

Annual Report 2001

Commission for
Environmental Cooperation
of North America



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Mission

The CEC facilitates cooperation and public participation to foster conservation, protection and enhancement of the North American environment for the benefit of present and future generations, in the context of increasing economic, trade and social links among Canada, Mexico and the United States.

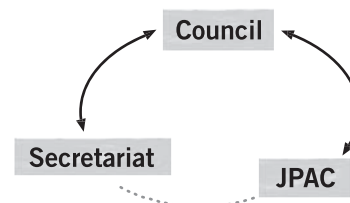


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Message from the Council

When our heads of government met in April of this year for the Summit of the Americas in Quebec City they joined their colleagues in expressing that free and open economies, and market access are key to promoting sustainable development. Moreover they committed to work with all sectors of civil society and international organizations to ensure that economic activities contribute to the sustainable development of our societies.

In consideration of this vision, we—the environment ministers of Canada, Mexico and the United States—responded with new directions for the work of the CEC. To build on the existing work program, and to enhance the Commission's effectiveness in promoting protection, conservation and sustainable use of the environment in the context of the North American Free Trade Agreement, we adopted a framework that emphasizes:

- gathering, compiling, and sharing high-quality environmental information,
- promoting the use of market-based approaches,
- cooperating regionally in the implementation of global commitments,
- building capacity for stronger environmental partnerships,
- strengthening strategic linkages to improve sustainability, and
- promoting public participation in the CEC's work.

This framework will guide our work over the coming years, and has already resulted in significant progress in a number of important areas this year.

Recognizing that improper tracking and disposal of hazardous wastes presents serious environmental and human health consequences worldwide, the CEC began development of a regional, North American approach to the environmentally sound management of hazardous wastes.

This year we also continued our progress in the development of a cooperative agenda to protect children from environmental harm, with the appointment of an Expert Advisory Board on Children's Health and the Environment in North America.

The Commission continued to build national capacities to make environmental progress. In particular, support was given to Mexico's Pollution Prevention Roundtable as well as Pollution Prevention Roundtables for the Mexico-United States Border. The Secretariat continued its activities related to the elimination of DDT use in Mexico, and with the Plan Puebla-Panama, an action plan is now in place to extend this successful approach throughout Central America.

Finally, with the progress made by Mexico this year, we have succeeded in ending the approved use and production of chlordane in North America.

We are pleased to present the following annual report elaborating on these, and other, CEC accomplishments for 2001.

David Anderson
Canada
Minister of the Environment

Victor Lichtinger
Mexico
*Secretary of Environment
and Natural Resources*

Carol M. Browner
United States
*Environmental Protection
Agency Administrator*

Report from the Joint Public Advisory Committee

The Joint Public Advisory Committee (JPAC) had a very focused and productive year. Beginning with a joint workshop on trade and transportation corridors in March, the Committee sought to provide concrete and constructive advice on aspects of the CEC work program considered a priority by the members. Advice was also prepared on the importance of including environmental considerations in any Free Trade Area of the Americas agreement and on taking steps to protect North America from the spread of foot and mouth or 'mad cow' disease.

Our second meeting was held simultaneously with the Council session in June, where round tables were organized to solicit the public's views and recommendations on the CEC's proposed program plan for 2002–2004. The completeness of the draft program allowed for constructive and timely comments, and was a testament to the maturity and increased efficiency of our institution. A letter to the Secretariat seeking action on Lake Chapala was also prepared.

This permitted our next meeting, held in October 2001, to focus on final recommendations on the revised program plan. A previously scheduled joint meeting with the Sound Management of Chemicals Working Group (SMOC) was cancelled due to the events of 11 September in the United States. Several JPAC members were later able to attend a rescheduled session, permitting JPAC to prepare a detailed advice on the SMOC program.

Our final meeting in November was held in conjunction with the CEC symposium on the Environmental Challenges and Opportunities of the Emerging North American Electricity Market. JPAC is looking forward to receiving the resulting draft Article 13 report for review. At the November meeting, JPAC also prepared an advice on the organization of the public portion of the 2002 Council Session, recommending that education and capacity building related to SMOC be the subjects for the round tables and that a session be organized to stimulate networking among the participants.

Citizen Submission Process under Articles 14 and 15 of the North American Agreement for Environmental Cooperation (NAAEC)

JPAC delivered its Articles 14 and 15 Lessons Learned report to Council in June 2001, as planned. Council did not respond formally to the recommendations in 2001.

Throughout the year, matters related to the implementation of this process continued to pre-occupy the public and our Committee. As a result of the manner in which Council instructed the Secretariat to produce factual records on several submissions, JPAC took the decision to trigger the public review process for issues concerning the implementation and further elaboration of Articles 14 and 15 and requested Council to authorize a public review on two issues. This difficult decision was made only after having provided an Advice to Council urging another approach.

It was an honor and a pleasure to act as JPAC chair for 2001. For the first time in several years, JPAC operated with full membership, facilitating a North American balance in our discussions and decisions. This surely contributed to a successful year.

Liette Vasseur
JPAC chair for 2001

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Message from the Executive Director of the CEC Secretariat



In addition to each country's efforts to promote sustainable development, the CEC is helping Canada, Mexico, and the United States do together what cannot be done alone. Whether it's an action plan to eliminate the worst toxic pollutants, or closing the pathways of invasive species, this report profiles the very real benefits of international cooperation to protect our shared environment.

The CEC is also a forum for the public to participate in the development of environmental policy and scrutinize the enforcement of environmental laws. Indeed, the creation of the CEC set a precedent among international environmental institutions by integrating public involvement at the highest level.

This year is remarkable for the steps taken to improve those features. In June, the Joint Public Advisory Committee (JPAC) reported on *Lessons Learned* after extensive review of the Citizen Submissions on Enforcement Matters process. Created by the North American Agreement on Environmental Cooperation, citizen submissions provide a unique opportunity for the public to act as whistle-blowers if they believe governments have failed to effectively enforce environmental laws. The JPAC report made a series of suggestions to improve the transparency, timeliness, and effectiveness of this process and Council agreed to take action on some of these recommendations.

The Secretariat also took steps to advance the citizen submissions process. In particular, cutting the time taken to review and make a determination or recommendation for each submission. By year end we submitted plans for the development of five factual records under this process, an unprecedented volume in response to public requests from across the continent.

In all, this has been year of progress, both in terms of public participation and international cooperation in support of sustainable development. I am pleased to present the CEC's annual report for 2001.

Janine Ferretti

Cooperative Achievements



2001 Program Summary

■ Environment, Economy and Trade

The complementary goals of the Environment, Economy and Trade program are: to improve the environmental assessment of trade liberalization and expanding sustainable economic activity in North America, and to support environmental protection by improving our understanding of green goods and services and the use of supportive market mechanisms.

Program Initiatives

- Emerging Environmental Trends in North America
- Assessing Environment and Trade Relationships
- Supporting Biodiversity Conservation through Green Goods and Services: Shade Coffee, the Chamaedorea Palm and Sustainable Tourism
- Market and Financial Mechanisms in Support of the Environment

■ Conservation of Biodiversity

The mission of work in the Conservation of Biodiversity program area is to promote cooperation among Canada, Mexico and the United States in fostering the conservation of North America's biodiversity.

Program Initiatives

- Strategic and Cooperative Action for the Conservation of Biodiversity in North America
- North American Bird Conservation Initiative
- Species of Common Conservation Concern
- Mapping Marine and Estuarine Ecosystems of North America
- North American Marine Protected Areas Network
- Global Programme of Action for the Protection of the Marine Environment from Land-based Activities in North America
- Closing the Pathways of Aquatic Invasive Species across North America
- North American Biodiversity Information Network

■ **Pollutants and Health**

The mission of the Pollutants and Health program is to establish cooperative initiatives to prevent or correct adverse effects, on a North American scale, from pollution to human and ecosystem health.

Program Initiatives

- Facilitating Trilateral Coordination in Air Quality Management
- Developing Technical and Strategic Tools for Improved Air Quality in North America
- Trilateral Air Quality Improvement Initiative: North American Trade and Transportation Corridors
- Sound Management of Chemicals
- North American Pollutant Release and Transfer Register
- Capacity Building for Pollution Prevention
- Children's Health and the Environment in North America

■ **Law and Policy**

The goal of the Law and Policy program area is to address regional priorities regarding obligations and commitments in the North American Agreement on Environmental Cooperation related to environmental standards, environmental performance and the continued development and improvement of environmental law.

Program Initiatives

- Comparative Report on Environmental Standards
- North American Regional Enforcement Forum
- Enforcement and Compliance Capacity Building
- Enforcement•Compliance Reporting
- Environmental Management Systems to Promote Compliance and Environmental Performance

Cooperative Achievements

In addition to the work of each Party in accordance with the North American Agreement on Environmental Cooperation (NAAEC), the CEC Secretariat is responsible for a specific program of action to fulfill NAAEC's objectives. This report provides an overview of activities in 2001 in each program area: conservation of biodiversity; environment, economy, and trade; pollutants and health; and law and policy.

■ Environment, Economy, and Trade

The environment, economy, and trade program has three core objectives. The first is to improve environmental assessment of trade liberalization and expanding economic activity in North America. The environmental assessment work is both backward and forward-looking in order to ensure that lessons learned from past and current environmental impacts help guide the identification of emerging environmental issues, policy priorities, and tools. Second, the program supports green markets through the identification of green goods and services and the use of supporting tools. The guiding principle behind green markets is to translate the goal of "win-win" trade-environment links into concrete action that can be replicated in other market categories. The third core objective is to explore the role of financing in the development of green markets and sustainable trade including carbon sequestration, energy efficiency, and renewable energy.

The CEC released the proceedings of the October 2000 North American Symposium on Assessing the Linkages between Trade and Environment. As a follow-up to the symposium, the Secretariat released four additional background reports: (1) an analysis of the effects of market integration and trade liberalization on biodiversity, with an emphasis on agriculture; (2) the implications of the evolving North American energy market for energy efficiency and renewable energy development and trade; (3) an update on lessons learned in assessing the environmental effects of trade liberalization; and (4) an assessment of ex ante and ex post predictions regarding the effects of NAFTA on agriculture and the environment. The agricultural work builds on previous experience with the maize- and cattle-fed sectors and the law and policy program work on confined animal feeding operations to identify indicators and coefficients required to conduct environmental assessment properly. In 2002, this initiative will be extended to other sectors including water, forestry, and biodiversity. The reports will be presented and discussed at a January 2002 meeting entitled *Assessing the Environmental Effects of Trade Liberalization: Lessons Learned and Future Challenges*.

Article 10(6) of the NAAEC mandates the Council of the CEC to cooperate with the NAFTA Free Trade Commission in order to achieve the environmental goals and objectives of NAFTA. Papers have been commissioned to provide: (1) examples of precaution in legislation and case law; (2) an overview of terminology relevant to precaution; and (3) an economic analysis of risk assessment and risk management approaches in Canada, Mexico, and the United States. These papers will be presented and discussed at an

Article 10(6) meeting in January 2002. The Article 10(6) Working Group has started preparatory work for a first NAFTA trade and environment ministerial meeting, which is to be held in 2003.

Two reports were prepared as part of the green goods and services project. The first report documents the results of a survey of Mexican industrial sector interest in renewable energy, which was prepared in partnership with the Mexican National Commission for Energy Conservation and administered by Gallup Mexico. Results have been sent to the parties. The second contains the results of several CEC-sponsored surveys on green goods and services—including electricity, tourism, and palm—and will be accessible in early 2002.

■ Conservation of Biodiversity

The conservation of biodiversity program aims to: foster a continental, integrated perspective for the management, conservation, and sustainable use of biodiversity; contribute to the maintenance of the ecological integrity of North American eco-regions; and contribute to the mitigation, reduction, and eventual elimination of current and future threats to North American shared species and ecosystems. The program focuses on both continental and regional action, promoting the CEC as a forum for coordinated solutions to key conservation challenges as well as offering a targeted and interdisciplinary approach to conservation activities. Several initiatives are currently underway and are outlined in the next section of this report.

North American Bird Conservation Initiative (NABCI)

The NABCI is a trilateral coalition of over 250 government agencies and non-government organizations. NABCI members met in February in Querétaro, Mexico, to work on a five-year plan. In August, a trilateral meeting took place in Cuernavaca, Mexico, to discuss the terms of a trilateral bird conservation agreement. The CEC is constructing an updated NABCI web site under the NABCI's draft trilateral communication strategy.

Species of Common Conservation Concern

In March, the CEC held a workshop in Nuevo Casas Grandes, Mexico, to develop the basis for a trilateral strategy for the conservation of grassland species of common concern. It is currently compiling a grasslands level-III map for North America, assisting Mexico to develop its own position on grassland conservation, and developing a draft grassland conservation strategy.

Mapping Marine and Estuarine Ecosystems of North America

Country teams are working together to review existing initiatives, assess gaps in current North American marine mapping initiatives, and develop criteria by which this effort will be led. Work progressed on the development and expert review of a draft map.

North American Marine Protected Areas (MPA) Network

The MPA network aims to enhance and strengthen the conservation of marine biodiversity in critical habitats throughout North America by creating functional linkages and information exchanges among existing and planned MPAs. Several projects and activities were completed or ongoing in 2001:

- the CEC is working collaboratively to develop an MPA web- and GIS-based information management tool;
- North American MPA managers are being brought together in a series of exchanges;
- through the marine species of common conservation concern initiative, the CEC is facilitating the development of a list of marine migratory and transboundary species of trilateral importance at risk;

- as part of its Baja-to-Bering initiative and in cooperation with the Marine Conservation Biology Institute, the CEC is helping to identify priority areas for the establishment of a network of MPAs along the Pacific Coast of North America; and
- the marine conservation targets and indicators initiative is working on assessing the ability of MPAs to achieve specific and measurable goals.

Global Programme of Action for the Protection of the Marine Environment from Land-based Activities in North America

This initiative is being transferred from the CEC to the regions. For the Bight of Californias region a feasibility analysis is being developed for a proposal to the Global Environmental Facility (see <http://spo.nos.noaa.gov/projects/boc2/boc_index.html>). For the Gulf of Maine, a booklet entitled 50 Ways to Save the Gulf of Maine was published to educate school children about the importance of the Gulf of Maine, its water cycle, ways by which human activities on land impact the gulf, and fifty things that can be done to help keep it healthy. In addition, the program of action has initiated its most ambitious project to date, taking the lead in planning a bi-national summit on the state of the gulf, which is projected to take place on 2003.

Closing the Pathways of Aquatic Invasive Species across North America

In March, the CEC convened a first North American workshop to identify cooperative opportunities in this area. Work has commenced to strengthen Mexican information capacity on invasive species through the development of an integrated information system, which will be linked to the *Red Mexicana de Información sobre Biodiversidad* and the North American Biodiversity Information Network (NABIN) as well as to the Global Invasive Species Information Network.

NABIN

Work is currently underway to link NABIN with other national and international information-gathering initiatives. In June, the Integrated Taxonomic Information Initiative (ITIS) officially launched ITIS-North America. This initiative was a major step in providing taxonomic information and common names in three languages. In addition, the NABIN Steering Committee and a biodiversity working group contributed to the development of a strategic vision for NABIN.

■ **Pollutants and Health**

North American Pollutant Release and Transfer Register (PRTR) Project

The PRTR project seeks to ensure citizen access to accurate information about the release and transfer of toxic chemicals from facilities in their communities. The CEC has worked with the national PRTR programs of Canada (National Pollutant Release Inventory), the United States (Toxics Release Inventory), and Mexico (*Registro de Emisiones y Transferencia de Contaminantes*) since 1995 to develop a North American profile of pollutant releases and transfers. In its annual publication, *Taking Stock*, the CEC analyzes North American PRTR data to identify major trends and to promote public awareness of the registers and how they can be used to protect the environment.

The *Taking Stock* report contains a compilation of information for the industries and chemicals that are common to the national PRTR lists. Currently, this “matched” data set only covers the United States and Canada. In the fall of 2001, legislation was introduced in the Mexican Congress to make PRTR reporting mandatory. Mexican information will be included in the report as it becomes available.

On 20 July, the CEC released *Taking Stock 1998*. The report covers five additional sectors including electric utilities and hazardous waste management facilities and, for the first time, includes data on transfers to recycling and energy recovery. In July, the CEC also launched the *Taking Stock* web site, which allows users to generate their own queries about the matched North American data sets. The site currently includes data from the 1995 to the 1998 reporting years and will be updated annually. It is accessible in English, French, and Spanish and is located at <<http://www.cec.org/takingstock>>.

Air Quality Program

The CEC's air quality program undertakes projects designed to facilitate trilateral coordination in air quality management and to develop technical and strategic tools for improved air quality in North America.

In 2001, the air quality program continued its assessment of potential air quality impacts along trade and transport corridors between the three NAFTA countries. The CEC sponsored an initial analysis of potential impacts and possible mitigation measures along trade corridors, with input from a stakeholders advisory group. The analysis, performed by ICF Consulting, was presented at a public workshop in Winnipeg in March. Public feedback from this analysis and workshop helped the CEC to focus on further work in this area with the development of two new activities. The first is looking at areas of cooperation in identifying malfunctioning heavy-duty trucks that are gross polluters on highways. The second is looking to improve and standardize methodologies for assessing population exposure to air pollution along congested transportation corridors.

In addition, the CEC Council adopted Resolution 01–05 during its annual meeting in Guadalajara, Mexico. This resolution seeks to promote the comparability of air emission inventories in North America and covers pollutants such as nitrogen oxides, sulfur dioxide, carbon monoxide, and particulate matter as well as greenhouse gases such as carbon dioxide. To implement the resolution, the CEC air quality program solicited advice during 2001 from government inventory developers and the public to identify key areas for further work. Areas for possible work include helping adapt mobile source inventory models for each country and developing standardized emissions inventory report formats to facilitate information exchange across borders (additional information on the air quality program is available on the CEC web site at <<http://www.cec.org>>).

Sound Management of Chemicals Program

Resolution 95–05 adopted by the Council on 13 October 1995 in Oaxaca, Mexico, created the sound management of chemicals program. The resolution created a working group composed of senior government officials from the parties and set out a framework, together with specific commitments, for working together and with the CEC in addressing the sound management of chemicals in North America. The working group was instructed to first address the list of persistent organic pollutants (POPs) included in United Nations Environment Programme (UNEP) Governing Council Decision 18/32 of May 1995 as well as “certain heavy metals.”

Four North American regional action plans (DDT, chlordane, polychlorinated biphenyls, and mercury) have been developed and are now at various stages of implementation. Two more regional or North American action plans are under development: one for a cluster of substances, including dioxins and furans and hexachlorobenzene, and a second cross-cutting regional action plan for environmental monitoring and assessment. Two substances, lindane and lead, are under consideration for trilateral action under a Council-approved “process for identifying candidate substances for regional action under the sound management of chemicals [SMOC] initiative”. The candidate substance selection process is itself undergoing an evaluation.

Further information on the SMOC initiative is provided in the document entitled *The Sound Management of Chemicals Initiative of the Commission for Environmental Cooperation: Overview and Update, September 2001*, which is available on the CEC web site at <<http://www.cec.org>>).

Children's Health and the Environment in North America

Following the adoption of Council Resolution 00–10 in June 2000, the CEC initiated a project to facilitate collaboration among the parties and with interested stakeholder groups to address threats to children's health associated with toxic substances, poor air quality, and other environmental health issues. A nine-person Expert Advisory Board was formed and an inventory of related national, bilateral, and trilateral activities was compiled as a basis for identifying gaps and opportunities for collaboration.

The Council committed the parties to working together as partners to develop a cooperative agenda to protect children from environmental threats. In November, a trilateral workshop was held to start building this agenda. A draft cooperative agenda will be circulated for public input and a joint public meeting of the JPAC and the Expert Advisory Board will be held in March 2002 in Mexico City.

■ Law and Policy Program

The law and policy program implements commitments made in the agreement relating to environmental compliance and enforcement, environmental standards, environmental performance, and the continued development and improvement of environmental law and policy. The program worked on three projects in 2001:

Comparative Report on Environmental Standards: Intensive Agriculture

The CEC began a study on how environmental and human health concerns are being addressed by selected regulatory initiatives in the three countries in the area of intensive agriculture. The CEC chose to focus on intensive agriculture because of public concern regarding the environmental and human health implications of air, water, and soil impacts caused by the expansion of intensive livestock operations. In a rapidly evolving regulatory context, comparing regulatory approaches will help publicize best practices and fill regulatory gaps.

Enforcement and Compliance Capacity Building: Ozone-Depleting Substances (ODS)

This ongoing project supports initiatives to enhance environmental enforcement capacity. In 2001, the CEC focused on illegal trade in ODS.

All three parties are signatories to the Montreal Protocol on Substances that Deplete the Ozone Layer. The United States and Canada already restrict ODS production and importation, and Mexico is seeking to do the same. Due to a continued high demand, a thriving illegal trade has developed. Working with enforcement agencies, UNEP, and representatives of the Mexican chlorofluorocarbon industry, the CEC held a two-day training workshop in Mexico City to lay the basis for continued cooperation through an enforcement network that is expected to grow to include Central and South American countries.

Enforcement and Compliance Reporting

The main objective of this initiative is to contribute to a greater understanding of the complexity of environmental law enforcement in the three countries. In 2001, the CEC published a special enforcement report, which was produced by the North American Working Group on Enforcement and Compliance Cooperation. It describes each party's approach to inspections, compliance promotion activities, and results measurement. The report also contains a section providing information on CEC initiatives, which is aimed at improving cooperation in environmental enforcement and compliance in North America (the report is available on the CEC web site at <<http://www.cec.org>>).

Registry of Submissions on Enforcement Matters 2001

ID. NUMBER	SUBMITTERS	STATUS
SEM-97-002	Comité pro Limpieza del Río Magdalena	<i>Determining whether a factual record is warranted.</i>
SEM-97-006	The Friends of the Oldman River	<i>Developing the factual record</i>
SEM-98-003	Department of the Planet Earth, et al.	<i>Process terminated under Article 15(1)</i>
SEM-98-004	Sierra Club of British Columbia, et al.	<i>Developing the factual record</i>
SEM-98-006	Grupo Ecológico "Manglar", A.C.	<i>Developing the factual record</i>
SEM-98-007	Environmental Health Coalition, et al.	<i>Submission of the final factual record to Council</i>
SEM-99-002	Center for International Environmental Law	<i>Developing the factual record</i>
SEM-00-004	David Suzuki Foundation et al.	<i>Developing the factual record</i>
SEM-00-005	Academia Sonorense de Derechos Humanos et al.	<i>Awaiting Council's decision on development of a factual record</i>
SEM-00-006	Comisión de Solidaridad y Defensa de los Derechos Humanos, AC	<i>Awaiting Party's response under Article 14(2)</i>
SEM-01-001	Academia Sonorense de Derechos Humanos A.C. et al.	<i>Reviewing under Article 15(1)</i>
SEM-01-002	Identity of submitters withheld pursuant to Article 11(8)(a)	<i>Process terminated under Article 14(1)</i>
SEM-01-003	Mercerizados y Teñidos de Guadalajara, S.A.	<i>Process terminated under Article 14(1)</i>
SEM-00-001	Rosa María Escalante de Fernández	<i>Process terminated under Article 14(1)</i>
SEM-00-002	Neste Canada Inc.	<i>Process terminated under Article 14(3)(a)</i>
SEM-00-003	Hudson River Audubon Society of Westchester, Inc., et al.	<i>Process terminated under Article 14(1)</i>
SEM-00-004	David Suzuki Foundation et al.	<i>Reviewing under Article 15(1)</i>
SEM-00-005	Academia Sonorense de Derechos Humanos et al.	<i>Awaiting Party's response under Article 14(2)</i>
SEM-00-006	Comisión de Solidaridad y Defensa de los Derechos Humanos, AC	<i>Awaiting correction of a minor error of form</i>

Submissions 2001

■ **Submission ID: SEM-97-002•RÍO MAGDALENA**

Submitter(s): Comité Pro Limpieza del Río Magdalena
Party: United Mexican States
Date received: 15 March 1997

Summary of the matter addressed in the Submission:

The Submitters allege that wastewater originating in the municipalities of Imuris, Magdalena de Kino, and Santa Ana, located in the Mexican state of Sonora, is being discharged into the Magdalena River without prior treatment. According to the Submitters, the above contravenes Mexican environmental legislation governing the disposal of wastewater.

2001 Events:

1. The Secretariat reviewed the submission under Article 15(1) to determine whether development of a factual record was warranted.

■ **Submission ID: SEM-97-006•OLDMAN RIVER II**

Submitter(s): The Friends of the Oldman River
Party: Canada
Date received: 4 October 1997

Summary of the matter addressed in the submission:

The Submitter alleges that Canada is failing to apply, comply with and enforce the habitat protection sections of the Fisheries Act and the Canadian Environmental Assessment Act.

2001 Events:

1. On 16 November 2001, the Council voted to instruct the Secretariat to develop a factual record.
2. On 14 December 2001, the Secretariat placed a work plan on its web site or otherwise made it available to the public and stakeholders.

■ **Submission ID: SEM-98-003•GREAT LAKES**

Submitter(s): Department of the Planet Earth, et al.
Party: United States of America
Date received: 27 May 1998

Summary of the matter addressed in the submission:

The Submitters assert that the US Environmental Protection Agency's regulations drafted and programs adopted to control airborne emissions of dioxins•furans, mercury and other persistent toxic substances from solid waste and medical waste incinerators violate and fail to enforce both:

- 1) US domestic laws; and;
- 2) the ratified US-Canadian treaties designed to protect the Great Lakes that are partly referenced in the US Clean Air Act.

2001 Events:

1. On 5 October 2001, the Secretariat determined not to recommend the preparation of a factual record. Under Guideline 9.6, the process was terminated.

■ **Submission ID: SEM-98-004•BC MINING**

Submitter(s): Sierra Club of British Columbia, et al.
Party: Canada
Date received: 29 June 1998

Summary of the matter addressed in the submission:

The submission alleges a systemic failure by Canada to enforce the Fisheries Act to protect fish and fish habitat from the destructive environmental impacts of the mining industry in British Columbia.

2001 Events:

1. On 11 May 2001, the Secretariat informed Council that the Secretariat considers that the submission warrants development of a factual record.
2. On 16 November 2001, the Council voted to instruct the Secretariat to develop a factual record.
3. On 14 December 2001, the Secretariat placed a work plan on its web site or otherwise made it available to the public and stakeholders.

■ **Submission ID: SEM-98-006•AQUANOVA**

Submitter(s): Grupo Ecológico Manglar, A.C.
Party: United Mexican States
Date received: 20 October 1998

Summary of the matter addressed in the submission:

The submission alleges that the Mexico is failing to effectively enforce its environmental laws with respect to the establishment and operation of Granjas Aquanova S.A. de C.V., a shrimp farm located in Isla del Conde, San Blas, Nayarit, Mexico.

2001 Events:

1. On 16 November 2001, the Council voted to instruct the Secretariat to develop a factual record.
2. On 14 December 2001, the Secretariat placed a work plan on its web site or otherwise made it available to the public and stakeholders.

■ **Submission ID: SEM-98-007•METALES Y DERIVADOS**

Submitter(s): Environmental Health Coalition, et al.
Party: United Mexican States
Date received: 23 October 1998

Summary of the matter addressed in the submission:

The Submitters allege that Mexico has failed to effectively enforce its environmental law in connection with an abandoned lead smelter in Tijuana, Baja California, Mexico, that poses serious threats to the health of the neighboring community, and to the environment.

2001 Events:

1. On 1 October 2001, the Secretariat submitted a draft factual record to Council, for a 45-day comment period on the accuracy of the draft.
2. On 15 November 2001, the Secretariat received comments from the Parties on the draft factual record.
3. On 29 November 2001, the Secretariat submitted a final factual record to Council for Council's vote on whether to make the final factual record publicly available.

■ **Submission ID: SEM-99-002•CIEL-MIGRATORY BIRDS**

Submitter(s): Alliance for the Wild Rockies, et al.
Party: United States
Date received: 19 November 1999

Summary of the matter addressed in the submission:

The Submitters allege that the United States Government is failing to effectively enforce the Migratory Bird Treaty Act (MBTA) against logging operations on federal and non-federal lands throughout the United States.

2001 Events:

1. On 16 November 2001, the Council voted to instruct the Secretariat to develop a factual record.
2. On 14 December 2001, the Secretariat placed a work plan on its web site or otherwise made it available to the public and stakeholders.

■ **Submission ID: SEM-00-004•BC LOGGING**

Submitter(s): David Suzuki Foundation et al.
Party: Canada
Date received: 15 March 2000

Summary of the matter addressed in the submission:

The Submitters allege that the Government of Canada “is in breach of its commitments under NAAEC to effectively enforce its environmental laws and to provide high levels of environmental protection.” They allege that the Fisheries Act is violated by logging activities undertaken by British Columbia.

2001 Events:

1. On 27 July 2001, the Secretariat informed Council that the Secretariat considers that the submission warrants development of a factual record.
2. On 16 November 2001, the Council voted to instruct the Secretariat to develop a factual record.
3. On 14 December 2001, the Secretariat placed a work plan on its web site or otherwise made it available to the public and stakeholders.

■ **Submission ID: SEM-00-005•MOLYMEX II**

Submitter(s): Academia Sonorense de Derechos Humanos, A.C. & Domingo Gutiérrez Mendivil
Party: United Mexican States
Date received: 6 April 2000

Summary of the matter addressed in the submission:

The Submitters allege that Mexico has failed to effectively enforce the General Law of Ecological Equilibrium and Environmental Protection (*Ley General del Equilibrio Ecológico y la Protección al Ambiente—LGEEPA*) in relation to the operation of the company Molymex, S.A. de C.V. (Molymex) in the town of Cumpas, Sonora, Mexico.

2001 Events:

1. On 18 January 2001, the Secretariat received a response from the concerned government Party and began considering whether to recommend a factual record.
2. On 20 December 2001, the Secretariat informed Council that the Secretariat considers that the submission warrants development of a factual record.

■ **Submission ID: SEM-00-006•TARAHUMARA**

Submitter(s): Comisión de Solidaridad y Defensa de los Derechos Humanos, AC
Party: United Mexican States
Date received: 9 June 2000

Summary of the matter addressed in the submission:

The Submitters allege a failure by Mexico to effectively enforce its environmental law by denying access to environmental justice to Indigenous communities in the Sierra Tarahumara in the State of Chihuahua. They particularly assert failures to effectively enforce environmental law relative to the citizen complaint process, to alleged environmental crimes and other to alleged violations with respect to forest resources and the environment in the Sierra Tarahumara.

2001 Events:

1. On 30 April 2001, the Secretariat received a revised submission or additional information that corrected the errors of form and began reviewing the submission under Article 14(1).
2. On 6 November 2001, the Secretariat determined that the submission met the criteria of Article 14(1) and requested a response from the concerned government Party in accordance with Article 14(2).

■ **Submission ID: SEM-01-001•CYTRAR II**

Submitter(s): Academia Sonorense de Derechos Humanos A.C. et al.
Party: United Mexican States
Date received: 14 February 2001

Summary of the matter addressed in the submission:

The Submitters allege that Mexico has failed to effectively enforce environmental law by having authorized the operation of the hazardous waste landfill CYTRAR located near the city of Hermosillo, Sonora.

2001 Events:

1. On 20 February 2001, the Secretariat acknowledged receipt of the submission and began reviewing the submission under Article 14(1).
2. On 24 April 2001, the Secretariat determined that the submission met the criteria of Article 14(1) and requested a response from the Party in accordance with Article 14(2).
3. On 5 June 2001, the Secretariat received a response from the Party and began considering whether to recommend a factual record.

■ **Submission ID: SEM-01-002•AAA Packaging**

Submitter(s): Identity of Submitters withheld pursuant to Article 11(8)(a)
Party: Canada
Date received: 12 April 2001

Summary of the matter addressed in the submission:

The Submitters allege that the government of Canada is not complying with Article 2(3) of the North American Agreement on Environmental Cooperation (NAAEC) failing to issue a prohibitory and/or injunctive order halting the export to the United States, by AAA Packaging, of products containing “isobutyl nitrite” which the Submitters claim is a “banned hazardous substance”.

2001 Events:

1. On 12 April 2001, the Secretariat acknowledged receipt of the submission and began reviewing the submission under Article 14(1).
2. On 24 April 2001, the Secretariat notified the submitter(s) that the submission did not meet the Article 14(1) criteria and that the submitter(s) had 30 days to provide the Secretariat with a revised submission that conforms with Article 14(1).
3. The thirty-day deadline expired without the Secretariat receiving a submission that conformed to Article 14(1). Under Guideline 6.2, the process was therefore terminated on 24 May 2001.

■ **Submission ID: SEM-01-003•Dermet**

Submitter(s): Mercerizados y Teñidos de Guadalajara, S.A.
Party: United Mexican States
Date received: 14 June 2001

Summary of the matter addressed in the submission:

The submission claims that, in a civil trial, Mexico refused to treat as valid evidence a technical opinion issued by the Federal Attorney for Environmental Protection, relating to groundwater contamination that the submission says was caused by the firm Dermet, S.A. de C.V., a producer of pesticides and fungicides in the city of Guadalajara. The submission asserts that Mexico failed to enforce effectively Article 194 of the General Law of Ecological Equilibrium and Environmental Protection, and its commitments concerning procedural guarantees and private access to remedies under Articles 5, 6 and 7 of the NAAEC.

2001 Events:

1. On 15 June 2001, the Secretariat acknowledged receipt of the submission and began reviewing the submission under Article 14(1).
2. On 19 September 2001, the Secretariat notified the Submitter(s) that the submission did not meet the Article 14(1) criteria and that the Submitter(s) had 30 days to provide the Secretariat with a revised submission that conforms with Article 14(1).
3. The thirty-day deadline expired without the Secretariat receiving a submission that conformed to Article 14(1). Under Guideline 6.2, the process was therefore terminated on 19 October 2001.

Linking North American Communities

In 2001, the North American Fund for Environmental Cooperation (NAFEC), awarded grants to 17 community-based environmental projects across North America for up to C\$40,000 each totaling C\$607,000.

Including the grants awarded in 2001, NAFEC has issued a total of 160 grants amounting to C\$7.937 million since the first grants were awarded in 1996.

In 2001, the Call for Proposals focused on two categories: (1) Conservation and sustainable use of biodiversity involving Marine Protected Areas (MPAs); and (2) Enhancing community access to information and participation in addressing issues related to children's health and the environment. Within each category, specific criteria were outlined in order to link the grants closely to current CEC projects. During the 2001 grant cycle, nearly 300 proposals were received.

In addition to receiving funding for their community-based projects, 2001 grantees were invited to participate in a collective effort to identify common problems and solutions, best practices, supportive policies, etc. At the outset of their projects, grantees were to meet with representatives from similar community-based projects and from the CEC in order to define issues that they would examine during the course of their projects.

Grants awarded in 2001 (all figures in Canadian dollars)

Conservation and Sustainable Use of Biodiversity Involving Marine Protected Areas (USA)
Conservation Law Foundation, inc. (C\$40,000)

Community Strategy on Fisheries and Tourism Management in the Parque Nacional Arrecifes de Xacalak Protected Natural Area (Mexico) *Amigos de Sian Ka'an A.C.* (C\$40,000)

On the Path of the Grey Whale: Linking Local MPA Efforts from Baja California to the Bering Sea (Canada) *Canadian Parks and Wilderness Society - British Columbia Chapter* (C\$40,000)

Strengthening Public Participation in the Conservation of the "Arrecifes de Cozumel" Protected Natural Area (Mexico) *Centro Mexicano de Derecho Ambiental, A.C. (CEMDA)* (C\$40,000)

Marine Protected Areas Initiative (USA) *Conservation Law Foundation, inc.* (C\$40,000)

Orca Pass International Stewardship Area: The Outreach and Involvement Campaign (Canada-US) *People for Puget Sound* (C\$40,000)

Developing Economic Incentives for Marine Resource Conservation in Two Marine Protected Areas of the Baja California Peninsula, Mexico (Mexico-US) *Wildcoast* (C\$40,000)

Igaliqtuuq: Community Stewardship of a Bowhead Whale Sanctuary (Canada) *World Wildlife Fund Canada* (C\$20,000)

Enhancing Community Access to Information and Participation in Addressing Issues Related to Children's Health and the Environment Alaska Incineration Project (USA) *Alaska Community Action on Toxics (ACAT)* (C\$40,000)

“Operation Wells”: A Project to have Children Monitor Groundwater (Canada) *Comité de valorisation de la rivière Beauport (CVRB)* (C\$40,000)

Air for Health Education Program: Promoting Air quality and Health Issue Links in School Curriculums (Canada) *Eastern Charlotte Waterways Inc.* (C\$36,500)

Environmental Health, Latinas Taking Action in Colonia Chilpancingo: An Environmental Education and Empowerment Training Program (Mexico-US) *Environmental Health Coalition* (C\$40,000)

Building the Capacity of Children Farmworkers and Their Families to Better Address Environmental Health Hazards (USA) *Farmworker Health and Safety Institute* (C\$40,000)

Reduction of Lead Exposure and Emissions in the Community of Santa Fe de la Laguna, Mexico (Mexico) *Grupo Interdisciplinario de Tecnología Rural Apropiable (GIRA), A.C.* (C\$40,000)

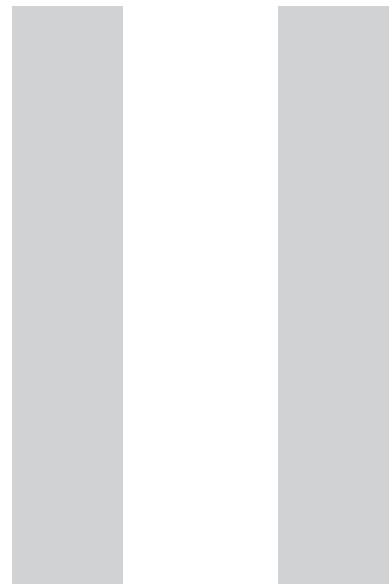
National Right-to-Know Network (Mexico) *Presencia Ciudadana Mexicana, A.C.* (C\$40,000)

Encouraging Public Participation in the Protection of Children's Health and the Environment (Mexico) *Transparencia, Sociedad Civil* (C\$40,000)

Health + Pollution – (Canada) *Université de Moncton, Groupe de recherche Littoral et vie* (C\$40,000)

Healthy Schools, Healthy Children Project (USA) *Washington Toxics Coalition* (C\$40,000)

Country Reports



Canada

Country Report on Implementation of the Commitments Derived from the NAAEC.

The following report was submitted to the CEC Secretariat by Environment Canada in accordance with NAAEC. It is intended to highlight certain activities undertaken to meet the obligations of the NAAEC by the federal government and the three signatory provinces—Alberta, Quebec, and Manitoba.

■ Article 2—General Commitments

Article 2(1)(a) State of the Environment Reports

Indicators and Assessments Input:

State of the environment (SOE) reports serve two key purposes:

- to report to Canadians on environmental issues and ecosystems of national significance; and
- to foster the use of science in policy and decision-making.

Each report satisfies the content and presentation guidelines for the federal government's reporting program described in the Vision for Federal SOE Reporting (<http://www.ec.gc.ca/soer-ree/english/SOER/The_Vision.pdf>). The following four federal SOE reports that were produced in 2001 are all accessible on the Internet at <<http://www.eman-rese.ca/eman/reports/assessments.>>>), as well as in print format:

- *Tracking Key Environmental Issues*;
- *The State of Municipal Wastewater Effluents in Canada*;
- *Nutrients in the Canadian Environment* — this report accompanies the science assessment *Nutrients and Their Impact on the Canadian Environment*, which was also published in 2001; and
- *State of the Great Lakes 2001* (prepared jointly with US EPA).

Environment Canada largely completed three SOE-type reports, which were principally conceived as and developed to be web-based publications. These reports, each of which addresses a key environmental issue for Canada, were scheduled for release on the Internet in the first half of 2002. They address the following issues:

- the status of amphibian and reptile populations in Canada;
- the threat of alien invasive species in Canada; and
- recent climate and hydrology shifts in Canada.

A fourth such report, dealing with the status and trends of water quality in Atlantic Canada, is also under development.

One bulletin in Canada's National Environmental Indicator Series was updated in 2001: *Urban Water Indicators: Municipal Water Use and Wastewater Treatment*. The National Environmental Indicators Series is available electronically on the State of Canada's Environment Infobase web site, at <<http://www.ec.gc.ca/soer-ree/English/Indicators/default.cfm>>. It is also available in print format.

The State of Canada's Environment Infobase

Indicators and Assessments Input

The State of Canada's Environment Infobase web site on Environment Canada's Green Lane (<<http://www.ec.gc.ca/soer-ree/English/default.cfm>>), operational for the past six years, continues to evolve and provides access to an increasingly broad range of environmental and ecological information and reports. The web site provides access to:

- SOE reports;
- Canada's National Environmental Indicator Series;
- the National Ecological Framework (ecozones and ecoregions of Canada); and
- environment-related tools, including electronic links to the Ecological Monitoring and Assessment Network (EMAN), Pacific and Yukon Region's environmental indicators, 5NR SOE-related products, and provincial, territorial, and some international agency documents related to SOE reporting.

A completely revised Infobase, including new online mapping capabilities, has been prepared for release on the Internet in the first half of 2002.

Sustainable Community Indicators Program

Indicators and Assessments Input

The Sustainable Community Indicators Program interactive software package is designed to help communities develop indicators, monitor their progress towards sustainable development, and facilitate the exchange of indicator-related information. In response to client reactions, more flexible tools have been developed for testing in early 2002 with the aim of transforming the entire system into an interactive Web-based set of tools and information (to be directly available on the existing Internet site at <<http://www.ec.gc.ca/scip-pidd/>>).

National Water Quality Index

Indicators and Assessments Input

After testing and refining the index, the Water Quality Index Technical Subcommittee of the Canadian Council of Ministers of the Environment's (CCME) Water Quality Guidelines Task Group in March 2000 produced the Canadian Water Quality Index Technical Report, User's Manual, and Spreadsheet Calculator. In September 2001, the Environmental Planning and Protection Committee of the CCME officially approved the index for publication.

In Alberta, two SOE reports on the themes of terrestrial ecosystems and air quality were completed in 2001 for release in early 2002.

In the fiscal year 1 April 2000–31 March 2001, Alberta Environment used the Alberta Surface Water Quality Index (ASWQI) to report on the quality of river water at 21 sites throughout the province. These sites make up the province's Long-term River Network. Monthly information on a wide variety of water quality variables is collected at these stations on an ongoing basis. Index values for 12 of these stations were also reported in Alberta's annual *Measuring Up Report* that describes progress on provincial performance measures and indicators.

The General Status of Alberta Wild Species 2000

In 2001, *The General Status of Alberta Wild Species 2000* was completed and released. Alberta's report complements the national status report, *Wild Species 2000 – The General Status of Species in Canada*. An electronic version is available at <<http://www3.gov.ab.ca/srd/fw/riskspecies/>>. This report provides an overview of the status of 812 wild species—birds, mammals, reptiles, amphibians, freshwater fish, butterflies and skippers, orchids, and ferns—in Alberta.

In 2001, Quebec issued the first assessment of the implementation of its Action Plan on Climate Change 2000-2002.

Quebec published over 20 documents on aquatic environments and the atmosphere, including seven scientific reports, twelve science lectures, six watershed-based water quality profiles, and one educational document on the watershed concept. Quebec began a shift in focus toward providing certain information over the Internet and in electronic format to meet the needs of users and decision makers. Such information included the effects of acid precipitation on lakes; the environmental impacts of agriculture; pesticide monitoring; potential swimming areas along the St. Lawrence river; water quality in Quebec's rivers; and a report on water and ecosystem quality in the Chaudière, Moisie, Aux Outardes, Manicouagan and Boyer rivers. The year 2001 saw the implementation of a program to provide information on aquatic ecosystems for water management (*Informations sur les Milieux Aquatiques pour la Gestion de l'Eau*—IMAGE). This Internet-based program is available on the Quebec environment ministry website (<http://www.menv.gouv.qc.ca/eau/sys-image/index.htm>) and provides users with concise and accurate information using a graphic interface adapted to the Internet—a sort of virtual encyclopedia on aquatic ecosystems. It first provides a broad overview, followed by more detailed theme-based information and profiles of individual watersheds. In 2001, the Quebec environment ministry (*ministère de l'Environnement du Québec*—MEQ) continued to provide information on air quality (ozone and smog) and meteorology. It also took part in a federal-provincial program for winter and summer smog forecasts and weather forecasts.

Through Saint-Laurent Vision 2000 (a cooperation agreement between the Quebec and federal governments), Quebec took part in the publication of about thirty documents dealing with the agreement's various components: agriculture (six), biodiversity (ten), industrial and urban (one), navigation (three), and human health (seven). The following titles are just a few of these documents: *Toxic Potential Assessment of Municipal Wastewater Treatment Plant Effluents in Quebec*, *Comparative analysis of the environmental pressures associated with shipping in the St. Lawrence corridor*, *Enhanced detection of pathogenic micro-organisms in the bivalve molluscs of the lower estuary of the St. Lawrence*, *Avis scientifique sur la mortalité des carpes dans le fleuve Saint-Laurent*, *Reintroduction of the Striped Bass: An Important Milestone in Restoring the St. Lawrence River*, and *Plan de rétablissement du fouille-roche gris au Québec*.

Quebec published its annual report (2000–2001) on the status of the Quebec Action Plan on Biodiversity to implement the Convention on Biological Diversity. This report suggests a series of sector-based indicators for monitoring biodiversity.

In 2001, Quebec also made public its annual summaries of environmental compliance for 1998 and 1999 in the pulp and paper industry.

Article 2(1)(b) Environmental Emergency Preparedness Measures

Environmental Emergency Plans for Industrial Facilities:

Under the new Canadian Environmental Protection Act (CEPA 1999), proclaimed in 1999, the Ministers of health and the environment have new authority to manage toxic or other hazardous substances. This ministerial action can take several forms, including regulations, pollution prevention plans, environmental emergency plans, guidelines, codes of practice and economic instruments.

The events of September 11th highlighted the need for increased action to prevent and prepare for potential threats to national security. Canadians are becoming more aware of the risks and are demanding that we adopt appropriate emergency management programs that meet international standards and best practices, to address natural and human-caused incidents, including terrorist threats.

Particularly relevant to this is the authority to promulgate regulations requiring environmental emergency plans for industrial facilities under Section 200 of CEPA respecting the prevention of, preparedness for, response to, and recovery from an environmental emergency.

By summer 2002, the federal government intends to promulgate regulations under Section 200 of CEPA 1999, requiring the development and implementation of environmental emergency plans for approximately 177 substances that, if released to the environment as a result of an environmental emergency, may harm human health or environmental quality. These substances include approximately 16 that are on the List of Toxic Substances under CEPA 1999, or are proposed for addition to the List.

A flexible approach to environmental emergency planning will be pursued, thereby providing regulated facilities the latitude to reflect local conditions and situations in the development and implementation of these plans. Canadian facilities subject to the proposed regulation would be required to submit information on location and quantities of listed substances including information on the preparation and implementation of environmental emergency prevention, preparedness, response and recovery (PPRR) plans. Notices would be required as the mechanism for compliance reporting. We will be pursuing administrative agreements or other mechanisms, to avoid any duplication with other federal and provincial/territorial legislated requirements in this area.

Other activities related to emergency preparedness also took place in the Regions. For example, in October 2001, the EPB – Quebec Region, held an emergency drill for specialists in the evaluation and restoration of shorelines following an oil spill.

In addition, during 2001, the Quebec Region of the EPB organized and took an active part in several training sessions for first responders to incidents involving hazardous materials. These sessions dealt with the evaluation and restoration of shorelines following oil spills, the management of major industrial accidents, and protection of the environment for tanker ships.

In 2001, the MEQ continued emergency planning efforts. Among its main achievements were:

- drafting and adoption of a nuclear emergency plan for the Gentilly II CANDU nuclear plant;
- participation in the maritime spill exercise *PRÉVENTION 2001*, in Rimouski;
- creation of a French-language manual and course on emergency action during leaks or spills of hazardous materials (completion 2002);
- deposition of an action plan to consolidate the ministry's intervention capabilities with respect to CBRN (chemical, biological, radiological, and nuclear) terrorist threats; and
- active participation in governmental efforts to implement the "environment" portion of the National Emergency Preparedness Plan.

In terms of action, Quebec environmental emergency teams (Urgence-Environnement) were notified of approximately 3,000 environmental emergencies of varying severity. About 1000 of these cases required immediate field intervention by Urgence-Environnement specialists to ensure that the environment was not harmed.

Article 2(1)(c) Environmental Education

After leading a nationwide consultation with over 5,500 environmental educators and learners over a two-year period, Environment Canada launched its Framework for Environmental Learning and Sustainability in Canada at the World Summit on Sustainable Development on 3 September 2002. The Framework provides a strategic vision for partners to develop action plans in support of a set of principles. To date over 135 groups across Canada have developed such action plans, including federal departments and agencies, provincial governments, municipalities, labor organizations, nongovernmental organizations, educational institutions, seniors, youth groups, aboriginal groups and others representing all sectors of Canadian society. Environment Canada is also leading by developing a partnership with the private sector to secure funding for the implementation of the Framework. To date, we have received commitments from the Toronto-Dominion Bank, Shell Canada and Canadian Geographic Enterprises. The Framework is available on the Web at <<http://www.ec.gc.ca/education>>.

Other activities were as follows:

- The Quebec Region produced a series of educational environment capsules for the RDS television network. These capsules were broadcast during “outdoor” programming.
- The Biosphère held the second edition of its exhibition Climate Warning, which ran from 1 June 2001 to 31 May 2002.
- The Biosphère also welcomed over 60,000 visitors, mostly school children, to the exhibition The Moods of the Weather, on the topic of adapting to climate change. Financed in part by the Climate Change Action Fund (CCAF), this exhibition will tour the Maritime provinces and the Madeline Islands in the summer of 2002.

In Alberta, environmental education programs on water quality, wetlands, waste management, forest protection, and climate change were delivered to a variety of audiences, including teachers, students, communities and the general public. Several new resources were produced, including an activity book and teachers’ guide on forest health. A community education program called *FireSmart* was conducted to educate residents of forest communities about forest fire prevention and how to prepare their homes and communities in the event of a forest fire emergency.

In 2001, Alberta hosted the Fifth General Assembly of the Northern Forum. Alberta also hosted the first-ever Northern Forum Youth Eco-Forum, bringing together students from Japan (Hokkaido), Russia (Khanty-Mansiysk and Sakha Republic), China (Heilongjiang), Finland (Lapland), the United States (Alaska) and Canada (Alberta). Working together, they produced the Youth Eco-Forum Declaration, expressing their concerns about the environment and offering suggestions for action. The Northern Forum presented this declaration to the 2002 World Summit on Sustainable Development in Johannesburg.

The MEQ, in collaboration with two other government departments (parks and wildlife, and culture and communications), have produced an activity for high school students on the biodiversity of Domaine Joly-de Lotbinière. The activity (in French) is available online at <<http://www.lesaventures.com>>. The ministry also continued its monthly Internet publication of the adventures of “Rafale,” a series of stories about the environment for children aged 10 to 14 years (in French).

In keeping with its Action Plan on Climate Change 2000–2002, in 2001, Quebec developed a mobilization program for decision makers working in this field. The program’s first activity dealt with the risks and

opportunities for business with respect to climate change. Moreover, the Quebec government has invested nearly \$250,000 in projects aimed at raising public awareness of climate change and the solutions that individuals can offer. Such projects include a “clean air day” in Montreal, a “bicycle day” encouraging people to use their bicycles to get to work (Le Jour “V”), and a climate change teaching kit.

In December 2001, the environment ministry tabled Bill 72 in the National Assembly, intended to amend Division IV of the *Environment Quality Act*. The Bill gives the government the authority to enforce the new measures introduced in the 1998 *Soil Protection and Contaminated Sites Rehabilitation Policy*. The Bill was subject to consultation prior to its tabling.

Quebec also holds information sessions on proposals to re-use contaminated sites where the land remains contaminated beyond standard criteria. In 2001, among the files being processed, the government presented at least two such instances (i.e., the reuse of contaminated sites where some contaminants remain) to the population concerned.

In 2001, in collaboration with its partners, Quebec offered a number of training activities. These included sessions on a manure storage guide (*Guide technique d'entreposage des fumiers*), on agro-environmental fertilization plans (AEFPs), and on the “trigger” mechanism for municipalities with manure surpluses (i.e., limited activity zones, or ZALs, under the *Règlement sur la réduction de la pollution d'origine agricole*).

The Quebec government granted nearly \$300,000 to the *Fonds d'action québécois pour le développement durable* for a province-wide awareness campaign on ecological lawn-maintenance alternatives.

Article 2(1)(d) Scientific Research and Technology Development

Canada, through the Environmental Technology Centre (ETC), undertook a variety of initiatives:

Emissions from a variety of mobile sources and alternative fuels were measured to support technology evaluation, development and demonstration projects that lead to reduced emissions of greenhouse gases (GHG).

Pilot-scale demonstration continued to apply the Microwave-Assisted Processes (MAPTM) for the extraction of canola oil and to further assess replication opportunities with other agricultural feedstock selected for their value to Canada and for potential for significant reductions in GHG emissions.

Stack sampling in support of inventory development and strategic options planning was performed to evaluate emissions from gas flaring; landfill gas emissions from Calgary; mercury emissions; volatile organic compounds (VOC) from landfills; fine particulate emissions; and emissions from stationary sources.

A database of emissions from landfill gases has been established since 1995, which contains information on numerous aliphatic, aromatic and halogenated compounds, including Freons, vinyl chloride and 1,3-butadiene. Development work continued on sampling and analytical procedures for other organic compounds of interest such as aldehydes and ketones, sulfur species, and mercury.

In support of proposed off- and non-road vehicle exhaust emissions testing under CEPA, an ETC field sampling system was modified for conducting exhaust emissions testing based on protocols developed for the US Environmental Protection Agency.

National monitoring and the related database were maintained for substances for which National Ambient Air Quality Objectives (NAAQO) exist (SO₂, CO, NO₂, O₃, and suspended particulate matter), through the federal-provincial NAPS Network.

A collaborative research project with the Meteorological Service of Canada (MSC) is aiding the understanding of the human health effects of particulate matter. Measurements are being made to quantify various chemicals in ambient air, including volatile organic compounds (VOC), carbonyls, inorganic ions, and organic acids.

Work was undertaken to develop a draft method for the measurement of oxidized and metallic mercury from coal-fired power plants. Environment Canada, under the auspices of the Canadian Council of Ministers of Environment (CCME), has led the development of the Canada-wide Standards (CWS) for Mercury.

In collaboration with Standards Council of Canada (SCC) and the Canadian Association of Environmental Analytical Laboratories (CAEAL), a multi-lab study was initiated to validate the Canada-wide Standards (CWS) Reference Method for Petroleum Hydrocarbons (PHC)-in-Soil.

Research work continued on water-in-oil emulsion formation mechanisms. The work focused on the large-scale formation of emulsions, including tests at the US government OHMSETT [the National Oil Spill Test Response] facility in New Jersey.

Work was initiated on bench-scale testing of the ETC adsorption/microfiltration technology for treating arsenic-contaminated water. Additional testing of the Two-phase Partitioning Bioreactor, or 'TPPB,' was undertaken, with selected solvents targeting the removal of specific polyaromatic hydrocarbons (PAH) from contaminated soils.

The second phase of a PCB leaching study looked at potential biological degradation effects that microbes have on the mobilization of PCBs from PCB-amended paint debris in both fuel-contaminated and uncontaminated soils.

Three biological testing Reference Methods (RM) were published by the ETC in support of the CEPA Ocean Disposal Regulation, the amended Metal Mining Effluent Regulation and the Pulp & Paper Effluent Regulation.

A project was initiated to investigate soil testing methods that estimate the survival, persistence, gene-transfer potential and ecological effects of genetically modified organisms (GMO). The first phase of the study involves an international assessment of the state-of-the-art in soil microcosm test systems and their level of standardization.

Alberta Environment's Research Needs and Priorities Committee (RNP) sets an overall context for research in the Department. The 2000–2001 budget for RNP was approximately \$1.5 million for 39 projects for research in the areas of: sustainable ecosystems, air, water/groundwater, land reclamation/remediation, and climate change.

In 2001, the Alberta government provided \$2,676,000 for the Western Canada Study on Animal and Human Health Effects Associated with Exposure to Emissions from Oil and Natural Gas Field Facilities. The study will determine whether a relationship exists between exposure to emissions from oil and natural gas field facilities and animal (livestock and wildlife) health. Data was collected between 1 April 2001 and 30 June 2002. Approximately two hundred herds—a total of approximately 33,000 animals—were surveyed. Data were collected on such topics as: calving, necropsy, herd management, nutrition, immune system structure and function and infectious diseases. In the case of wildlife, reproductive and immune system structure and function data were collected.

A partnership has been formed with Environment Canada to study and model ozone and particulate matter formation in Alberta. Alberta Environment provided the emissions inventory data and technical expertise for the research study.

In 2001, under the “environment” component of a science and technology fund for government priorities (*Fonds des priorités gouvernementales en science et en technologie*—FPGST-E), the Quebec environment ministry spent over \$1.7 million to finance 24 technical research and development projects. Projects were funded in the areas of water, air, soil, waste management, and agricultural practices. During the same period, the government granted over \$500,000 from its Environmental Research and Development Assistance Program (*programme d’aide à la recherche et au développement en environnement*—PARDE) to fund 20 other projects. PARDE is aimed primarily at developing strategic environmental knowledge for intervention programs related to environmental quality and sustainable development according to priorities set out by the environment ministry. Funded projects dealt with questions such as water and air management and conservation of biodiversity. The Quebec action fund for sustainable development (*Fonds d’action québécois pour le développement durable*—FAQDD) was established in 2000 and has also financed many projects. The fund is managed by a board of directors on which the Quebec minister of environment sits. The FAQDD supports both projects that develop and distribute knowledge and practices to promote sustainable development and projects that contribute to growth and development of biodiversity and to access to Quebec’s ecological heritage.

As part of its Action Plan on Climate Change 2000–2002, the Quebec government funded a pre-feasibility study of a centre of excellence for climate change technologies. It also funded a study on energy efficiency in Quebec’s municipal buildings. Furthermore, under its assistance program for the development of energy technology, the government spent over \$8 million on developing technologies to fight global warming. Targeted areas include wind and solar energy, biomass energy, hydrogen, and electrotechnology. In addition to these amounts, the Quebec government also plans to spend \$1.9 million to create three test wind turbines in the Gaspé to adapt them to Quebec’s climate and the North American context.

Finally, 2001 saw the formation of a regional-data modeling consortium to study the science and impacts of climate change and the adaptive measures needed.

At Quebec’s request, the over-use of pesticides for esthetic purposes was, for the first time, placed on the agenda of the Canadian Council of Ministers of the Environment (CCME). The CCME subsequently asked the federal government to accelerate the certification process for biopesticides and move quickly to review the home use of pesticides.

In other areas, the Quebec ministry of environment has managed three assistance programs to support activities of non-profit organizations. In 2001, under an assistance program for social economy enterprises (*Programme d’aide aux entreprises d’économie sociale oeuvrant dans le secteur de la gestion des matières résiduelles*), the ministry funded 32 social economy enterprises involved in the recovery, recycling, repair, and resale of recycled products. Under its Environmental Priority Assistance Fund (*Programme d’aide relatif aux priorités en environnement*—PAPE), the ministry supported 20 concrete projects in environmental education, protection, or restoration that fall into the priority areas of climate change, conservation of biodiversity, water management, agricultural pollution, or the promotion of sustainable development. In addition, the Action-Environnement program both contributed to the vitality of environmental protection organizations and also implemented environmental programs in Brundtland Green Schools and in colleges.

The Quebec government finances various research programs to develop technology related to contaminated sites. In 2001, the *ministère de l’Environnement du Québec* (MEQ) spent a total of \$420,000 to fund nine research projects, most of which involve the development of soil decontamination techniques or the acquisition of knowledge in this field.

Revi-Sols, Quebec’s urban contaminated sites rehabilitation program, also disbursed grants for various projects. As of December 2001, 129 development projects were registered with the Revi-Sols program, which will lead to about \$112 million in rehabilitation work. It is estimated that the program will have contributed to rehabilitation some two million square metres of contaminated land.

With respect to the environmental and health risks associated with livestock operations, the MEQ, in concert with the province's public health institute (*Institut national de santé publique du Québec*—INSPQ), the ministry of health and social services (*ministère de la Santé et des Services sociaux*—MSSS), and the ministry of agriculture, fisheries and food (*ministère de l'Agriculture, des Pêcheries et de l'Alimentation*—MAPAQ) undertook a broad characterization study of drinking water in drainage basins deemed at-risk. The goals of the study were to estimate public exposure to contaminants and use a rigorous scientific approach to assess the degree of drinking water contamination.

The MEQ and MAPAQ signed an agreement on the implementation of a program to accredit agricultural testing laboratories with respect to ISO standards. Such accreditation is necessary because of the number of requests for soil and manure tests. Over 50,000 soil and farm manure samples are analyzed annually in Quebec by agricultural testing labs, and this number is certain to increase in coming years.

Article 2(1)(e) Environmental Impact Assessment

The Canadian Environmental Assessment Agency (CEAA) continued to administer the federal environmental assessment process. In fiscal year 2001, federal departments and agencies initiated a total of 6,768 screenings and 10 comprehensive studies, in accordance with their environmental obligations under the Canadian Environmental Assessment Act. During the same time period, CEAA managed two panel reviews.

In Alberta, comprehensive environmental reviews were carried out for every approval issued under the Alberta Environmental Protection and Enhancement Act or the Water Act. This included activities related to environmental impact assessment (EIA) reports for twenty-one major resource projects, including three large coal-fired power plants. EIA report reviews were completed for four projects, three of which were subject to public hearings. Screenings of two fuel conversion projects were completed and it was determined that EIA reports would not be required. Since the Canada-Alberta Agreement for Environmental Assessment Cooperation was signed in June 1999, Alberta and Canada have been working together to review proposed projects requiring environmental assessment by both orders of government. This includes the establishment of joint technical review teams and information sharing on new project proposals and the timing of reviews.

Quebec applied its environmental assessment procedure under the regulation respecting environmental impact assessment and review. Thus in 2001, 102 projects were processed under one of the various environmental assessment and review procedures applicable in southern Quebec. Seventeen of these projects have been granted government approval and 35 new projects have been registered. Among the projects being processed, 62 are land-based projects (roads, landfill sites, high-voltage electrical transmission lines), 35 are water-based projects (hydroelectric plants, dredging, filling) and five are industrial projects.

Sixty projects were assessed under the James Bay and Northern Quebec Agreement, including 20 new files and 12 decisions. The projects assessed involved road infrastructure; caribou hunting; and the establishment of outfitting, mining, and landfill operations.

Article 2(1)(f) Economic Instruments

Canada has made use of economic instruments and continues to examine opportunities to implement them. In fact, a central element of Environment Canada's environmental innovation agenda is the use of economic instruments and incentives to achieve environmental policy objectives. Over the past year, Environment Canada has worked in collaboration with other federal departments and provinces, as well as with external and nongovernmental organizations to explore the potential for economic instruments and incentives to help manage environmental concerns in areas such as climate change, reducing smog, and curbing releases of substances of concern.

In 2001, the federal budget introduced additional incentives to promote sustainable practices. For instance, the existing intergenerational tax-deferred rollover available for farm property has now been extended to transfers of commercial woodlots that are operated in accordance with a prescribed forest management plan. In addition, to further encourage the use of renewable energy, Budget 2001 also broadened eligibility for the income tax incentives that apply to renewable energy and certain energy efficiency projects.

With provincial and territorial governments, the federal government analyzed key design issues for a domestic emissions trading system for greenhouse gases. The work resulted in reports on coverage and allocation options, an offsets system, federal/provincial/territorial arrangements, and transition, as well as consultations with expert stakeholders on most of these topics.

In addition, Environment Canada is developing a five-year, fifteen million dollar pilot project to encourage Canadian companies and organizations to take immediate action to reduce greenhouse gas emissions. Through the Pilot Emission Removals, Reductions and Learnings (PERRL) program, the Government of Canada will buy verified GHG emission reductions from eligible projects on a fixed-price-per-tonne basis. A reverse auction system will be used to select projects with the lowest priced emission reductions. The first purchase round was planned for 2002—to focus on landfill gas capture and combustion, and CO₂ capture and geological storage.

With respect to air quality, the Canadian and US governments identified emissions trading as a potential instrument for implementing the Ozone Annex to Canada-US Air Quality Agreement. Canadian and US officials continue to explore transboundary trading and various cross-border emissions reduction initiatives.

Environment Canada has also been an active participant in the work of the National Round Table on the Environment and the Economy in its Ecological Fiscal Reform project. The project has two main objectives: to conduct an in-depth exploration of the concept of ecological fiscal reform, and to focus on a few specific environmental issues with a view to developing a suite of concrete measures. Case studies under this project will consider the potential for economic instruments and incentives in the areas of conservation of agricultural landscapes, cleaner transportation, and chemical substances of concern.

The Government of Alberta continued its active support of stewardship programs. The industry-led program to recycle used oil, filters and containers uses varied Environmental Handling Charges at the wholesale product level and has reached return rates of 67, 78 and 38 percent, respectively. The scrap tire program, which currently places a \$4.00 Advanced Disposal Surcharge on tires at the retail level, reached a milestone of 20 million tires processed since the program's inception in 1993. The deposit-refund program for recycling beverage containers achieved a return rate of 75 percent and the Alberta Dairy Council's voluntary stewardship program to recycle plastic milk jugs achieved a province-wide return rate of 42 percent.

The Alberta Leaders Environmental Approval Document (LEAD) program began in 1999 as the Alberta Environment Alternative and Innovative Regulatory Approaches initiative. This voluntary emissions reduction program gives positive recognition to facilities with exemplary performance histories. Several companies are seeking recognition through an application process involving Alberta Environment's regulatory staff and the public.

In September 2001, Climate Change Central hosted western Canada's first greenhouse gas emissions trading simulation. It was also the first simulation of this kind for Canadian firms. The event provided an opportunity for participants from industry, government and environmental groups to learn the impacts that alternative regulatory policies could have on the cost of compliance for firms operating in North American and global markets.

The Quebec government developed two new regulations based on the broader responsibility of producers under its Action Plan for Waste Management, adopted in 1998. The first, which targets the recovery of used oils, is in the process of being adopted; the second, adopted in 2000, deals with the recovery of used paints.

Since 1 October 1999, Quebec has charged a \$3 “elimination tax” on all new tires to fund a used tire recycling program and a new program to empty used tire disposal sites. During 2001, 83 percent of used tires produced in Quebec were recycled. The program to empty used tire disposal sites, the goal of which is to eliminate the 25 million tires currently stored in such sites by 2008, reached six percent of its objective: between August 2001 and January 2002, approximately 1.5 million used tires were removed from these sites.

The *Environment Quality Act* was amended on 20 December 2001 to allow recourse to economic instruments and facilitate their introduction and use with respect to various interventions in attaining environmental objectives.

As part of its own consultation process on climate change, the Quebec government set up a working group to examine the use of various economic instruments, including permit trading systems and financial instruments, with a view to fulfilling its obligations in the context of Canada’s ratification of the Kyoto Protocol.

Moreover, Quebec participated in work on emissions trading permits both under the Ozone Annex of the Canada-US Air Quality Accord and in the context of the Climate Change Action Plan adopted in August 2001 by the Conference of New England Governors and Eastern Canadian Premiers.

The *Act to amend the Act respecting the preservation of agricultural land and agricultural activities*, adopted in 2001, introduces the idea of “econconditionality” to agricultural support or revenue stabilization programs managed by La Financière agricole du Québec. This idea ties financial support for producers to compliance with environmental standards. More specifically, it should be noted that on 4 February 2001, MAPAQ and the Quebec pork producers federation (*Fédération des producteurs de porcs du Québec—FPPQ*) signed an ecoconditionality agreement. Under the agreement, pork producers and the government commit to accelerate the greening of agricultural practices and to link financial support benefits from government programs to compliance with environmental standards.

Article 2(3) Pesticide/Toxic Substance Prohibition

In July 2001, Quebec enacted the Regulation respecting the burial of contaminated soils, which provides a framework for the development, operation, shutdown, and post-shutdown monitoring of contaminated soil burial sites. Like US regulations, it prohibits the burial of highly contaminated soil without prior treatment. The regulation effectively prevents soils containing toxic substances in excess of certain concentrations from entering Quebec for burial.

In October 2001, the Quebec minister of environment announced the creation of an urban pesticide think tank, which will hold public consultations. Participants will be asked to find ways to reduce the risk of involuntary exposure to pesticides—especially among children—to foster a sense of responsibility among citizens toward the environment, and to reduce society’s dependence on chemical pesticides by encouraging the use of alternative products and practices less harmful to the environment.

In 2001, Quebec’s premier, along with the premier of Ontario and the governors of the US Great Lake States, signed the Great Lakes Action Plan for the Prevention and Control of Nonindigenous Aquatic Nuisance Species.

■ Article 3—Levels of Protection

Species at Risk Legislation

The federal government introduced Bill C-5, the Species at Risk Act (SARA), in the House of Commons on 2 February 2001. This federal legislation is part of Canada's three-part strategy to protect species at risk, which also includes stewardship programs and the Accord for the Protection of Species at Risk. Bill C-5 was referred to the Standing Committee on Environment and Sustainable Development in March 2001. The Committee heard from witnesses during the spring and conducted a clause-by-clause review that was completed in fall 2001. The Committee tabled its report in the House of Commons on 3 December 2001.

Bill C-5 is the result of more than eight years of dialogue among governments, Aboriginal peoples, landowners, environmental groups, scientists, farmers, resource industries and Canadians. The proposed SARA covers all wildlife species at risk and their critical habitat, wherever they are in Canada. The Bill will establish the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a legal entity for the first time. COSEWIC will provide for rigorous, independent and scientific advice regarding the status of species at risk. The Bill will give the Government of Canada the tools needed to mandate plans for species recovery. Under Bill C-5, cooperation and stewardship are the preferred approaches, backed up by strong prohibitions when necessary.

Additions to the List of Toxic Substances

On 23 June 2001, the following substances were proposed for addition to the List of Toxic Substances (Schedule 1) of the Canadian Environmental Protection Act, 1999 (CEPA 1999): ammonia, nonylphenol and its ethoxylates, textile mill effluents, and inorganic chloramines.

In addition, road salts containing inorganic chloride salts with or without ferrocyanide salts were proposed for addition to the List of Toxic Substances of CEPA 1999, on 1 December 2001.

In Alberta, several activities took place, including:

Climate Change

The Alberta government pursued activities related to the reduction of greenhouse gas emissions from its own operations and adaptation to impacts associated with climate change. In late 2001, Alberta began work with the Clean Air Strategic Alliance (CASA) to establish a framework for managing emissions—including greenhouse gas emissions—associated with the provincial electricity sector.

Clean Air Strategic Alliance (CASA)

Alberta continued its strong support for CASA and the operation of a comprehensive air management system through collaborative decision-making by industry, government and public interest organizations. Projects under CASA include: Animal Health, Climate Change, Particulate Matter and Ozone, Pollution Prevention/Continuous Improvement, Human Health, Vehicle Emission, and Flaring/Venting. Four zonal air management systems (air sheds) have been established to address sub-provincial scale issues.

The Alberta Energy and Utilities Board (AEUB) reports that in 2001 flaring of solution gas has been reduced by approximately 50 percent from the 1996 baseline level, doubling the 25 percent reduction target for 2001. The CASA Project Team for Particulate Matter and Ozone continued working on the implementation planning for the Canada-wide Standard Particulate Matter and Ozone. The Vehicle Emissions Team held a Vehicle Emissions Testing Clinic in Edmonton.

Water Strategy

Alberta faces a number of challenges as a result of economic and population growth. In 2001, the Government of Alberta announced it would proactively respond to these challenges through the development of a Water Strategy, which would take a forward-thinking approach—provincial in scope but sensitive to regional needs. It will address short-, medium- and long-term issues and will help Alberta to identify and better understand the challenges now and in the future (15 to 25 years); identify the options and choices that Albertans have to deal with and set clear objectives and priorities for action.

The current objectives for the Water Strategy are to achieve healthy ecosystems; safe, secure drinking water; reliable, quality water supplies for a sustainable economy; and knowledge to make wise choices about water.

In Québec, activities included the following:

Following the publication of the Québec's general framework on water management (*Cadre général d'orientation de la future Politique sur la gestion de l'eau*) in 2000, the province developed the Québec Water Policy.

The *Environment Quality Act* was amended to give the environment minister express authority over the province's water resources.

The Regulation respecting the quality of drinking water came into force on 28 June 2001. Moreover, Québec pre-published a draft Regulation respecting groundwater catchment on 13 June 2001, which will replace the current Regulation respecting underground waters. During public consultations on the draft regulation, Québec received 26 papers from various sources. In addition, on 14 December 2001, the National Assembly enacted new legislation amending the *Water Resources Preservation Act*. The changes made permanent the moratorium on the transferring surface water and groundwater taken in Québec outside the province.

Since its signing of the Great Lakes Charter Annex in June 2001, Québec, jointly with the eight Great Lakes States and Ontario, has entered into a process to develop a new water management framework for the Great Lakes/St. Lawrence watershed. This management mode should serve to protect, conserve, restore, and improve the waters of this watershed and its dependant natural resources while maintaining and respecting the powers exercised within the watershed.

In June 2001, Québec enacted the *Act respecting nature reserves on private land*, the objective of which is to preserve private land with significant features from the standpoint of biology, ecology, fauna, flora, geology, geomorphology, or landscape by allowing the environment minister to recognize this land as a nature reserve if the owner requests it. The Act allows owners to involve conservation organizations in making such requests and creates provisions for inspection and penalties.

In January 2001, the Québec government created the Mont-Saint-Pierre ecological reserve to protect an exceptional and unique ecodynamic complex of fragile bluffs where a diverse set of geomorphological processes is taking place. The reserve also protects three populations of a plant likely to be designated as threatened or vulnerable, *Astragalus australis*, including the most significant population in Québec.

Also in January 2001, Québec created the 173-square-kilometre Grande-Rivière ecological reserve to protect the Grande-Rivière watershed. The valleys in this area contain diversified forests—very old in some cases—that have been spared logging and fires thus far, creating an exceptional forest ecosystem with stands at the northern limits of their ranges. The reserve protects the Anticosti aster, a plant designated as threatened under the *Act respecting threatened or vulnerable species*; and both the *lonchophylla* subspecies of northern arnica and the showy lady's-slipper, two threatened or vulnerable species likely to be designated. In addition, the golden eagle, a bird considered threatened in Québec, nests on the rocky cliffs along the Grande Rivière.

In February 2001, 15 vascular plants were newly designated as threatened under the *Act respecting threatened or vulnerable species*. This brings the total number of plants designated as threatened or vulnerable in Quebec to 34.

In February 2001, two new floristic habitats were added to the Regulation respecting threatened or vulnerable plant species and their habitats. These additions ensure legal protection for the two habitats: the boisé de Marly, a habitat for wild leeks; and the shores of the Grande Rivière in Gaspé, a habitat that contains the largest population of Anticosti aster, a species endemic to the Gulf of St. Lawrence.

In 2001, Quebec launched the Baseline Protection Initiative (BPI) in its territory. Under BPI, companies and other organizations that emit greenhouse gases (GHG) can register early actions they have taken to reduce GHGs. To date, seven companies have registered. The Quebec government also signed a framework agreement with the Aluminium Association of Canada for the voluntary reduction of GHGs by Quebec aluminium smelters.

In 2001, recognizing that municipalities have a major role to play, Quebec adopted new policy directions for the protection of agricultural lands and activities, both to ensure that they remain vital and sustainable and to identify, in concert with agricultural and socio-economic stakeholders, solutions adapted to the problems and challenges related to development in agricultural areas. These policy directions are the result of a joint effort between MAPAQ, the MEQ, and the ministry of municipal affairs (*ministère des Affaires municipales de de la Métropole—MAMM*), as well as partnerships with municipal and agricultural representatives.

With a view to more stringent regulatory application, the MEQ intensified aerial and ground inspections of agricultural lands in 7 watersheds that due to manure surpluses are at risk in terms of drinking water quality.

The environment minister made changes to the Regulation respecting the reduction of pollution from agricultural sources. These changes tighten restrictions on increasing herd size in limited activity zones (*zones d'activités limitées—ZAL*) and are aimed at stricter manure management. ZALs are municipalities that are considered “at-risk” because the manure produced exceeds the amount required by crops grown in the area. There is also a mechanism whereby municipalities are added to the list if, following a merger or a herd-increase proposal, phosphorus reports exceed allowable thresholds. New livestock operators in ZALs must treat animal wastes completely, and manure from these operations may not be spread on crops located within the ZAL.

The adoption of the *Act to amend the Act respecting the preservation of agricultural land and agricultural activities* entrenches the priority of agricultural activities in “green” zones and will facilitate the application of the system to protect agricultural activities (*Régime de protection des activités agricoles*) put into place in 1996. This Act aims to foster a harmonious coexistence between agricultural and nonagricultural activities in green zones and to accelerate the move toward agro-environmental practices already undertaken by the farming sector by introducing the concept of “ecoconditionality”—i.e., linking, wholly or partially, financial assistance given to agricultural enterprises to conformity with environmental standards.

By 31 December 2001, almost all (60 of 62) of the depollution attestations in the pulp and paper section had been issued. In addition, over the course of 2001, progress was made with the four industrial associations targeted by the second decree of the industrial waste reduction program (*Programme de réduction des rejets industriels*), which will shortly be adopted, subjecting these establishments to the depollution attestation process. These associations are the Aluminium Association of Canada, the Quebec Mining Association Inc., the Cement Association of Canada, and Quebec’s iron and steel group. The work currently underway is to define the content of the initial attestation in each industrial sector.

Quebec continues to update the Ozone-depleting Substances Regulations in order to harmonize the standards applied to halocarbons with the latest amendments to the Montreal Protocol made by the signatory countries, including Canada, and to implement public-sector commitments made under the Québec Action Plan on Climate Change 2000–2002.

The directive on the mining industry remains under revision. In 2001, Quebec held consultations with the mining industry. Guidelines for the development of effluent monitoring programs for aluminium smelters were completed in February 2001.

The Regulation respecting the burial of contaminated soils—which provides a framework for the layout, operations, closure, and post-closure follow-up of sites used for the burial of contaminated soils—provides threshold concentrations above which highly contaminated soils cannot be buried. These values represent the levels of protection directly related to the burial of soils.

Quebec developed its own procedure for ecotoxicological risk assessment in 1999. This procedure sets out levels of protections for recreational/residential and commercial/industrial uses. In 2001, these levels were applied to fifteen cases in which the procedure based on risk assessment was used. The MEQ and the health and social services ministry (*ministère de la Santé et des Services sociaux*—MSSS) worked together in 2000–2001 to create guidelines for the development of health-risk assessments. These guidelines set out recommended levels in Quebec for the protection of human health.

■ Article 4—Publication

The following notices were published in *Canada Gazette*, Part I, during 2001:

- Notice of intent to develop a Federal Agenda on Cleaner Vehicles, Engines and Fuels;
- Implementation Guidelines setting forth the circumstances under which the Minister of the Environment may use the new authority within CEPA 1999 with respect to the preparation and implementation of pollution prevention plans for substances that are on Schedule 1, List of Toxic Substances of the Act;
- Implementation Guidelines describing how the new authorities under CEPA 1999 related to environmental emergencies will be administered;
- Agreement Respecting Canada-wide Standards for Benzene – Phase 2, in which jurisdictions agreed to meet reduction targets for ambient concentrations of this substance by 2010.

In Alberta, the *Framework for Water Management Planning* (November 2001): The Framework outlines the process for water management planning and the components required for water management plans in the province. Central to the document is the *Strategy for the Protection of the Aquatic Environment*, which confirms Alberta's commitment to protecting the aquatic environment, now and in the future (see <<http://www3.gov.ab.ca/env/water/legislation/Framwork.pdf>> or through <<http://alms.biology.ualberta.ca/Pages-Main/Resources.htm>>).

The laws and regulations of Quebec, as well as most generally applicable administrative decisions, must be published in the *Gazette officielle du Québec*.

During 2001, the MEQ ensured that its laws, regulations, procedures and generally applicable administrative decisions concerning subjects falling under the NAAEC were published and made public in a timely fashion, especially and systematically on the ministry Internet site: <<http://www.menv.gouv.qc.ca>>.

The new *Act respecting nature reserves on private land* provides for the publication of recognition of nature reserves through notification in the *Gazette officielle du Québec*, for the registration of the agreement in the land register, and for the keeping of a nature reserve registry by the MEQ.

The Quebec environment ministry holds public consultations on its draft regulations and policies.

■ Article 5—Government Enforcement Action

Enforcement of environmental and wildlife legislation is conducted within the context of the overall Canadian legal framework, which includes the Canadian Charter of Rights and Freedoms, the Canadian Criminal Code, the Privacy Act, Access to Information Act, Mutual Legal Assistance Act, and the Canada Evidence Act. Most federal and provincial environmental and wildlife legislation provides for the authority to search, seize and detain under the rules established by legislation. In Quebec, that province's own Charter of Rights and Freedoms, Civil Code and Penal Code are in effect as well.

What's New?

- As a result of the Enforcement Action Plan project on the Organizational Structure of Environment Canada's Enforcement Program—discussed in previous CEC Annual Reports—decisions were made that changed the organizational structure of Environment Canada's Enforcement Program. The responsibility for the enforcement of federal pollution legislation will continue to rest with the Environmental Protection Service of Environment Canada. The Enforcement Program for wildlife conservation however will shift to the Environmental Conservation Service of Environment Canada, where the Canadian Wildlife Service resides within the departmental organizational structure.
- A Memorandum of Understanding (MOU) with the Canada Customs and Revenue Agency (CCRA) was negotiated and signed. It formed the basis for an expanded role for Customs Investigators in the enforcement of the Wild Animal and Plant Protection and Regulation of International and Inter-provincial Trade Act (WAPPRIITA). The MOU clarifies the roles and sets the parameters for their participation.
- Another MOU under negotiation, with Transport Canada and Fisheries and Oceans, including the Canadian Coast Guard, addresses the issue of oiled birds at sea. Coordination and control with respect to oil dumping incidents is of particular concern in the Atlantic Ocean and the MOU clarifies the roles and responsibilities of Transport Canada, Fisheries and Oceans, the Canadian Coast Guard and Environment Canada.
- Among other initiatives regarding this same matter, there was a reallocation of funds and a reassessment of priorities that permitted increased field operations and surveillance that resulted in many prosecutions. An international working group was created with the support of Interpol. It is looking at an approach to identify the worst offenders and exchange information that might lead to their prosecution.
- The wildlife law enforcement program maintained its involvement with numerous coordinating organizations such as the CITES Secretariat, the World Customs Organization, Interpol and NAWEG. Many courses were developed and delivered in collaboration with these partners.
- Canada also continued the development of a Wild Animals and Plants Identification Guide for enforcement officers. Identification guides on sturgeon and on turtles and tortoises were published in 2001.
- The introduction of new substances, including products resulting from biotechnology, into the environment is an emerging issue and has become a priority for EC. Pursuant to CEPA, the New Substances Notification Regulations (NSNR) that control the introduction into Canada of new substances, came into effect in 1994. EC has developed an enforcement and compliance strategy for the Regulations. Included in the strategy is the requirement for partnerships with other enforcement agencies. Environment Canada and the Canadian Customs and Revenue Agency (CCRA) have undertaken a pilot project in this regard. An important part of the strategy is to identify the regulated community. This will be facilitated by the development of intelligence information and the identification, through improved inspection planning of all facilities in Canada subject to CEPA and portions of the Fisheries Act. Inspection plans will be based on the risks of non-compliance associated with each of these facilities and the potential impact on the environment.

- EC continued to make improvements to its Intelligence Program and undertook staffing actions in each of its five Regions. The purpose of the Program is to, identify emerging issues, permit a more proactive approach to enforcement, and to permit managers to deploy resources in a better fashion.

Compliance and Enforcement

As with most compliance and enforcement programs, the goal is compliance, and in 2001, Environment Canada continued to promote compliance with pertinent legislation through providing information on the Internet, meetings with the regulated community, bulletins and other publications for specific audiences and publication of the names of those found guilty by the courts.

The monitoring of compliance is aided by permits, licenses and other authorizations that are required for many activities, such as the transboundary movement of hazardous wastes, ocean dumping, international trade in endangered species, hunting and trapping, and those activities that pose a risk of releasing contaminants into the environment. For example, in fiscal year 2000–2001, EC processed 7,085 notices for proposed international shipment of hazardous wastes and 43,754 manifests associated with actual shipments. Approximately 99 percent of these were between the United States and Canada.

During the 2000–2001 fiscal year, Alberta Environment continued to adhere to the Department's *Compliance Assurance Principles*, which provide the minimum requirements for the development and delivery of legislation-specific compliance assurance programs, and are designed to do the following:

- Describe Alberta Environment's approach to ensuring compliance.
- Maintain and enhance Alberta Environment's credibility by ensuring consistency, clarity, and coordination in Alberta Environment's compliance assurance activities.
- Embody Alberta Environment's vision and direction for the future of its compliance assurance programs (i.e., this is a forward-looking document, it does not merely describe existing approaches).
- Provide standards for assessing and measuring the effectiveness and efficiency of Alberta Environment's compliance assurance activities.

Article 5(1)(a) Appointing and Training Inspectors

Environment Canada has specialized training courses for its enforcement staffs. Courses are specifically designed to accommodate needs as they emerge as a result of variables such as changing priorities, or new or updated legislation and regulations.

In order for EC's new enforcement officers to employ the authority and enforcement tools under CEPA 1999 and the Fisheries Act in a way that ensures their safety as well as that of the public, a General Enforcement Training and an EC Pollution Law Enforcement Course were delivered. The eight-week training covered areas such as:

- Applied peace officer sciences;
- Enforcement officer safety and defensive tactics; and
- EC enforcement policies and procedures.

Between April 2000 and March 2001, EC enforcement officers received other enforcement-related training in the following courses:

- Basic and annual firearms training for wildlife officers;
- Re-certification on officer safety and defensive tactics;
- Negotiations Skills Training Course for CEPA 1999 enforcement officers;

- Environmental Protection Compliance Orders Training (CEPA 1999);
- Export and import of Hazardous Wastes Regulations;
- Training for analysts designated under CEPA 1999 and the Fisheries Act;
- Multimedia sampling;
- Forensic auditing course;
- Identification and safe handling of reptiles (CITES);
- Canadian Special Undercover Training Program for Wildlife Officers;
- New Substances Notification Regulations; and,
- NEMISIS (computer-based information recording and management system for enforcement data).

Other activities in the region included:

- In addition to nationally-mandated inspector training, the Atlantic Region also provided its officers with additional training in non-violent crisis intervention, inspection and investigation techniques, and a number of service and health- and safety-related topics.
- Throughout 2001, the Environmental Protection Branch (EPB) - Quebec Region trained customs personnel in basic techniques to identify endangered species of flora and fauna (CITES). The EPB also provided customs personnel with 24/7 expert assistance in identifying endangered flora and fauna.

Alberta Environment ensures that all enforcement staff receives training in the skills required to fulfill the Department's enforcement mandate. Some of these areas include:

- Legislation;
- Basic investigative skills;
- Basic and advanced interviewing skills, forensic interviewing and statement analysis skills;
- The Canadian Charter of Rights and Freedoms;
- Securing and protecting evidence and the preparation and execution of search warrants;
- Communication and conflict management skills;
- Basic and advanced sampling techniques for all matrices (liquid, solid, and gaseous);
- Data management systems;
- Courtroom procedures;
- Firearms qualification and re-certification (conservation officers only);
- Defensive tactics and dealing with hostility (conservation officers only); and
- Water safety and small vessel training (conservation officers only).

Additionally, Alberta Environment investigators receive training in hazardous materials emergency response. Approximately 200 person-days of specialized training in pollution control was undertaken, including advanced interviewing techniques, advanced sampling, and other innovative techniques training. The number of person-days of instruction does not reflect training for re-certification for specialized functions (e.g., Pollution Emergency Response). As well, a total of 3,000 training days were held for fifty courses/re-certification exercises for field conservation officers.

As of 1 April 2001, the MEQ employed 181 inspectors. These inspectors attend training sessions when new regulations are implemented that they are responsible for enforcing.

In 2001, MEQ personnel attended the following sessions: testifying in court, sampling surface water and groundwater, maritime spill simulation, the Regulation respecting waste water disposal systems for isolated dwellings, the Regulation respecting the quality of drinking water, thematic workshop on wastewater, guide to installing drinking water production equipment, thematic workshop in residual materials, burial of contaminated soils, working in enclosed spaces with gas analysis instruments, agro-environmental management, fertilization, residual materials management plans, workshop on ecological flow control, reforestation of agricultural land, treatment of wastewater in the agri-food industry, legal framework of e-business, emergency intervention after oil spills, managing stressful situations, workshop on rivers in the

forest environment, operating composting facilities, municipalities with manure surpluses, modernizing the Regulations respecting pollution from agricultural sources, the *Act to amend the Act respecting the preservation of agricultural land and agricultural activities and other legislative provisions*, shoreline restoration techniques, using instruments to detect toxic explosive gas, sampling point sources, air emissions sampling program, managing hazardous wastes in normal and emergency situations, workshop on the risks related to phenols and sulfuric acid, community noise and the sound level meter, water management by drainage basin, environmentally friendly lawn management, thematic workshop on water, quality control accreditation, investigative techniques, writing residual materials summaries and reports, environmental laws, workshop on co-existence and directives on odors, environmental problems of small municipalities, environnement – plage, biological and zoonotic risks.

Moreover, in partnership with the *Corporation des Officiers Municipaux en Bâtiment et en Environnement du Québec* and the *Fédération québécoise des municipalités*, Quebec offered a training program for municipal inspectors in charge of enforcing the regulation respecting waste water disposal systems for isolated dwellings.

Article 5(1)(b) Monitoring Compliance and Investigating Suspected Violations, including through On-site Inspections

On-site inspections as well as administrative verifications (off-site inspections such as the verification of obligatory information sent in by regulatees) are undertaken to confirm compliance with regulations. Investigations may be required when situations of non-compliance are discovered. Each year, the Enforcement Branch of Environment Canada and the five regional offices, prepare an inspection plan that targets specific priority regulations. Such a plan is formulated using criteria that include: the number and types of targeted populations or activities; the profiles, compliance histories, operational complexity and capacities of the target companies; the environmental significance and geographic scale of their operations; and the nature of the applicable regulatory provisions.

An inspection is a process that involves verification of compliance with the environmental or wildlife legislation administered, in whole or in part, by Environment Canada. The Enforcement Officer must have reasonable grounds to believe that, on the premises or in the documents that he/she intends to inspect, there are activities, markings, materials, substances, records, books, electronic data or other documents that are subject to the environmental or wildlife legislation.

Inspections can occur at specific sites (on-site inspections) or can be conducted remotely by verifying documentation (off-site verifications):

- An on-site inspection is one or more on-site visits to conduct any activity•operation required to verify compliance with one regulation/permit/manifest, for one regulatee.
- One on-site inspection relates to one regulation/permit/manifest, one regulatee and one facility (if applicable).
- An off-site verification is any activity not conducted on-site to verify compliance with one regulation •permit•manifest, for one regulatee.
- One off-site verification relates to one regulation/permit/manifest, one regulatee and one facility (if applicable).

Among the inspections that took place over the course of fiscal year 2000–2001, approximately 2,146 were conducted by EC’s wildlife inspection staff under the federal Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA), which implements Canada’s commitment to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). EC’s pollution inspection staff conducted 3,247 inspections under the Canadian Environmental Protection Act. Under the Fisheries Act, for the same reporting period, EC conducted 3,353 inspections.

An investigation is the gathering and analyzing, from a variety of sources, of evidence and information relevant to a suspected violation where there are reasonable grounds to believe that an offense has, is or is about to occur with regards to the environmental or wildlife legislation administered, in whole or in part, by EC.

An investigation results from an on-site inspection, an off-site verification of an occurrence, and where there is reasonable ground to believe that an offense has occurred, is occurring or is about to occur. One investigation potentially encompasses multiple related: acts, regulations, permits, sites, regulatees, alleged offenses and counts that are linked, or perceived to be linked.

During the course of fiscal year 2000–2001, enforcement officers carried out 20 investigations under the Canadian Environmental Protection Act, 85 under the Fisheries Act. Wildlife Enforcement Officers carried out 217 investigations under the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act, 251 under the Migratory Birds Convention Act of 1994, and 9 investigations under the Canada Wildlife Act.

The compliance assurance activities undertaken by Alberta Environment are summarized as follows (for the fiscal year ending 31 March 2001):

Environmental Protection and Enhancement Act:

Each year, Alberta Environment establishes targets for compliance assessments to measure compliance with the Environmental Protection and Enhancement Act, and its regulations. Compliance assessments take the form of unannounced site inspections, reviews of compulsory reports required by statute, authorization or Code of Practice, and audits to verify that designated methods of data gathering and collection meet quality control/quality assurance objectives. A similar program for assessing compliance with the Water Act is under development.

The annual compliance assessment plan targets activities and operations based on the following criteria:

- A broad range of regulated activities and operations are assessed for compliance.
- Over the long term, a sample of each regulated community will be assessed.
- Targets set for particular activities•operations are based on environmental/resource management priorities including:
 1. Risk to the resource or environment associated with a particular activity•operation;
 2. The history of compliance of the regulated parties associated with the activity/operation; and
 3. Information on trends and emerging issues determined from strategic analysis.

In 2001:

- 5,207 compliance assessments (185 inspections, 4,860 reviews, 162 audits) were completed on industrial facilities;
- 668 compliance assessments (364 inspections, 304 audits) were completed on municipal (potable water and wastewater) facilities;
- 74 inspections were completed on activities or facilities that are regulated by a Code of Practice under EPEA;
- 170 inspections were completed on pesticide related activities under EPEA;
- 135 compliance assessments (inspections only) were performed at solid waste management facilities, and
- 5,205 compliance assessments (2,728 inspections, 2,477 reviews) were completed under the Conservation and Reclamation Regulation of EPEA

Water Act

The proactive compliance assessment plan for evaluating compliance with the Water Act is under development. In the future, specific targets will be established for verifying compliance with authorizations granted for activities such as surface water diversions, groundwater diversions, watercourse crossings, pipeline and telecommunications crossings, and other in-stream activities.

Fisheries Legislation

In 2001:

- 64,440 anglers were checked;
- 363 commercial fisheries operations were inspected, for a total of 1,674 individual inspections;
- 18 inspections were completed on fish processing facilities; and
- 488 inspections of subsistence fishers were conducted.

Wildlife Legislation

In 2001:

- 36,237 hunters were checked;
- 296 subsistence hunters were checked;
- 162 inspections were completed on activities regulated by the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (federal);
- 748 inspections were completed on commercial operators, including guides and outfitters, meat processors, fur dealers, taxidermists and trappers; and
- 25 inspections were completed on various wildlife facilities (i.e., zoos and game farms).

Note: All figures for compliance assurance activities quoted above are taken from the Compliance & Enforcement Activities Annual Report, April 1, 2000 – March 31, 2001. This is available online at: <http://www3.gov.ab.ca/env/protenf/publications/EnforcementActivitiesReport00_01.pdf>.

In Quebec, over the course of 2001, inspection teams from the regional operations branch (*Direction générale des opérations régionales*) and other MEQ personnel such as the team from the centre for hydrological expertise (*Centre d'expertise hydrique du Québec*) carried out 13,010 inspections.

The investigation team carried out 403 investigations during 2001.

In April 2001, the MEQ organized a thematic workshop on hazardous materials management so that regional branches of the ministry could share information.

Each of the MEQ's regional branches carried out a program to systematically inspect businesses to verify their compliance with the Hazardous Materials Regulation.

Businesses targeted by the Hazardous Materials Regulation must produce a summary or annual report of the management of the residual hazardous materials they have stored, produced, used for energy sources, transported, or disposed of.

In Manitoba, the scope of Manitoba Conservation's responsibilities includes, but is not limited to strictly environmental matters. The statistics below cover the *full* range of enforcement activities for which Manitoba Conservation is responsible.

Environmental Sector Program Operating Statistics: 2000–2001

Program Activity (Mandated)	Number Of Inspections	Complaints Responded To
Public Health Act		
Food Service Establishments	4,830	402
Temporary/Seasonal Food Service	626	7
Retail Food Stores	453	80
Food Processors	438	44
Uninspected Meat Processors	38	1
Public Water Supply	858	581
Swimming Facilities	91	32
Industrial and Construction Camps	14	
Recreational Camps	70	3
Public Accommodation	157	25
Care Facilities	377	26
Total	7,952	1,201
Environment Act		
Waste Disposal Grounds	532	33
Livestock Production Operations	1,348	293
Municipal Wastewater Facilities	317	24
Scrap Processors and Auto Wrecking	7	2
Agricultural Operations	11	1
Mining Operations	37	5
Forestry Operations	25	10
Manufacturing and Industrial Plants	132	57
Recreational Developments	34	3
Incinerators	21	
Water Development/Other EA Licences	191	93
Total	2,655	521
Dangerous Goods Handling and Transportation Act		
Petroleum Storage Facilities	697	24
Pesticide Storage and Container Facilities	49	
Anhydrous Ammonia	117	1
Hazardous Wastes Sites	300	55
Dangerous Goods Handling and Transportation	347	5
Contaminated Sites	222	10
Total	1,732	95
Request/Response-Oriented Programs		
Subdivision, Landsplits, Planning Schemes and Development Plans	1,035	209
Litter	1,372	797
Campgrounds	27	1
Dwellings and Buildings	1,560	1,122
Private Water Supplies	725	568
Insanitary Conditions	394	196
Communicable Disease Investigations	96	60
Private Sewage Disposal	1,069	175
Other (Crop Residue, Ozone, WRAP, NSHPA)	571	128
Total	6,849	3,256
Grand Total	19,188	5,073

Article 5(1)(c) Seeking Assurances of Voluntary Compliance and Compliance Agreements

The MEQ establishes environmental characterization and monitoring plans with owners of contaminated lands. It subsequently issues the necessary permits or authorizations.

It has also initiated a pilot project to encourage businesses that are still active to take voluntary measures. This pilot project helps detect and limit sources of contamination, even if the establishment is still active. It also helps to identify lands that have an effect on or that constitute a significant risk to health or the environment, with the goal of planning intervention. Moreover, it tends to dispel the uncertainty over the current state of industrial lands. It encourages owners to make gradual and long-term rehabilitation plans, thereby reducing the risk that contaminated lands will be transferred to third parties during the active life of the industrial establishment.

Article 5(1)(d) Publicly Releasing Non-compliance Information

Environment Canada maintains a computerized enforcement database called NEMISIS (National Enforcement Management Information System and Intelligence System) to record key enforcement activities, including inspections, investigations, warnings issued, and prosecutions.

There is a legislated requirement for Environment Canada to report to Parliament annually on the implementation of the Canadian Environmental Protection Act (CEPA) and the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA). EC also contributes to the Department of Fisheries and Oceans Annual Report to Parliament on the Fisheries Act.

The CEPA Environmental Registry, established under *CEPA*, 1999 houses materials noted in the list below. These are available to the public at <<http://www.ec.gc.ca/CEPARegistry/default.cfm>>.

- CEPA Enforcement and Compliance Policy
- CEPA Notices published in the *Canada Gazette*
- CEPA Annual Reports
- CEC Annual Reports on Enforcement (when they deal with CEPA issues)
- Historical court decisions on guilty parties
- Press releases and media advisories
- Complete wording of CEPA and its Regulations
- Brief “plain language” summaries of CEPA Regulations
- Enforcement activities reports and enforcement statistics
- CEPA Compliance Reports, as they are prepared from time to time.
- International Conventions/Accords that Canada has signed and implemented through CEPA and its regulations (i.e., The Basel Convention on the Transboundary Movement of Hazardous Wastes)
- Proposed new CEPA regulations and the amendment of existing CEPA regulations
- Substances List

Other initiatives include:

- In the Atlantic Region, Media Advisories or Press Releases were issued for every charge and every conviction registered. In all cases, the Advisories resulted in significant media coverage.

The *ministère de l'Environnement du Québec* systematically disseminates information about all convictions that result in fines of \$2,000 or more.

Article 5(1)(e) Issuing Bulletins or Other Periodic Statements On Enforcement Measures

Enforcement information, reports and statistics can be found on Environment Canada's web site at: <<http://www.ec.gc.ca/ele-ale/index.asp>>.

Alberta Environment uses a computerized database to track reported incidents, compliance checks and enforcement actions taken as a result of confirmed non-compliance. The data is coded to allow for GIS mapping of occurrences and enforcement actions.

Alberta Environment's enforcement activities for this reporting period are summarized in the following table. Detailed information on enforcement activities undertaken by Alberta Environment can be accessed at: <<http://www.gov.ab.ca/env/protenf.html>>.

Enforcement Activities, Alberta: 2000–2001

LEGISLATION	Charges Laid	Charges Concluded	Con- victions	Pending (charges not concluded)	Prosecution Penalties (C\$)	Jail Days	Suspen- sions	Appeals	Court Orders	Written Warnings	Admin Penalties (#s)	Admin Penalties (C\$)	Orders
EPEA	108	82	51	37	\$320,252.50			3		58	30	\$160,000.00	13
Pesticides Sales, Handling...	4	20	1		\$14,500.00					3			
Waste Control Regulation	55	16	1		\$0.00					13	1		
Substance Release Regulation		1	1		\$50,000.00								
EPEA and Regs Subtotal	167	119	54	1	\$384,752.50	0	0	3	0	74	31	\$160,000.00	13
Occupational Health and Safety 448/83	1	0	0	1	\$0.00	0	0	0	0	2	0	\$0.00	0
Dangerous Goods Transportation and Handling Act	4	3	0	0	\$0.00	0	0	0	0	0	0	\$0.00	0
Fisheries (Alberta) Act	382	297	256	85	\$25,528.00		1			267			
General Fisheries (Alberta) Regulation	35	31	24	4	\$3,783.00		1			19			
Fisheries Act (federal)	59	37	28	22	\$7,797.00					11			
Alberta Fishery Regulation (1998)	1,481	1,197	1,043	284	\$147,586.00	3	8			409			
Fisheries Act and Regs Subtotal	1,957	1,562	1,351	395	\$184,694.00	3	10	0	0	706	0	\$0.00	0
Wildlife Act	1,374	1,075	801	299	\$248,769.00		176			312			
Wildlife Act Regulations	204	159	146	45	\$24,998.00					228			
Migratory Bird Convention Act	3	3	3	0	\$0.00								
Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (federal)	3	2	1	1	\$1,500.00								
Wildlife Act and Regs Subtotal	1,584	1,239	951	345	\$275,897.00	0	177	0	0	547	0	\$0.00	0
Forests Act	38	27	25	11	\$1,715.00	1				8	5	\$10,659.91	
Forest and Prairie Protection Act	5	4	4	1	\$1,415.00	1							
Timber Management Regulation					\$0.00						19	\$52,895.00	
Forest Land Use Zone Regulation	9	9	9		\$772.00					35			
Forest Recreation Regulation	102	67	57	35	\$3,598.00								
Forestry Acts and Regs Subtotal	154	107	95	47	\$7,500.00	1	0	0	0	43	24	\$63,554.91	0
Provincial Parks Act	1	1	1		\$100.00								
Provincial Parks Act: General Regulation	548	428	367	120	\$15,930.00					282			244
Wilderness Areas: Ecological Reserves and Natural Areas Act	1			1	\$0.00					1			0
Provincial Parks Act and Regs Subtotal	550	429	368	121	\$16,030.00	0	0	0	0	283	0	\$0.00	244
Public Lands Act Subtotal	0	0	0	0	n/a	0	0	-	0	49	52	\$100,783.50	0
Exploration Regulation											57	\$72,495.00	
Mines and Mineral Act and Regs Subtotal	0	0	0	0	n/a	0	0	0	0	0	57	\$72,495.00	0
Water Act					\$0.00					46			8
Water Management Subtotal	0	0	0	0	\$0.00	0	0	0	0	46	0	\$0.00	8
Controlled Drugs & Substance Act	2	2			\$0.00								0
Criminal Code	52	32	6	20	\$902.00		1			5			0
Boating Restrictions Regulations	3	3	2		\$150.00					1			0
Gaming and Liquor Act	852	709	602	143	\$77,537.00	3				81			0
Gaming and Liquor Regulation	612	561	485	51	\$55,071.00					9			0
Highway Traffic Act	280	242	214	38	\$15,905.00					71			0
Motor Vehicle Administration Act	349	313	248	36	\$56,971.00					42			0
Off-Highway Vehicle Act	447	409	371	38	\$26,481.00					122			0
Off-Highway Vehicle Regulation	25	25	24		\$759.00					6			0
Petty Trespass Act	3	1	1	2	\$100.00					2			0
Provincial Offences Procedures Act	102	37	17	65	\$2,174.00	7							0
Small Vessel Regs	45	40	34	5	\$5,111.00					67			0
Other Acts and Regs Subtotal	2,772	2,374	2,004	398	241,161.00	10	1	0	0	406	0	\$0.00	0
TOTALS	7,189	5,833	4,823	1,344	\$1,110,034.50	14	188	3	0	2,156	164	\$324,338.41	265

The Quebec environment ministry (*ministère de l'Environnement du Québec*—MEQ) implemented a procedure for disseminating enforcement methods, which it calls *notes d'instruction*. This procedure helps to standardize how regulations are enforced over the 17 regional branches covering Quebec's territory. The *notes* are sent systematically to the regional directors, who are then responsible for informing their staffs. Moreover, the *notes d'instruction* are available on the MEQ's Internet site so that all employees can access them at any time.

In 2001, 15 *notes d'instruction* were emitted.

Manitoba Enforcement Statistics: 2000–2001 Fiscal Year

Legislation	Charges Laid	Convictions	Formal Warnings Issued	Director/EO/MOH Orders Issued	Fines Imposed
The Dangerous Goods Handling and Transportation Act	46	46	45	9	30,782.00
The Environment Act	57	53	173	36	22,455.00
The Contaminated Sites Remediation Act	1	1			185.00
The Public Health Act				1	
Municipal By-laws	7	7	58	19	1,678.50
			7		
TOTAL	111	107	283	65	\$55,100.50

Article 5(1)(f) Promoting Environmental Audits

The MEQ establishes environmental characterization and monitoring plans with owners of contaminated lands. It subsequently issues the necessary permits or authorizations.

Moreover, in addition to its “rehabilitation” component, the 1998 Soil Protection and Contaminated Sites Rehabilitation Policy (*Politique de protection des sols et de réhabilitation des terrains contaminés*, 1998) contains a “prevention” component to promote environmental audits prior to the building of a new industrial establishment.

Article 5(1)(g) Requiring Record Keeping and Reporting

Inspectors carefully and systematically produce audit reports after each trip into the field. A case file is opened for each inspection site.

The *Environment Quality Act* requires that a registry be kept.

The MEQ produces reports on various aspects of the issue of contaminated sites. However, all such documents corresponding to the period covered by this report (1 January to 31 December 2001) have not yet been completed.

Article 5(1)(i) Using Licences, Permits or Authorizations

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), to which more than 130 countries are signatories, helps to control the international trade in endangered and protected species.

The following table summarizes the CITES permits that were issued in Canada during *calendar* year 2001.

CITES Permits issued in Canada during 2001

Jurisdiction	Import	Export	Temporary Export/import	Scientific
Canada	160	7039	180	36
Alberta ¹		NA		
British Columbia		1524		
Manitoba		1099		
New Brunswick		67		
Newfoundland		116		
NWT		140		
Nova Scotia		30		
Ontario		1155		
PEI		0		
Quebec		1300		
Saskatchewan ²		726		
Yukon		196		
Nunavut		3		
TOTAL	160	13,395	180	36

1. Alberta does not issue CITES export permits. Appendix I species included on permit

In 2001, Quebec issued 6,300 authorizations, permits, or other official documents under the *Environment Quality Act*.

Article 5(1)(j) Quasi-judicial or Administrative Proceedings Initiated

On the pollution side, 11 prosecutions were carried out under the Canadian Environmental Protection Act and a total of 8 prosecutions were carried out under the Fisheries Act, during the course of fiscal year 2000–2001.

One example of this is the case of Akzo-Nobel Chemicals Ltd., of Mississauga, Ontario, who, as agent for Akzo Chemicals Inc., was found upon investigation to have imported 96,713 kg of three organic peroxides found on the Non-domestic Substances List (but not the Domestic Substances List) without reporting the specific information under the New Substances Notification Regulations (NSNR). On 13 May 1999, three charges were laid. The company pleaded guilty to one count of failing to report under the NSNR. Two other counts were withdrawn. Akzo Nobel was fined \$30,000, with an order to pay an additional \$15,000 to the Credit Valley Conservation Authority for watershed rehabilitation projects and \$15,000 to the Industry Coordinating Group of the Canadian Chemicals Producers Association to facilitate industry training in the NSNR (\$60,000 total).

It is noteworthy that this was the first-ever conviction under the NSNR that had come into force in 1994.

Wildlife Enforcement officials carried out a total of 293 prosecutions: 1 under the Canada Wildlife Act, 270 under the Migratory Birds Convention Act of 1994, and 22 under the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act.

One example of this is the case of Michael Flikkema, convicted on indictment in Ontario Provincial Court on 7 July 2000, under Section 6(2) of WAPPRIITA for the unlawful importation of wildlife. Michael Flikkema, together with his wife and son, operates Flikkema Aviaries in Fenwick Ontario. Michael, his wife, Johanne, and their son, Harold, faced a total of 483 charges laid under WAPPRIITA for illegally importing and exporting over 5,000 tropical birds, mostly finches, which were captured in the wild. The Ontario Court of Justice sentenced Mr. M. Flikkema to the following:

- a \$50,000 fine;
- 90 days in jail (served intermittently), three years probation (condition: keep the peace and be of good behavior) and 50 hours community service; and
- three years prohibition on the importation of birds.

Harold Flikkema was convicted on indictment in Ontario Provincial Court on 7 July 2000, under Section 6(2) of WAPPRIITA, for the unlawful importation of wildlife. The Ontario Court of Justice sentenced Mr. H. Flikkema to the following:

- \$25,000.00 fine;
- two years probation (condition: keep the peace and be of good behavior);
- 50 hours community service; and
- three years prohibition on the importation of birds.

No new judicial process was imposed in Quebec during this period. However, the environment minister regularly imposes demands to obtain the restoration of contaminated lands that it manages.

Article 5(1)(l) Administrative Orders Issued

Quebec regularly imposes requirements for the restoration of contaminated lands that it manages. Such requirements depend on the seriousness of the problem. If they are not complied with, Quebec can order the work to be done. No contaminated site was subject to such an order in 2001.

Article 5(3)(b)

In Quebec, the *Environment Quality Act* not only sets out penalties for each infraction, it contains provisions for the rehabilitation of sites, repayments of costs, additional fines for monetary benefit, and reimbursements of analysis costs.

Quebec's environmental laws and regulations provide for the assessment of fines to those who contravene

them. Similarly, the public administration or citizens, when adversely affected, may apply for an injunction under the *Environment Quality Act* or the *Code of Civil Procedure*. As previously stated, the minister may also order the demolition of work done if it contravenes the law.

Moreover, the minister may require conveners to pay for the work if they disregard or refuse to comply with an order.

Finally, the minister has various powers to collect, clean up, or contain contaminants that escape or are likely to be emitted into the environment. In such cases, the minister can recover the resulting costs of such measures from the owner or keeper of the contaminants.

Information concerning enforcement in Quebec is available from the Quebec ministry of environment (*ministère de l'Environnement du Québec*) at <<http://www.menv.gouv.qc.ca>>. Statistics on convictions in 2001 are provided in the table below.

Ministère de l'Environnement du Québec Convictions: 2001

Convictions	Number	Fines (\$)
Environment Quality Act	71	462,450
Act respecting the sale and distribution of beer and soft drinks in non-returnable containers	1	600
Pesticides Act	1	4,000
Ecological Reserves Act	4	1,550
Regulation respecting the reduction of agricultural pollution	2	40,000
Air quality regulation (Règlement sur la qualité de l'atmosphère)	10	21,300
Drinking Water Regulation	10	2,200
Regulation respecting used tire storage and Regulation respecting solid waste	23	24,200
Regulation on snow storage sites (Règlement sur les lieux d'élimination de neige)	6	35,000
Hazardous Materials Regulation	10	83,000
TOTAL	138	674,300

Infractions and Convictions Handed Out by the Société de la Faune et des Parcs du Québec in 2001

Statute	Statute or article	Number of infractions	Number of convictions	Amount of fine	Number of certificate or permit cancellations (for 2 years)	Number of prohibitions on holding a migratory bird permit (1 year)
Fisheries Act	F-14	251	70	\$9,372.00		
Quebec Fishery Regulations	DORS/90-214	2,702	961	\$133,648.00		
Migratory Birds Convention Act	M-22	21	--	--		
Migratory Birds Regulations and Migratory Bird Sanctuary Regulations	C.R.C., ch. 1035 C.R.C., ch. 1036	161	36	\$8,050.00		33
Regulations enabled under the Act respecting the conservation and development of wildlife	C-61.1, r. C-61, r.	787	285	\$70,725.00		
Regulations enabled under the Parks Act	P-9, r. 8	72	34	\$1,700.00		
Act respecting the conservation and development of wildlife	C-61.1	1,998	436	\$241,650.00	63	
Regulations enabled under the Act respecting hunting and fishing rights in the James Bay and New Québec territories	D-13.1	3	--	--		
Parks Act	P-9	18	2	\$100.00		
Environment Quality Act	Q-2	56	7	\$2,100.00		
Ecological Reserves Act	R-26.1	6	--	--		
Act respecting threatened or vulnerable species	E-12.01	131	67	\$40,350.00		
Total		6,206	1,898	\$507,695.00		

3,422 infractions pending settlement: 1,004 infractions being processed and 2,118 to be heard

Note: case files involving the Environment Quality Act are handled by the ministère de l'Environnement du Québec

■ Article 6—Private Access to Remedies

Persons with a recognized legal interest have access to remedies before administrative tribunals and the courts. Interested persons, in addition to being able to institute private prosecutions, may also put forth to a competent authority, a request to investigate alleged violations of environmental laws and regulations.

For example, CEPA 1999 provides statutory authority for a person to apply to the Minister of the Environment for an investigation concerning any alleged offense under that Act. As well, persons with a recognized legal interest in a particular matter have access to administrative, quasi-judicial and judicial proceedings for the enforcement of Canada's environmental laws and regulations. In this regard, CEPA 1999 has introduced the concept of "environmental protection actions" which allow any person to seek a court order prohibiting a continued violation of the statute and/or to mitigate harm caused by a violation of the statute. As well, CEPA 1999 provides the statutory authority to request the review of administrative decisions or proposed regulations.

Article 6(1)

The MEQ has put into place a complaint processing system so that victims of or witnesses to an infraction of an environmental law or regulation can contact the ministry. If necessary, the MEQ will investigate in order to identify the contravener and collect the evidence required to take the appropriate measures.

Also notable are the 24-hour hotline and Urgence-Environment team, ready at all times to intervene or take complaints or information.

In 2001, the MEQ complaints department received 181 complaints: 141 were environmental in nature and 40 concerned the quality of services.

Article 6(2)

Recourse to an injunction under the *Environment Quality Act* is available to the State or by any interested natural person, i.e., living in Quebec who frequents a place or its immediate vicinity where the contravention is alleged to have taken place. Penal recourse is undertaken and pursued in the name of the Attorney General of Quebec. Although citizens may not initiate such recourse, they may participate in the process, either by making a complaint or by testifying in court.

Article 6(3)(a)

Private parties who wish to sue in tort or for neighbourhood disturbance for environmental harm they have incurred or are incurring must seek remedy under civil law, i.e., the *Civil Code of Québec* and the *Code of Civil Procedure of Québec*. Under these rules, they must demonstrate the fault of the defendant, the harm they have incurred, and the causal link between the two elements.

Article 6(3)(b)

In summary, people who incur environmental harm may on one hand seek remedy in damages from the wrongdoer—i.e., under tortious liability—and on the other hand, they may seek an injunction to cease the harmful or illegal activity.

■ Article 7—Procedural Guarantees

Canada has administrative, quasi-judicial and judicial proceedings available for the enforcement of environmental laws and regulations. Both the Canadian Charter of Rights and Freedoms and the courts have ensured that persons are given an opportunity, consistent with the rules of procedural fairness and natural justice, to make representations to support or defend their respective positions and to present information or evidence. Decisions are provided in writing, are made available without undue delay, and are based on information or evidence on which the parties were offered the opportunity to be heard. In accordance with its laws, Canada provides parties to such proceedings, as appropriate, the right to seek review and where warranted, correction of final decisions by impartial and independent tribunals. An example of fair, open and equitable proceedings at the administrative level is the Board of Review process available under CEPA 1999.

Quebec has procedural guarantees under the *Act respecting administrative justice* and the Charter of Human Rights and Freedoms. Moreover, the *Environment Quality Act*, the *Pesticides Act*, the Code of Penal Procedure and the Code of Civil Procedure, and the Charter of Human Rights and Freedoms provide for appeals processes.

Mexico

Country Report on Implementation of the Commitments Derived from the NAAEC

The following report was submitted to the CEC Secretariat by the Ministry of the Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*—Semarnat) in accordance with the NAAEC.

■ Article 2—General Commitments

Article 2(1)(a) Periodically prepare and make publicly available reports on the state of the environment

Through inter-institutional coordination, Mexico created public outreach mechanisms such as that of the Interministerial Commission on Industrial Policy (*Comisión Intersecretarial de Política Industrial*), an agency under the Ministry of the Economy (*Secretaría de Economía*—SE). The agency has a web site at <www.cipi.gob.mx>, where the general public can find quarterly updates about 12 programs managed by different areas of Semarnat.

During the reporting period, the diagnosis on polychlorinated biphenyls (PCBs), within the framework of the North American Regional Action Plan (NARAP) on PCBs, was updated. In cooperation with the Semarnat state office in Zacatecas, the project titled “PCB waste containment in the community of San Felipe Nuevo Mercurio, Zacatecas” was completed. It was published in April 2001 along with the action plan for the La Zacatecana heavy metal containment facility.

Article 2(1)(b) Environmental emergency preparedness measures

Prevention

Activities in 2001 involved various preventive measures against possible impacts arising from weather phenomena, in particular, those associated with heavy rainfall and ensuing floods.

- As a priority measure, activities dealing with infrastructure help to protect population centers and productive areas against flooding.
- In regard to surface water, a critical activity involved continuous collection of precipitation data, issuance of instructions for reservoir operation, and quantification of water availability for large cities. To this end, precipitation data was compiled, processed, analyzed, and distributed on a national scale.

This activity was crucial to the administration and operation of the reservoirs containing nearly all of the country's surface water for various uses. These reservoirs also serve to regulate flooding and high-water situations that threaten lives and property in settlements along the main rivers of Mexico.

The following results in this area were obtained during the reporting period:

- Within the Population Center Protection Program (*Programa de Protección a Centros de Población*), significant progress was made on coordination agreements between the federal government, acting by the National Water Commission (*Comisión Nacional del Agua—CNA*), and the state governments of Baja California, Aguascalientes, Colima, Guanajuato, Nayarit and Tabasco. In addition, the CNA built channel protection and straightening infrastructure, ripraps, and desilting structures, and reinforced and elevated check dams in Chiapas, Michoacán, Nayarit, Oaxaca, Puebla, Tamaulipas, and Veracruz.
- River flow control infrastructure work continued in 20 agricultural irrigation subprojects in the various states of the Republic. The affected rivers included the Colorado River in Baja California and rivers in Chiapas, Oaxaca, Tabasco, Veracruz, and México, yielding total coverage of an agricultural area of 6,210 ha consisting of both irrigation districts and drainage units.
- 576 reservoir inflow forecasts were produced along with 60 studies of irrigation water extraction from reservoirs.
- 10,000 weather reports and bulletins were produced in order to keep the National Civil Protection System (*Sistema Nacional de Protección Civil*), the media, federal government departments, and the general public informed of the development of atmospheric phenomena; 10 long-term precipitation forecasts were produced for the country's 18 climatic regions.
- As part of the Preventive Measures Program (*Programa de Medidas Preventivas*) established for 2002, the structures and mechanisms making up the Valley of Mexico Hydrological System (*Sistema Hidrológico del Valle de México*) (rivers, reservoirs, canals, and drains) continued to be operated, maintained, and rehabilitated. This system drains storm water and wastewater generated in the Valley of Mexico Metropolitan Area (*Zona Metropolitana del Valle de México—ZMVM*) with the goal of protecting 320,000 people against flooding. By the end of 2001, 7 reservoirs, 2 dams and 14 rivers had been partially desilted, shafts in the old Tequixquiatic tunnel had been rehabilitated, and flood control work had begun in the La Compañía River to protect 17 municipalities of the state of México.
- In the interests of emergency prevention, the flood warning system includes an information center operating 365 days a year for ongoing monitoring and surveillance of reservoirs and points identified as critical. In late 2001, various structures were built to expand hydraulic regulation and control capacity in the canal section of the La Compañía River so as to diminish the risk of harm to persons and property. The main work includes construction of the "La Gasera" regulating pond and auxiliary flood control works as well as measurement and instrumentation, geotechnical exploration, and analysis of the La Compañía River and its zone of influence.
- Through an agreement with *Centro de Investigación en Geografía y Geomática*, Ing. Jorge L. Tamayo, a computational application for hurricane response in the municipality of Acapulco was developed.
- Environmental emergency response was provided for a fire in the federal zone of the Lago de Texcoco project.
- Emergency response was provided for the heavy rainfall recorded in the Toluca Valley, state of México, specifically in the municipalities of Toluca, Metepec, San Mateo Atenco and Almoloya de Juárez.
- In order to ensure that the emergency response equipment remains in the best possible operating condition, the pumping equipment located at the Regional Emergency Response Centers (*Centros Regionales de Atención de Emergencias—CRAE*) in Guadalajara (Jalisco) and Cárdenas (Tabasco) was supervised and analyzed. Pumping equipment was also tested at La Concepción reservoir in the municipality of Tepoztlán, state of México. This made it possible to carry out the activities described in the table on the following page:

Application of Specialized Emergency Response Equipment

State	Municipality	Equipment	Volume transferred	Comments
Chiapas	Pijijiapan	1, 8" diam.	4.76 Mm ³	Support to operating agency in response to collapse of wells from September 1998 on. The firm CHAC is continuing to rehabilitate wells in Barrio 2000.
Hidalgo	Actopan, San Salvador, Atitalaquia, Ajacuba, Francisco I. Madero	3, 6" diam. 3, 8" diam.	1.25 Mm ³	Emergency irrigation in Irrigation District 03, Actopan, Atitalaquia and Ajacuba units.
Tamaulipas	P. Chicayán	1, 18" diam.	-	Conduction of Chicayán reservoir into water supply canal.
Veracruz	Tantoyuca	2, 6" diam.		Filling of pipes supplying the localities of Osuluama, Tantima, Tamalín and Cerro Azul.
Sonora	P. Abelardo L. Rodríguez	2, 18" diam.	-	Located in the old spillway and the surge arrestor.
Morelos	Cuautla Manantial Las Tazas	2, 6" diam.	54,285	Support for the users' association of Irrigation District 016 in Cuautla, Morelos, in the ejidos of Cuautlixco and Tetelcingo, the small landholding of Casasano, for irrigation of 470 ha of sugarcane, benefiting 250 users.

- In addition, the desalinization plant in Ciudad del Carmen, Campeche, was inspected, and the condition of five hydraflow-type pumping devices located in the Caracol zone of Lago de Texcoco was verified.

Hydrometeorological Contingency Response

Risk Prevention and Flood and Drought Response

Emergency Plans

In the area of emergency prevention:

- The emergency plans for the Rio Grande de Morelia and the Celio River in Michoacán as well as the Zula River in Jalisco were reviewed in the field.
- The emergency plans were submitted for the Lerma River (Solís Reservoir) in Guanajuato, the Colorado River in Baja California, the Río Grande de Santiago in Nayarit, and the Alseseca River in Puebla.
- The emergency plan for the Huejutla River in Hidalgo was revised.

Regional Emergency Response Centers (CRAE)

Visits were made to the CRAE of San José del Progreso, Oaxaca, and Guadalajara, Jalisco. On these visits, personnel from the brigades of Oaxaca, Colima, Nayarit, Zacatecas, México and Jalisco were trained in the use of specialized emergency response equipment.

Restoration of Areas Affected by Hydrometeorological Phenomena

Natural Disaster Fund

During this period, the CNA used authorized moneys from the Natural Disaster Fund (*Fondo de Desastres Naturales—Fonden*) to purchase specialized emergency response equipment and repair hydraulic and irrigation infrastructure damaged by the intense rainfall of 2001. The states benefiting were Michoacán, Nuevo León, Sonora and Veracruz. Additionally, the state governments of Baja California Sur, Chiapas, Nuevo León, Sonora and Veracruz were given support for the repair of drinking water, sewer and treatment infrastructure damaged by droughts and rainfall.

Authorized Funds from Fonden in 2002

Description	Authorized amount (P\$ million)
CNA: Specialized emergency response equipment.	47.870
Baja California Sur: Funds authorized to repair damage to municipal hydraulic infrastructure caused by the exceptional rainfall occurred 25–29 September 2001.	35.622
Chiapas: Funds authorized on the basis of shared payment responsibility as provided in the Fonden rules of operation, to repair municipal drinking water infrastructure damaged by the exceptional rainfall occurred 16–18 September 2001 in the municipality of Tapachula, Chiapas.	0.413
Michoacán: Authorized to repair damage to the “La Llave” reservoir in the municipalities of Puruándiro and José Sixto Verduzco, Mich.	3.059
Nuevo León: Authorized to repair damage to federal and state hydraulic infrastructure caused by rainfall and flooding occurred 10–12 September 2001.	29.335
Nuevo León: Authorized to repair damage to federal and state hydraulic infrastructure caused by rainfall and flooding occurred 23–25 September 2001.	9.414
Sonora: Authorized to repair hurricane damage to federal and state hydraulic infrastructure caused by the exceptional rainfall (Hurricane Juliette) occurred 29 September–1 October 2001.	78.595
Veracruz: The CNA was authorized to use Fonden funds to repair damage to federal and state hydraulic infrastructure caused by the exceptional rainfall occurred 25–27 October 2001.	183.448

Forest Resources

Deforestation in this period was primarily caused by forest fires and, as a result, Semarnat, in coordination with other federal agencies, state and municipal governments, and the community and private sectors, engaged in a range of fire protection activities.

Principal Forest Fire Prevention, Detection and Fighting Activities:

- A total of 1,051 coordination meetings were held with various federal government bodies, state governments, and the community and private sectors.

- Thirty-two state forest fire protection programs were developed, together making up the National Forest Fire Prevention and Control program (*Programa Nacional para la Prevención y Combate de Incendios*).
- Equipment and tools were purchased and supplied to 724 fire brigades.
- The Mexican Official Standard (*Norma Oficial Mexicana*—NOM) on fire use was distributed to 1,392 municipalities; approximately 4.2 million pamphlets were distributed and 699,000 radio and television spots were broadcast.
- 748 training courses and 1,557 voluntary fire prevention, detection and fighting groups were formed.

Controlled burning was carried out on 3,981 ha to eliminate combustible materials in high-risk areas, and 8,510 km of fire breaks were built and maintained.

Protection and Control

- A total of 34,995 ground reconnaissance tours and 6,688 reconnaissance flights were conducted, while 224 forest fire centers and 163 fire towers were operated throughout the country.
- Some 936 brigades and 13 helicopters were used in fighting fires.
- The average area affected by fires was reduced by 21.7%, from 27.6 ha in 2000 to 21.6 ha during the reporting period.

Other Preventive Actions

Environmental impact assessment (EIA) is an environmental policy instrument that is specifically applicable to and has a direct impact on economic activity. It is now consolidated as an essential tool for preventing, mitigating, and restoring harm to the environment and the country's renewable resources. It has evolved so as to embrace a preventive focus that offers greater certainty about the environmental viability of various development projects.

Concerning environmental contingency response in the ZMVM, the inspection and monitoring program for pollution sources under federal jurisdiction applied by the Office of the Federal Attorney for Environmental Protection (*Procuraduría Federal de Protección al Ambiente*—Profepa) in the ZMVM helped to decrease the air emissions that give rise to environmental contingencies. It is important to mention that no environmental contingency whatsoever has occurred in this most populous area of the country since the winter of 1999–2000.

A total of 300 Accident Prevention Programs (*Programas para la Prevención de Accidentes*—PPA) were submitted, and 215 of these were processed. In addition, the backlog from the previous year was eliminated.

Of the 350 chemical-related environmental emergencies reported to Profepa, information on response measures was provided in 176 cases, while preventive information on the sound management of chemicals and environmental emergencies was provided in response to 168 requests.

As well, 12 safety, health and environmental protection weeks were held. In each of these, a seminar was given on hazardous materials and chemical emergency preparedness, a community information and outreach forum was held, and a simulated chemical emergency was carried out. These activities took place in the states of Campeche, Coahuila, Guanajuato, México, Nuevo León, Oaxaca, Puebla, Querétaro, San Luis Potosí, Tabasco, and Veracruz, these being the states with the highest incidence of this type of contingency.

Article 2(1)(c) Education in environmental matters, including environmental law

Forests and Water Campaign

The Semarnat areas collaborating on this campaign reported various programming and outreach activities in at least 10 of the 50 critical foci selected for the campaign, some of these corresponding to the programs directed by each area.

Noteworthy activities included a children's workshop titled "Let's Play in the Woods" given nationally during the school year. At regional fairs held throughout the country, educational theatre pieces on fire prevention and reforestation were presented; these fairs also hosted musical presentations and puppet theatre, and a pedagogical games kit was presented. The Forest Culture Section (*Gerencia de Cultura Forestal*) of Semarnat created these games with a view to communicating to society the importance of forests and water, and obtained sponsorship for printing of 500 copies.

Other strategies developed as part of the institutional commitment represented by the Forests and Water Campaign and the Clean Mexico Campaign (*Cruzada por un México Limpio*) included conferences, special school activities, and consulting in educational institutions, reaching a total of 6,162 students and 625 teachers.

The following results were achieved:

- More than 1,855 teachers and 64,500 students in the elementary, secondary and teacher training system were giving refresher training at 285 schools in 15 states of the republic.
- Three children's environmental summits were held (in the Federal District, Morelos and Oaxaca) with the participation of 150 elementary school teachers and 750 students.
- With the Ministry of Public Education (*Secretaría de Educación Pública*—SEP) in the Federal District, the Government of the Federal District, various Mexico City boroughs, the Papalote Children's Museum and various sponsors, a solid waste management program was implemented in Federal District schools; 62 teachers in the borough of Iztapalapa were trained.
- Various training courses were given to students and teachers on basic and technical topics in support of specific projects, reaching 1,100 students and 556 teachers.
- Semarnat participated in two environmental fairs in the Federal District, reaching 441 students and 17 teachers.
- In coordination with the SEP and 17 boroughs, a reforestation program was carried out in the Federal District, with training provided to 5,051 students and 287 teachers. This program resulted in the planting of approximately 40,000 trees.

Secondary and Postsecondary Education:

- Curriculum reform was completed for the forestry techniques program at the Forestry Education and Training Centers (*Centros de Educación y Capacitación Forestal*) located in Uruapan (Michoacán), Saltillo (Coahuila), and Santa María Atzompa (Oaxaca). This will give impetus to human resources training for the protection, use, and management of timber and non-timber resources and the promotion of sustainable development in rural communities.
- In coordination with the National Association of Universities and Postsecondary Institutions (*Asociación Nacional de Universidades e Instituciones de Educación Superior*), the activities that gave rise to the Action Plan for Sustainable Development (*Plan de Acción para el Desarrollo Sustentable*) were pursued. The purpose of these activities is to promote the participation of postsecondary institutions in devising solutions to environmental problems, as well as the construction of desirable future scenarios for the state of the environment and development, by means of strategic research, teaching, outreach and extension activities.

- Semarnat participated in the Eighth National Festival of Television and Video held by the post-secondary institutions in the category “Environment and Sustainable Development.”

Regarding attainment of the goals set for the secondary and postsecondary levels, significant progress was reported, with the furtherance and completion of various processes favoring environment-related activities within educational institutions. Semarnat contributed to the principal goal of sensitizing, training and/or retraining 4,127 principals, administrators, teachers, and students in this subsystem.

Regarding the consolidation of projects in protected natural areas (PNA), two types of actions were undertaken: publication of management programs and teachers’ guides, and various activities within the strategic processes and projects making up the work program of the National Protected Natural Areas Commission (*Comisión Nacional de Areas Naturales Protegidas—Conanp*).

Management programs were published for the Selva El Ocote Biosphere Reserve (Chiapas), including its summary in the Official Gazette of the Federation (*Diario Oficial de la Federación—DOF*); the La Primavera Wildlife Protection Area (Jalisco); and the Ría Celestún Biosphere Reserve (Yucatán), bringing the number of protected natural areas with management programs to 30, or 20.1% of the 149 existing areas.

In view of the global nature of environmental issues and with a view to strengthening technical support and conservation strategies for ecosystems and biodiversity, Conanp received \$78,330,000 in international cooperation funds. Most of this money was applied to economic programs and projects in communities located within or adjacent to PNAs as an incentive to conservation and sustainable management of our natural resources.

The Environmental Law Committee (*Comité Jurídico Ambiental*) was tasked with unifying environmental law criteria and their enforcement. In this effort, it held two workshops with the participation of lawyers from the central areas, the semi-autonomous bodies, and the Semarnat state offices.

The first of these took place in the city of Oaxaca on the topic of PNAs. Presentations were given on the importance of PNAs in the conservation of Mexico’s natural resources; their participation in the Sustainable Development Program; the community-based strategy for their protection; the relevant international cooperation framework; the administration and management of PNAs and the legal framework governing their establishment; and program assessment and monitoring.

The second workshop took place in Puerto Vallarta, Jalisco, on the theme of “Reform of the Environmental Regulatory Framework.” The following reforms were analyzed: decentralization and transfer of powers to the states; the Federal Duties Law (*Ley Federal de Derechos—LFD*); inspection, monitoring, and sanctions; environmental offences; and environmental land use planning (Jalisco case). A SWOT (strengths, weaknesses, opportunities, threats) workshop was held with respect to the environmental regulatory framework.

Concerning the elementary, secondary, and teacher training system, an agreement signed with the SEP gave continuity to a program for environmental protection and improvement in public and private educational institutions of the national education system. Activities included the following:

Global Learning and Observations to Benefit the Environment (Globe) Program

This program benefited 2,181 students and 506 teachers. High school and postsecondary teacher training events were held in the states of Guanajuato and Michoacán. Two international courses held in Michoacán were attended by 111 elementary, high school and postsecondary teachers.

The Federal District joined the program during this period, installing 33 environmental monitoring stations in addition to the 24 existing stations in the state of México, 6 in Michoacán and 1 in Guanajuato.

So far, 103 schools in five states of the republic have joined the Globe program.

Another fundamental aspect for the Sustainable Development Education and Training Center (*Centro de Educación Capacitación para el Desarrollo Sustentable*) is the promotion of educational processes in the media as well as awareness raising through artistic and cultural events to generate public values, attitudes and habits favorable to the environment.

The educational communication work carried out falls into three main areas:

- Content development. Nearly all the information and contacts necessary to develop the Semarnat's priorities (Forests and Water Campaign, Clean Mexico Campaign, Indigenous Peoples Program, Youth Program) were compiled.
- Production of teaching events and materials. Teaching materials were produced for fairs and exhibitions, including "Agua pasa por mi casa, Bosque de mi corazón" ("Water flows through my house, my dear forest") and inauguration of the environmental video library for distribution of materials to all states.
- Educational processes in the media. Noteworthy is the satellite conference "From Mexico to Johannesburg: Challenges Facing the Nation," which successfully initiated strategic communication with the academic sector, students, and state offices over the Edusat network.

Article 2(1)(d) Furtherance of scientific research and technology development in respect of environmental matters

Work was done on developing policy documents and environmental instruments for the themes of water, energy, forests, waste, and tourism. In this effort, multi-sector workshops involving external stakeholders were held.

Graduate courses on environmental land-use planning in the domestic and international contexts were given at *Universidad Anáhuac*, *Universidad Autónoma del Estado de México* and *Universidad de Panamá* (as part of a technical and scientific cooperation agreement). Likewise, Mexico participated in environmental land-use planning meetings with Central and South American countries including Cuba, Colombia and Venezuela, as well as in the ecosystem-oriented fisheries planning forum held in Santiago, Chile.

In the soil technology validation and transfer program, various technologies for sustainable soil use in agriculture and livestock production were tested in cooperation with rural producers. Technologies showing the highest potential began to be transferred to producers in the vicinity of the testing sites.

In the reporting period, 21 technology testing sites were established in 17 states. These sites housed the testing and maintenance activities for 57 alternative soil conservation technologies, such as construction of filter dams, livestock drinking troughs, agroforestry plantations, reforestation, terracing, organic cropping, trenches, pest management, green manuring, and cover cropping without burning. Additionally, 22 training, demonstration, and conservation technology transfer courses were given to 518 farmers.

General environmental land use planning studies were conducted in various regions of the country, as were planning studies for the regional, local, and community levels in rural and indigenous areas. In certain cases, these led to the identification of priority areas and the definition of environmental policy guidelines, land uses, and environmental criteria.

As part of the revision of the national land use maps (scale of 1:250,000), a socioeconomic database was compiled and vegetation and landform maps were incorporated.

Regional and local environmental land use planning studies were conducted in Necaxa and Laxaxalpan in the states of Puebla, Veracruz, Hidalgo and Tlaxcala; Loreto-Nopoló-Puerto Escondido in Baja California Sur; Valle de Bravo in México state; the Lake Cuitzeo watershed in Michoacán, and the Escalera Náutica tourism project in Sonora, Baja California, Baja California Sur and Sinaloa.

Work continued on refining concepts and identifying new methods and techniques for the production of new environmental land use plans in rural and indigenous communities, with consideration to the needs, organization and culture of their inhabitants. In particular, support was provided for work in the Comca'ac area of Sonora, and Semarnat provided technical support for land use planning projects carried out under the auspices of Conanp.

The research projects supported and coordinated covered topics including the population dynamics of priority and migratory wildlife species; vegetation morphology and ecology studies; systematization of species distribution and abundance data; habitat conservation studies for priority and at-risk species, and habitat quality studies with a view to reintroducing species extirpated from Mexico.

Sector-specific requirements were produced on the topic of "Knowledge and conservation of species and ecosystems" for the Semarnat-Conacyt¹ Environmental Research Fund, identifying priority lines of research for priority species and habitats in Mexico.

Under the National Institute of Ecology (*Instituto Nacional de Ecología*—INE), terms of reference were developed for local land use planning studies of the Escalera Náutica in the Gulf of California, particularly in regard to biophysical analysis.

Dissemination activities included the publication of articles in non-refereed journals, the presentation at national conferences and forums of Mexican Official Standard NOM-059-ECOL-2001 and the risk assessment method for wildlife species in Mexico, and the presentation of posters at international conferences.

By invitation of the US journal *Endangered Species Bulletin*, an article titled "On Plant Conservation: Mexican Cacti" was written.

Ecosystem Conservation

In the interests of conservation of the country's ecosystems, habitats and species, research projects were promoted, along with training, information dissemination, and collaboration with other government bodies, universities, academic institutions and NGOs, both in Mexico and abroad.

Integrated Watershed Management

Within the paradigm of integrated watershed management, environmental planning studies facilitated the management of natural resources by analyzing all natural, community, economic and political factors interacting within watersheds, as well as the participation of the key stakeholders.

Work was initiated at the national level on a conceptual framework, methods, techniques and models for integrated watershed analysis and prediction.

Mapping of drainage density, slope angle, and drainage networks was produced for the nation's watersheds (1:250,000).

The priority project in this sector is the Lerma-Chapala watershed study, due to its urgent need for environmental rehabilitation and hydrological restoration measures.

The analysis of the watershed began with morphometric and sociodemographic characterization of the study area and design of a georeferenced database. Scientific cooperation, training, and result disclosure agreements were signed with various institutions including *Colegio Mexiquense*, *Universidad del Estado de México*, *Colegio de Michoacán*, *Colegio de Jalisco*, *Colegio de San Luis* and *Universidad de Guadalajara* to develop a common work program for the Lerma-Chapala-Santiago watershed.

Climate Change

In a study on “Potential for scientific and technological research on climate change in Mexico,” a database of 329 experts on the subject was compiled. A study titled “Regional vulnerability and adaptation to climate change and its environmental, social and economic impacts” shows that water availability would be reduced and that competition for this resource could provoke social conflicts. A study titled “Considerations for the implementation of greenhouse gas emission reduction projects” showed that any alternative chosen now would affect the availability of future alternatives, making them more costly in some cases. The national greenhouse gas emissions inventory for 1994–1998, produced as part of the Second National Communication under the UN Framework Convention on Climate Change, included a compact disk with the complete report, which uses the revised methodology approved by the Intergovernmental Panel on Climate Change.

Progress was made in the case study titled “Vulnerability and adaptation to climate change in Hermosillo, Sonora”; the expectation had been to obtain specific proposals for climate change adaptation approaches based on a multidisciplinary scientific analysis and the opinions of experts in government and the region’s residents. A study titled “Joint control of urban air pollution and greenhouse gas emissions in Mexico City” was conducted in order to find joint solutions to air pollution and climate change problems; it centered on the development of shared solutions for the ZMVM. A forthcoming edited volume titled *Cambio Climático en México* (Climate Change in Mexico) largely consists of contributions from Mexican climate change experts.

Chemicals

Support and financing was provided by the Commission for Environmental Cooperation (CEC) within the framework of the North American Regional Action Plan (NARAP) on Mercury for a project titled “Assessment of the Mexican mercury import and export location mechanism for use and elimination of mercury.” Two new projects were undertaken: a pilot project involving collection of amalgams from dental offices, and a protocol for a comparative study of the performance of three thermometer types (rigid stem digital, flexible digital and ear thermometer) with respect to the mercury thermometer, this last in coordination with the “20 de Noviembre” National Medical Center of the Public Employees’ Health and Community Services Institute (*Instituto de Seguridad y Servicios Comunitarios para los Trabajadores de Estado—ISSSTE*).

Mexico participated in various international forums on sound management of chemicals (SMOC), including the CEC working groups on mercury; PCBs; dioxins and furans; hexachlorobenzene; Sound Management of Chemicals; Children’s Health and the Environment, and monitoring and assessment. It also participated in the Stockholm Convention on Persistent Organic Pollutants; the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and the Chemicals Group of the Organization for Economic Cooperation and Development.

Air Quality

Semarnat participated actively in developing the 2002–2010 air quality improvement program for the ZMVM at various roundtables, where 89 air pollution reduction measures were proposed. Some of these arose out of the project titled “Design of an integrated air quality management strategy for the Valley of Mexico Metropolitan Area (2002–2010) (Phase II).” In order to determine the reduction goals achievable

with such measures, INE and local government personnel used a photochemical simulation model and assessed compliance, timeline and cost scenarios.

Semarnat took part in the revision of environmental standards on noise, gasoline- and diesel- powered motor vehicle emissions, and fuel specifications developed by its Environmental Standards Branch (*Subsecretaría de Fomento y Normatividad Ambiental*).

Priority pollutant concentrations (PM₁₀, SO₂, NO₂, O₃ and CO) reported by continuous monitoring mechanisms in the Valley of Mexico, Guadalajara, Monterrey, Valley of Toluca, Tijuana, Ciudad Juárez and Mexicali metropolitan areas were compiled, validated and statistically analyzed for distribution on the INE website.

A vehicle inspection manual was developed, and statistical information on air pollution concentrations for the country's seven largest cities was provided for inclusion in the 2002 Environmental Yearbook.

With support from Semarnat, cooperation was undertaken with the Western States Governors Association to develop a national inventory of air pollution emission sources.

The National Environmental Research and Training Center (*Centro Nacional de Investigación y Capacitación Ambiental*—Cenica) supported the municipal government of Santa Fe de Bogotá, Colombia, in assessing its automatic air quality monitoring network and statistically validating its databases for the years up to 2001. Presentations were given in courses and international forums on air quality in Moscow, Bogotá, Rio de Janeiro and Mexico City.

Under an ongoing scientific cooperation agreement with the Massachusetts Institute of Technology and Harvard University, research projects were conducted and training courses and workshops were given on the subject of air quality.

Environmental Policy and Economics

In the ongoing pursuit of INE's objectives and strategies, research was conducted on economic valuation of the environment and environmental indicators; economic instruments; environmental markets; sectoral and regional analysis; and public policy analysis.

Economic Valuation of the Environment and Environmental Indicators

Based on an economic valuation of the tourism potential of Quintana Roo marine parks, the main variables determining visitor profiles and willingness to pay for conservation of the coral reefs were statistically analyzed. The demand for these marine parks remains to be estimated. This research will yield tools for the implementation of economic instruments to promote conservation. The same exercise is now being done in Baja California Sur for the Bahía de Loreto and Cabo Pulmo marine parks.

Research on economic valuation of wetlands was completed. The principal components of the economic value of these ecosystems were identified and each was classified by the number of components it comprises. This study can be used to enrich the discussion process with Semarnat around the possible promulgation of a wetlands standard.

Economic Instruments and Environmental Markets

A research project was completed on willingness of households to carry their waste packaging to recycling centers. Based on the packaging supply and demand data obtained from this research, a proposal is being developed for a deposit/return system as an incentive to reuse, recycle, and properly dispose of plastic packaging.

Information on the current status of the recycling market is being generated by ongoing research on the value of materials recovered through household recycling programs. This is needed in order to design a command and control proposal instrument and an economic instrument as an incentive to better solid waste management. A review and synthesis of experiences in other countries was conducted with a view to establishing an economic scheme for environmentally sound management of packaging in Mexico that will include the use of economic instruments.

Regarding final disposal of batteries, experiences with the use of economic instruments in Argentina, Brazil, Colombia, Ecuador and Mexico were reviewed and analyzed in cooperation with the Pan-American Waste Management Network (*Red Panamericana de Manejo de Residuos—Repamar*) and Cenica.

In regard to water, a review and synthesis of surface water (reservoir) management models was conducted with a view to designing a proposal to charge for the use of water and electricity tariff 09 (groundwater pumping) in agricultural irrigation units and districts. Similarly, experiences with permit trading systems were reviewed in order to design a wastewater discharge permit system for Mexico. Models were developed to determine water demand in agriculture so as to support the design of policy instruments.

Work was also done on a hedonic price model for the used car market. The purpose of the exercise is to generate a model to appraise this market's behavior in response to environmental policy instruments. The results will support policy design for vehicles in circulation.

Sectoral and Regional Analysis

Further to an analysis of markets for various virgin and recycled materials for packaging production, a report has been produced identifying the most important markets for the Temporary Employment Program (*Programa de Empleo Temporal—PET*), glass and aseptic carton.

A multinomial probit model was developed to determine the effect of an increase in the electricity rates for groundwater pumping on the probability of planting of various crops in a sampling of irrigation units. The crops considered were alfalfa, corn, chili pepper and forage grains. Simulations were produced for a range of scenarios. It was estimated, for example, that at a water tariff of 1 peso per cubic meter, the area planted to alfalfa would decrease by 24%, resulting in water savings of 5–10%.

Another research project estimated the value of reductions in morbidity and mortality risks due to environmental causes, the objective being to define and develop the best focus for health risk valuation studies and the statistical valuation of life in Mexico. This is of particular relevance for applied work in environmental economics.

Public Policy Analysis

Research was conducted on the carbon sink potential of forested areas, with a focus on the Mexican case and specifically on rural lots. A rapid low-cost calculation methodology was developed and must now be validated in light of expert knowledge, case studies, the literature on carbon sink measurement models, and existing schemes.

The purpose of the ongoing research and analysis projects on water conflicts is to create a typology of the main rural and urban conflicts occurring in Mexico since 1990. The database contains articles from 13 national publications, analyzed according to social, environmental, economic and political criteria. The goal is to develop an explanatory model of the conditions giving rise to conflicts and those that favor their resolution. The relevant articles from 1993 to 2001 (around 6,000) have now been compiled and analysis is continuing.

Research on the land registry system was initiated in order to ascertain the real value of the land adjacent to Mexican lakes and lagoons. The purpose of this project is to help establish the appropriate charges for the use of federal land bordering lakes and lagoons.

Another ongoing research project focuses on natural resource management in agrarian localities. One of its objectives is to determine the factors influencing natural resource degradation or conservation, including economic and environmental variables, as well as variables related to social organization and inequality within ejidos. This project is the continuation of a series of surveys conducted in 1990, 1994 and 1997 in agrarian localities.

Research was initiated in early 2001 on payment for environmental services in Mexico. The research results were relayed to the National Forestry Commission (*Comisión Nacional Forestal—Conafor*) for consideration in its design of policy instruments.

Work was done to design and analyze two economic instruments: an amendment to the LFD that would institute a new charge for the use, enjoyment and exploitation of the federal zone along Mexican lakes and lagoons; and an instrument establishing a hazardous waste deposit-return system. A legal analysis of the Mexican water regime and distribution systems was conducted with the goal of proposing a revision of the National Waters Law (*Ley de Aguas Nacionales—LAN*).

Cenica

With the support of the environmental laboratory, the following research projects were carried out on air pollution monitoring and characterization on the one hand, and waste and regional projects on the other:

Air Quality

Air Pollutant Monitoring and Characterization

- Estimation of biogenic emissions in the Valley of Mexico.
- Wind field patterns in Mexico City (Phases I and II).
- Vertical pollutant profiles and weather parameters in the ZMVM. Characterization of chemical components of rainfall in the natural areas of the Valley of Mexico (Phases I and II).
- Participation in the CAM-MIT exploratory campaign with the contribution of weather, VOC and criterion pollutant data obtained from the operation of the mobile air quality monitoring units, the tethered balloon and the pilot balloons.
- Biological air treatment.
- Particle characterization and classification by scanning electron microscopy and x-ray microanalysis of samples from five automatic air quality monitoring stations in the ZMVM network (Phases I and II).

Hazardous Waste

Waste and Regional Projects

- Photoremediation of soils containing weathered hydrocarbons, in cooperation with *Universidad Autónoma Metropolitana (UAM)*.
- Characterization of ash from hazardous waste and industrial incinerators.

Studies performed at request of Semarnat

- Environmental quality assessment in Cumpas, Sonora.
- Environmental analysis in the environs of the CYTRAR hazardous waste containment facility in Hermosillo, Sonora.

- Environmental quality assessment in the vicinity of the Peñoles plant in Torreón, Coahuila.
- Installation and operation of a sulphur dioxide and PM10 particle monitoring station in coordination with the state Semarnat office in Sonora and the municipal authorities of Cumpas, Sonora (in process).
- Remediation of sites contaminated by metals from mine tailings in Baja California Sur (in process).

Studies Conducted at the Request of Other Institutions

- Status report and current knowledge of principal dioxin sources and emissions in Mexico (CEC).
- Analysis of air pollutants in the environs of the thermal power plant in Manzanillo, Colima (National Institute of Public Health).
- Design of a PM2.5 monitoring network for Mexico City (Government of the Federal District) (in process).
- Review and analysis of experiences in Argentina, Brazil, Colombia, Ecuador and Mexico on the five key factors for environmentally sound management of batteries (Repamar).

Ongoing Activities

- National Air Quality Information System (*Sistema Nacional de Información de la Calidad del Aire*) and National Air Quality Monitoring Program (*Programa Nacional de Monitoreo Atmosférico*).
- Continuous measurement of VOCs in southeastern Mexico City.
- Operation of two automatic air quality monitoring stations.
- Definition of the quality and accreditation system for the Cenica laboratory based on standards NMX-EC-025-IMNC-2000 and NMX-EC-17025-IMNC-2000.
- Development of a National Environmental Monitoring and Assessment Plan (*Plan Nacional de Monitoreo y Evaluación Ambiental—Planame*) whose objective is to establish a national monitoring and assessment plan for toxic, persistent and bioaccumulable substances so as to generate the information necessary to define policies for the identification, reduction and, as applicable, elimination of health and environmental risks.

International Agenda

- The work program under the technical cooperation agreement between the National Environment Center of Chile (CENMA), PAHO/WHO and INE-Cenica was signed.
- Mexico participated in the CEC's SMOC working groups: that on dioxins and furans, the group on environmental monitoring and assessment, for which Cenica is responsible, as well as for providing analytical support to the DDT, chlordane, mercury and PCB groups.

Environmental Training and Dissemination

Thirty events, including courses, seminars and workshops were held. Some of these were international, with representation from several countries, while others were bilateral, specifically those held in cooperation with the Japanese International Cooperation Agency (JICA).

At the national level, requests by state and municipal governments and Semarnat offices for training in air quality monitoring, toxic substances, and solid and hazardous waste were addressed. Environmental consulting services were provided to Panama, Costa Rica and Colombia.

Furthermore, the Mexican Institute of Water Technology (*Instituto Mexicano de Tecnología del Agua—IMTA*) conducted a study to determine the area of influence of a wastewater discharge into the Coatzacoalcos River in Pajaritos, Veracruz. It was found that the organochlorine pollutants were diluted and volatilized almost immediately at the point of discharge.

A literature review was conducted to find a treatment and disposal method for sludge produced by the removal of iron and manganese from water, based on the sludge's physicochemical properties. A technical visit was made to a plant of this type.

Modules were added to the MM5 mesoscale prediction model to take into account the dynamic interaction of soil moisture and vegetation cover as a factor in storm formation in northwestern Mexico and southwestern United States. Additionally, the feasibility study for the implementation of a numerical model of air pollutant dispersion and diffusion was pursued; the specifications of the CAMx model were reviewed prior to its implementation, and the air quality data necessary for the model are being sought.

Weather forecasts for the Lerma-Chapala watershed and the Rio Bravo were given to the CNA. Currently, these forecasts are updated approximately once a month. The sensors of the automatic weather stations operated by the National Weather Service (*Servicio Meteorológico Nacional*) were calibrated at the IMTA hydrometeorology laboratory.

Working meetings were held with the members of the Lerma-Chapala watershed committee to review and adapt the dynamic model of the watershed. At these meetings, technical support was provided in the form of an analysis of recovery scenarios for Lake Chapala through consideration of the impact of limitations on authorized irrigation volumes.

Progress was also made on certain hydrological aspects of the watershed model for the Lerma River developed in 2001 by the CNA. Work was done on developing emergency rules of operation for the recovery of Lake Chapala, with goals established up to the year 2006. Authorized irrigation volumes for the districts were limited on the basis of a minimum cost criterion, and the rules of operation were made conditional upon the occurrence of average precipitation in the watershed.

Work was also done on the following studies relating to the economic and financial technology of water: components of the socioeconomic framework for the Papaloapan River; characterization of water use in industry for the Valley of Mexico region; assessment of a flood control project in Michoacán; and analysis of assessment options for a drinking water supply plant in Hermosillo, Sonora.

In cooperation with the Institute for Research and Development of France, work was undertaken to develop a study on the impact of agricultural and forestry activities on the surface water regime and quality in the Valle de Bravo watershed of the Cutzamala system. The approach will be to establish a microwatershed so as to identify water and sediment production and transfer processes in cultivated and forested areas, the goal being to elucidate the erosion dynamics in the watershed.

At the request of the Papaloapan River Development Commission of the state of Veracruz, a study was conducted to assess social conditions in the lower Papaloapan River watershed.

In support of professional development for specialists in this sector, two issues of the *IMTAAlerta* bulletin were published and 1,584 articles were sent to 93 users of the CNA, drinking water and sewer operating agencies, irrigation users' associations, and the IMTA, among other institutions.

Article 2(1)(e) Environmental Impact Assessment

During the reporting period, a total of 321 projects were subjected to the EIA procedure. These projects concerned works and activities in the tourism, highways, hydraulics, fisheries, mining, forestry, agriculture, industrial, electricity and petroleum sectors. During the same period, 183 risk studies for new projects were submitted.

A total of 456 projects (including 88 from the historical backlog) were decided upon; 340 were approved while 116 were denied either because they were environmentally unviable, the information submitted was deficient or incomplete, or the project was not under federal jurisdiction.

Of the 380 projects making up the inherited backlog, 99.7% were resolved, with only one pending due to insufficient information.

With the participation of the main sectors of society, a process was initiated to review and simplify the sector-specific guides to the submission of the particular form of the environmental impact statement (EIS) and the risk study. A total of 16 guides (12 for environmental impact and four for environmental risk) are available and may be consulted online (www.semarnat.gob.mx). Non-strategic requirements and information were eliminated, while technical criteria for decision-making were added so as to afford environmental and legal certainty and investment security to project developers.

Decentralization of EIA functions continued, with 24 state EIA programs submitted, of which 21 requested decentralization. Of these, 11 (those of Baja California, Chihuahua, Coahuila, Colima, Jalisco, Puebla, Quintana Roo, San Luis Potosí, Tabasco, Tlaxcala and Yucatán) met the guidelines for transfer of EIA powers.

The following goals were set for 2002–03:

- Decrease average processing time for the individual form of the EIS to 60 days.
- Consolidate the decentralization program and build state office management capacity in the area of EIA.
- Achieve ISO 9000 certification for EIA and environmental risk processes.
- Complete the simplification of the 24 sector-specific guides to the regional form of the EIS and the preventive reports.
- Draw up a list of environmental service providers in the area of environmental impact and risk.

Concerning the EIA for the Extóraz River dam project in Querétaro, the reservoir's area of influence was determined. It encompasses seven municipalities that will be affected by or benefit from the flooded area, the water supply and delivery infrastructure, and the access infrastructure. The area covered by the reservoir is approximately 287 ha. The project is justified in that it will allow for recharge of the aquifers in the Valley of Querétaro; five of the eight aquifers are already overexploited. The objective is to substitute the use of surface water for groundwater.

Article 2(1)(f) Promotion of economic instruments for the efficient achievement of environmental goals

Institutional development projects were co-financed with P\$28 million of subsidies and P\$18.7 million in contributions from the state authorities. With this total project envelope, 246 actions were carried out in participating states, including 56 technical assistance actions, 115 studies, 75 training courses, and purchase of computing, environmental monitoring, radio and environmental education equipment. In addition, a comprehensive control and supervision system was devised for the Institutional Environmental Development Program (*Programa de Desarrollo Institucional Ambiental*—PDIA) and an impact study of PDIA subsidies was carried out.

Semarnat administers and applies PET funds in 31 states. The amount allocated to the PET in this fiscal year was approximately P\$106.7 million, of which P\$21.3 million corresponds to the Fonden fund and \$85.4 million to the regular PET program. These funds were used to generate 17,700 temporary jobs. The funds were allotted to Conafor (42.5%), Conanp (12%), the Wildlife Division (*Dirección General de Vida Silvestre*) of the Management Branch (14%), fire prevention (18%), non-forested land (13%) and Profepa (0.5%).

Further to the signing of a coordination agreement for sustainable use of beaches, the Federal Coastal Zone (*Zona Federal Marítimo Terrestre—Zofemat*) and the Reclaimed Land (*Terrenos Ganados al Mar*) with 16 of the 17 coastal states, a total amount of P\$4.4 million in fiscal resources was used for monitoring, administration, maintenance, conservation and cleanup of the Zofemat.

These moneys made it possible to pursue boundary delimitation work in the municipalities considered to be of greatest importance due to their high impact. Approximately 547 km of the Zofemat were delimited in 13 coastal states.

A joint Semarnat-Conacyt environmental research fund was created to support scientific research and technological development in the corresponding sphere of activity. The primary purpose of this fund is to support scientific and technological research projects that generate the knowledge required to address environmental problems and needs. Some 700 projects were submitted in response to the first call for projects.

The environmental audits conducted led to the signing of 158 action plans to address the areas of opportunity detected. An amount of P\$1,605.5 million was committed, for a 322% increase over the previous period. The cumulative investment since the inception of the National Environmental Auditing Program (*Programa Nacional de Auditoría Ambiental*) reached P\$15,024 million.

Sustainable Regional Development Programs (Proders)

Total fiscal resources of P\$15,543,998 were dedicated to this program which gives communities the opportunity to engage in alternative economic activities geared toward the sustainable use of available natural resources. The primary objective of these projects was to adopt an integrated approach to breaking the vicious cycle of poverty and environmental destruction.

Funding applications to the various investment programs totaling P\$16.15 million were subjected to a selection process. The funds were distributed to 23 federal offices overseeing the application of the program to 39 priority conservation areas. Nine of these are exclusively Proders regions, 13 coincide with PNAs, and 17 are PNAs that had not received Proders funding.

Article 2(2) Implementation of Council recommendations developed under Article 10(5)(b)

Council Resolution 02-05 of the Commission for Environmental Cooperation was signed. Its purpose is to enhance the comparability of pollutant release and transfer registers among the three member countries of the CEC, and to increase access to and understanding of information on the sources and management of toxic chemicals originating from industrial activities in North America.

■ **Article 3—Levels of Protection**

In order to maintain the comprehensive focus of federal administrative procedures and promote the adoption of systems that combine environmental stewardship with economic development of industry, Mexico continued to operate the Comprehensive Environmental License (*Licencia Ambiental Única—LAU*) program. This license covers the entirety of federal environmental obligations—EIA, risk analysis, wastewater discharges, air emissions and hazardous waste. It gives private parties greater legal certainty as to compliance with environmental obligations and enable the authorities to make decisions in a systematic manner.

Regarding direct regulation of industrial establishments under federal jurisdiction, the following activities should be noted:

- During the year, 117 LAU were issued to establishments under federal jurisdiction; 39 of these were backlogged applications, while the remaining 78 represent a 66% increase over the anticipated figure. The total number of LAU issued since the program's inception is now 298.
- A total of 72 LAU were issued elsewhere in the country, representing a 60% increase in this type of regularization.

Of the 117 LAU issued this year, 75 correspond to establishments that were operating outside of the applicable regulatory framework, meaning that there was no control or prevention of their pollutant emissions. These establishments were regularized under the LAU scheme and subjected to rules of operation in accordance with the applicable environmental law. Of the remainder, 27 are establishments that already held a license of a different type but opted for this scheme voluntarily. They considered it in their interest to detect the improper transfer of pollutants from one medium to another, and also felt that this would induce them to improve their production processes with the aim of generating economic returns that were earmarked as pollution control and management expenses. The remaining 15 are new projects pending startup. With the application of the LAU program this year, industrial air emissions decreased by 10%.

In the interests of appropriate regulation of wildlife protection, conservation, management and sustainable use, the legal framework was updated by adding the following instruments, which establish precise regulations governing legal economic practices with the goal of ensuring wildlife conservation in our country.

- Executive order revising various provisions of the General Wildlife Law (*Ley General de Vida Silvestre*) to be published 10 January 2002 in the DOF.
- Mexican Official Standard NOM-059-ECOL-2001. Environmental protection. Native wild flora and fauna species of Mexico. Risk categories and specifications for their inclusion, exclusion or reclassification. List of species at risk. To be published 6 March 2002 in the DOF.
- Emergency Mexican Official Standard NOM-EM-136-ECOL-2002. Environmental protection. Specifications for the conservation of marine mammals in captivity. To be published 1 April 2002 in the DOF.
- Executive order establishing as refuges for large whale species of the suborders *Mysticeti* and *Odontoceti*, the marine areas forming a part of the nation's territory, and those over which it exercises sovereignty and jurisdiction. To be published 24 May 2002 in the DOF.

The 2002–06 accreditation program was designed as part of the Regulatory Improvement Program (*Programa de Mejora Regulatoria*) to improve regulatory efficiency and eliminate unnecessary discretionality as well as excessive bureaucratic procedures and requirements on the part of the authorities.

The objectives of this program are to identify and accredit persons interested in engaging in the management, conservation and sustainable use of wild flora, fauna and fungus species in accordance with the applicable law. The scheme provides a secure, official, high-quality, portable document that improves the control and supervision of wildlife service users in Mexico.

To date, the licenses for sport hunters, outfitters, scientific collectors, and technicians have been incorporated into the program.

A new environmental management policy for the Zofemat seeks to promote and foster a new comprehensive vision of the rational use of coastal natural resources. Furthermore, it reinforces federalism by involving local stakeholders in the process, promoting a new government/civil society relationship for active, informed and jointly responsible community participation in environmental conservation and the transition to sustainable development.

The strengthening of federalism is a priority policy of the current administration. As an initial step in the promotion of regional development, the permit granting procedure for transitory use and enjoyment of beach areas and/or the Zofemat and/or the Reclaimed Land, and any other natural marine body of water was decentralized. The state governments to receive funding under the PDIA in view of their new decentralized powers are Guerrero, Nayarit, Quintana Roo, Sinaloa, Sonora and Veracruz.

In terms of legislative and regulatory activity, the following final versions of NOMs (two in the ECOL or ecological series including one cited previously in this report, two in the RECNAT or natural resources series, and two in the CNA or water series) were published:

NOM-059-ECOL-2001. Environmental protection. Native flora and fauna species of Mexico. Risk categories and specifications for their inclusion, exclusion or reclassification. List of species at risk.

NOM-133-ECOL-2000. Environmental protection. Polychlorinated biphenyls. Management specifications.

NOM-020-RECNAT-2001. Establishing the procedures and guidelines for the rehabilitation, improvement and conservation of woodlands used as pastureland.

NOM-023-RECNAT-2001. Establishing technical specifications for mapping and classification as part of the development of soil inventories.

NOM-009-CNA-2001. Sanitary toilets. Specifications and test methods.

NOM-011-CNA-2002. Water conservation. Establishing specifications and methods for determining average annual availability of national waters.

Voluntary Environmental Compliance Mechanisms

The adoption of voluntary environmental compliance mechanisms was promoted during this period. The benefits of these mechanisms were extended to various productive and service sectors through the National Environmental Auditing Program and the self-regulation agreements. The operational framework for this program was revised by incorporating a guide to self-assessment of environmental compliance, which is designed to expedite and give greater certainty to the corporate environmental self-regulation process.

Conanp, during this period, geared its activities toward 11 strategic processes and 12 strategic projects. Among other objectives, it sought to establish the mechanisms necessary to preserve ecological processes and guarantee the conservation, coverage and biological representativeness of PNAs; implement regional sustainable development programs in PNAs and priority conservation areas; consolidate Conanp in the national and international spheres, and involve local communities in the conservation of PNAs.

Declarations

The PNAs declared in this period are the Otoch Ma'Ax Yetel Koo Wildlife Protection Area in Quintana Roo and Yucatán (5,367 ha); the Isla San Pedro Mártir Biosphere Reserve in Baja California (30,165 ha); the Islas de La Pajarrera, Cocinas, Mamut, Colorada, San Pedro, San Agustín, San Andrés, Negrita y los Islotes "Los Anegados," Novillas, Mosca y Submarino Sanctuary, Jalisco (1,981 ha); and Ciénegas del Lerma, México state (3,024 ha). The following areas were reclassified: Tutuaca, Chihuahua (365,000 ha); Cuenca del Río Necaxa Natural Resources Protection Area, Hidalgo-Puebla (39,556 ha) and 16 sanctuaries (in Chiapas, Guerrero, Jalisco, Michoacán, Oaxaca, Quintana Roo, Sinaloa, Tamaulipas, Yucatán) (535 ha). The 16 marine turtle reserves and refuges were reclassified as sanctuaries with an approximate area of 696.6 ha; of these, five are within PNAs, for an area of 161.6 ha.

In the reporting period, the following areas continued to appear as notices of declaration in the DOF: Volcán de Tacaná, Chiapas, (6,378 ha), Archipiélago de San Lorenzo, Baja California, (62,252 ha), Archipiélago de Espíritu Santo, Baja California Sur (46,113 ha), Cañada de las Brisas, Guerrero (30 ha), and the integration of the area of Sierra de Ajos-Bavispe (Mavavi, 186,734 ha); this last is being reclassified and redelimited, hence a total of 301,507 ha are pending declaration.

Legal aspects include a legal and management capacity-building process for Conanp with the objective of ensuring that the PNAs are established and operated in accordance with all legal requirements. This involves the reclassification and redelimitation of the areas, the registration of expropriation orders or PNA declarations in the appropriate public land registries, and the signing of coordination agreements.

■ Article 4—Publication

Article 4(1) Each Party shall ensure that its laws, regulations, procedures and administrative rulings of general application respecting any matter covered by this Agreement are promptly published or otherwise made available in such a manner as to enable interested persons and Parties to become acquainted with them.

During the period covered by this report, the document underlying the implementation of the solid waste strategy in the federal public administration was drafted. This document sets out the principal activities, laws, standards and agreements to be observed.

On 31 December 2001, Article 109 Bis of the General Law on Ecological Balance and Environmental Protection (*Ley General del Equilibrio Ecológico y Protección al Ambiente—LGEEPA*) was amended to provide that the Pollutant Release and Transfer Register (PRTR) shall be public, mandatory and disaggregated for all three levels of government.

Furthermore, work was done on 9 draft NOMs published for public consultation (4 in the ECOL series, 4 in the RECNAT series and one in the CNA series):

PROY-NOM-040-ECOL-2000. Establishing maximum contaminant limits for particles, nitrogen oxides, sulphur dioxide and carbon monoxide in air emissions from fixed sources engaging in cement production (second publication).

PROY-NOM-052-ECOL-1999. Establishing the characteristics of hazardous wastes, the list thereof, and the criteria by which a waste is defined as hazardous due to its toxicity in the environment.

PROY-NOM-087-ECOL-SSA1-2000. Environmental protection. Environmental health. Biological infectious hazardous waste. Classification and management specifications.

PROY-NOM-004-ECOL-2001. Environmental protection. Sludges and biosolids. Specifications and maximum contaminant limits for use and final disposal.

PROY-NOM-014-RECNAT-2001. Sanitary regulations governing the importation of pallets, pallet boxes, other loading platforms, and various new and used wood packaging.

PROY-NOM-016-RECENAT-2001. Sanitary regulations governing the importation of new sawn timber (second publication).

PROY-NOM-024-RECENAT-2001. Sanitary specifications for bamboo, wicker, vines, rattan, cane, and raffia used principally in basketry and esparto work.

PROY-NOM-025-RECENAT-2001. Reestablishing the procedures and specifications for the collection and distribution of forest germplasm for purposes of afforestation or reforestation in a commercial or research context.

PROY-NOM-010-CNA-2000. Toilet tank fill valve and flush valve. Specifications and test methods. Regarding emergency NOMs, three standards have been published (one in the ECOL series, cited above in the Article 3 section, and two in the RECENAT series):

NOM-EM-136-ECOL-2002. Environmental protection. Specifications for the conservation of mammals in captivity, establishing the regulatory criteria and guidelines for the capture, transportation, management and captivity conditions of marine mammals, chiefly dolphins and pinnipeds. Constitutes the first act of authority to regulate the capture of marine mammals for exhibition. All species of cetaceans were included in NOM-ECOL-059-2001 under the special protection category so as to address society's concerns in this regard.

NOM-EM-001-RECENAT-2001. Establishing the specifications, procedures, and technical and control guidelines for use, transportation, storage and processing methods that identify the legal origin of forest raw materials.

NOM-EM-002-RECENAT-2002. Establishing technical guidelines for combating and controlling the red gum lerp psyllid, *Glycaspis brimblecombei*.

Article 4(2)(a) Shall publish in advance any such measure that it proposes to adopt

For better implementation and follow-up of environmental policy, 17 programs and their respective managers were defined, encompassing and unifying the commitments and actions of the authorities in this sector:

1. National Hydraulic Program
2. National Forestry Program
3. Environmental Law Enforcement Program
4. National Protected Natural Areas Commission
5. Forests and Water Campaign
6. Clean Mexico Campaign
7. Program to Halt and Reverse Air, Water and Soil Pollution
8. Program to Halt and Reverse the Loss of Natural Capital
9. Ecosystems and Biodiversity Conservation Program
10. Program to Promote Sustainable Development in the Federal Government
11. Northern Border Program
12. Strategic Program for the South/Southeast
13. Gulf of California Program
14. Mesoamerican Biological Corridor
15. Indigenous Peoples Program
16. Gender Equity, Environment and Sustainability Program
17. Youth Program.

The new environmental policy is set out in its entirety in the four strategic areas covered by the National Environment and Natural Resources Program (*Programa Nacional de Medio Ambiente y Recursos Naturales*—PNMARN) 2001-2006; these encompass and guide all strategies and lines of action in this sector.

As provided in the Federal Metrology and Standardization Law (*Ley de Metrología y Normalización*), surface and groundwater availability results must be published in the DOF within 60 days of publication of NOM-011-CNA-2002 on the determination of the availability of national waters. Therefore, the process of publication of the availability of 193 aquifers, as well as surface water in the Lerma-Lake Chapala watershed, was initiated.

In enforcement of NOM-001-ECOL-1996 and the Federal Water Royalties Law (*Ley Federal de Derechos en Materia de Agua*) that establish the obligation to monitor water discharges with or without treatment into specific watersheds and zones, 1,473 technical reports on wastewater discharge control were produced.

Twenty-two product certificates were issued under standards NOM-001-CNA-1995, “Sanitary sewer systems – leakproofness specifications”; NOM-002-CNA-1995 “Domestic water intake – specifications and test methods”; NOM-008-CNA-1998, “Showerheads - specifications and test methods”; and NOM-009-CNA-1998, “Sanitary toilets – specifications and test methods.”

Forestry Development Program (Programa de Desarrollo Forestal—PRODEFOR):

- The funding timeline and distribution of the target population underwent consultation and were developed and published in the DOF on 28 February 2001.
- The rules of operation authorized by the Ministry of the Treasury and Public Credit (*Secretaría de Hacienda y Crédito Público*) underwent consultation and were drafted and published in the DOF on 15 March 2001.

Proposed amendments to the LFD concerning wastewater discharges were developed for fiscal year 2002.

Article 4(2)(b) To the extent possible, each Party shall provide interested persons and Parties a reasonable opportunity to comment on such proposed measures

The strategy developed in the ongoing transparency and anti-corruption campaign was that of improving the quality of management services, whose fundamental axis is civic participation. To this end, a User Service Center (*Centro Integral de Servicios*) was created with the support of the Ministry of Control and Administrative Development (*Secretaría de la Contraloría y Desarrollo Administrativo*—Secodam). Its mission is to provide quality service, instill public confidence and credibility, offer clear and transparent guidance on administrative procedures, and requirements, and offer consulting and advisory services, as well as to report the status of environmental impact and risk procedures. Since its inception it has served more than 2,500 users.

Under the recently published Access to Information Law (*Ley de Acceso a la Información*), more than 1,000 users viewed project files under review at the Environmental Management Information Center (*Centro de Información para la Gestión Ambiental*). Since June 2002, any citizen can review the status of her or his project in real time on the new Semarnat administrative portal.

Five new draft standards on ground transportation were approved, and a draft standard on rail transportation was referred to the relevant subcommittee for prior consultation with the affected stakeholders.

■ Article 5—Government Enforcement Action

Profepa is the Semarnat agency that defends acts of authority in legal proceedings before the administrative and judicial tribunals of the Federation, promoting the development of environmental law and judicial proceedings for repair of environmental harm. In fulfilling these responsibilities, the agency acted for the defense in 1,280 appeals for review filed against decisions issued by the competent authority; in 74% of cases, the decisions were upheld.

5(1)(a) With the aim of achieving high levels of environmental protection and compliance with its environmental laws and regulations, each Party shall effectively enforce its environmental laws and regulations through appropriate governmental action, subject to Article 37, such as appointing and training inspectors

Fifteen federal offices were evaluated in 2001 with a view to rectifying and improving the administrative processing of forestry applications so as to ensure strict law enforcement and compliance. The persons responsible for making technical, environmental and legal determinations on applications to exploit forest resources in seven Semarnat federal offices were given training. The determination and authorization procedures for timber and non-timber operations were developed so as to guarantee proper management of forest resources.

Article 5(1)(b) Monitoring compliance and investigating suspected violations, including through on-site inspections

During this period, 1,908 new visits were scheduled and 3,088 visits were carried out. To combat the impunity of LAN violators, enforcement actions involving non-economic sanctions were stepped up. These sanctions ranged from temporary suspension of permits for wastewater discharge-generating processes to closing of water use operations and demolition and removal of works in federal zones. The following non-economic sanctions were applied further to inspection visits carried out during the period:

- Ten shutdowns of water uses.
- Four shutdowns of material extraction operations.
- Six persons detained for illegal material extraction.
- Two evictions from a federal zone.
- One shutdown of a discharge-generating process.

Article 5 (1)(c) Seeking assurances of voluntary compliance and compliance agreements

The Environmental Compliance Certificate (*Certificado de Cumplimiento Ambiental*), the Clean Industry Certificate, and the Environmental Excellence Awards were instituted. These are designed to recognize businesses that adopt internationally recognized practices and systems of integrated environmental management, continuous improvement, and total quality.

During the reporting period, 195 Clean Industry Certificates were issued to organizations that satisfactorily completed their action plans, and 111 certificates were renewed. These results represent increases of 50 and 126%, respectively, over the previously period.

As a result of promotional activities, 174 new facilities joined the program, 61% more than the previous period, reaching a cumulative total of 2,026. Of these, 1,916 are large and mid-sized establishments.

Article 5(1)(f) Promoting environmental audits

The environmental audits conducted led to the signing of 158 action plans to take advantage of the areas

of opportunities detected. An amount of P\$1,605.5 million was invested, for a 322% increase over the previous period. This brought the cumulative investment since the inception of the National Environmental Auditing Program to P\$15,024 million.

Article 5(1)(j) Initiating, in a timely manner, judicial, quasi-judicial or administrative proceedings to seek appropriate sanctions or remedies for violations of its environmental laws and regulations

A total of 624 criminal complaints were filed with the Federal Attorney General's Office (*Ministerio Público Federal*). This was an unprecedented number for Profepa, representing a 167% increase over the 234 of the previous period, and an eightfold increase over the 69 filed with the Special Environmental Prosecutors (*Fiscalías Especializadas para la Atención de Delitos Ambientales*) up to September 2000.

Profepa intervened in 832 jurisdictional challenges, with 56.2% of decisions on actions in nullity (*juicio de nulidad*) and 85.7% of decisions on *amparo* actions favorable to Profepa. This shows that Profepa's prosecutory acts are, in general, based on solid legal foundations.

Article 5(1)(l) Issuing administrative orders, including orders of a preventative, curative or emergency nature

Paperwork Reduction

In 2000, Semarnat was responsible for 207 different administrative procedures, none of which had a corresponding guide or form. In 2001, 71 procedures were eliminated, and guides and forms were produced for 49% of the 136 remaining procedures.

Biannual Regulatory Improvement Program

The drafting of NOMs by Semarnat improved the quality of these instruments and expanded their coverage to new topics. A larger number of them was published in a shorter time.

Follow-up was done with the Federal Regulatory Improvement Commission (*Comisión Federal de Mejora Regulatoria*) on the assessment of the costs of environmental compliance. The four areas covered are 1) laws and regulations; 2) NOMs; 3) five-year review of NOMs; 4) registration, updating, improvement, and elimination of procedures. The program concluded 13 July 2003 with 49% progress accomplished.

Forestry Inspection and Monitoring

Mexico has the world's fourteenth-largest forested area with 142 million ha, of which 56 million are highly degraded due to human exploitation. For this reason, the Federal Executive Branch declared forest conservation to be a national security issue. Efforts have concentrated on the areas considered to be high-priority due to the importance of the resources present, the environmental services they provide, or the critical levels and types of unlawful activity detected.

In this context, 604 forestry operations were carried out. Thirty-four of these were considered special operations because they took place in critical areas, including 22 in areas showing severe deterioration and 12 where a high incidence of forestry-related offences was noted along with organized crime linked to other illegal activities. Among these enforcement operations were those carried out in the Monarch Butterfly Biosphere Reserve (México and Michoacán states), the Ocuilán area, and Iztaccíhuatl-Popocatepetl National Park (México and Puebla).

As a result of the special operations, 10,675 cubic meters of timber and 800 tons of coal were seized, and 21 alleged offenders were remanded to the custody of the Federal Attorney's General Office.

With the goal of involving communities in the protection of their forest resources, 37 citizens' monitoring committees were created.

In total, more than 12,800 forest inspection and monitoring actions took place throughout the country, for a 46% increase over the previous period. These led to the seizure of 50,494 cubic meters of timber, 683 vehicles and 874 items of equipment and tools used in illegal extraction. The number of alleged offenders remanded to the custody of the Attorney General's Office was 188, and total fines of P\$ 65.7 million were imposed.

Natural Resource Inspection and Monitoring in PNAs

Some 173 operations and 747 inspections were carried out, 43% more than in the previous reporting period, in addition to 1,918 monitoring actions. These activities led to the seizure of 69 vehicles, 134 items of equipment and tools used in illegal forest extraction, and fines of nearly P\$1 million.

In addition, with a view to mitigating environmental impact and restoring the landscape along the main highways running through PNAs, six operations were carried out along the Mexico City-Toluca-Cuernavaca and Mexico City-Puebla highways to review the legality of billboards. In an unprecedented action in Mexico, a total of 450 km of highways were covered and 62 billboards were ordered to be removed.

In terms of community participation in crime prevention and detection, 13 citizen monitoring committees were formed to support stewardship of natural resources in PNAs. Inspection and monitoring programs were developed for 7 of the 44 priority areas defined by CONANP.

Wildlife Inspection and Monitoring

Mexico is home to one of the highest levels of biological diversity in the world; it ranks first among the world's countries in the number of reptiles, second in mammals, fourth in amphibians, and eleventh in birds. To combat illegal traffic in wildlife, 624 operations (151% above the previous reporting period) were conducted. These led to the seizure of 59,811 specimens, 49,962 products, and 3,870 subproducts, for a total of 113,643 items. More than 1,200 administrative procedures were instituted, fines of P\$5.5 million were imposed, and 19 alleged offenders were remanded to the custody of the Attorney General's Office.

The number of inspections performed, 1,818, represented an increase of 32% over the previous period. With the aim of involving the population in the protection of these resources, support was provided for the creation of 17 citizen monitoring committees.

A total of 2,508 inspections of transboundary wildlife movement authorizations were carried out at ports, airports and border points; 84,435 phytosanitary inspections took place, 95% more than in the previous period. Some 1,200 cases of forest pest infestations were detected, of which 15 required quarantine measures in that, had they entered the country, they would have caused severe damage to forests and woodlands. The number of inspection certificates issued was 128,900, generating revenues of P\$20.8 million.

Inspection and Monitoring of Environmental Impact, the Zofemat, and Environmental Land Use Plans

Seventeen special joint operations were carried out in the Zofemat and in relation to environmental impact, involving 452 inspections. The results were the closing of 132 noncompliant projects and the eviction of six irregular occupants from the Zofemat.

Additionally, 1,656 inspection visits were made as part of the monitoring program for this zone and 1,186 non-concessionholders were detected; these figures represent increases of 42 and 149%, respectively, over the previous reporting period. Other irregularities were detected as well. The visits gave rise to 1,289 administrative procedures and fines of P\$13.1 million, a more than fivefold increase over the previous period.

Concerning environmental impact, 1,315 inspections were performed, resulting in the detection of 1,008 irregular projects (597 without the relevant authorization and 411 in violation of one or more conditions set out in an authorization). A total of 727 administrative procedures were instituted, leading to the closing of 140 irregular projects and activities and the application of P\$18.4 million in fines.

Likewise, three special operations were carried out in the Cuatrociénagas area of Coahuila and the tourist corridors of San Felipe-Puertecitos and San José del Cabo San Lucas, Baja California Sur, in order to verify compliance with the environmental land use programs in 25 environmental management units. Two technical reports containing recommendations were issued. These actions set the tone for strong law enforcement activity in these areas, leading to the eradication of longstanding, unlawful activity, irregular situations and practices that jeopardize conservation and sustainability.

Inspection and Monitoring of Fisheries and Marine Resources

Mexico has a great wealth of marine resources along its 11,597 km of coastline, including a wide variety of ecosystems and species. Conservation efforts for protected marine areas and species included 1,455 inspections, 2,210 monitoring actions and 278 operations, most of them carried out in conjunction with the Ministry of the Marine (*Secretaría de Marina*), the Mexican Navy (*Armada de México*), the Ministry of National Defence (*Secretaría de la Defensa Nacional*), the Federal Preventive Police (*Policía Federal Preventiva*) and the Office of the Attorney General of the Republic. As of 21 June 2001, inspection and monitoring of fisheries and marine resources came under the responsibility of the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación—Sagarpa*). For this reason, the figures reported show a decrease with respect to the previous period, and the objectives, goals and personnel were adjusted to correspond to the new responsibilities. These essentially consist of inspection and monitoring for conservation and protection of chelonians and marine mammals, at-risk aquatic species, and species found in PNAs including coastal marine ecosystems. They also include verification of compliance with aquaculture-related environmental laws and restrictions on the use of prohibited fishing nets, methods and equipment that affect or may affect protected marine ecosystems or species.

A total of 467 administrative procedures were instituted, with seizure of 92 tons of marine products, 204 vehicles, motors and boats, 523 items of fishing equipment and nets, and 240,000 turtle eggs. It is important to mention that renewed certification of the marine turtle excluder devices on the entire registered shrimping fleet of 2,051 boats was completed, guaranteeing a significant reduction in the incidental catch of protected chelonians.

In the area of aquaculture, inspections were carried out at 117 shrimp farms in the state of Sinaloa, where more than 80% of this activity is concentrated; 206 administrative procedures were instituted, consisting of 102 for environmental impact, 89 with regard to the Zofemat and 15 arising from detailed inspection reports. Eighty-nine tons of marine products, 459 fishing nets and items of equipment, and 199 vehicles and boats were seized.

Six environmental contingencies affecting natural resources were addressed: two due to red tides, two relating to marine mammal beaching, and two relating to marine turtle and monarch butterfly mortality.

Taken together, the results of the different actions designed to protect natural resources, including 1,850 operations, 15,572 inspections, 11,300 monitoring actions, and 5,465 administrative procedures, show that these were appropriately targeted. An additional 9,305 procedures were resolved, and fines of more

than P\$120 million were imposed. Some 624 criminal complaints were filed, and 207 alleged offenders were remanded to the custody of the Attorney General's Office. One important outcome was an improvement in environmental compliance indicators.

Inspection and Monitoring of Sources under Federal Jurisdiction

In the context of this program, the legal compliance of pollution sources under federal jurisdiction was verified, particular those establishments engaging in high-risk or high-environmental-impact activities. Activities included 6,870 inspection visits, for a 25.8% increase over the previous reporting period. On 1,786 (26%) of these, total compliance with the applicable law was detected, for a 3% increase over the previous period. On 4,956 visits (72%), minor violations were noted; in only 2% of visits were serious violations noted. These latter cases led to 66 partial and 62 total closings as well as fines of P\$54.8 million.

As part of the Clean Mexico Campaign, Profepa exhorted the municipal governments to comply with sanitary landfill construction, operation and closing standards, and monitored these facilities to ensure that no hazardous waste was dumped there.

In-plant New Vehicle Inspections

A total of 158 engine types produced by 30 assembly plants in the country were inspected, 12% above the figures for the previous reporting period. In 128 cases, air emission and noise tests were performed, and all engines met the levels established by the applicable NOMs. For 30 imported vehicle or engine types, the emissions certificates issued by the environmental authorities in the country of origin were inspected. The goal of these verifications of environmental compliance by the automotive industry was to minimize the negative impacts of its products on air quality.

Regional Environmental Control Laboratories

A total of 863 samples of contaminated waste and soils underwent 16,240 analyses in the regional environmental control laboratories, for a 93% increase with respect to the previous period. Of these analyses, 490 aimed to determine the corrosiveness, reactivity, explosiveness, toxicity and ignitability characteristics so as to determine the hazardousness of the industrial waste, 10,195 tests involved atomic absorption and 5,555 involved gas chromatography. The results of these tests represent important scientific evidence substantiating the administrative procedures.

Concerning environmental contingencies in the ZMVM, the inspection and monitoring program for pollution sources under federal jurisdiction applied by Profepa in this geographical area led to a decrease in the air emissions that give rise to environmental contingencies. It is important to mention that no environmental contingency has occurred in the ZMVM, the country's most populous area, since winter 1999–2000.

Article 5(2) Each Party shall ensure that judicial, quasi-judicial or administrative enforcement proceedings are available under its law to sanction or remedy violations of its environmental laws and regulations.

Regarding advising and consultancy, a total of 615 matters were submitted during the period and 31 of these are currently being studied.

It should be noted that the workload involves study and analysis of 2,118 documents in order to issue the relevant legal recommendations and opinions.

Some 417 agreements and contracts were analyzed and reported on, including 387 relating to wildlife, decentralization, environmental education and other topics. Moreover, legal opinions were issued on 527 concessions, 46 extensions, 13 assignments of rights, 20 amendments to the terms and conditions of concession and to concessions as such, two decisions involving the right of first refusal, and 50 terminations of rights or claims relating to the Zofemat.

Thirty-six complaints and one recommendation to the National Human Rights Commission were addressed and the corresponding reports were issued. Eighteen complaints were resolved; 44 legal appearances with respect to responsibilities of public servants, as required by Secodam in its capacity as representative of Semarnat's interests.

Article 5(3)(a) Sanctions and remedies provided for a violation of a Party's environmental laws and regulations shall, as appropriate: take into consideration the nature and gravity of the violation, any economic benefit derived from the violation by the violator, the economic condition of the violator, and other relevant factors

In a case without precedent in this administration, 590 fines were reconsidered and/or commuted in return for investments aiming to protect the environment and repair harm, with positive outcomes for environmental protection.

■ Article 6—Private Access to Remedies

Article 6(1) Each Party shall ensure that interested persons may request the Party's competent authorities to investigate alleged violations of its environmental laws and regulations and shall give such requests due consideration in accordance with law

A total of 479 cases were referred by the Citizen Response Office (*Coordinación de Atención Ciudadana*) of the Office of the President of the Republic (*Presidencia de la República*). Of these, 263 were addressed promptly and 216 are pending.

The number of requests, petitions and proposals from citizens and civic organizations was 3,878, of which 820 were referred to the citizen response area. As well, 4,609 inquiries were submitted by electronic mail on two main topics, Lake Chapala and the new Mexico City airport; 80% of these requests were addressed by the end of August.

Personalized attention was given to various organizations such as Manantial Foundation, *Conservación Internacional*, *Asociación de Colonos de Cocoyoc*, Pronatura, and *Sociedad Eco Zootécnica*. Also addressed were matters entailing socio-environmental risks, such as the thermal power plants located in the municipality of Tamuín, San Luis Potosí; the restoration of Lake Chapala; a dispute among community organizations, businesspeople and the state government relating to the dolphinarium located in La Paz, Baja California Sur; a demonstration by *ejido* residents of San Mateo Atenco, México state; the "Puerto Mío" project in Zihuatanejo, Guerrero; pollution of the inlet and wharf at Cozumel, Quintana Roo; the status of the company Aqua World; matters raised by the *Partido Verde Ecologista de México* (Green Party) relating to water, forests, and the dolphinarium; and issues surrounding the municipal incinerator in Méndez, Tamaulipas.

Response to citizen complaints made it possible for citizens to participate more actively in compliance monitoring in conjunction with the environmental authorities. During the reporting period, 5,864 environmental complaints were received, or 34% more than in the previous period, demonstrating more determined participation by society. Of these, 3,284 (56%) were addressed and a response is pending for the remaining 2,580 (44%).

Moreover, a wider variety of channels are now offered to enable citizens to help the authorities in detecting facts or acts that harm or may harm the environment or natural resources, including complaint boxes, Internet, and fax and telephone numbers (including a national toll-free number, 01-800-Profepa). As a result, citizens are participating more actively in law enforcement through the more than 720 citizen monitoring committees currently operating.

To summarize, Profepa carried out a total of 33,741 inspection and monitoring actions for a 3.4% increase with respect to the previous period. It instituted 12,338 administrative procedures and processed 15,429, leading to the application of P\$175 million in fines (83% more than the previous period). This gives a good idea of the efforts made by Profepa to curtail environmental deterioration and the destruction of natural resources, in accordance with the strategic objectives for this sector. The progress achieved clearly indicates that Mexico is firmly moving towards a new model for environmental law enforcement.

■ Article 7—Procedural Guarantees

Article 1(d) Each Party shall ensure that its administrative, quasi-judicial and judicial proceedings referred to in Articles 5(2) and 6(2) are fair, open and equitable, and to this end shall provide that such proceedings:) are not unnecessarily complicated and do not entail unreasonable charges or time limits or unwarranted delays

On 12 July 2001, the Minister of the Environment and Natural Resources issued a new circular establishing the authorization procedure for the establishment of commercial forestry plantations and repealing the procedure approved 30 November 2000, which exceeded the procedures contemplated in the Forestry Law (*Ley Forestal*) and the Business Procedures Registry (*Registro de Trámites Empresariales*) of the SE.

United States

Country Report on Implementation of the Commitments Derived from the NAAEC.

The Following report was submitted to the CEC Secretariat by the Government of the United States in accordance with NAAEC.

Introduction

The information included in this section of the 2001 Annual Report is intended to highlight certain US activities and developments related to environmental protection for the year 2001. It does not represent the full range of activities undertaken by the US government in compliance with the North American Agreement on Environment Cooperation (NAAEC), nor is it intended to reflect environmental protection efforts at the state, tribal, territory, or local level.

■ Article 2—General Commitments

Article 2(1)(a) State of the Environment Reports

Below are some highlights of reports that the US federal government has prepared and made publicly available on the state of the environment.

- **Findings of the National Status and Trends Program (NS&T):** NS&T monitors sites in coastal and estuarine waters of the United States to determine spatial scales and temporal trends in coastal contamination data which covers a span of 17 years, 1984 to present. The cumulative data are still insufficient to discern trends over decadal scales, however, a number of analyses have been performed on the current database to determine temporal changes in levels of pesticides, industrial chemicals, trace metals and other selected contaminants. These analyses indicate that at a vast majority of sites, levels of environmentally persistent contaminants, such as polychlorinated biphenyls (PCBs), have not decreased even though their use has declined markedly over the past two decades. A number of potentially toxic metals, such as copper, chromium, and zinc, show apparently increasing trends.
- **Estuarine Living Marine Resources:** The National Centers for Coastal Ocean Science (NCCOS) recently released a report that provides a national overview of the distribution, abundance, temporal utilization, and life history characteristics of ecologically and economically important fishes and invertebrates in the nation's estuaries, information that can be used for effective resource management. The report, titled *National Overview and Evolution of NOAA's Estuarine Living Marine Resources Program*, is a compilation of 15 years of data collected in 122 estuaries and coastal embayments in five regions in the United States as part of the National Oceanic and Atmospheric Administration's (NOAA) Estuarine Living Marine Resources (ELMR) program. Because many species use both

estuarine and marine habitats during their various life stages, this information is needed to understand the coupling of estuarine, near shore, and offshore habitats. Consequently, the ELMR program was developed to integrate fragments of information on these species and their associated habitats into a useful, comprehensive and consistent format. This report complements a series of data and life history summary reports that have been published for the West Coast, Gulf of Mexico, Southeast, Mid-Atlantic, and North Atlantic regions.

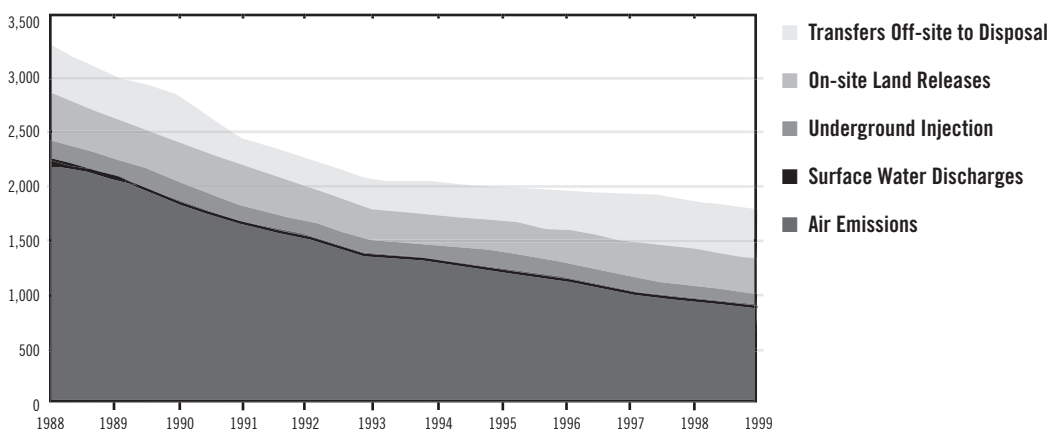
- Interior-managed lands support tremendous recreational use: In fiscal year 2000, public lands managed by the Bureau of Land Management had approximately 54 million visits and the National Wildlife Refuge System and the National Fish Hatchery System about 38 million visits. The National Park Service had an estimated 286 million recreational visits. The Bureau of Reclamation also provides visitors with water-based recreation opportunities at more than 300 reservoirs in the 17 western states. There are approximately 90 million visits to reclamation facilities each year. The total economic impact of recreational activities on interior lands is enormous, contributing billions of dollars and thousands of jobs annually to the US economy.

Article 2(1)(b) Environmental Emergency Preparedness

Below are some of the highlights on the federal government’s work on environmental emergency preparedness.

- **Toxics Release Inventory:** The most significant change to the Toxics Release Inventory (TRI), which is the US version of a pollutant release and transfer register (PRTR), in 2001 was the establishment of a lower reporting threshold for lead and lead compounds. Facilities must now use a 100-pound (45 kg) threshold for lead and lead compounds, with reports due to EPA on 1 July 2002. In spring 2001, the TRI Program released the 1999 TRI data. This is the second year that data have been reported by the newly added industry sector that includes mines, electric utilities and petroleum bulk storage facilities. Compared with the 1998 TRI data, several of these industries showed increases in total releases. The original industries, which have been reporting since 1988, continued to show decreasing releases, but increases in quantities of chemicals otherwise managed as waste. The 1999 TRI data are available on EPA’s web site at <<http://www.epa.gov/tri/tridata/tri99/index.htm>>. EPA also continues to pro-

TRI Total Releases for Original* Industries, 1988–1999



Note: Does not include delisted chemicals, chemicals added in 1990, 1991, 1994 and 1995, aluminum oxide, ammonia, hydrochloric acid and sulfuric acid. On-site Releases are from Section 5 of Form R. Off-site Releases are from Section 6 (transfers off-site to disposal) of Form R. Off-site Releases include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs.

* “Original” industries include manufacturing industries in SIC codes 20-39 and federal facilities.

vide assistance to industry by developing guidance documents for specific industries and chemicals; copies of these documents are available on the TRI web site: <<http://www.epa.gov/tri/>>.

- **Counterterrorism Efforts:** Counterterrorism planning and preparedness efforts through the National Response Team and the Federal Response Plan have established effective coordination and communication systems and deterred creation of redundant systems. Additionally, EPA's work with states, tribes, and communities has resulted in 15 states implementing the risk management plan program, and establishing partnerships with thousands of Local Emergency Planning Committees (LEPCs). Preliminary surveys in EPA's central region (Region V) show that 47 percent of LEPCs have incorporated counterterrorism aspects into their contingency planning.
- **Implementation of the National Fire Plan and Development of Interagency Performance Measures:** The Interior Department and the USDA Forest Service will complete the Implementation Plan for the 10-Year Comprehensive Strategy in FY 2002 that incorporates the cooperatively-developed, long-term goals and performance measures for the wildland fire management program. This common set of interagency performance measures will be used by the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), National Park Service (NPS), Fish and Wildlife Service (FWS), and the Forest Service to provide nationally consistent and standard direction for implementation of the Federal Wildland Fire Management Policy, the National Fire Plan, the 10-Year Comprehensive Strategy, and the Implementation Plan. Both departments are working in close collaboration with other federal agencies, state and local governments, aboriginal tribes, and other interested parties in the development of these performance measures.

Article 2(1)(c) Environmental Education

The US federal government funds many state, local, and nongovernmental organizations to provide environmental education in a variety of areas. Below are some highlights of environmental education successes from 2001.

- **Energy Efficiency Programs Made Impacts:** Results reported in fiscal year 2001 demonstrate that EPA's voluntary ENERGY STAR program, methane outreach programs, and High Global Warming Potential (HGWP) environmental stewardship program have increased the penetration of energy-efficient products into the marketplace through effective program planning, implementation, and outreach to manufacturers and consumers. The ENERGY STAR label, for example, has become a national symbol for energy efficiency recognized by more than 40 percent of the people. These voluntary programs yield an immediate impact on environmental improvement. In results reported in fiscal year 2000, actions taken through EPA's voluntary climate programs such as ENERGY STAR have saved consumers and businesses more than \$8 billion on their energy bills, and saved 74 billion kilowatt-hours and more than 10,000 megawatts of peak power. In addition, emissions of almost 160,000 tons of smog-forming NO_x were prevented in 2000, equivalent to the annual emissions from more than 100 power plants.
- **Air Quality Index Web Site Adds More for the Public:** EPA's extensive public outreach efforts included expanding its Air Quality Index (AQI) web site to include an AQI Kids' Page, at <<http://www.epa.gov/airnow/aqikids/aqi.html>>. The AQI is an integral part of EPA's ongoing communication with the public. The AQI reports real-time air quality, provides forecasts of high pollution days, and informs the public about associated health concerns. EPA has also partnered with the National Heart, Lung, and Blood Institute at the National Institutes of Health to provide information on air pollution to health care providers through projects associated with the National Asthma Education and Prevention Program. In addition, EPA produced an *Air Quality Guide for Particulate Matter*, an education and outreach pamphlet geared to the public that describes adverse health effects from PM exposure.

- **Beach Advisories:** Beach advisories provide an important public service to inform the public when it is unsafe to swim. In 2001 states and agencies voluntarily provided EPA with information on US beach conditions through the National Beach Health Survey. Since it began in 1997, the Survey has expanded to include 237 agencies and 2,445 beaches. A beach advisory or closing typically occurs when monitoring results indicate that water quality is in violation of a water quality standard. Twenty-seven percent of the beaches (672 of 2,445 beaches) had at least one advisory or area closed during the 2001 swimming season. The main reason given for an advisory or closing was elevated bacteria levels (cited in 87 percent of the beach actions). Information about the National Beach Health Survey is available to the public on EPA's Beach Watch web site at <<http://www.epa.gov/waterscience/beaches/>>.
- **Training On Pesticide Safety:** In fiscal year 2001, the EPA and the states supported training on pesticide safety for farmworkers and farm families by partnering with the Association of Farmworker Opportunity Programs, AmeriCorps, and 37 community-based organizations in 22 states. EPA also consulted with the state Association of American Pesticide Control Officials and shared information with the State FIFRA Issues Research and Evaluation Group, a network of state officials interested in federal/state co-regulation of pesticides. One of EPA's successful partnerships with states has been the work-share program with California's Department of Pesticide Regulation, which conducts data review for Interregional Research Four (IR-4) petitions. The directors of state agricultural experiment stations organized IR-4 to expedite federal and state minor-use registrations and establish tolerances for many crop uses. The program helps minor crop producers (whose crops account for approximately 40 percent of total agricultural sales for the United States) obtain tolerances and registrations for pest control products. The program supports development of test data for registrations and tolerances and prepares specific instructions for application to include on pesticide labels.
- **Training Materials Developed For Pesticide Risk Reduction:** EPA is on track to meet most of its strategic objectives under Goal 4. Through numerous projects, the Agency has taken steps to reduce pesticide risks to workers, consumers, and ecosystems. The Agency has supported worker protection by developing training materials; sponsoring radio public service announcements, in Spanish, promoting worker safety; and funding trainers of agricultural workers. The risk to consumers and ecosystems from pesticides has been reduced through clearer and more useful pesticide labels and the Agency's emphasis on the importance of reading the product label before use. EPA is also ensuring that pesticides pose less risk to groundwater by carefully managing 19 out of 31 pesticides that have the potential for high leaching and persistence in groundwater.
- **Risk Reduction Strategies:** When pollution cannot be eliminated at the source, EPA uses several risk reduction strategies: education and outreach, partnership and collaboration, regulation, and international negotiation. In fiscal year 2001, the Agency continued to make strides in its campaign to reduce asthma in children by providing tools for schools to use to improve air quality. EPA launched an extensive asthma public service campaign to raise the public's awareness of the role that indoor environmental triggers play in the severity and frequency of children's asthma. Also, the radon program's long-running public awareness campaign continued with an Emmy Award-winning public service announcement providing facts about radon that are not commonly known by the public. The Agency estimates that the radon program will save an estimated 2,500 lives by exposure reductions achieved from 1986 through 2000; of these, an estimated 350 lives will be saved from exposures averted in 2000 alone, based on information from the National Association of Home Builders' survey and the three largest radon fan manufacturers in the United States. Statistics for fiscal year 2001 are not yet available (see <<http://www.epa.gov/iaq/radon>>).
- **Indoor Air Quality Tools For Schools:** EPA was successful in recruiting schools to adopt sound "Indoor Air Quality Tools" practices. This partnership with the American Lung Association implements school-based asthma management education through the program "Open Airways for Schools." In EPA's New York City regional office, years of work by the Regional Indoor Environments staff with the city schools culminated in passage of a resolution by the Chancellor and Board of Education that commits all New York City public schools to adopt "Tools for Schools" by the 2005–2006 school year. New York City alone has 1,200 schools and approximately 1.1 million schoolchildren (<<http://www.epa.gov/iaq/schools>>).

- **Hazardous Waste Identification Rule (HWIR):** In fiscal year 2001, EPA published responses to public comments on the HWIR. The HWIR is a risk-based approach that the regulated community could use to exclude many low-risk wastes and waste streams from regulatory control under the Resource Conservation and Recovery Act (RCRA), Subtitle C, while continuing to protect human health and the environment. Changes also were proposed to the Multimedia, Multi-pathway, and Multi-receptor Exposure and Risk Assessment (3MRA) modeling methodology, which will assist the Agency in making the final assessment of the levels below which a waste is not subject to regulation under RCRA, Subtitle C.
- **Access to Environmental Information:** Providing the public with efficient electronic access to environmental information is essential. Never was this more apparent than in the days following 11 September 2001. EPA quickly made available electronic access to information on environmental quality, giving the public and residents of the New York City area timely information about local conditions. EPA worked closely with state, federal, and local authorities to determine whether dangerous levels of contaminants were present in ambient air, drinking water sources, and surface water runoff near the disaster sites. Drinking water and runoff in lower Manhattan were sampled and tested, and repeated monitoring of ambient air was conducted at the World Trade Center disaster site, in the surrounding New York and New Jersey areas, and in the vicinity of the Pentagon. As soon as the results of monitoring were finalized, EPA made the data available to the public through its public access web site (<<http://www.epa.gov/wtc/>>).
- **Local Community Coordination and Outreach:** The current wild land fire policy recognizes that effective fire management requires close coordination with local communities, particularly communities in the wild land urban interface. The management of private lands has become a key factor in the fire risk equation, so providing outreach, education, and support for local communities who must play a primary role in reducing fire hazards is critical. The general objective is to develop the rural fire assistance program on a cost-sharing basis, thereby enhancing local capabilities and improving the protection of both public and private lands.
- **Volunteer Educational Program For Students:** The Natchitoches National Fish Hatchery used a volunteer program to recruit students to assist with spring production activities. A student from Grambling State University and another from Louisiana State University lived at the station and logged 1,004 hours (0.48 of full-time employment—FTE) during the spring semester. EPA provided housing and a small stipend for the two student volunteers. Volunteers were treated as full-time employees and helped with striped bass, paddlefish, pallid sturgeon, and public-use efforts. The total cost to the station for this effort was \$2,390. The cost for a full-time GS-4 biologist for 0.48 FTE would have been \$9,200, without benefits. This project was a success in that not only did it provide for additional personnel at reduced costs at a time when help is especially critical, but also it provided an opportunity for students to have hands-on learning experience with fish culture and biological work. In addition to the student volunteers, 38 other volunteers contributed 1,236 hours to the station. A total of 1.08 FTE (2,240 hours) at a total cost of \$5600 was provided to the hatchery through the volunteer program during fiscal year 2001.

Article 2(1)(d) Scientific Research and Technology Development

Numerous government agencies, departments, state programs, and universities are conducting environmental research and developing new technology. Below are some of the highlights of the research and development activities at the federal level. The highlights are broken out into the following media: air, hazardous waste, water, toxic substances, pesticides, land management, fisheries and geological survey.

Air

- **PM Monitoring Project:** In fiscal year 2001, EPA completed a year-long particulate matter (PM) monitoring project that will help to establish the relationship between ambient concentrations of PM and indoor and outdoor residential and community levels and personal exposures. By reducing uncertainty in this area, EPA will be able to confirm the appropriateness of the NAAQS for particulate matter and support effective implementation of them by states and tribes. In addition, by better understanding the ambient concentrations, exposures, and toxicity of PM, EPA will be better able to estimate the public health risks from current and future PM exposures, as well as the benefits of control programs.
- To ensure timely consideration and use of the research results, a key step in the NAAQS decision-making process is development of the Air Quality Criteria Document (AQCD), used in the analysis of the NAAQS. The second external review draft of the AQCD for particulate matter was completed and released for public comment and Clean Air Scientific Advisory Committee (CASAC) review in July 2001. A third external review draft was requested as a result of the CASAC review, delaying completion of the final AQCD until December 2002. In addition, EPA completed health assessments for high-priority hazardous air pollutants to aid the Agency in its assessment of risks posed by toxic air pollutants and developed source emissions and control information for both mobile and stationary sources to guide cost-effective risk management decisions for atmospheric mercury compounds.
- **Addressing Pollution at the Nation's Oil Refineries.** As part of a national enforcement effort to address Clean Air Act violations at the nation's oil refineries, US Department of Justice (DOJ) and EPA developed a petroleum refinery initiative. To date, the strategy has resulted in significant measurable environmental benefits. EPA entered into settlements with six companies that have a total of 32 facilities and represent over 30 percent of the country's crude oil refining capacity. The companies agreed to install pollution controls and implement new environmental management programs that cost almost \$1.5 billion. In fiscal year 2001, EPA's petroleum refinery initiative resulted in four settlements that will reduce more than 140,000 tons of harmful air pollutants annually.
- **Reducing Ozone-depleting Chlorofluorocarbons (CFCs):** US Department of Justice and EP achieved a groundbreaking Clean Air Act settlement with Air Liquide America Corp., under which it will eliminate refrigerant chemicals that destroy the earth's stratospheric ozone layer and replace them with environmentally friendly alternatives. Air Liquide had been illegally releasing ozone-depleting gases from industrial process refrigeration systems at 22 facilities located in 18 states. The agreement also obligates Air Liquide to pay a \$4.5 million civil penalty and fund environmental projects that will benefit a lower-income, minority community in Calcasiea Parish, Louisiana.

Hazardous Waste

- **Contaminated Wastes:** In fiscal year 2001, EPA completed new or updated existing consensus human health assessments for seven environmental substances of high priority to the Agency. These assessments, which were incorporated into the Integrated Risk Information System (IRIS) and made publicly available at <<http://www.epa.gov/iris/>>, describe the potential human health impacts of various chemicals found in the environment. This information is used for hazard identification and dose-response evaluations in risk assessments across EPA, at the state level, and by the public. EPA also enhanced its ability to make research information available to the public by expanding its science inventory, which is publicly available through the Environmental Information Management System (EIMS: <<http://www.epa.gov/eims/>>). EIMS will provide decision makers with the best scientific information to protect human health and the environment and will ensure that research efforts are complementary.

Water

- **Evaluation of Chemicals and Microbial Contaminants in Drinking Water:** In fiscal year 2001, EPA's drinking water research program provided information needed to help assess and control risks posed by exposure to microbial contaminants in drinking water. A report on the occurrence and detection of the unregulated waterborne pathogen *Aeromonas* in drinking water will help EPA evaluate whether it poses a risk to public health. In addition, a report on the inactivation of unregulated pathogens by conventional treatment methods will improve EPA's ability to reduce public health risks through effective drinking water treatment and risk management of the Nation's water supplies. EPA's research on aquatic stressors provided tools and methods for understanding, diagnosing, and predicting the effects of chemical pollutants on aquatic ecosystems. The publication of case studies illustrating the use of EPA's Stressor Identification Guidelines (*Stressor Identification Guidance Document*, EPA/822/B-00/025) will help state and local environmental resource managers identify causes of biological impairments in aquatic resources using a sound scientific methodology. Resource managers can also use these guidelines to respond to Clean Water Act requirements, which will in turn allow the Agency to identify and target for improvement those water bodies most at risk.

Pesticides and Toxic Substances

- **New Methods of Identifying Pesticides:** Research supporting Goal 3 is enabling EPA to better identify and characterize groups of people at highest risk, those who may require special regulatory consideration and protection. In fiscal year 2001, the Agency developed tests for identifying pesticides that have increased toxicity for the young. These tests will help EPA determine how best to protect children from harmful pesticide exposure. The Agency also conducted studies to better understand age-dependent differences in response to various pesticides and the health effects associated with repeated pesticide exposure. Additionally, EPA produced an evaluative report on aggregate exposure to pesticides based on National Human Exposure Survey (NHEXAS) studies at three areas along the US-Mexican border. By using various forms of data collection in the NHEXAS studies, EPA will learn how human exposure to pesticides varies according to location, as well as how to conduct effective future exposure assessments. Ultimately, the knowledge gained through these studies will help the Agency determine how best to keep the public protected from and informed of the risks associated with toxic pesticides.
- **The Pesticide Handler Exposure Database:** (PHED) is a generic database containing voluntarily submitted empirical exposure data for workers involved in the handling or application of pesticides in the field. It currently contains data for over 2000 monitored exposure events. The basic assumption underlying the system is that exposure to pesticide handlers can be calculated generically, based on the available empirical data for chemicals, as worker exposure is primarily a function of the formulation type and the handling activities (e.g., packaging type, mixing/loading/application method, and clothing scenario), rather than chemical-specific properties.
- **Structure-Activity Relationship (SAR) Technology:** Fiscal year 2001 research under Goal 4 focused on developing exposure data, risk assessment methodologies, and technologies to improve understanding of health risks and reduce community exposures to environmental stressors. EPA researchers instructed industry and other federal agencies on the use of SAR computer technologies for toxicity prediction and modeling and carcinogenicity prediction. This technology associates chemical structure with toxicity, and from the structure and toxicity of one chemical, it can predict the toxicity of other chemicals with similar structural attributes. By implementing SAR in industry and other federal agencies, collection of toxicity data will be more complete and consistent and duplication of research efforts will be reduced. In the long run, SAR technology will identify chemicals that need additional risk minimization controls when used in industry and will eliminate potentially toxic chemicals from widespread industrial use, thus preventing and reducing risk to the environment and human health.
- **The Food Commodity Intake Database (FCID):** This database was developed as a cooperative effort by the United States Department of Agriculture (USDA) and the Office of Pollution Preven-

tion (OPP) for use by EPA and other organizations when conducting the exposure components of dietary risk assessments. The FCID includes data from two surveys conducted by USDA: Continuing Survey of Food Intakes by Individuals, and a Supplemental Children's Survey. These surveys provide useful information on 5,831 different foods and beverages people of different ages reported eating in 1994–96 and 1998. (FCID) is available on CD-ROM from the National Technical Information Service (NTIS).

- **Addressing PCB Contamination in Rivers:** General Electric Co. (GE) has agreed to spend more than \$250 million to resolve claims it polluted the Housatonic River with polychlorinated biphenyls (PCBs). PCBs are found in the river from western Massachusetts to its mouth in Long Island Sound. The settlement requires GE to clean up the contamination at its manufacturing facility in Pittsfield, Massachusetts, and carry out a “brownfield” plan to redevelop the facility and bring new commercial life to Pittsfield. The agreement also requires GE to clean up stretches of the Housatonic River over time, undertake several projects to improve wildlife habitat, and make a \$15 million cash payment to federal and state trustees for natural resource restoration projects. In a separate action, the division defeated efforts to halt EPA's issuance of a record of decision that would require GE to remediate PCB-contaminated sediments in the Hudson River in New York.
- **Cleaning up Contamination Sites:** In fiscal year 2001, EPA completed several technical resource documents that will assist Superfund project managers in evaluating and selecting cost-effective remediation options for the cleanup of contaminated sites. EPA also revised the emergency response and environmental restoration radiation risk values to include risks to infants, children, and women. Additionally, the Agency completed an evaluative report on several groundwater treatment technologies for insoluble contaminants. This information will assist EPA in effectively protecting people from exposure to and ingestion of contaminated water. EPA's Superfund Innovative Technology Evaluation (SITE) program continued to promote the development, commercialization and implementation of innovative hazardous waste treatment technology, technical assistance and training. The second initiative is to evaluate the performance of underground storage tank systems to determine the sources and causes of remaining problems. EPA will use the results of this evaluation to improve underground storage tank system performance, thus reducing the likelihood of future releases to the environment.

Land Management

- **Predicting Harmful Algal Bloom:** One of the most innovative products of the National Centers for Coastal Ocean Science (NCCOS) is the successful prediction of Harmful Algal Bloom (HAB) landfall. NCCOS scientists can locate blooms by assessing surface chlorophyll concentrations detected by satellite imagery and verified by data from ships. They then apply their understanding of the biological and physical aspects of bloom dynamics and transport, and the conditions that are conducive of HAB development, to predict when and where HABs will impact coastal communities. In fiscal year 2001, NCCOS released 20 HAB bulletins predicting *Gymnodium breve* landfall in the Gulf of Mexico. These predictions aid resource managers, industry, and the public by giving them advance warning to prepare and mitigate HAB's harmful impacts.
- **Preserve Natural and Cultural Heritage Resources:** For the Department of Interior (DOI), the protection of cultural and paleontological resources is essential because these sites continue to be targeted by pot hunters, looters, and commercial collectors who are “mining” these areas for commercially valuable artifacts and fossils. Also contributing to the overall decline of the condition of these resources is development, overuse, weathering, and increasingly, recreational activities. DOI has made little progress in inventorying lands under management as required by Section 14 of the Archaeological Resources Protection Act (ARPA), Section 110 of the National Historic Preservation Act (NHPA), and Executive Order 11593—“Protection and Enhancement of the Cultural Environment.” Recent reports by the GAO and OIG concurred that DOI did not adequately survey the public lands to determine the location, nature, and extent of culturally significant sites and that DOI lacked sufficient understanding of the magnitude of looting on the public lands. To date, 178 non-federal curatorial facilities holding millions of museum objects originating from the BLM-managed lands have been

identified; these facilities principally hold archaeological, paleontological, and historic collections. It is only through partnerships with non-federal institutions that we can ensure that these collections are available and accessible to the public. In fiscal year 2001, DOI restored and protected 353 at-risk cultural and paleontological properties on the public lands, conducted 81,335 acres of proactive cultural resource inventories, and made BLM cultural and paleontological collections available and accessible to the public by developing 12 new partnerships with non-federal curatorial facilities.

- **Restoring the Everglades:** A number of victories in 2001 continued and advanced unprecedented joint efforts between the Department of Justice (DOJ) and the state of Florida to restore and protect unique south Florida ecosystems, including the Florida everglades—the largest subtropical wilderness in North America. For example, DOJ secured the dismissal of a challenge to the historic, \$7.8 billion, 30-year Comprehensive Everglades Restoration Plan authorized by Congress and, in another case involving intensive litigation, DOJ obtained a ruling retroactively granting our motion to augment the surface water cleanup program and prolong provisions in a 1992 consent decree. The court declared the merits of our motion (filed jointly with the state) to be “abundantly clear,” notwithstanding the opposition of numerous intervenors. DOJ also continues to contribute to protection of the unique everglades ecosystem by ensuring that eminent domain acquisitions were effected on approximately 2,500 tracts intended for inclusion within the expansions of Everglades National Park and Big Cypress National Preserve. DOJ has also begun preliminary work with the National Park Service on the acquisition of outstanding mineral interests in the park.

Fisheries

- **Preventing the Introduction and Spread of Aquatic Invasive Species in North America:** The CEC, NOAA, Canada’s Department of Fisheries and Oceans, Semarnat, and Transport Canada convened in Montreal, Quebec, the first North American workshop to identify cooperative opportunities on “Preventing the Introduction and Spread of Aquatic Invasive Species in North America.” This workshop primarily addressed intentional introductions, aquaculture and live bait, and benefited from the participation of experts and decision makers from government agencies, industry, NGOs and academia. Based on the results of this workshop, five priority areas have been identified for North American cooperation and progress is being made to implement these priorities.
- **Development of Invasive Species Management Plan to Aid in Protection of Clams:** NCCOS participated in the development of a management plan for the green crab, *Carcinus maenas*, a voracious non-native predator that has caused significant losses to clam production on the east coast. Originally from Europe, the green crab has invaded both coasts of the United States and is quickly spreading up the newly-exposed west coast. NCCOS chaired a meeting of the Aquatic Nuisance Species Task Force, Green Crab Control Committee at the University of California, Davis. The Committee began developing a green crab management plan with four areas identified: prevention, detection and forecasting, control and eradication, and information access/management. Specific goals will be identified for each area and action items recommended to the Task Force.
- **Florida Keys National Marine Sanctuary:** NCCOS played a key role in the development of a new program launched on 1 January 2001, designed to recoup compensation for injuries to seagrass beds and coral reefs by vessel groundings in the Florida Keys National Marine Sanctuary (FKNMS). Fines imposed on owners of grounded vessels are expected to raise awareness by the public on damage caused and help to decrease the rapidly increasing number of groundings in the Florida Keys. The Mini-312 Program, authorized under Section 312 of the Sanctuaries Act, provides for an immediate response to vessel groundings by a damage assessment team to properly document incidents and collect data needed to pursue legal action. NCCOS provides the scientific expertise required to ensure the validity of scientific data in court proceedings.
- **Marine Forensics:** NCCOS’s Marine Forensics Branch links science, law enforcement, and prosecution to deter crimes that adversely impact the coastal ocean environment. Species identification analyses are used to successfully prosecute illegal activities and can be applied to fish management practices and the seafood industry. In 2001, NCCOS provided forensic assistance on more than 20 cases, including a case settled in federal court for the illegal take and transport of loggerhead sea

turtle eggs, and the provision of expert testimony in a federal case involving illegal harvesting and importation of Caribbean spiny lobster tails.

- **Gulf Coast Regional Assessment:** As part of the ongoing US Global Change Research Program's National Assessment process, EPA published the final Human Health Sector Assessment, Mid-Atlantic Regional Assessment, and Great Lakes Regional Assessment reports in fiscal year 2001. The Gulf Coast Regional Assessment is expected to be completed in fiscal year 2002. The findings of these regional and sector assessments will be used to identify the potential consequences of climate change in the United States. They also will provide stakeholders and policy makers with information on the potential risks and opportunities presented by climate change and suggest options for adapting to the changes.
- Other assessment efforts in fiscal year 2001 included two stakeholder workshops in the Great Lakes Region that focused on how climate changes are affecting the lakes' commercial shipping and fishing, energy production, municipal water supply, and recreational boating. The workshops determined that as a result of climate changes over the past few years, people in the Great Lakes Region have experienced what the Regional Assessment report says might be more common conditions in the future: warmer temperatures and increased evaporation have caused water levels to drop, causing serious problems for the commercial shipping industry and recreational boaters. Additional workshops are planned to focus on land ecology, agriculture, and winter recreation.

Article 2(1)(e) Environmental Impacts

- **Integrated Assessment of Sediment Quality in North Carolina Estuaries.** In 2001, an integrated assessment of sediment quality of North Carolina estuaries was completed as part of an overall study of the quality of southeastern estuaries implemented jointly by NOAA, EPA, and partnering state institutions. Resulting data have made it possible to produce unbiased statistical estimates of the extent of degraded versus non-degraded conditions of these estuaries in relation to a variety of ecological indicators (including general habitat characteristics, multiple stressor levels in sediments, sediment toxicity, and condition of benthic fauna), as well as a baseline for evaluating potential changes with time. Though limited spatially, degraded areas (about 19 percent of North Carolina estuaries) were concentrated in ecologically sensitive river systems (e.g., Neuse and Pamlico Rivers) and other small estuarine tributaries, which serve as nursery grounds for commercial and recreational fisheries. There were fewer degraded sites in more open estuarine areas (e.g., Pamlico Sound) and sites south of the Outer Banks that experience a greater amount of tidal flushing. It was also found that impaired benthic conditions were more closely linked to sediment contamination than to low dissolved oxygen concentration (based on instantaneous oxygen measurements). The most pervasive contaminants were metals (arsenic, mercury, chromium, and nickel); pesticides (lindane, dieldrin, DDT, and DDT derivatives); and total PCBs.
- **Warmer Bottom Water Temperatures Result in Change in Reef Faunal Composition.** An NCCOS research study documented that warmer bottom water temperatures along the sub-tidal continental shelf off Beaufort, North Carolina, have resulted in a dramatic change in reef faunal composition. The study site is among the most northern permanent reef fish communities in the US. Since the study began in 1977, total species composition of fish became more tropical, and a tropical sponge previously unrecorded at this latitude became prominent. Two new (to the area) families and 29 new species of tropical fishes were recorded. Observations of 28 other species of tropical reef fishes increased significantly. No new temperate fishes were observed, and the most abundant temperate fish decreased 22-fold. Fishery landings data also showed a shift toward a more tropical reef fish community. Mean monthly bottom water temperatures were one to six degrees Celsius warmer during the recent study. This indicates that thermal conditions of the oceans in general are changing and that fish communities in both temperate and tropical environments are shifting toward a more tropical composition of species.

Article 2(1)(f) Economic Instruments

Article 2(3) Measures Prohibiting or Severely Restricting the Use of Pesticides and Toxic Substances

EPA continues to protect the human health, the environment and food safety by reviewing all new and existing chemicals and pesticides. EPA makes a regulatory determination about the safety of each chemical and pesticide, and denies or restricts the use of the chemical or pesticide that does not meet current health or ecological standards. The US informs Canada and Mexico under NAAEC and other international treaties of such restrictions. The following are some of the most significant restrictions that occurred in 2001.

- **Registration Process:** The process by which the Office of Pollution Prevention examines the ingredients of a pesticide to determine if they are safe is called the registration process. The program evaluates the pesticide to ensure that it will not have any adverse effects on humans, the environment, and non-target species. Applicants seeking pesticide registration are required to submit a wide range of data on health and ecological effects, environmental fate, and product and residue chemistry. A pesticide product cannot legally be used in the United States if it has not been registered by EPA unless it is specifically exempted from regulation under FIFRA. If emergency conditions exist, EPA may allow use of an unregistered pesticide under an emergency exemption or a state may declare a crisis exemption, which allows the unregistered use for 15 days. EPA confers with the state and performs a cursory review of the use at this time.
- **Reregistration:** Through a process called reregistration, OPP is reviewing older pesticides—registered before 1984—to ensure that they meet current, more stringent health and environmental standards. After reviewing a pesticide for re-registration, OPP issues a *Reregistration Eligibility Decision* (RED) document or an *Interim Reregistration Eligibility Decision* (IRED) document detailing whether the pesticide can remain on the market or if changes in label instructions must be made in order to reduce risks to consumers. During reregistration, OPP also reassesses tolerances as required by FQPA to ensure that they meet current safety standards and issues *Reports on FQPA Tolerance Reassessment Progress and Interim Risk Management Decisions* (Tolerance Reassessment Eligibility Documents [TREDs]). To date, OPP has reassessed almost 4,000 of the 9,721 tolerances requiring reassessment.
- **Collaborations:** In fiscal year 2001, a cooperative agreement between EPA and Florida State University (FSU) supported the “Chemical and Pesticides Results Measures” project and its first published report. The purpose of the project is to develop a set of environmental outcome indicators and measures for toxic substances, pesticides, and pollution prevention. By working in cooperation with FSU, stakeholders, and the Pollution Prevention Roundtable, EPA will identify indicators and measures that federal, state, and local agencies; tribal entities; and others will find useful in describing, measuring, and understanding environmental trends and conditions in response to environmental programs. Data generated from this project, targeting a broad audience of potential users, will be used in improving annual performance goals and measures for fiscal years 2002 and 2003. The second phase of the project will provide a foundation for additional work on environmental indicators.

■ Article 3—Levels of Protection

Each year, the United States takes a variety of actions designed to increase levels of environmental protection including, promulgating new rules, issuing new standards, and providing grant money to organizations and communities for environmental purposes. The following provides summary information on these and other actions taken by the US to maintain and increase national levels of environmental protection.

Water, Water Ecosystems, and Beaches

- **Effluent Limitation Guidelines:** Final standards and guidelines for discharges into waterways from oil and gas drilling operations that use synthetic based drilling fluids were issued in January 2001. EPA expects implementation of this rule to reduce annual discharges of pollutants into water by 118 million pounds per year (53.6 million kg), to reduce air emissions by nearly 3,000 tons a year (more than 2700 tonnes), and to reduce energy use by the equivalent of 200,817 barrels of oil from new and existing sources. EPA projects that the overall economic effect will be a significant savings in operating costs and will result in an annual savings of US\$48.9 million, with no adverse economic impacts to drilling operators. The new rule applies to oil and natural gas extraction drilling beyond three miles from shore.
- Effluent limitation guidelines are national regulations, specific to individual industries, issued under the Clean Water Act that control the discharge of pollutants to surface waters and to publicly owned treatment works. The effluent guidelines program is one of EPA's most successful environmental protection programs, reducing the public health and environmental impact of pollutant discharges in over 50 industrial categories since 1974. Additional information on the Final Effluent Limitations Guidelines and Standards for Synthetic-based Drilling Fluids is available at: <<http://www.epa.gov/ost/guide/sbf/>>.
- **Morro Bay National Estuary Program:** The final Comprehensive Conservation and Management Plan (CCMP) for the Morro Bay National Estuary Program was established in 2001. The Morro Bay Estuary is located in the central coastal region of California and covers more than 2,000 acres of mudflats, tidal wetlands, and open water habitat. The estuary contains rich eelgrass beds providing habitat for a number of threatened or endangered species. The final plan outlines 61 actions to address the environmental problems facing the estuary including sedimentation, bacterial contamination resulting in closed shellfish beds, nutrient runoff causing algal blooms, loss of habitat, and declines in steelhead trout. The CCMP was developed by representatives from local and state governments, industry, and environmental interest groups. For information about EPA's National Estuary Program, see: <<http://www.epa.gov/owow/estuaries/>>.
- **New Standards for Cooling Water Intake Processes:** In November 2001, EPA issued the first of three scheduled regulations designed to reduce adverse environmental impacts, especially impacts on fish and shellfish, from cooling water intake processes at industrial facilities and power plants. The final rule governs the design, capacity, and construction of new structures at an estimated 121 new manufacturing and electric generating plants over the next 20 years. Manufacturing and electric generating facilities often withdraw water from bays, rivers, and lakes to remove excess heat from the manufacturing processes and electric generation. The cooling water intake process can damage fish and sea life when the intake structures are not properly designed and constructed. The rule, and two more rules scheduled over the next three years, are required by the Clean Water Act. The rule is technology-based, although it is flexible: sources are not required to use certain technologies, but can innovate and adapt, based on local circumstances. Additional information on this topic is available at: <<http://www.epa.gov/ow/>>.
- **Drinking Water Reports:** Each year annual drinking water quality reports are distributed to Americans who receive water from a community water supply. The annual reports are called Consumer Confidence Reports and are now required every year by July 1 under the 1996 Amendments to the Safe Drinking Water Act. The reports include a brief description of the local drinking water source(s) and any contaminants in the tap water. For more information on this subject, go to: <<http://www.epa.gov/safewater/>>.

- **New Arsenic Standard for Drinking Water:** EPA revised the arsenic standard for drinking water downward to 10 parts per billion (ppb). The maximum acceptable level was previously 50 parts per billion (ppb) and had been the lawful limit for nearly half a century. The new standard is intended to improve the safety of drinking water and better protect against the risk of cancer, heart disease, and diabetes. The compliance date for implementing the new standard for arsenic is 2006.
- Nearly 97 percent of the water systems affected by this rule are small systems that serve fewer than 10,000 people each. EPA plans to provide \$20 million for the research and development of more cost effective technologies. The Agency will also provide technical assistance and training to operators of small systems to help reduce their compliance costs. For additional information on the arsenic standard as well as other drinking water standards, go to: <<http://www.epa.gov/safewater/standards.html>>.
- **Protection of Beaches:** In 2001, EPA awarded \$2 million in grants to coastal and Great Lakes states to develop programs for monitoring and public notification of human health risks at beaches. Eligible states can use the funds to develop programs to monitor water quality at their beaches and to notify the public when water quality problems are detected. The funds are awarded under the Beaches Environmental Assessment and Coastal Health Act of 2000, which amended the Clean Water Act. EPA estimates that Americans make a total of 910 million trips to coastal areas each year. Additional beach information is available on EPA's beach web site at: <<http://www.epa.gov/waterscience/beaches/>>.

Pesticides and Toxic Substances

- **Eliminating Persistent Organic Pollutants:** In May 2001, the United States, along with 90 other Parties, signed the Stockholm Convention on Persistent Organic Pollutants (POPs Convention). This treaty bans or restricts the production, use, and/or release of 12 chemicals that have been linked to numerous adverse effects in humans and animals, including cancer, central nervous system damage, reproductive disorders, and immune system disruption. The United States, among the very first to call for a global POPs Convention, provided strong leadership in Stockholm to bring this important environmental treaty to a successful conclusion and was praised by UN officials for its consistent and strong financial support for the negotiations. Once in force, the Convention's provisions will permit the addition of other POPs chemicals. Due to their unique characteristics, POPs, which include substances such as DDT, PCBs and dioxins, are chemicals of both local and global concern. POPs are toxic, persist in the environment for long periods of time, and accumulate as they move up the food chain. For more information on US activities related to the POPs convention, go to: <http://www.epa.gov/oppfead1/cb/csb_page/updates/popsleg.htm>.
- **New Restrictions on Pesticides:** New restrictions were developed on the use of two agricultural pesticides, azinphos methyl and phosmet, to increase protection of agricultural workers, and assure that vital agricultural pest control needs are met. For azinphos methyl, 28 crop uses are being canceled, seven crop uses are being phased out over four years, and eight crop uses will be allowed to continue "time-limited" registration for another four years. For phosmet, three uses are being voluntarily canceled, nine crops are being authorized for use under specific terms for five years, and 33 crops are being approved for continued use. The new measures are intended to help decrease pesticide exposure and provide additional health protection for agricultural workers. Additionally, to enhance protection of agricultural workers during the phase-out and time-limited registration periods, a variety of stringent new precautions are being implemented to reduce exposure, including longer periods before a worker can enter a treated area, significantly limiting the number of applications, and prohibiting aerial application for almost all uses. During this period, EPA will also require that studies on the potential health effects on workers be conducted to help ensure that they are not exposed to unacceptable levels of these pesticides. For information on EPA's Pesticides Program, go to: <<http://www.epa.gov/pesticides/>>.
- **Increased Reporting on Lead:** EPA affirmed a rule to lower the threshold for reporting of lead used by industry. The new standard will require any company that manufactures, processes, or uses 100 pounds (45.5 kg) of lead or more annually to report such use to the EPA as part of the Toxics Release

Inventory (TRI). This will significantly increase the information available to the public about the uses of lead in America's communities. Past practice has shown that such information generally leads to decreased emissions of reportable toxics by companies, leading to public health and environmental benefits.

Hazardous Substances

- **Cleanup Reforms:** During 2001, 31 Resource Conservation and Recovery Act (RCRA) Showcase Pilot Projects were selected as part of the implementation of the second round of RCRA Cleanup Reforms, which EPA announced in January 2001. The RCRA Showcase Pilot Projects illustrate innovative efforts in RCRA Corrective Action cleanups at facilities nationwide and are intended to stimulate others to explore similar efforts to speed up progress toward EPA's cleanup goals. Those goals are to control human exposures at 95 percent of the 1,714 high priority baseline facilities and to control migration of contaminated groundwater at 70 percent of these facilities by 2005. The scope of innovations is broad and includes multi-regional and sector based approaches, new technologies or new applications of existing technologies, electronic information transfer and documentation, streamlined administrative process, brownfields redevelopment tools, risk-based performance standards and enhanced stakeholder involvement. For more information, visit: <<http://www.epa.gov/correctiveaction>>.
- **Hazardous Substance Research:** EPA awarded more than \$22 million in research grants to establish five new Hazardous Substance Research Centers affiliated with 22 universities. The Centers will address concerns about hazardous substances in the environment by conducting basic and applied research, and providing technology transfer and community outreach. Thirty percent of the total grant money will be used to provide outreach and technology support to help citizens in low income communities become effective participants in hazardous substance management decisions that might affect them. The grants were awarded by two EPA offices: the Office of Solid Waste and Emergency Response, and the Science to Achieve Results (STAR) program in the Office of Research and Development. STAR is an ongoing \$100 million-a-year grant program designed to engage the nation's best university scientists and engineers in environmental research.

■ **Article 4—Publications**

The *Federal Register* is the official daily publication for rules, proposed rules, and notices of federal agencies and organizations, as well as Executive Orders and other Presidential Documents. The *Federal Register* is issued by the Government Printing Office and is the publication used by all federal agencies to publish their regulations and legal notices. EPA maintains the *Federal Register Environmental Documents* site, which includes the full text of selected *Federal Register* documents that deal with environmentally-related issues and provides notices from 1 October 1994, through the present. This site will found at: <<http://www.epa.gov/fedrgstr/>>.

The EPA also maintains the National Service Center for Environmental Publications (NSCEP), which is a central repository for all EPA documents. The NSCEP includes over 5500 titles in paper or electronic format that are available for free distribution. NSCEP also develops and distributes the annual EPA National Publications Catalog. For more information on this service, go to <<http://www.epa.gov/ncepihom/>>, or call (800) 490-9198.

The National Environmental Publications Internet Site (NEPIS) is EPA's largest electronic documents site and allows one to search, view, and print, including full images of all original pages in full text, from a collection of over 9,000 archival and current documents. This collection may include documents that are no longer available in print form.

Additionally, US government agencies, including the EPA, issue agency/department-specific publications on a variety of topics. For example, there are numerous EPA Office and Program publication web pages, which provide access to full-text publications or information about publications produced by the various Offices and Programs. For more information on EPA information resources, go to: <<http://www.epa.gov/epahome/resource.htm>>.

■ Article 5—Government Enforcement Action

What's New

In fiscal year 2001, the EPA undertook a strategic, comprehensive effort to achieve environmental and health protection goals through incentives that encourage those being regulated to conduct self-audits and inspections of facilities to identify violations, and to take strong and swift enforcement actions to correct existing violations and deter further ones. Fiscal year 2001 included record-setting expenditures of \$4.3 billion by violators for pollution controls and environmental cleanup. EPA's enforcement and compliance program also secured commitments for an estimated reduction of more than 660 million pounds (300 million kg) of harmful pollutants and the treatment and safe management of an estimated record 1.84 billion pounds (835 million kg) of pollutants. Supplemental environmental projects totaled \$89 million—up 60 percent from \$55.8 million in fiscal year 2000; these involve actions beyond injunctive relief whereby a violator agrees to undertake to protect the environment and human health in exchange for a penalty reduction.

Major priorities included compliance with the Clean Air Act New Source Review/Prevention of Significant Deterioration rules dealing with excess pollutant releases from facilities evading permit requirements; regulations governing the protection of drinking water and prohibiting illegal discharges from combined and sanitary sewer outflows and animal feeding operations; and compliance by permit evaders, such as those practicing illegal hazardous waste practices in violation of the Resource Conservation and Recovery Act.

The US Environmental Protection Agency (EPA) works closely with other federal agencies, state and local governments, and Indian tribes to develop and enforce regulations under existing environmental laws. EPA is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes responsibility for issuing permits, and monitoring and enforcing compliance.

The US Fish and Wildlife Service (FWS) enforces laws, treaties, and regulations that safeguard fish, wildlife, and their habitats. Enforcement efforts in fiscal year 2001 focused on potentially devastating threats to wildlife resources, including unlawful commercial exploitation, habitat destruction, and environmental contaminants. The agency's enforcement work contributed to US efforts to save endangered species, conserve migratory birds, preserve wildlife habitat, restore fisheries, combat invasive species, and support international wildlife conservation.

During fiscal year 2001, FWS law enforcement officers worked on some 8,680 investigations and inspected more than 116,000 wildlife shipments. More than 49 percent of the agency's casework involved potential violations of the Endangered Species Act, which protects listed animals and plants and implements the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) in this country. Violations of the Migratory Bird Treaty Act accounted for 23 percent of the Service's investigative caseload.

Article 5(1)(a) Training Inspectors

The EPA provides support to regulatory partners through development of user-friendly guides, reference materials, assisted inspections, and training. To enhance the expertise of state and tribal inspectors, EPA conducted 713 assisted inspections. In addition, the Agency conducted 154 training classes or seminars for states, localities, and tribes to improve their ability to identify and reduce noncompliance. EPA also provided 34 states with direct access to the user-friendly online targeting and information system, exceeding its target of 21 states. This system provides states with enhanced information about noncompliance patterns.

NOAA Fisheries Office of Law Enforcement (OLE) conducts training sessions for various federal, tribal and state enforcement agencies and departments. These sessions are conducted in all 23 coastal states, Idaho and US commonwealths and territories. Training covers fishery regulations, Turtle Excluder Devices, habitat destruction, Closed Areas for fishing, Endangered Species Act, Marine Mammal Protection Act, marine wildlife standings, illegal wildlife importations, marine resources protection awareness, and many other issues.

Record Settlement to Cleanup One of the Nation's Most Toxic Waste Sites: The United States and California reached an agreement with Aventis CropSciences USA, Inc., that will fund cleanup costs that could approach \$1 billion at the Iron Mountain Mine Superfund Site near Redding, California. The settlement is one of the largest settlements with a single private party in the history of the federal Superfund program. Through the creation of a unique funding vehicle that will generate US\$200–300 million over 30 years with a \$514 million balloon payment in year 30, the settlement assures that money is available each year for long-term operation of a pollution treatment and control system needed to prevent toxic discharges from the site. This site has been one of the largest point sources of toxic metals in the United States, and the source of the most acidic mine drainage in the world. Aventis will also pay federal and state trustees \$10 million for natural resource restoration projects.

Landmark Storm Water Settlements: In June 2001, the DOJ and EPA achieved two significant victories in the enforcement of the Clean Water Act's regulation of storm water discharges, which EPA has identified as a leading cause of impaired water quality. In one, the DOJ reached a settlement with Wal-Mart Stores Inc., in the first federal judicial enforcement action against a single company for multi-state violations of the Act's storm water provisions. Under the settlement, Wal-Mart Stores Inc., will pay a \$1 million civil penalty, and establish a \$4.5 million environmental management plan to prevent construction-related pollution at the retailer's multiple construction sites throughout the country. In the other, the DOJ achieved a settlement with National Railroad Passenger Corporation (Amtrak), the nation's largest passenger rail operator. The DOJ resolved violations at Amtrak facilities in Massachusetts, Connecticut and Rhode Island. Storm water discharges from rail maintenance facilities can carry oil, grease and metals into storm drains, ultimately compromising the health and quality of streams and waterways. The settlement requires Amtrak to address past violations, implement a nation wide compliance audit and a nationwide environmental management system at a cost anticipated to exceed \$11 million.

Article 5(1)(b) Monitoring Compliance, Inspections and Investigations

EPA's Compliance Monitoring Program: Compliance monitoring includes all of the activities EPA conducts to determine whether an individual facility or group of facilities is in compliance with environmental laws and regulations. In fiscal year 2001, EPA conducted 17,560 compliance inspections, 366 complex investigations, and 895 inspections specifically targeted to assist states. EPA also responded to over 9,700 complaints received from citizens by phone, in writing, or in person. These activities represent a significant field and monitoring presence to deter both ongoing and future violations.

US Fish and Wildlife Service Compliance Monitoring Program: FWS wildlife inspectors stationed at 30 major US ports of entry and border crossings monitored more than \$1.4 billion worth of declared wildlife imports and exports for compliance with wildlife protection laws and treaties. Inspections of both commercial cargo and passenger traffic resulted in interceptions of edible contraband, such as smuggled caviar and sea turtle eggs; Asian medicinals, including bear gall bladders, bear bile, seal oil, and products made from tiger bone and rhino horn; coral, Queen conch, and giant clam; psitticine birds; reptile-skin leather goods; elephant tusks and ivory carvings; and injurious species, including mitten crabs and South American piranhas.

Article 5(1)(c) Voluntary Compliance

The EPA's Voluntary Compliance Program: To help the regulated community understand and fully comply with environmental requirements, EPA provided compliance assistance to more than 550,000 businesses, and provided financial and other support to 10 Internet-based Compliance Assistance Centers created to help small and medium-size businesses, local governments, and federal facilities. In fiscal year 2001, the public and regulated entities visited the Centers more than 485,000 times, an increase of 19 percent from fiscal year 2000. These visits included more than 150,000 requests for compliance documents. Other compliance assistance tools such as hotlines, workshops and guidance materials effectively reached more than one-half million regulated entities. Also, in 2001, EPA launched the National Assistance Clearinghouse. The Clearinghouse is a web-based searchable reference tool that provides a quick access to compliance assistance materials and a means for the user to interact with EPA, states and other compliance assistance providers. The Clearinghouse contains nearly 4,500 links, including resources from all 50 states. In its first year of operation, 62,000 visitors viewed more than 183,000 web pages.

Fish and Wildlife Service Voluntary Compliance Program: FWS law enforcement officers used partnerships with industry and educational outreach to promote voluntary compliance with wildlife protection laws. Efforts to protect migratory birds from industrial hazards focused on securing corrective measures without recourse to criminal fines or civil penalties. During fiscal year 2001, a regional environmental contaminants program in the Southwest resulted in the cleanup of numerous open oil pits in New Mexico, Oklahoma, and Texas, while Service officers conducted oilfield compliance workshops in Arkansas, where some 300 potentially problematic oil production sites have been identified. Accelerated efforts to prevent raptor electrocutions saw electric utilities agree to retrofit thousands of transformers and power lines in Alaska, Arizona, Kansas, New Mexico, North Dakota, Utah, Washington, and Wyoming.

FWS officers teamed with the Wyoming Outfitters and Guides Association and the Professional Guide Institute to teach guides and outfitters how to avoid confrontations with grizzly bears that endanger both man and beast; used mailings on wolf identification and contacts with ranchers and hunters to promote compliance with federal protections for this species; and worked to inform veterinarians about livestock euthanization practices that result in the secondary poisoning of eagles.

In the international trade arena, Service officers conducted a comprehensive training course on import/export compliance for more than 500 employees of a major express mail shipping company. FWS staff also presented a seminar on laws governing the import and sale of traditional medicinals for practitioners and retailers in partnership with the Southern California Herbal Medicine Association and provided educational programs on import/export compliance at trade expositions, broker meetings, and other forums.

Article 5(1)(f) Promoting Environmental Audits

EPA's Environmental Audit Program: In fiscal year 2001, EPA's Audit and Small Business Policies continued to provide a significant incentive for many companies to improve their environmental management prac-

tices. Under the Audit Policy, regulated facilities detect, disclose, and correct environmental violations in exchange for a waiver or significant reduction in penalties from EPA. In fiscal year 2001, 304 companies disclosed potential violations at nearly 1,754 facilities under EPA's Audit Policy. These facilities corrected violations found and disclosed through self-auditing. EPA also successfully worked with solicited industry sectors, such as steel mini mills, petroleum refineries, telecommunications, and property management, to use the Audit Policy through tailored initiatives to improve environmental management at their facilities.

Article 5(1)(h) Encouraging Mediation and Arbitration Services

EPA strongly supports the use of alternative dispute resolution (ADR) to deal with disputes and potential conflicts. EPA's Alternative Dispute Resolution Law Office and Conflict Prevention and Resolution Center provides ADR services to the entire Agency. Anyone interested in exploring the possibility of ADR in an EPA matter can contact the CPRC for information and assistance regarding mechanics, process design, or advice on what to expect from an ADR process. EPA uses the definition of ADR in the: Administrative Dispute Resolution Act of 1996: "any procedure that is used to resolve issues in controversy, including but not limited to, conciliation, facilitation, mediation, fact finding, minitrials, arbitration, and use of ombuds, or any combination thereof" [5 U.S.C. §571(3)]. All these ADR techniques involve a neutral third party—a person who assists others in designing and conducting a process for reaching agreement—if possible. The neutral third party has no stake in the substantive outcome of the process. Depending on the circumstances of a particular dispute, neutral third parties may be Agency employees or may come from outside EPA. Typically, all aspects of ADR are voluntary, including the decision to participate, the type of process used, and the content of any final agreement.

EPA encourages the use of ADR techniques to prevent and resolve disputes with external parties (e.g., state agencies, industry, environmental advocacy groups) in many contexts, including adjudications, rulemaking, policy development, administrative and civil judicial enforcement actions, permit issuance, protests of contract awards, administration of contracts and grants, stakeholder involvement, negotiations, and litigation. In addition, EPA encourages the use of ADR techniques to prevent and resolve internal workplace disputes, including negotiated or administrative grievances, equal employment opportunity complaints, and general office conflicts. Information on the recent accomplishments for EPA's ADR program is available at: <<http://www.epa.gov/adr/adrrept.pdf>>.

Article 5(1)(j) and 5(3) Judicial, Quasi-judicial or Administrative Proceedings to Seek Appropriate Sanctions or Remedies

EPA Civil Enforcement: EPA's civil enforcement program's goal is to maintain a consistent federal enforcement presence, as a deterrent to noncompliance and in support of state enforcement activities. In fiscal year 2001, EPA saw a civil enforcement program that resulted in many successes including injunctive relief valued at \$4.3 billion that will undo past harm and prevent future damage to the environment. Violators also paid \$125 million in civil penalties with an additional \$25.5 million going to states in shared penalties. Assessing civil penalties establishes a level playing field for regulated entities by eliminating economic advantage gained through noncompliance. EPA settled 222 civil judicial cases and issued 3,228 administrative orders and field citations involving violations of a single statute or multiple statutes. In a major multi-statute enforcement case, Morton International Inc. agreed to resolve charges that it violated clean air, clean water and hazardous waste laws at its Moss Point, Mississippi, facility, under a civil settlement and criminal plea agreement with the United States and Mississippi Department of Environmental Quality. Morton paid a \$20 million penalty and will spend up to \$16 million on projects to enhance the environment. EPA also issued 53 enforcement actions against federal agencies and government contractors.

EPA Criminal Enforcement: During fiscal year 2001, EPA maintained a strong criminal enforcement program to bring to justice those who violated the law knowingly or willingly. Over the year, the criminal

program initiated 482 cases and 372 defendants charged. The guilty paid nearly \$95 million in fines and restitution, and were sentenced to 256 years in prison—an increase of more than 100 years from 2000. In addition to committing resources and manpower to the Agency's criminal enforcement efforts, EPA's criminal staff also worked closely with other federal law enforcement agencies as part of the federal government's response to the Sept. 11 terrorist attacks. Since the attacks, criminal investigations and forensics staff have been providing crisis management support to other federal agencies to combat domestic terrorism.

In the first-ever criminal prosecution under the Lead Hazard Reduction Act Disclosure Rule, a Washington, DC, landlord pled guilty to, among other things, violating the rule and to obstructing justice and making false statements to federal officials to conceal his violation. The landlord owned approximately 15 low-income rental properties. Three children living in his property required medical attention for exposure to lead. In March 2002, he was sentenced to two years in prison and ordered to pay a \$50,000 fine. He must also provide all tenants with new notices of actual and potential lead hazards, hire an independent contractor to assess lead paint hazards on his properties, and develop a lead abatement plan for his current properties.

Pollutants Reduction: In 2001, EPA's enforcement actions required violators to reduce an estimated 660 million pounds and treat or safely manage an estimated 1.84 billion pounds of pollutants. Environmental media which saw major estimated pollution reductions accomplished through enforcement included: *soil*—720 million pounds of dredge and fill material associated with the illegal wetlands ditching and excavation, and 541 million pounds of soil contaminated with toxins; *air*—370 million pounds of sulfur dioxide (SO₂), a contributor to respiratory illness, particularly in children and the elderly, and a pollutant that aggravates existing heart and lung diseases, and 316 million pounds of nitrogen oxide (NO_x), which is one of the main ingredients involved in the formation of ground-level ozone and a cause of serious respiratory problems; and *water*—149 million pounds of ground water contaminated with volatile organic compounds (VOCs), many of which are known or suspected carcinogens.

Contributing to the significant required air pollutant reductions were civil enforcement settlements involving Motiva/Equilon/Shell, which is estimated to result in an annual reduction of 51,000 tons SO₂ and 19,500 tons of NO_x through the use of upgraded technologies, and a similar agreement with BP Amoco, which is estimated to cut NO_x and SO₂ by more than 40,000 tons a year. These reductions are consistent with the Agency's goal of reducing emissions of six principal air pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide). In the past 30 years, the total emissions of the six principal air pollutants decreased 31 percent.

Fish and Wildlife Service Criminal Enforcement: FWS efforts to combat illegal wildlife trade included investigations and successful criminal prosecutions of companies, individuals, and groups trafficking in contraband that ranged from live animals and plants to caviar and sea turtle eggs. During fiscal year 2001, for example, one of the world's largest wildlife dealers pleaded guilty to 40 felony charges for reptile trafficking and was sentenced to nearly six years in prison. An undercover probe of illegal trade in protected cycads and orchids resulted in the arrest and/or indictment of 11 plant dealers from six different countries. In Los Angeles, Service officers broke up an ivory smuggling operation, intercepting more than 250 pounds of tusks and carvings – the largest ivory seizure ever on the West Coast. A joint US-Canada investigation of large-scale eagle trafficking secured the arrest and conviction of a Canadian aboriginal on smuggling and wildlife charges.

Other key trade-related prosecutions for the year saw the owner of a caviar-exporting firm sentenced to three years in prison for smuggling \$2.5 million worth of Russian roe into the United States. A Texas man who smuggled rare Mexican insect specimens across the border pleaded guilty to federal felony charges, as did two El Salvadoran nationals arrested for smuggling more than 2,000 sea turtle eggs into this country. Protecting US wildlife resources from unlawful commercialization remained a FWS enforcement priority. Global restrictions on caviar trade that went into effect in 1998 have prompted an upsurge in the poaching of paddlefish in the United States. Service investigations documented the large-scale fraudulent sale of

paddlefish eggs as Russian sturgeon roe by a major New York caviar supplier and the illegal take of these protected US fish in more than six states.

Other significant criminal cases completed in fiscal year 2001 involved a Louisiana seafood company that sold unlawfully-taken oysters in interstate commerce; a North Carolina nursery owner who was part an international plant trafficking ring specializing in Venus flytraps; and a number of guiding and outfitting operations working out of the Rocky Mountain region and Alaska. FWS special agents also investigated a growing number of incidents involving the deliberate misuse of pesticides to poison migratory birds, bringing criminal charges and securing fines in Texas, Alabama, Missouri, Tennessee, Kentucky, Virginia, and other States. Service officers in Iowa completed the nation's first case involving the illegal importation of black carp, an Asian fish considered injurious by many states because of its ability to disrupt freshwater ecosystems.

Fish and Wildlife Service Civil Enforcement: FWS investigations that resulted in civil penalties spotlighted such conservation concerns as illegal trade, habitat destruction, and conflicts over water use. A California company, for example, paid a \$175,000 civil penalty for importing and selling shahtoosh shawls and ran a full-page ad in a major fashion magazine describing the plight of the Tibetan antelope, a species pushed to the brink of extinction by commercial demand for its supersoft wool. Wildlife import/export inspection efforts secured civil penalties from retailers, auction houses, and other companies that failed to comply with wildlife trade laws and regulations. In Newark, a major express mail company that had already paid \$24,000 for wildlife import/export violations found itself facing \$76,000 in additional civil penalties for continued noncompliance.

While efforts to prevent the destruction or modification of endangered species habitat saw developers and other businesses pay civil penalties in California, Colorado, Texas, and Utah, FWS enforcement work also resulted in innovative settlements designed to benefit wildlife. An agreement in Wisconsin will keep Door County road projects from filling in wetlands where endangered dragonflies breed. In Oregon, the FWS successfully negotiated an agreement with the State Department of Forestry to protect northern spotted owl home ranges while the extension and modification of a settlement with three irrigation districts made operations to salvage stranded bull trout (a threatened species) unnecessary for the first time since the 1940s. A conservation agreement to safeguard federally protected fish in Idaho's Lemhi River Basin was hailed as a model for non-punitive resolution of disputes involving water use and endangered species. A settlement agreement with the state of New Mexico promises to promote the recovery of the endangered Rio Grande silvery minnow while meeting the water needs of the river's irrigation users.

■ Article 6—Private Access to Remedies

Article 6(2) of the North American Agreement on Environmental Cooperation provides that a Party "shall ensure that persons with a legally recognized interest under its law in a particular matter have appropriate access to administrative, quasi-judicial or judicial proceedings for the enforcement of the Party's environmental laws and regulations." In addition to various administrative remedies, many US federal environmental laws include specific provisions authorizing members of the public to initiate lawsuits in federal court against the government or private parties that violate federal environmental laws and regulations. Such lawsuits are referred to as citizen suits and provide for a variety of remedies, including for example, civil penalties.

2001 Financial Statements



Financial statements of

**COMMISSION FOR
ENVIRONMENTAL
COOPERATION**

December 31, 2001

COMMISSION FOR ENVIRONMENTAL COOPERATION

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Auditors' report

To the Council of the
Commission for Environmental Cooperation

We have audited the balance sheet of the Commission for Environmental Cooperation as at December 31, 2001 and the statements of revenue and expenditures, capital and cash flows for the year then ended. These financial statements are the responsibility of the Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Commission as at December 31, 2001 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.

Samson Bélair
Deloitte & Touche

Chartered Accountants

March 28, 2002

**Deloitte
Touche
Tohmatsu**

COMMISSION FOR ENVIRONMENTAL COOPERATION

Statement of revenue and expenditures

year ended December 31, 2001

(in Canadian dollars)

	2001	2000
	\$	\$
Revenue		
Contribution - Canada (Note 5)	4,752,576	4,162,174
Contribution - Mexico (Note 5)	4,752,576	4,162,174
Contribution - United States (Note 5)	4,752,576	4,162,174
Other revenue	160,594	179,571
Gain on foreign exchange	351,901	27,989
	14,770,223	12,694,082
Expenditures		
Expenses related to work program - Schedule	4,485,617	3,994,538
Expenses related to specific obligations - Schedule	1,300,944	665,576
Expenses related to the Council meetings - Schedule	404,279	241,004
Expenses related to the JPAC - Schedule	291,808	230,140
Expenses related to the Directorate operations	360,059	285,677
Expenses related to North American Fund for Environmental Cooperation	133,447	149,823
Planning and evaluation	41,546	-
Public outreach	618,832	646,399
Salaries and fringe benefits		
Program related	3,622,296	2,847,177
Departmental operations	643,145	842,590
Relocation and orientation expenses	101,289	137,699
Office expenses	160,113	116,148
Telecommunications	130,403	86,251
Rent, utilities and office maintenance	473,565	445,722
External administrative support	264,399	268,749
Operating equipment	140,953	140,803
Expenditures related to contingency fund	128,175	119,778
Grants disbursed	584,962	1,230,418
Amortization of capital assets	94,794	109,517
	13,980,626	12,558,009
Excess of revenue over expenditures	789,597	136,073

COMMISSION FOR ENVIRONMENTAL COOPERATION

Statement of capital year ended December 31, 2001 (in Canadian dollars)

	Invested in capital assets	Restricted for North American Fund for Environmental Cooperation	Restricted for currency fluctuation	Unrestricted	Total	
					2001	2000
	\$	\$	\$	\$	\$	\$
Balance, beginning of year	231,386	372,360	353,000	(166,277)	790,469	654,396
Excess of revenue over expenditures	(94,794)	(584,962)	-	1,469,353	789,597	136,073
Transfer	-	651,478	165,900	(817,378)	-	-
Investment in capital assets	82,264	-	-	(82,264)	-	-
Balance, end of year	218,856	438,876	518,900	403,434	1,580,066	790,469

COMMISSION FOR ENVIRONMENTAL COOPERATION

Balance sheet

as at December 31, 2001
(in Canadian dollars)

	2001	2000
	\$	\$
Assets		
Current assets		
Cash and term deposits	4,010,727	3,383,312
Goods and services tax (Note 3)	1,758,855	1,523,860
Other assets	69,844	109,741
	5,839,426	5,016,913
Capital assets (Note 4)	218,856	231,386
	6,058,282	5,248,299
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities	1,088,472	405,820
Deferred contributions (Note 5)	2,499,030	3,078,586
Other deferred income	133,584	-
	3,721,086	3,484,406
Leasehold inducements	757,130	973,424
	4,478,216	4,457,830
Capital		
Invested in capital assets	218,856	231,386
Restricted for North American Fund for Environmental Cooperation	438,876	372,360
Restricted for currency fluctuation	518,900	353,000
Unrestricted	403,434	(166,277)
	1,580,066	790,469
	6,058,282	5,248,299

Commitments (Note 7)

**COMMISSION FOR ENVIRONMENTAL
COOPERATION**

Statement of cash flows
year ended December 31, 2001
(in Canadian dollars)

	2001	2000
	\$	\$
Operating activities		
Excess of revenue over expenditures	789,597	136,073
Items not affecting cash and cash equivalents		
Amortization of capital assets	94,794	109,517
Amortization of leasehold inducements	(216,294)	(196,655)
	668,097	48,935
Changes in non-cash operating working capital items (Note 6)	41,582	613,622
	709,679	662,557
Investing activities		
Acquisition of capital assets	(82,264)	(72,184)
Net cash inflow	627,415	590,373
Cash and cash equivalents, beginning of year	3,383,312	2,792,939
Cash and cash equivalents, end of year	4,010,727	3,383,312

COMMISSION FOR ENVIRONMENTAL COOPERATION

Notes to the financial statements

year ended December 31, 2001

(in Canadian dollars)

1. Nature of activities

The Commission for Environmental Cooperation is an international organization that was created by the North American Agreement on Environmental Cooperation for the purpose of meeting NAFTA's environmental provisions. The Commission became operational in July 1994.

2. Significant accounting policies

The financial statements are presented in accordance with Canadian generally accepted accounting principles including the following significant accounting policies.

a) Contributions

The Commission follows the deferral method of accounting for government contributions. Under this method contributions are recognized as revenue in the year in which the related expenses are incurred.

The Government of Canada, the Government of the United Mexican States and the Government of the United States of America (the Parties) contribute to the Commission's annual budget by mutual agreement.

Funds contributed remain available for three months following the end of the financial year to discharge related obligations incurred during the year.

b) Capital assets

Capital assets are recorded at cost and are being amortized on a straight-line basis at the following annual rates:

Computer equipment	20%
Computer equipment and software - projects	30%
Computer software	30%
Furniture and fixtures	20%
Telephone system	30%
Equipment	30%
Leasehold improvements	12%

c) Foreign currencies

Transactions conducted in foreign currencies are translated using the temporal method. Exchange gains and losses are included in the results for the period.

COMMISSION FOR ENVIRONMENTAL COOPERATION

Notes to the financial statements

year ended December 31, 2001

(in Canadian dollars)

2. Significant accounting policies (continued)

d) Leasehold inducements

Leasehold inducements relate to the rental of office space by the commission. These inducements, which are amortized over the term of the lease, are offset against rent expenses.

3. Goods and Services Tax

These receivables relate to QST, GST and HST receivable. Given the international status of the Commission, special agreements must be signed between the Federal and Québec governments and the Commission before the goods and services taxes paid on purchases are reimbursed. Agreements were reached in June 1997 and August 1999 with the Government of Canada, entitling the Commission to a full reimbursement of GST and HST. On December 10, 2001 an agreement was signed with the Government of Québec entitling the Commission to receive a reimbursement of provincial sales taxes retroactive to July 1994.

4. Capital assets

	2001		2000	
	Cost	Accumulated Amortization	Net Book Value	Net Book Value
	\$	\$	\$	\$
Computer equipment	456,339	337,259	119,080	151,763
Computer software	158,981	156,076	2,905	8,700
Furniture and fixtures	381,581	367,262	14,319	3,334
Telephone system	120,088	119,568	520	6,150
Equipment	158,706	143,168	15,538	4,149
Leasehold improvements	118,205	51,711	66,494	57,290
	1,393,900	1,175,044	218,856	231,386

COMMISSION FOR ENVIRONMENTAL COOPERATION

Notes to the financial statements

year ended December 31, 2001

(in Canadian dollars)

5. Deferred contributions

	Canada	Mexico	United States	Total
	\$	\$	\$	\$
Balance, beginning of year	1,026,195	1,026,195	1,026,195	3,078,585
Contribution received	4,559,391	4,559,391	4,559,391	13,678,173
Contribution transferred to Revenue	(4,752,576)	(4,752,576)	(4,752,576)	(14,257,728)
Balance, end of year	833,010	833,010	833,010	2,499,030

6. Changes in non-cash operating working capital items

	2001	2000
	\$	\$
Goods and services tax	(234,995)	(247,928)
Other assets	39,897	76,972
Accounts payable and accrued liabilities	682,652	(21,900)
Deferred contributions	(579,556)	806,478
Other deferred income	133,584	-
	41,582	613,622

7. Commitments

- a) The Commission leases premises under an operating lease which expires in November 2004. Total minimum payments required in future years are as follows:

	\$
2002	511,009
2003	557,606
2004	546,733
	1,615,348

The Commission has the option to cancel the lease upon payment of a penalty that ranges from \$417,000 to \$244,000 over the years 2002 to 2003.

COMMISSION FOR ENVIRONMENTAL COOPERATION

Notes to the financial statements

year ended December 31, 2001

(in Canadian dollars)

7. Commitments (continued)

- b) The Commission has commitments of \$1,923,533 related to environmental projects and of \$575,496 related to administration and support, for a total of \$2,499,029.
- c) The Commission has commitments for equipment and furniture leases which expire on or before March 2003. Total payments required in future years are as follows:

	\$
2002	42,292
2003	4,718
	<u>47,010</u>

8. Comparative figures

Certain of the comparative figures have been reclassified in order to conform to the current year's presentation.

**COMMISSION FOR ENVIRONMENTAL
COOPERATION**

Schedule

**Expenses related to the work program, specific obligations
under North American Agreement, Council meetings,
Joint Public Advisory Committee (JPAC) meetings
year ended December 31, 2001
(in Canadian dollars)**

	2001	2000
	\$	\$
Work program		
Professional fees	2,755,429	2,660,701
Travel, accommodation and meeting expenses	1,130,121	893,764
Translation and interpretation	294,388	254,739
Office expenses	151,925	114,556
Publications	153,754	70,778
	4,485,617	3,994,538
Specific obligations under North American Agreement on Environmental Cooperation		
Professional fees	555,087	371,356
Travel, accommodation and meeting expenses	214,017	34,552
Translation and interpretation	109,504	79,327
Publication	321,008	76,386
Office expenses	101,328	103,955
	1,300,944	665,576
Council meetings		
Translation and interpretation	149,175	60,426
Travel, accommodation and meeting expenses	226,877	147,254
Office expenses	25,709	28,934
Professional fees	2,518	4,390
	404,279	241,004
Joint Public Advisory Committee (JPAC) meetings		
Travel, accommodation and meeting expenses	152,417	142,867
Translation and interpretation	51,146	42,182
Professional fees	70,176	33,924
Office expenses	18,069	11,167
	291,808	230,140

Looking Ahead

NW

2001 Annual Program and Budget Overview

The CEC Budget consists of the following categories:

Program

This item includes:

- project costs, including costs of publications;
- salaries of staff whose activity relates directly to projects, Council, JPAC and Executive Management;
- NAFEC—including management costs as well as funds for grants of up to \$100,000 and funds for projects not exceeding \$10,000;
- specific obligations under NAAEC;
- a portion of rent (85 percent);
- costs of Council Sessions, JPAC meetings and public meetings;
- telecommunication costs;
- executive management, including costs for the Mexico liaison office; and
- planning and evaluation costs.

Administration and support

These items support the Commission as a whole and include Administration and Accounting, Public Outreach, the remaining part of rent (15 percent), external administrative support, relocation expenses for staff, office equipment and supplies, and operating equipment that include the payments for ongoing equipment leases.

Contingency Fund

Set aside for unforeseen costs.

2002 Annual Program and Budget Overview

Programs	Budget (C\$)
I—Environment, Economy and Trade	
<i>Understanding Linkages between Environment, Economy and Trade</i>	
1.1.1 Assessing the Environment in the Context of North American Market Integration	365,000
<i>Market-based Mechanisms</i>	
1.2.1 Supporting Environmental Protection and Conservation through Green Goods and Services	195,000
1.2.2 Financing in Support of Environmental Protection and Conservation	140,000
1.2.3 Exploring Market-based Mechanisms for Carbon Sequestration, Energy Efficiency, and Renewable Energy in North America	190,000
II—Conservation of Biodiversity	
<i>North American Biodiversity Conservation Strategies</i>	
2.1.1 Strategic and Cooperative Action for the Conservation of Biodiversity in North America	25,000
<i>Stewardship for Shared Terrestrial and Marine Ecosystems and Transboundary Species</i>	
2.1.2 North American Bird Conservation Initiative	250,000
2.1.3 Species of Common Conservation Concern	110,000
2.1.4 Mapping Marine and Estuarine Ecosystems of North America	140,000
2.1.5 North American Marine Protected Areas Network	240,000
2.1.6 Closing the Pathways of Aquatic Invasive Species across North America	60,000
<i>Improving Information on North American Biodiversity</i>	
2.1.7 North American Biodiversity Information Network	130,000
III—Pollutants and Health	
<i>Cooperation on North American Air Quality Issues</i>	
3.1.1 Facilitating Trilateral Coordination in Air Quality Management	180,000
3.1.2 Developing Technical and Strategic Tools for Improved Air Quality in North America	280,000
3.1.3 Trilateral Air Quality Improvement Initiative: North American Trade and Transportation Corridors	195,000
<i>Sound Management of Chemicals</i>	
3.2.1 Sound Management of Chemicals	919,000
<i>North American Pollutant Release and Transfer Register</i>	
3.3.1 North American Pollutant Release and Transfer Register	479,000
<i>Pollution Prevention</i>	
3.4.1 Capacity Building for Pollution Prevention	130,000
<i>Children's Health and the Environment in North America</i>	
3.4.2 Children's Health and the Environment in North America	163,000
IV—Law and Policy	
<i>Environmental Standards and Performance</i>	
4.1.1 Comparative Report on Environmental Standards	90,000
4.1.2 Environmentally Sound Management of Hazardous Waste	207,000
<i>Enforcement Cooperation</i>	
4.2.1 North American Regional Enforcement Forum	63,000
4.2.2 Enforcement and Compliance Capacity Building	207,000
4.2.3 Enforcement/Compliance Reporting	65,000
<i>Environmental Policy</i>	
4.3.1 Sustainable Use and Conservation of Freshwater in North America	85,000

2002 Budget Summary

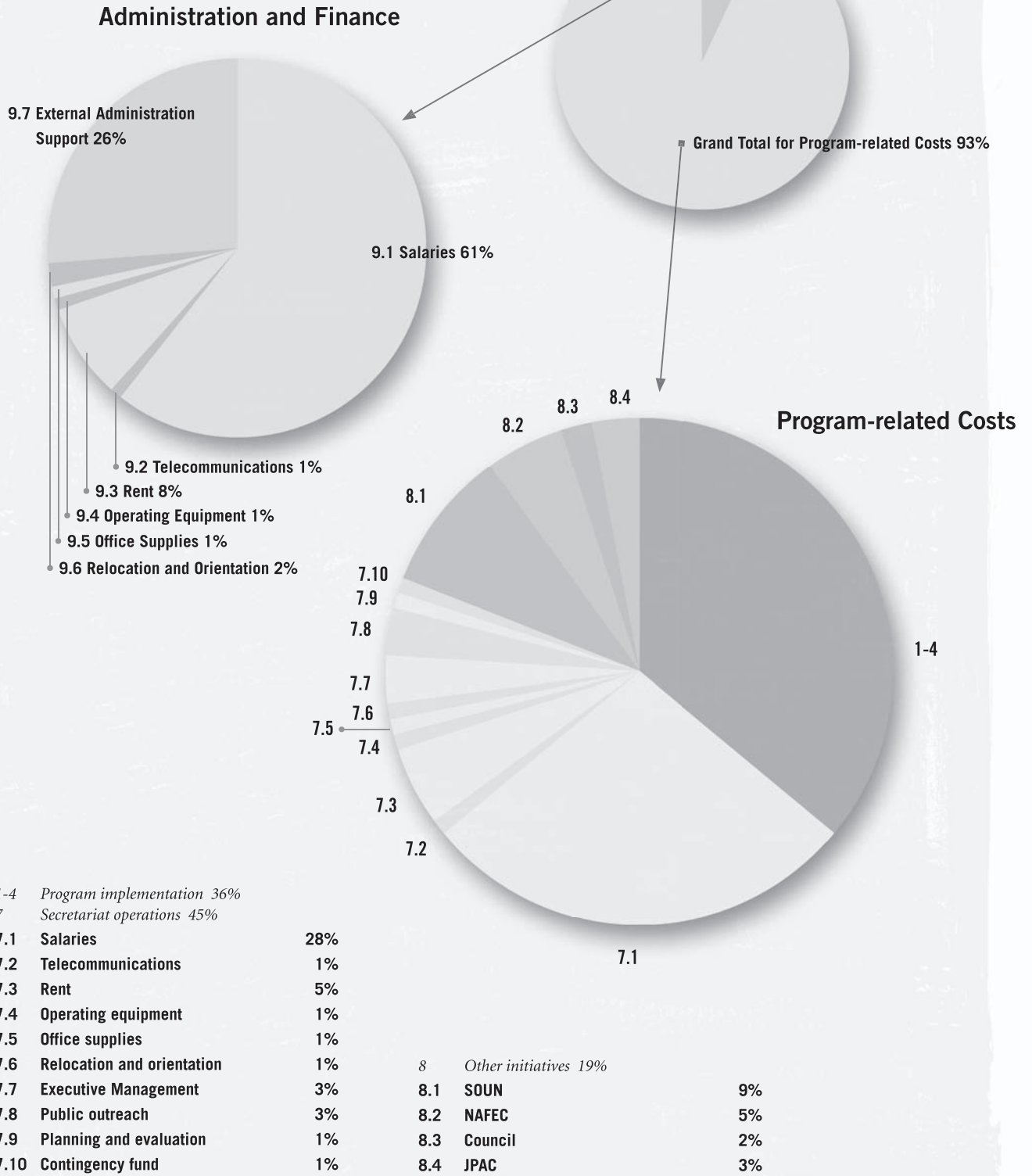
Programs	Budget (C\$)
1 - 4. Program	4,908,000
1. Environment, Economy and Trade	890,000
2. Conservation of Biodiversity	955,000
3. Pollutants and Health	2,346,000
4. Law and Policy	717,000
7. Program support	6,205,000
7.1 Salaries	3,826,000
7.2 Telecommunications	89,000
7.3 Rent	660,000
7.4 Operating equipment	170,000
7.5 Office supplies	140,000
7.6 Relocation and orientation	115,000
7.7 Executive management	424,000
<i>7.7.1 Office of the Executive Director</i>	<i>190,000</i>
<i>7.7.2 Program Directorate</i>	<i>30,000</i>
<i>7.7.3 Communications Directorate</i>	<i>30,000</i>
<i>7.7.4 Mexico Liaison Office</i>	<i>174,000</i>
7.8 Public outreach	435,000
7.9 Planning and evaluation	156,000
7.10 Contingency fund	190,000
<i>7.10.1 Unforeseen needs</i>	<i>152,000</i>
<i>7.10.2 Reserve for reimbursement of Quebec taxes</i>	<i>38,000</i>
<i>7.10.3 Reserve for currency fluctuations</i>	-
8. Other initiatives	2,645,000
8.1 SOUN	1,197,000
8.2 NAFEC	755,000
8.3 Council	293,000
8.4 JPAC	400,000
Grand total for program-related costs	13,758,000
9. Administration and finance	1,108,000
9.1 Salaries	666,000
9.2 Telecommunications	12,000
9.3 Rent	90,000
9.4 Operating equipment	15,000
9.5 Office supplies	16,000
9.6 Relocation and orientation	22,000
9.7 External administrative support	287,000
Total Expenses	14,866,000

2002 Income and Expenses Summary

Description	2002
1. Program	13,758,000
2. Administration and finance	1,108,000
Total Expenses	14,866,000

Income	2002
Parties' contributions	14,070,000
Carry over	663,000
Interest	133,000
Total Income	14,866,000

Graphic Overview 2002



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*from December 2001