7	23.0	65.5	45.3	30.7	58.6	9.7

Notes
1. This table includes reported data only.
2. The question on pollution prevention methods differed in reference years 1995 and 1996. Therefore, comparisons from 1995 to 1998 provide a general view but should be treated with caution.

Sources Statistics Canada, 1998, *Environmental Protection Expenditures in the Business Sector, 1995,* Catalogue No. 16F006XIE, Ottawa, July.
Statistics Canada, 2000, *Environmental Protection Expenditures in the Business Sector, 1996 and 1997* (revised), Catalogue No. 16F006XIE, Ottawa, August.
Statistics Canada, 2001, *Environmental Protection Expenditures in the Business Sector, 1998,* Catalogue No. 16F006XIE, Ottawa, November.

[1] Energy intensity is the total energy consumed by a sector divided by the total amount of activity in that sector over a one-year period.

Industry Canada participated in the design of voluntary agreements and initiatives. The use of voluntary measures allows Canadian industry to develop innovative and cost-effective pollution prevention strategies. The department reviews the success of select voluntary measures and identifies areas where improvements could be made, as well as candidate sectors for new initiatives. For example, Industry Canada participated as a member of the Government Advisory Panel to the Vinyl Council of Canada Environmental Management Program (EMP). The EMP was designed with pollution prevention as its overall objective. It consists of six guiding principles, five commitment areas and a series of practical action steps, all issued within its first annual report released in September 2000. Update

Sector-Specific Initiatives

Agriculture and Food

The three-year Environment Canada liquid manure composting demonstration involves the installation, operation and monitoring of a full-scale composter at a 3,000 weaner pig farm in Ontario. The objective is to demonstrate the merits of the composting system in reducing odours and preventing the contamination of surface waters and groundwater, as well as to effectively achieve greenhouse gas reductions. It is estimated that this project will result in a 50% reduction in methane over normal liquid manure handling. The project was approved in June 1999, was sited in August 2000 and will conclude on March 31, 2002. Agriculture and Agri-Food Canada is also involved with manure management through its ManureNet website. ManureNet is an online system of resource materials updated regularly with new information and results of ongoing projects. Visit ManureNet at http://res2.agr.ca/initiatives/manurenet/manurenet.html. Update

Automotive

In 2000–2001, the Automotive Parts Manufacturers' Association (APMA) Pollution Prevention Project began negotiating a new Memorandum of Understanding with Environment Canada. The agreement will build pollution prevention performance targets into an ISO 14001 Environmental Management System platform. To date, 1,189 tonnes of substances of concern, including chromium, aluminum, xylene, trichloroethane and chromic acid, have been reduced and/or eliminated in 44 case studies since December 1993. For more information, visit the APMA website at http://www.apma.ca. Update

The Canadian Automotive Vehicle Manufacturing Pollution Prevention Project has a clear and defined goal of producing a verifiable reduction and/or elimination of persistent toxics and other substances used, generated or released in automotive manufacturing facilities. The project is an industry–government cooperative partnership involving the Canadian Vehicle Manufacturers' Association (CVMA), Environment Canada, the Ontario Ministry of the Environment, DaimlerChrysler, Ford and General Motors. The project was initiated in 1992 and since then has been the longest-running voluntary pollution prevention project between government and industry in Canada. More than 400,000 tonnes of toxic and other substances have been reduced and/or eliminated through this concerted effort. Each company, by extension of its supplier community, has used a combination of techniques to prevent, reduce or eliminate pollution at the source. In addition to pollutant reductions and/or eliminations, member companies have realized cost savings of approximately $11 million using the pollution prevention approach. This project received a Pollution Prevention Award presented by the Canadian Council of Ministers of the Environment in June 2001. For more information, visit the CVMA website at http://www.cvma.ca. Update

The EnerGuide for Vehicles initiative, established by Natural Resources Canada, encourages vehicle manufacturers to attach an EnerGuide label to new vehicles sold in Canada.

HELPFUL ENVIRONMENTAL BUSINESS INFORMATION

To view the pollution prevention capabilities of Canada's best technology and service firms, visit Canadian Environmental Solutions (CES) at http://prods.businesscanada.ic.gc.ca/Ces_Web/_index_.cfm/. Developed by Industry Canada, CES addresses environmental problems related to water, air, soil, energy, and research and development. It is a direct link to solutions and Canadian companies that can supply them. CES works because it is exhaustive — it describes 2000 environmental problems and solutions, along with more than 900 solution-providing companies.

[2] Includes recirculation, reuse, recovery or recycling of water, materials or substances generated during production, excluding materials transferred or recycled off-site.

Under Natural Resources Canada's EnerGuide for Vehicles initiative, vehicle manufacturers voluntarily attach an EnerGuide label to new vehicles sold in Canada. The label indicates the vehicle's fuel consumption rating and estimated annual fuel costs to help consumers select the most fuel-efficient vehicle that meets their needs. A 1999 on-site survey of dealers' compliance for the initiative revealed that 64% of vehicles on dealers' lots and 47% of vehicles in showrooms displayed the label. New

The use of EcoSmart™ concrete in construction projects has the potential to reduce carbon dioxide emissions by substituting fly ash and other materials for the cement generally used in concrete.

Chemical

A renewed MOU for Environmental Protection between the Canadian Chemical Producers' Association (CCPA), Environment Canada, Industry Canada, Health Canada and the Provinces of Ontario and Alberta was negotiated in 2000 and has now been signed by all parties. The objective of the new MOU is the prevention and reduction of the release of toxic and other chemical substances through voluntary, non-regulatory action under the CCPA Responsible Care® Program. As part of this process, a specific Annex to reduce volatile organic compounds (VOC's) was developed. The Annex contains national emission reduction targets of 58% from a 1992 base year and 25% from a 1997 base year by 2002. CCPA member companies have already made significant progress in addressing VOC emissions that contribute to smog. Between 1992 and 1997, emissions dropped from over 28,000 tonnes per year to just under 16,000 tonnes, a reduction of more than 44%. Update

Construction

Natural Resources Canada's International Centre for the Sustainable Development of Cement and Concrete promotes the use of EcoSmart™ concrete. EcoSmart™ concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete. The target is over 50% replacement of cement with the fly ash and other materials. Fly ash is a by-product of coal-burning power plants and is normally destined for landfill. During 2000–2001, Natural Resources Canada, in partnership with the Greater Vancouver Regional District, Environment Canada, Industry Canada and the local concrete and cement industry, demonstrated the advantages of this technology through several construction projects, including five in British Columbia. Replacing one tonne of cement with one tonne of fly ash offsets industrial carbon dioxide emissions by approximately one tonne, in addition to providing a use for an industrial by-product. For more information, visit http://www.ecosmart.ca. New

Industry Canada, along with Natural Resources Canada, Public Works and Government Services Canada and the National Research Council of Canada, through Intelligent Buildings Technology Roadmap/Smart Buildings Case Studies, are addressing some of the challenges slowing the adoption and use of intelligent building technologies. These technologies may lead to improvements in energy efficiency and indoor air quality. In 2000–2001, planning activities began for the implementation of a demonstration project of intelligent building technologies at an Industry Canada building in Ottawa. New

Dry Cleaning

Environment Canada — Ontario Region, in partnership with a local dry cleaning business, Our Cleaners of Barrie, Ontario, began testing a Japanese wet clean technology with a goal of reducing and possibly eliminating the use of detergents in wet cleaning operations. To date, the project has shown that the cleaning of many garments can be professionally achieved with decreased water (17%), electricity (28%) and detergent consumption (73%). Update

Environment Canada — Ontario Region, in partnership with the Ontario Ministry of the Environment, provided educational workshops to promote compliance to stakeholders on the proposed federal perchloroethylene regulations. Update

Furniture Manufacturing

Environment Canada introduced a pollution prevention project in the furniture industry in Quebec, where 50% of Canada's wood furniture is produced. The aim of this project is to reduce emissions of both volatile organic compounds and greenhouse gases, including reduction in use of products identified as hazardous or toxic under the *Canadian Environmental Protection Act, 1999*, as well as solvents, paints and pigments. The first phase of the project, developed in 2000–2001, involved identifying and evaluating applicable pollution prevention technologies, establishing a partnership with industry and developing a tool to identify and assess pollution prevention opportunities in factories. The second phase, planned for 2001–2002, will cover the identification and implementation of pollution prevention projects in approximately 10 factories and the training of factory employees. New

Health Care

With renewed interest in greening health care and new environmental challenges faced by health care institutions, a new website has been developed to show health care staff how to take action to reduce the environmental impact of their facilities. Healthcare EnviroNet was launched at a series of training workshops in Ontario in the winter months of 2001. Healthcare EnviroNet has been established with support from Environment Canada — Ontario Region and is developed and maintained by the Canadian Centre for Pollution Prevention in consultation and partnership with health care and non-government organizations. Visit http://www.c2p2online.com and click on the Healthcare EnviroNet logo. New

Metal Finishing

The Metal Finishing Industry Project is a partnership between Environment Canada and the Ontario Ministry of the Environment, the Canadian Association of Metal Finishers and related industry associations that began in 1993. The project's goals are to develop tools for formulating pollution prevention plans for the reduction of toxic substances, to promote the development and implementation of site-specific pollution prevention plans and to publish the progress of substance use reductions under the plans. Between 1996 and 2000, Ontario metal finishers have reported a steady increase in financial savings through pollution prevention with an increase in pollution reduction (see Figures 1 and 2). Additionally, 94 employees from 35 organizations have completed training in pollution prevention planning. For more information, visit the Canadian Association of Metal Finishers' website at http://www.camf-acfm.com. Update

Mining

Natural Resources Canada provides technical knowledge and expertise to the mining industry in managing solid mine waste as well as mine, mill and metallurgical effluents. For example, the department is developing improved science and technology for the safe and effective stabilization, disposal and revegetation of mine sludge to minimize and prevent metal leaching and mobilization. The Mine Environment Neutral Drainage initiative (MEND) is reducing future environmental impacts of mining by providing knowledge about the prevention or control of acidic drainage. In 2000–2001, the final year of the current program, two workshops on acidic drainage attracted 270 participants. Update

Figure 1: Financial Savings Achieved through Pollution Prevention Reported by Ontario Metal Finishers

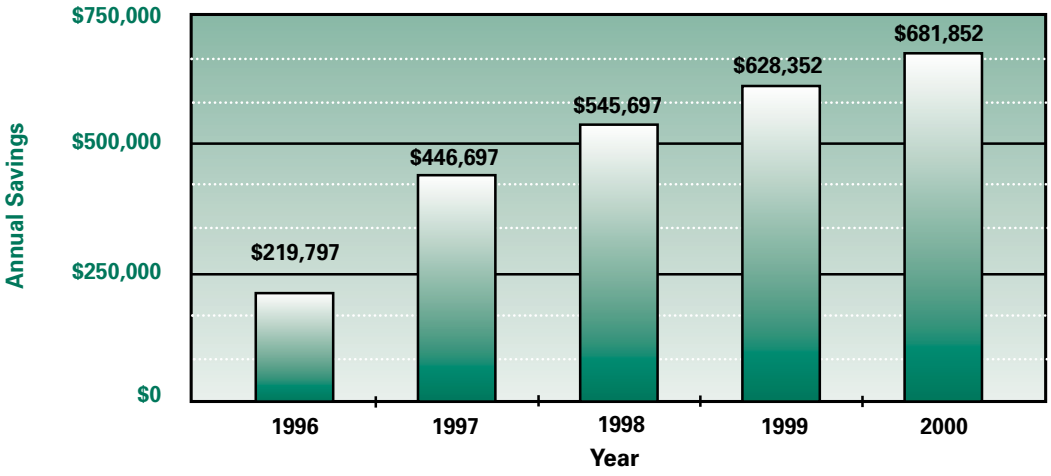
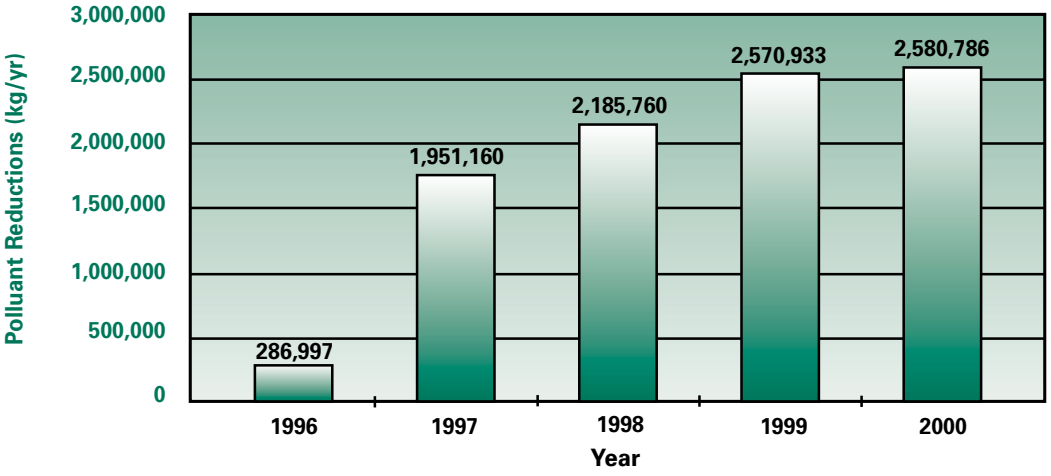


Figure 2: Pollution Reductions Reported by Ontario Metal Finishers



In 2000–2001, Natural Resources Canada helped to set up a North American consortium aimed at bringing hydrogen fuel cells to underground mining operations. One of the major benefits of this technology is pollution-free exhaust. The long-term objective for this work is to retrofit underground mining vehicle fleets, which are currently powered by diesel fuel, with hydrogen fuel cell technology. The target is to retrofit all 3,500 underground diesel vehicles in Canada by 2007. New

Oil and Gas

Environment Canada — Prairie and Northern Region continued to develop pollution prevention expertise, resources and tools to address the oil and gas sectors in the Northwest Territories and Nunavut. The goal is to develop alternatives to resource-intensive management options and to encourage the prevention and reduction of pollution through viable technology. Alternatives include best practices that use "low-impact" or "avoidance" techniques. A workshop on the pollution prevention opportunities for oil and gas developments was delivered in March 2001. New

Western Economic Diversification Canada contributed funds to conduct an Alberta pilot field trial on the use of "paste technology" (thickened fine tailings) to eliminate the use of conventional settling ponds in processing operations. The technology rapidly separates fresh fine tailings into two components: water for recycle and a paste-like material for solid disposal. The results of the pilot will permit industry partners to move into commercial implementation as early as 2002. New

Printing and Graphics

CleanPrint Canada is a pollution prevention project that works with printing and graphics firms, associations and other governments to reduce and/or eliminate the use, generation or release of toxic substances and other substances of concern. Environment Canada is a leader and funding participant in various regional organizations within CleanPrint Canada.

In Ontario, over 1,249 tonnes of toxic substances and other environmental contaminants have been reduced or eliminated from the waste stream over the past five years. Achievements for 2000–2001 include the ISO 14001 certification of Greenflow Environmental Services Inc., the elimination of 400 tonnes of volatile organic compound emissions, and the recycling and reuse of 65,300 kilograms of waste ink and 13,600 kilograms of developer and fixer.

CleanPrint BC is working to promote environmental management tools throughout British Columbia. Some long-term goals of this project include the reduction of volatile organic compound (VOC) emissions from printing in the Lower Fraser Valley to 20% of 1985 levels by 2005, the reduction of discharges of silver and VOCs to the Capital Regional District sewer system by 50% and contributing to a 50% reduction in municipal solid waste in British Columbia. At the CleanPrint BC website, printers can access best management practices, posters, how-to-guides for preparing environmental management plans and a guide to environmental regulations.

Additional regional printing and graphics industry initiatives can be found at http://www.cleanprint.org. Update

Shipyards

Environment Canada — Atlantic Region, in partnership with National Defence, is committed to reducing marine environmental impacts from ship maintenance activities. Both departments are currently exploring the use of hydrosprays as alternatives to abrasive polishing techniques when removing marine growth on ships. In addition, military ship maintenance tender specifications have been revised to include more attention by bidders to environmental issues. Update

Tourism

The Golf Course EcoEfficiency Project is a partnership between GreenLinks Eco-Efficiency Services, Burnside Golf Services and Environment Canada to promote pollution prevention and other environmental management initiatives at 28 golf courses throughout Ontario and an additional 23 courses across Canada. Over the past year, many courses reduced pesticide and other chemical use and achieved reductions in water and energy consumption by implementing projects recommended by project coordinators. The savings generated by these projects will finance more expensive projects in facility service and maintenance in upcoming years. Reductions in waste disposal were achieved by implementing improved waste management practices in all aspects of the facilities. For more information, visit the GreenLinks website at http://www.greenlinks.net. Update

CampGreen Canada encourages recreational vehicle (RV) owners to use non-toxic wastewater treatment products in their holding tanks. RV liquid waste treatment often uses formaldehyde and quarternary ammonia-based compounds that can harm septic systems and the environment. Nova Scotia was the first province in Canada to embrace a unified approach to promoting the use of biological treatment alternatives. The initiative was developed in partnership with the Campground Owners Association of Nova Scotia, Parks Canada, Environment Canada, the provincial departments of environment and natural resources, the Tourism Industry Association of Nova Scotia (TIANS), the Recreational Vehicle Dealers Association and the Good Sam Club. At dumping stations in 23 Nova Scotia provincial parks, 120 private campgrounds in Nova Scotia and all seven federal parks in Atlantic Canada, signs were installed and 100,000 informational pamphlets distributed. A national campaign entitled "Camp Green, Canada!" will be implemented in 2001. Three-year performance targets include the designation of 70% of private, 80% of provincial and 100% of federal campgrounds as chemical-free. For more information, visit the TIANS website at http://www.tians.org. New

GREEN CHEMISTRY

Green Chemistry is the design of chemical processes, products and technologies that reduces or eliminates the use and generation of hazardous substances and that emphasizes broader considerations to development such as the reduction of energy and raw materials use. The concept requires a shift in research and development priorities to more innovative and environmentally benign products and technologies.

Transportation

Pollution prevention demonstration projects were introduced at the Ottawa-Carleton Regional Transit Commission (OC Transpo) Maintenance Facility in partnership with Environment Canada — Ontario Region. Projects, including the replacement of organic solvent baths with aqueous parts washers, are aimed at demonstrating how bus servicing and maintenance operations could be modified to reduce or eliminate the use of hazardous chemicals and improve efficiency and the workplace environment for employees. Update

Environment Canada — Quebec Region initiated a pollution prevention project with Air Canada aimed at reducing the use of dichloromethane (DCM) at its aircraft maintenance facilities. Air Canada has two aircraft maintenance facilities — one in Montreal and one in Toronto. The Montreal maintenance facility has completely eliminated the use of DCM for its paint stripping operations through replacement with benzyl alcohol. This resulted in a 10% reduction in the total use of this substance at Air Canada facilities. The Toronto facility, which accounts for 90% of the volume of DCM used at aircraft maintenance facilities, will reduce DCM use during the coming year. New

Training and Awareness

Environment Canada continued to fulfil its long-term commitment to hold spill prevention workshops. In 2000–2001, two workshops were held in Ontario, each attended by approximately 60 industry and municipal representatives. In Atlantic Region, Environment Canada offered Shoreline Cleanup and Assessment Technique courses to emergency response staff in industrial organizations. New

Natural Resources Canada's FleetSmart program helps the commercial vehicle fleet sector to improve energy efficiency, decrease operating costs and reduce emissions from fleet operations. The FleetSmart Tool Kit contains a series of guides on various aspects of fleet energy management — from computerization and alternative fuel options to vehicle maintenance and procurement. Training in fuel-efficient driving techniques is another key product of the FleetSmart Program. The first in a SmartDriver series of training modules on fuel-efficient driving was developed in consultation with the trucking industry. The kit is available as training resource material to qualified trainers in professional driving schools and fleets. A new SmartDriver series of training modules for the forestry industry, in partnership with the Forest Engineering Research Institute of Canada, is currently being developed. SmartDriver modules for other types of fleet operations such as motorcoach and municipal vehicle fleets will be developed in the future. For more information, visit http://fleetsmart.nrcan.gc.ca. New

Small and Medium-Sized Businesses

EnviroClub™ is a federal–private sector initiative launched by Environment Canada — Quebec Region in 1998 with financial support from Economic Development Canada, the National Research Council of Canada and the Climate Change Action Fund. Its purpose is to introduce pollution prevention projects or develop environmental management systems in small and medium-sized businesses. During 2000–2001, two additional clubs were established in Quebec. A total of 21 businesses have signed on to carry out 7 projects to reduce or eliminate toxic materials, 10 projects to reduce greenhouse gas emissions and 4 projects to prepare and implement environmental management systems. Building on the interest of local business, the Atlantic Canada Opportunities Agency, in partnership with Environment Canada and Business New Brunswick, funded a proposal by the Miramichi River Environmental Assessment Committee to establish a Miramichi EnviroClub™ (the first EnviroClub™ in the Atlantic Region). An estimated 10 to 15 companies will participate in the project. Update

Since 1998, the Eco-efficiency Centre in Burnside has been assisting small to medium-sized businesses in the Burnside Industrial Park, Halifax, to reduce toxics, minimize waste and conserve energy and water. The Centre is based on a partnership between Dalhousie University and Nova Scotia Power Inc., with support from Halifax Regional Municipality, Nova Scotia Department of Environment and Labour and the Atlantic Canada Opportunities Agency. Environment Canada is on the advisory board and provided technical support. By 2000, over 65 companies had joined the Eco-Business Program, adopting an environmental code and committing to

Approximately 51 golf courses across Canada have implemented pollution prevention and other environmental management initiatives to reduce their use of pesticides and other harmful chemicals.

achieving specific waste reduction and conservation goals. Membership entitles companies to a number of services, such as an environmental review and provision of appropriate technical materials. In 2000, 75 environmental reviews of companies were completed. Thirty-four of these companies have used their review and worked with the Centre to achieve the following: 1,569 tons of solid waste diverted from landfill and 95,640 litres of liquid waste diverted from the sewer (this includes reduction in toxics). Fuel oil consumption reductions have saved $36,000. Water consumption has been reduced by 11.4 million litres, and companies have reported economic gains in excess of $54,000. Update

The Abbotsford Business Environmental Pledge Program was piloted by Environment Canada — Pacific and Yukon Region in spring 2000. To date, 12 organizations ranging from the chemical sector to office facilities have participated. Participants have received technical assistance in the form of site visits with recommended actions and information, as well as community recognition. New

With support from Environment Canada's EcoAction fund, the Bedeque Bay Environmental Management Association is working with local businesses in Prince Edward Island to develop environmental action plans. Targeted businesses include the local marina/yacht club, the local newspaper, auto repair shops, dry cleaners, hairdressers, fast food restaurants and various institutions. Reductions of a minimum of 10% of waste, energy, carbon dioxide and water are expected. New

Environment Canada — Ontario Region completed the Enhanced Eco-Efficiency Initiative in Kitchener-Waterloo, a pilot program to encourage small and medium-sized enterprises to reduce or eliminate the use of toxic substances. The program involves a facility audit to inventory toxic substances used and an action-oriented plan to implement low-cost options to eliminate or reduce their use. Seven facility reviews and assessments have been initiated since the program started in December 1999. The Ontario Centre for Environmental Technology Advancement delivers the program on behalf of Environment Canada together with the Ontario Ministry of the Environment, Regional Municipality of Waterloo and industry associations. New

Research and Development

Natural Resources Canada coordinated the Canadian Lightweight Materials Research Initiative (CLiMRI), a government–industry partnership aimed at producing advanced, lightweight components for vehicles. CLiMRI's technical focus is weight reduction in ground transportation with the goal of reducing emissions through improved vehicle efficiency. Natural Resources Canada has invested $2.1 million in 11 ongoing projects since the program began in April 1999. Update

Technology Partnerships Canada is a technology investment fund operating out of Industry Canada that makes high-risk repayable investments in research, development and innovation. In 2000–2001, the fund invested $213.1 million in 10 projects with potential sustainable development benefits. Examples of project areas funded include improving energy efficiency in water treatment technology, hydrogen fuel infrastructure, small gasoline engine pollution reduction, sonar technology to identify leaks in underwater pipelines and airborne climate change monitoring technology. Update

The Ontario Sustainable Aquaculture Working Group includes members from Environment Canada, Fisheries and Oceans Canada, the Federal Commissioner's Office, provincial government, fish farmers, Ontario aquaculture association representatives and scientists from the University of Guelph Aquaculture Centre. The Working Group is developing and testing approaches to maintain acceptable water quality and fish habitat in the vicinity of aquaculture operations. Two low biochemical oxygen demand (BOD) feed formulations for rainbow trout have been developed and are undergoing fish growth trials at the University of Guelph. Two growth periods have been completed, and preliminary results indicate better feed conversion than with normal feeds, resulting in less waste production, BOD and phosphorus. Update

The Microwave-Assisted Processes (MAP) are a family of clean processing technologies that were developed and patented by Environment Canada's Environmental Technology Advancement Directorate. The MAP family of technologies focuses on the use of microwaves to enhance or accelerate biological, chemical or physical processes. Economic and environmental benefits accrue from dramatically reduced energy and chemical consumption and improved performance in terms of product yield and quality with reduced wastes associated with the process. As an example of the ability of MAP to contribute to pollution prevention, the U.S. Environmental Protection Agency has approved the use of a MAP method as a Standard Reference for the preparation of environmental analytical samples. This is also an approved *Canadian Environmental Protection Act, 1999* regulatory Reference Method. The introduction of these methods to laboratories is significant, because it is estimated that about 100 million litres of organic solvents are used in organic analytical laboratories annually. The MAP method requires about 90% less solvent. Toxic solvents such as dichloromethane,

currently used in conventional methods, can be avoided completely, thus greatly reducing human exposure to this substance. In most cases, energy requirements are also reduced by about 90%, which translates into a significant reduction in greenhouse gas emissions. Update

Natural Resources Canada performs research on sustainable casting technology. This work has resulted in the development of lead-free alloys for use by the plumbing industry. The use of these alloys in plumbing fixtures eliminates the possibility of lead leaching from the fixtures into drinking water. Natural Resources Canada also performed research on the management of oil and gas pipeline corrosion. This work is expected to reduce the incidence of oil and gas leaks to the environment. New

Western Economic Diversification Canada (WD) was an early financial contributor to the development of the Ballard hydrogen fuel cell. More recently, WD collaborated with the province of British Columbia to support the creation of Fuel Cells Canada, a national fuel cell industry organization working to promote the development, demonstration and adoption of hydrogen fuel cells and related technologies. The hydrogen fuel cell is expected to become an alternative fuel source for everything from consumer electronics to automobiles — it generates electricity without the generation of greenhouse gases. New

"Research and Technology Transfer in the Floriculture Industry" is a research project in its sixth year with the University of Guelph in Ontario. The purpose of the project is to study nutrient recycling techniques without inhibiting plant growth and to provide technology transfer to the agriculture and agri-food sector. Tests have shown that long-term nutrient recycling can be used with short-term and medium-term crops, such as *Alstroemeria*, gerberas and chrysanthemums,without detrimental effects on production or quality. Nutrient savings that could be achieved using a recirculated system are estimated to be at least 75%. An initial survey was conducted with greenhouses to determine the needs and barriers in using a recirculated system. A more intensive survey will be conducted with a sampling of greenhouses in the coming year to assess the extent to which technology has been transferred based on the research conducted. In addition to partially funding this project, Environment Canada provided guidance and follow-up on progress and assisted in conducting site visits. New

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — *A FEDERAL STRATEGY FOR ACTION**

Goal: Achieve a climate in which pollution prevention becomes a major consideration in industrial activities

Actions:	Status:	Examples:
1. Develop innovative pollution prevention programs	Ongoing	• Camp Green, Canada! • CleanPrint Canada • FleetSmart
2. Promote pollution prevention through refocused research, development and demonstration initiatives	Ongoing	• Sustainable casting technology • Liquid manure composting • Wet clean technology • Canadian Lightweight Materials Research Initiative (CLiMRI)
3. Promote the adoption of sustainable production in industrial and manufacturing processes	Ongoing	• EcoSmart concrete • Canadian Automotive Vehicle Manufacturing Pollution Prevention Project • Metal Finishing Industry Project
4. Implement economic instruments that will result in pollution prevention	Developmental stages	
5. Help small and medium-sized enterprises improve their environmental performance	Ongoing	• EnviroClub™ • Eco-efficiency Centre • Enhanced Eco-Efficiency Initiative

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the private sector.

UPCOMING PROJECTS

- Environment Canada, along with partners on the British Columbia Pollution Prevention for Small Business Working Group, initiated a pollution prevention project for metal finishing in November 2000. The goals of the project are focused on reducing air and effluent releases of volatile organic compounds and metals, particularly hexavalent chromium. Working group activities are scheduled for completion by the end of 2002.
- The CleanMarine Eco-Rating Certification is a three-year commitment to certify 150 marinas in Ontario and rate them based on their environmental performance. Participants will be provided with a CleanMarine Best Management Practices Handbook. Using the manual, marina operators are guided through over 200 environmentally responsible practices in all aspects of marina operation. An audit is then completed to determine the marina's overall level of environmental performance and a rating awarded to indicate its achievement level. The Ontario Marina Operators Association (OMOA) established this certification program in conjunction with the Ontario Ministry of the Environment, Environment Canada and TerraChoice Environmental Services. The official launch of the program will take place in April 2001. For more information, visit the OMOA website at http://www.omoa.com.
- The Ontario Centre for Environmental Technology Advancement delivered a pilot program on behalf of Environment Canada that served as the model for the $2.25 million Business Water Quality Program. This five-year partnership between Environment Canada, the Regional Municipality of Waterloo and the Ontario Ministry of the Environment will include technical assistance and financial incentives to promote best management practices. The program will also educate small and medium-sized enterprises on the benefits of pollution prevention planning to improve environmental performance. It will also promote the objectives of the pollution prevention planning and toxics reduction provisions of the *Canadian Environmental Protection Act, 1999*, with a primary goal to prevent spills to groundwater, surface water and sewers.
- The Toronto Region Sustainability Program is intended to advance the environmental performance of small to medium-sized enterprises and manufacturing facilities. Specific objectives include taking action in reducing smog precursors and moving to zero generation of toxic wastes. The program will be delivered on Environment Canada — Ontario Region's behalf by the Ontario Centre for Environmental Technology Advancement in partnership with Environment Canada's National Office of Pollution Prevention, Ontario Ministry of the Environment, City of Toronto and various stakeholders. The program activities will start in 2001–2002 and last three to five years.
- A technical pollution prevention study was carried out at a textile factory in Quebec by Environment Canada to identify potential pollution prevention projects. The study uncovered numerous opportunities for pollution reduction, including 10 to 20% reduction in water consumption, 10% reduction in consumption of chemical reagents, 5% reduction in energy consumption and an overall reduction in the volume of solid waste.
- Western Economic Diversification Canada provided funds to the Environmental Services Association of Alberta to design and operate a website to showcase Canadian commercial technologies or processes that reduce greenhouse gas emissions or improve energy efficiency. Currently, the site is open to accept solutions, with the hope that the site will contain 200 solutions by March 2002. The site can be found at http://www.ghgshowcase.com.
- Environment Canada developed a joint plan of action with the Atlantic Ready-Mix Concrete Association in March 2001. The outcomes of the plan will include a Best Management Practice guide for Association members, a "Due Diligence" article for the Association newsletter and 40 site inspections throughout Atlantic Canada for 2001–2002.

Progress with the Canadian Public

Federal pollution prevention strategy goal: Provide access to the information and tools necessary to implement pollution prevention practices

Citizen-Driven Activities

Since 1993, an overabundance of flies has bothered residents near Forest Pond, in Goulds, Newfoundland. Elevated pond nutrients along with runoff from some community activities, septic tanks and farms were major problem sources. With financial support from Environment Canada's EcoAction fund, the Goulds Recreation Association implemented a pesticide-free solution over June to October 2000. For short-term relief, five light traps were installed to intercept flies, and for long-term results, terrestrial and aquatic vegetation was planted to reduce nutrient buildup and provide natural predator habitat. New

Health Canada provided support to communities wanting to develop their own green or healthy committee with the Ontario Healthy Communities Coalition. Community health committees established under this program tackled a variety of issues, such as pesticide reduction campaigns (including holding workshops, providing garden tours and promoting pesticide substitutes), promoting energy efficiency through Natural Resources Canada's EnerGuide for Homes program and promoting active transportation through events such as bicycle festivals. Health Canada contributions included management, fundraising and mediation. New

WHAT IS SUSTAINABLE CONSUMPTION?

"The use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations."

Source: Symposium-Sustainable Consumption. Oslo, Norway; 19–20 January 1994.

ECOACTION FUND

The EcoAction Community Funding Program is an Environment Canada program that provides financial support to community groups for projects that have measurable, positive impacts on the environment. Priority for funding is given to projects that will achieve results in the following areas: clean air and climate change, clean water and nature. To view stories on community groups in action that have improved their local environment and achieved positive and sustainable results, visit http://www.ec.gc.ca/ecoaction. Some examples of 2000–2001 projects that received EcoAction funding are provided below:

- Approximately one-third of homes in Newfoundland and Labrador are heated with oil, with domestic oil spills being a significant percentage of all oil spills in the province. A "best practices" project helped build public awareness of the health, environmental and financial aspects of spill prevention and home oil tank purchasing, installation and maintenance. Some 1,500 oil tank inspections were conducted in seven towns. These visits and other promotional activities should improve storage practices and reduce domestic oil spills.
- The St. Lawrence River Institute of Environmental Sciences initiated a project that resulted in the diversion of 252 kilograms of toxic lead from the St. Lawrence River watershed. This was accomplished by educating community members on the negative effects of lead sinker and jig use and through the implementation of sinker and jig exchange programs in the City of Cornwall, Ontario, and outlying areas. Through the project, over 800 participants exchanged their lead sinkers and jigs for non-toxic alternatives.
- In Corner Brook, Newfoundland, the Western Environment Centre focused its efforts to reduce non-economically driven pesticide use. Pesticide-free community gardens and composting centres exposed 3,000 citizens to various organic gardening techniques. Visits to home and cottage owners provided information on, and alternatives to, pesticide use. Results have indicated that 500 litres of the pesticide diazinon and 1500 kilograms of Weed and Feed were diverted from use.
- The Fédération des associations de lacs et de rivières de la vallée de la Gatineau introduced a program to reduce phosphate discharges affecting aquatic environments. The program covers more than 12 lakes and some 2,438 seasonal and year-round river front property owners. All residents were visited in an effort to educate and persuade them to change their consumption habits in favour of domestic maintenance products that are less harmful to the environment.
- The Mercury Awareness Program for Students involved the development and delivery of mercury awareness information materials and workshops for students in grades four to six in the Thames Valley School Board and the London Middlesex Separate School Board in Ontario. The goal of the project was to increase students' awareness of mercury as a household toxic substance and to reduce the amount of mercury going to landfill by 10%.

Public Awareness Campaigns

Health Canada supported Go for Green's Active Transportation program. The program encourages Canadians to choose active modes of transportation that contribute to a cleaner environment and improved personal health. This year's projects included the development of the following publications: a report entitled "Fitting Places: How the Built Environment Affects Active Living"; fact sheets entitled "Making the Case for Active Transportation"; and a guidebook entitled "Walk and Role: A Guide to Active Transportation to, from and at the Workplace." The Active and Safe Routes to School Program is also supported by Health Canada and coordinated through Go for Green's Active Transportation program. This year's event attracted 840 Canadian school participants, and 74 schools received funding to encourage children to use an active mode of transportation to get to school. **Update**

The Conservation Corps of Newfoundland and Labrador encourages home owners to conduct environmental assessments on their homes to help reduce energy use, water consumption and chemical use.

The Conservation Corps of Newfoundland and Labrador is participating in a two-year program of home environmental assessments to reduce energy use, water consumption and chemical use. Approximately 7,200 visits are planned in the Happy Valley–Goose Bay area, 7,200 for the St. John's area and 7,200 other visits in Newfoundland and Labrador. The project will benefit the environment and human health by reducing greenhouse gas emissions, improving water quality and reducing exposure to chemicals — and, in many cases, saving money. Initiated in summer 2000, the project received money from the Environment Canada Community Animation Program for staff training on the EnerGuide, environmental auditing and social marketing. **Update**

"Earth Tones" is a television series focusing on environmental science taking place at Environment Canada, Agriculture and Agri-Food Canada, Fisheries and Oceans Canada, Health Canada and Natural Resources Canada. The series of "Millennium Moments" profiled the past work and scientific breakthroughs of government scientists that continue to benefit Canadians. Topics include wildlife and habitat protection and chlorinated solvents. **Update**

Atlantic Canada universities are turning green. The Mount Allison University Environmental Policy Steering Committee is responsible for implementing the university's environmental policy, conducting biannual audits and coordinating other related projects. Similarly, the Acadia Environmental Society is creating an environmental policy for the university and is working towards ISO 14001 certification. The Sierra Youth Coalition at Dalhousie University is involved in similar work. All groups received Climate Action Plan funding support for audit methodology training and skill building in pollution prevention auditing on solid waste, energy and water consumption. **New**

Environment Canada — Quebec Region provided the Association pour l'air pur de Lanaudière with technical support for a regional public awareness campaign about the impact of wood heating on air quality. Approximately 600 single-family homes were visited, and owners were encouraged to practise more environmentally friendly wood heating. During the visits, Environment Canada brochures on heating with wood were distributed, and a program promoting the sale of less-polluting wood-burning stoves, through incentives such as discount coupons, was introduced. **New**

Environment Canada initiated the Atlantic Coastal Action Program (ACAP) as a means of mobilizing local communities to address their own environmental and developmental challenges. ACAP Cape Breton Inc. and the Bedeque Bay Environmental Management Association Inc. (Prince Edward Island) undertook projects to demonstrate to the community the value of a community garden. The projects promoted alternatives to traditional garden chemicals, reduced water consumption and increased earth-friendly practices. The project resulted in a total of 38 community gardeners practising environmentally friendly gardening methods. In a separate ACAP

THE *CANADIAN ENVIRONMENTAL PROTECTION ACT* (CEPA) ENVIRONMENTAL REGISTRY

The CEPA Environmental Registry is a comprehensive source of public information relating to activities under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). In addition to providing up-to-date copies of current CEPA instruments, the primary objective of the Environmental Registry is to encourage and support public participation in environmental decision-making, by facilitating access to documents arising from the administration of the Act. To access the Registry, visit http://www.ec.gc.ca/CEPARegistry/.

Cape Breton Inc. activity, a vehicle emissions clinic was held in Sydney, Nova Scotia. Volunteers conducted visual examinations and exhaust emission tests and measured pollutant levels of hydrocarbons and carbon monoxide. Drivers received a copy of their test results along with tips on improving fuel efficiency and alternatives to car transportation, such as carpooling, biking, walking and public transit. Results include 340 vehicles tested at the clinic, raised public awareness regarding vehicle emissions and improved air quality in general. New

Access to Information

Natural Resources Canada's Auto$mart Program encourages motorists to buy, drive and maintain their vehicles in ways that reduce fuel consumption, save money and benefit the environment. Auto$mart aims to improve the energy efficiency practices of private motorists by influencing car purchase decisions, on-road driving practices and vehicle maintenance practices through the provision of information to drivers. Last year, nearly 212 new driver educators, for a total of 1,050 active educators under the program, used the Auto$mart driver kits to reach about 55,000 novice drivers. Over 855,000 drivers have received Auto$mart driver kits since the start of the program. Update

The Canadian Pollution Prevention Information Clearinghouse (CPPIC) is an Internet tool that links Canadians with the information they need to practise or support pollution prevention. CPPIC provides a variety of pollution prevention documents, such as technical reports, guides, regulations, training materials and success stories. CPPIC has enhanced its content to reflect the growing interest in pollution prevention. New sections include the *Canadian Environmental Protection Act, 1999*, pollution prevention funding and pollution prevention planning. The database continues to expand and now includes over 1,200 pollution prevention references classified under 40 different industrial sectors. In addition, the CPPIC site has been redesigned to make it more accessible to Canadians. Visit the new CPPIC at http://www.ec.gc.ca/cppic. Update

The Canadian Pollution Prevention Roundtable is recognized as a unique opportunity to stimulate action on pollution prevention efforts across Canada. Sessions at the 4th roundtable — Pollution Prevention in Action — held in Toronto, focused on the latest in pollution prevention policy, technical assistance and resources. Highlight sessions included Community-based Social Marketing — Encouraging Sustainable Change in Behaviour, Implementing Pollution Prevention Planning and a showcase of business case studies from a wide range of sectors. With funding support from Environment Canada, the Canadian Centre for Pollution Prevention, a non-profit organization, coordinates the roundtable. For more information, visit http://www.c2p2online.com, and click on "Conferences & Training." Update

TerraChoice Environmental Services Inc., on behalf of Environment Canada, manages and delivers the Environmental Choice™ Program (ECP). The ECP is an eco-labelling program that helps individuals, corporations and governments make informed purchasing decisions to reduce their environmental impacts. About 3,000 brand name products in about 125 product categories now bear ECP's EcoLogo, including appliances, cleaners, office equipment, electricity and paints. For more information, visit http://www.environmentalchoice.com. Update

Environment Canada's Pollution Prevention Success Stories website has been redesigned and improved. The website currently recognizes over 70 Canadian organizations, companies and individuals who are making a difference in pollution prevention. The stories include project descriptions, an outline of environmental and economic benefits and key contacts for more information. Stories cover over 30 different sectors and include water and energy conservation; process modifications; product reformulation and/or redesign; raw material substitution; improvements in housekeeping, maintenance, training and/or inventory control; and new or clean technologies. For story details, visit http://www.ec.gc.ca/pp. New

Addressing Climate Change

The Climate Change Action Fund, administered by the Climate Change Secretariat for the Government of Canada, contributed funding for 152 partnered projects that raised Canadians' awareness of climate change and promoted action to reduce greenhouse gas emissions. Highlights include over 11,000 households participating in home visits that encouraged energy efficiency and raised awareness of climate change and thousands of Canadians participating in new or expanded ride-share programs. New climate change classroom materials, teacher workshops and a variety of touring climate change interactive presentations to schools across the country gave students an opportunity to participate in action-oriented programs to reduce their greenhouse gas emissions. Over 2 million Canadians learned about climate change through museum, science and nature centre exhibits, local public awareness campaigns, conferences, workshops and websites. Businesses have also come on board by providing tools and information to make changes in daily operations and by encouraging employees to reduce their greenhouse gas emissions at work, at home and on the road. For more information, visit http://www.ec.gc.ca/climate/action-e.html.

Update

The Government of Canada Action Plan 2000 on Climate Change is a five-year program, begun in November 2000, that will reduce greenhouse gas emissions by 65 megatonnes per year in key sectors of the economy. Action Plan 2000 will reduce emissions by requiring Canadians to make changes in the way they produce and use energy, as well as in the way that people and goods are transported. Environment Canada will play a lead role in developing the plan of action for taking Canada the rest of the way to its Kyoto commitment and in continuing its international efforts on climate change.

New

ENVIRONMENT CANADA'S NATIONAL OFFICE OF POLLUTION PREVENTION PLAYED A LEAD ROLE IN PROMOTING AND COORDINATING YOUTH PARTICIPATION IN SEVERAL DOMESTIC AND TWO INTERNATIONAL EVENTS.

Examples include:

- *Canadian Pollution Prevention Roundtable 2000*: Two members of the Youth Roundtable on the Environment (YRTE) were provided with an opportunity to get acquainted with pollution prevention initiatives and programs and to expand their networks in that field. They were asked to report their experiences back to the YRTE to promote future involvement in the area of pollution prevention.
- *Experts Meeting on Product and Supply Chain Policies and Tools for Sustainable Development*: The Canadian youth delegate on the United Nations Environment Programme (UNEP) Youth Advisory Council was sponsored to participate in this experts meeting to discuss the future of innovative approaches to product and system design.
- *UNEP'S 6th International High-Level Seminar on Cleaner Production and the International Pollution Prevention Summit*: Youth participation and representation in these two international events included one member of the YRTE and two members of the UNEP Youth Advisory Council (one from Canada and one from Cameroon). These youth actively participated on the Action Planning group that addressed the theme "Changing Cultures and Behaviours." The ideas and opinions of the youth representatives were profiled and printed in a daily newsletter throughout the duration of the Summit.

Along with increasing their awareness of pollution prevention issues, the youth representatives shared their dynamic and insightful views of today's environmental concerns. Youth representatives play an important role as stakeholders in the information-gathering process.

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Provide access to the information and tools necessary to implement pollution prevention practices

Actions:	Status:	Examples:
1. Provide information that illustrates how pollution prevention fits into daily activities	Ongoing	• Active Transportation initiative • EcoAction program • Canadian Centre for Pollution Prevention
2. Create a national pollution prevention clearinghouse	Complete	• Canadian Pollution Prevention Information Clearinghouse
3. Encourage consumers to use their purchasing power to promote pollution prevention	Ongoing	• Auto$mart Program • Environmental Choice Program • Woodstove changeout programs

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with individual Canadians.

Progress with the International Community

Federal pollution prevention strategy goal: Participate in international pollution prevention initiatives

International Agreements and Technology Transfer

In December 2000, Canada and the United States signed the Ozone Annex to the 1991 Canada–U.S. Air Quality Agreement. It commits both governments to significantly reduce the creation of smog-causing pollutants — nitrogen oxides and volatile organic compounds — in Ontario, Quebec and the northeastern and midwestern United States. The goal is to implement cost-effective emission reductions through energy efficiency, renewable energy, cleaner fuel and alternative technology. It is estimated that the total nitrogen oxide reductions in the Canadian transboundary region will be 44% year-round by 2010. The Ozone Annex builds on the earlier success in reducing acid rain under the Canada–U.S. Air Quality Agreement. **Update**

The UNEP 6th International High-Level Seminar on Cleaner Production brought together senior decision-makers from over 85 countries to address a variety of topics surrounding cleaner production.

Canada continued its international leadership role in protecting the stratospheric ozone layer by accepting a new amendment to the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. Canada was one of the first countries to accept this amendment, internationally known as the Beijing Amendment, to ensure stronger controls on the production and consumption of chemicals that deplete the ozone layer. Subsequently, Canada's *Ozone-Depleting Substances Regulations 1998* were revised to enable Canada to accept the Beijing Amendment, improve controls on ozone-depleting substances and address administrative issues. These amended regulations came into force on January 1, 2001. **Update**

Because of atmospheric circulation, persistent organic pollutants (POPs) travel great distances from their sources, posing significant risks to the health of Canadians. This is of particular concern to northern Aboriginal populations dependent on traditional foods. Even though Canada has banned or restricted their use, most POPs of concern are transported from foreign sources through the atmosphere into Canada, where they accumulate in the food chain. Canada was the first country in the world to establish an international fund to deal with POPs. The Canadian International Development Agency provided $20 million to the Canada POPs Fund, administered by the World Bank, to help developing countries and countries with economies in transition to reduce or eliminate the release of POPs, including certain pesticides (e.g., DDT) and industrial chemicals (e.g., PCBs). On a similar note, Health Canada was part of the Canadian delegation that led in the development and negotiation of a global agreement on banning the manufacture, sale, use and trade of POPs. The agreement was available for signing in the spring of 2001. **New**

As part of the Climate Change Action Fund, Technology Early Action Measures (TEAM) provides financial support for international demonstrations of climate change technologies. The Climate Change Office of Industry Canada contributed salary dollars to TEAM administration and participated in the inter-departmental review of prospective projects. As an example of TEAM's work, Western

INTERNATIONAL POLLUTION PREVENTION SUMMIT

In October 2000, over 250 leading practitioners and decision-makers from more than 60 countries, representing all regions of the world, gathered in Montreal for the International Pollution Prevention Summit. The Summit produced a series of action plans for furthering sustainability goals in the areas of changing behaviour, education, finance and government policy.

The Summit also saw the launch of the Global Cleaner Production Network. This Internet-based Network will be designed to collect and share successful practices and new ideas on eliminating pollution. It will also serve as a virtual meeting place for the hundreds of pollution prevention roundtables and sustainability and cleaner production networks worldwide.

The Canadian Centre for Pollution Prevention and Environment Canada's National Office of Pollution Prevention hosted the Summit with guidance from an international Steering Committee. The Millennium Bureau of Canada was a core financial supporter. For more information, visit http://www.c2p2online.com, and click on "Conferences & Training."

Preceding the Summit, Canada hosted the United Nations Environment Programme's 6th International High-Level Seminar on Cleaner Production, bringing together senior decision-makers in cleaner production from over 85 countries. Panels addressed a variety of topics, including facing new challenges, the International Declaration on Cleaner Production, technology innovations and cleaner production, twinning industrial ecology and cleaner production, and perspectives for the next decade. For more information, visit http://www.uneptie.org/CP6.

Economic Diversification Canada, on behalf of TEAM, administered an alternative method to industrial waste disposal while reducing greenhouse gas emissions. The project involved the composting of industrial and municipal waste streams at the Edmonton Waste Management Centre, including industrial sludge, oily waste and biosolids. The compost was sold in the landscaping market. **Update**

The Canadian International Development Agency (CIDA) manages the $100 million Canada Climate Change Fund on behalf of the Government of Canada. Through this fund, CIDA promotes, facilitates and/or finances the transfer of environmentally sound technologies that address the causes and effects of climate change to developing countries. The four programming areas are emission reductions, carbon sequestration, adaption and core capacity-building. Transfers are completed in such a way as to build knowledge, equipment and product capacity in the recipient country. Two rounds of project selection, one in the fall of 2000 and the most recent in the spring of 2001, have been completed. **New**

Through partnerships with the Canadian International Development Agency (CIDA), Natural Resources Canada promotes environmental stewardship in minerals and metals mining abroad. During 2000–2001, Natural Resources Canada managed contracts on behalf of CIDA in Guyana, Brazil and Zambia. The objective of these projects is to transfer Canadian technical expertise in environmental management related to mining in order to improve the capability of these countries' governments to manage their mining interests, thereby reducing the risks to human health or the environment. **New**

With financial support from the Canadian International Development Agency, Environment Canada, through the Ontario Centre for Environmental Technology Advancement and ETV Canada Inc., continued introducing the principles, protocols and benefits of environmental technology verification (ETV) adapted from Canada's model to the international community. Phase 1 began in 1999–2000 with the transfer of expertise to the People's Republic of China. The transfer continued in 2000–2001, as well as the development and approval to implement Phase 2 — Development of the Chinese Environmental Technology Verification System — in the next year. Chinese stakeholders regard ETV as a valuable tool and methodology for assessing the performance of pollution prevention and control technologies through an objective third-party rigorous process that establishes credibility for both the buyer and the vendor. In 2000, the transfer of ETV expertise also commenced in Indonesia. Additional work for adapting the concept in Indonesia will be continued once funding becomes available. India has also expressed interest in ETV, and a workshop is under consideration to introduce the ETV concept and integrate it into India's pollution prevention policies. **New**

North, Central and South America

The Environmental Services Association of Alberta, with funding from the Canadian International Development Agency, works with the Latin American association of 27 oil and gas companies (ARPEL) to enhance the ability of member companies to develop and implement environmental protection and management plans, programs and guidelines. In order to achieve the objective of reduced atmospheric emissions and increased energy efficiency within the Latin American oil and gas industry, seven environmental guidelines were developed and four ARPEL member companies were selected to participate in direct technical assistance to the facilities during 2000–2001. **Update**

Asia and Africa

With the support of the Canadian International Development Agency, the China–Canada Cooperation in Cleaner Production project was created in 1995 to assist China in implementing cleaner production in priority sectors. During 2000–2001, the project trained Chinese policy and technical experts so they can train others in the realm of audits, guidelines and cleaner production solutions. A draft of national cleaner production legislation was proposed and is now under review. A number of policy and guideline documents are also under way. One set of guidelines identifies 10 cities as demonstration sites for the promotion and introduction of cleaner production. The guidelines also identify several priority industrial sectors — petrochemical, metallurgy, chemical (nitrogen fertilizer, phosphate fertilizer, chlor-alkali and sulphuric acid), pulp and paper, fermentation and beer-making, and ship building. Initial success at a fertilizer plant and paper mill has resulted in the application of similar solutions to eight fertilizer plants and six pulp and paper mills. The six paper mills combined have achieved annual reductions in water (6 million tonnes), coal (11,000 tonnes) and fibre removed from waste (15,000 tonnes). For more information on China's cleaner production projects, visit http://www.chinacp.org.cn. **Update**

Jiangsu Small and Medium-Sized Enterprises (SME) Applied Management and Environmental Project provided assistance in management and in environmental and business planning capacity to SMEs. The Jiangsu provincial government and the Canadian International Development Agency sponsored this project. Results achieved include those at the Gaoyou Feida Chemical Plant: a 24% reduction in the volume of effluent, a reduction in the concentration and volume of chemical oxygen demand and sulphur released and a 15% drop in the cost of production. **Update**

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Participate in international pollution prevention initiatives

Actions:	Status:	Examples:
1. Stimulate a shift to pollution prevention in international organizations	Ongoing	• Asia-Pacific Economic Cooperation • United Nations Environment Programme
2. Incorporate pollution prevention into international standards	Ongoing	• Canada's introduction of environmental technology verification to the international community • Canada–China Cooperation in Cleaner Production
3. Advance pollution prevention through international protocols and agreements	Ongoing	• Canada–U.S. Air Quality Agreement • Kyoto Protocol • Montreal Protocol

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the international community.

The Canadian International Development Agency and the Department of Technical and Economic Co-operation of Thailand provided technical assistance to Cambodia, Lao People's Democratic Republic (PDR) and Vietnam under the Canada–Thailand Trilateral Project. Through 17 sub-projects, participants gained knowledge through training and information exchange in the areas of solar photovoltaic electrification, biogas energy and clean coal technology. The use of solar power was demonstrated as a viable energy source for small villages in remote locations. In addition, alternative energy sources (solar photovoltaic electrification, biogas and coal-based briquette production) were introduced in rural areas throughout Lao PDR. An educator's manual for promoting the energy conservation awareness of youth was introduced in Vietnam, Cambodia and Lao PDR.

New

In 2000, the Canadian International Development Agency, in partnership with Resource Efficient Agriculture Production (REAP, an independent research and development organization), initiated the Southern Negros Sustainable Agriculture Demonstration Project in the main sugar-growing region of the Philippines. The project aims to actively rehabilitate the natural resource base of the region through the adoption of ecological farming practices. Through informal information sharing and farmer-to-farmer training, farmers are encouraged to explore natural pest control methods to replace widely used synthetic pesticides. So far, 60% of farmers in five communities have used these methods, resulting in improved water and soil quality. Other benefits of the program include reductions in greenhouse gas emissions through minimized crop residue burning and decreased use of fossil-based energy inputs.

New

UPCOMING PROJECTS

At the Sixth Conference of the Parties to the United Nations Framework Convention on Climate Change, held in The Hague in November 2000 and resumed in Bonn in July 2001, 178 nations concluded a landmark agreement on the rules for implementing the Kyoto Protocol. Immediately afterward, Prime Minister Jean Chrétien indicated that the agreement opened the way for Canada's ratification of the Kyoto Protocol next year, following full consultations with the provinces and territories, stakeholders and other Canadians. With the acknowledgement in the Bonn Agreement that "sinks" can play a major role in addressing climate change, as well as the initiatives funded in Budget 2000 and in the Government of Canada Action Plan 2000 on Climate Change, Canada is on the way to addressing half of the target established in the Kyoto Protocol of 6% below 1990 levels of greenhouse gas emissions.

Moving Forward

Canada has a strong record of promoting economic prosperity, social development and environmental progress both nationally and internationally.

On the journey towards sustainable development, federal departments will continue to learn and improve. This growth is evident through the results achieved since the creation of the federal pollution prevention strategy. With a refreshed emphasis on tracking progress against the strategy, new and continuing initiatives will promote the use of processes, practices, materials, products, substances and energy that avoid or minimize the creation of pollutants and waste.

This report, *Progress in Pollution Prevention 2000–2001*, demonstrates the Government of Canada's commitment to "institutionalize pollution prevention across all federal government activities," as stated in *Pollution Prevention — A Federal Strategy for Action*. This report will also serve as an essential reference as Canada prepares to present its environmental progress at the Second Earth Summit (Rio+10) in 2002.

Environment Canada will use the tools in the *Canadian Environmental Protection Act, 1999* to ensure protection of the environment and human health. The Act underscores the importance that the Government of Canada places on preventing risks caused by toxic substances to all Canadians and the environment in which they live and its commitment to sustainable development.

Environment Canada will also continue to work with other federal departments to ensure a more integrated approach to pollution prevention policy development that fosters innovation. While the federal government has achieved significant progress on greening its operations, further efforts are required to broaden and enhance progress made on greening its policies and programs. To advance this work and profile successes, all federal departments are encouraged to record their pollution prevention efforts during the year for inclusion in upcoming annual progress reports.

Having developed consensus and commitment to a coordinated approach, federal departments will continue to "green" operations. Many departments have shown leadership in setting best practices as well as specific performance measures. A focus will be on sharing the lessons learned from this process with all federal departments. Strengthening environmental baseline data and developing practical means to report progress will continue to be a priority.

The Government of Canada will continue to advance scientific knowledge and communicate to Canadians the impacts of toxic substances and substances of concern on human health and the environment. A sound foundation of scientific knowledge will support the prevention and reduction of threats to the environment and health of Canadians.

Work will move forward on the development of emission reduction strategies to meet Canada-wide Standards for air quality. Jurisdictions have decided to consult further with industry, municipal, environmental, health and Aboriginal groups on the development and implementation of these standards on substances such as mercury, benzene, and dioxins and furans.

Access to information, tools and funding will remain essential to recognize and encourage the abilities of individuals and communities to make better, informed decisions that will protect the environment.

The pollution prevention successes achieved in 2000–2001 leave the Government of Canada well positioned to address environmental issues in an innovative and effective way, giving Canada a competitive edge in the industries of the future.

Moving Forward (continued)

The Pollution Prevention Coordinating Committee encourages all Canadians to identify and pursue opportunities for pollution prevention. Federal departments can facilitate and coordinate partnerships with businesses, environmental groups, scientists, Aboriginal communities, other governments and individual citizens. By continuing to work together towards the goal of avoiding the creation of pollutants and waste, Canadians will protect the environment and human health and secure a sustainable economy for generations to come.

On the Internet, view this report at http://www.ec.gc.ca/p2progress.

Annual meeting of the Pollution Prevention Coordinating Committee in St. John's, Newfoundland, June 2001.

To view Pollution Prevention — A Federal Strategy for Action, visit http://www.ec.gc.ca/pollution/strategy.

Appendix I

Pollution Prevention Coordinating Committee Membership List

ENVIRONMENT CANADA

National Office of Pollution Prevention
James Riordan (Chairperson)
John de Gonzague (alternate Chairperson)
Kathi De (Coordinator)

Environmental Technology Advancement Directorate
Patricia Mitchell / Adrian Steenkamer

Regions
Rodger Albright
Atlantic Region
Thanh Thao Pham
Quebec Region
Brad Cumming / Ron Nobes
Ontario Region
David Noseworthy
Prairie & Northern Region
Andrew Green
Pacific & Yukon Region

Interdepartmental Network on Sustainable Development Strategies
Craig Ferguson / Stefania Trombetti

Federal Committee on Environmental Management Services
Richard Arseneault

NATURAL RESOURCES CANADA

Richard Arseneault / Chris Callaghan

INDUSTRY CANADA

Environmental Affairs Branch
Adam Moser

NATIONAL DEFENCE

Directorate of Environmental Protection
Holmer Berthiaume / Sean Baptiste

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

Environment Division
Khalid Hilal

FISHERIES AND OCEANS CANADA

Real Property Management Directorate
Francine Richard

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Environmental Services
David Chappell

TRANSPORT CANADA

Environmental Affairs
Alec Simpson / Saleem Sattar / Russ Smith

DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE

Environmental Services
Jaye Shuttleworth

AGRICULTURE AND AGRI-FOOD CANADA

Corporate Services Branch - Asset Management and Capital Planning Directorate - Engineering Services
Pierre Laplante

HEALTH CANADA

Environmental Management Systems Division
John Horricks / Karen Prince

Members can be reached through the Government of Canada Employees Directory at http://direct.srv.gc.ca/.

Appendix II

Federal Department and Agency Contributors to Progress in Pollution Prevention 2000–2001

Environment Canada

Agriculture and Agri-Food Canada

Atlantic Canada Opportunities Agency

Canadian Food Inspection Agency

Canadian International Development Agency

Citizenship and Immigration Canada

Economic Development Canada

Foreign Affairs and International Trade

Health Canada

Human Resources Development Canada

Industry Canada

National Defence

Natural Resources Canada

Public Works and Government Services Canada

Statistics Canada

Transport Canada

Western Economic Diversification Canada

On the Internet, view this report at http://www.ec.gc.ca/p2progress.

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For more information about the **Environmental Choice^{M} Program**, please visit the ECP website at **www.environmentalchoice.com** or telephone (613) 247-1900.

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