POLLUTANTS AND HEALTH

Through the North American Agreement on Environmental Cooperation (NAAEC), Canada, Mexico and the United States recognized the interrelationship of their environments and committed to high levels of environmental protection and to increasing cooperation among them to promote pollution prevention policies and practices (Preamble, Articles 1(j) and 3). The Parties also agreed, under NAAEC Article 2.3, to "consider prohibiting the export to the territories of the other Parties of a pesticide or toxic substance whose use is prohibited within the Party's territory."

Over the almost 20 years of its existence, the Commission for Environmental Cooperation (CEC) has been instrumental in expanding public access to information on the release of pollutants into the environment, in establishing a cooperative agenda to reduce risks to human health from priority toxic chemicals and heavy metals, in focusing attention on the vulnerability of children to environmental pollutants and in establishing data and tracking systems in support of air quality and hazardous waste management.

Sound Management of Chemicals (SMOC) in North America

The CEC Council established the Sound Management of Chemicals (SMOC) program in 1995 to reduce risks to human health by fast-tracking action in North America on the 12 pollutants identified by the United Nations Environment Program (UNEP)[1] and on certain heavy metals. The SMOC initiative is a collaborative regional approach to improve the management of chemicals that targets specific substances for phase-out, stringent controls or virtual elimination through North American Regional Action Plans (NARAPs).

A Process for Identifying Candidate Substances for Regional Action was adopted in 1997, a review was carried out in 2001 and an Overview and Update of the Sound Management of Chemicals (SMOC) Initiative was produced in 2003.

To date, NARAPs have been adopted regarding four persistent organic pollutants and one heavy metal, as well as one on environmental monitoring and assessment:

- PCBs (1996) - The over-arching goals of this NARAP were virtual elimination of PCBs in the environment; environmentally sound management of existing PCBs throughout their life cycle; and management of PCBs as one element of comprehensive environmental management programs. This NARAP was closed in June 2007. The use of PCBs has been limited to existing electrical transformers and capacitors, where they are used as coolants. As this equipment comes to the end of its useful life, the PCBs are collected, properly stored and safely destroyed.

- Chlordane (1997) – The objective of this NARAP was to reduce the exposure of humans and the environment to chlordane through the phase-out of existing registered uses.

[1] The 12 persistent organic pollutants (POPs) identified in the United Nations Environment Programme Governing Council Decision 18/32 of May 1995 are: PCBs, dioxins, furans, aldrin, dieldrin, DDT, endrin, chlordane, hexachlorobenzene, mirex, toxaphene and heptachlor. These and other POPs are now the subject of the Stockholm Convention on Persistent Organic Pollutants, adopted in 2001.

The results of this NARAP, as per the Final report on the Implementation published in March 2001, included: The use and production of chlordane in North America was eliminated through discontinuation of imports of the substance and cancellation of its registration in Mexico, as well as through permanent cessation of its production in the United States. Mexico's institutional capacities in the areas of environmental chemical monitoring and analysis were strengthened in terms of information systems on priority toxic substances and actions to reduce the risks of toxic substances. Design and implementation of a chlordane sampling and analysis plan in Mexico was included among the actions to be taken under the NARAP on Monitoring and Assessment.

- DDT (1997) – This NARAP proposed the phased reduction, leading to the eventual elimination, of DDT used for malaria control in Mexico, as well as the elimination of illegal uses of DDT. Mexico achieved the accelerated elimination of DDT use by the year 2000 and subsequently shared its experiences with seven Central American countries through the successful "Regional Program of Action and Demonstration of Sustainable Alternatives to DDT for Malaria Vector Control in Mexico and Central America". This NARAP was closed in June 2007. (Other documents related to DDT.)

- Mercury, part I (1997) and Mercury, part II (2000) - The ultimate goal of this NARAP was to prevent or minimize anthropogenic inputs of mercury to the environment. The North American Regional Action Plan for Mercury Close-out Report was published in May 2013. Among the successes noted were improved inventories of mercury waste sites and releases in the three countries. One of the shortfalls identified was that voluntary measures were less effective than anticipated.

- Lindane and other isomers of hexachlorocyclohexane (HCH) (2006) - The objective of this NARAP was to reduce the risks from exposure to the various isomers of HCH, and where warranted, eliminate or ban uses of lindane in particular. Lindane is no longer produced in North America and is under significant "use" restraints. Mexico successfully presented lindane to the Conference of the Parties to the Stockholm Convention and had it included in the list of nine additional substances for control.

- Monitoring and Assessing Pollutants – The NARAP on Environmental Monitoring and Assessment (EM&A) was created to assist the SMOC Working Group and its implementation task forces in meeting their environmental monitoring and assessment obligations. An audit mechanism within the environmental monitoring and assessment program will periodically assess the continued success of the closed NARAPs. Achievements under this program include:
    - Supporting analytical capacity building in Mexico through the trilateral maternal blood biomonitoring program, trilateral lab validation exercises to ensure high-quality analysis and reporting, hands-on training in labs in the United States and Canada, and sharing of specialized equipment from United States and Canada.
    - Initiating air emissions inventories for mercury and dioxins and furans.
    - Supporting a proposal for international funding for the Mexican monitoring program "Programa Nacional de Monitoreo y Evaluación de México" (Proname).

  As part of this NARAP, efforts are continuing on adoption of quality assurance/quality control protocols for analytical chemistry and data reporting and producing results validated on a continental scale.

Following the International Conference on Chemicals Management of February 2006, which adopted the *Dubai Declaration of the Strategic Approach to International Chemicals Management*, in June 2006 the CEC Council endorsed strengthening and integrating North American regional efforts to enhance the sound management of chemicals with other national, regional and global initiatives (Resolution 06-09).

In 2008, the CEC Council set a new direction for the SMOC program to promote the sustained sound management of chemicals in North America, which included:

- Supporting Mexico's efforts to develop an inventory of industrial chemicals;
- Developing and implementing a sustainable regional approach for environmental and human biomonitoring and assessment to enhance North American monitoring capacity, with an early emphasis on supporting Mexico in the initial stages of implementation of its Environmental Monitoring and Assessment Program;
- Reducing or eliminating the risk from chemicals of mutual concern in North America, as identified by the SMOC Working Group;
- Working strategically with key industrial sectors to reduce the risks from toxic chemicals; and
- With respect to dioxins, furans, and hexachlorobenzene, developing a strategy for catalyzing cooperation, rather than a NARAP as initially called for in Council Resolution 99-01. The *North American Strategy for Catalyzing Cooperation on Dioxins and Furans, and Hexachlorobenzene* was released in 2011.

The JPAC has provided the following Advice to Council on SMOC matters:

- 99-04 – The Sound Management of Chemicals Program of the CEC
- 00-06 – A North American Regional Action Plan (NARAP) for lead
- 01-08 – Sound Management of Chemicals Program of the CEC
- 02-08 – Capacity Building and Education Opportunities within the Sound Management of Chemicals (SMOC) Program

Other CEC Council Resolutions on these matters include:

- 95-05 – Sound Management of Chemicals
- 99-02 – Developing a North American Regional Action Plan on Environmental Monitoring and Assessment
- 00-06 – Adoption of the Phase II North American Regional Action Plan on Mercury
- 02-07 – Developing a North American Regional Action Plan on Lindane
- 02-08 – Adoption of a North American Regional Action Plan on Environmental Monitoring and Assessment
- 04-06 – Funding and Cooperation Agreements for the Development of a National Implementation Plan of the Stockholm Convention on Persistent, Organic Pollutants (POPs) for Mexico
- 06-12 – Adopting the NARAP on Lindane and Other Hexachlorocyclohexane Isomers

Tracking Pollutant Releases and Transfers in North America

In 1995, the CEC Council decided to create a North American Pollutant Release Inventory (NAPRI) to "bring together, for the first time, existing national public information about emissions and long-range transportation of pollutants." The first report, entitled Taking Stock 1994, was published in February 1997 and was based on 1994 data from the

pollutant release and transfer registers in Canada and the United States. The project, now referred to as the North American Pollutant Release and Transfer Register (NAPRTR), played an instrumental role in the development and establishment of Mexico's mandatory PRTR program and publicly accessible data, starting with the 2004 reporting year. NAPRTR is a source of information for decision-making as well as a key public right-to-know tool.

The thirteenth edition of *Taking Stock,* covering PRTR data for 2006, was published in 2011. Since then, the North American PRTR programs have achieved comparable data publication schedules and the CEC has thus integrated four additional years of data, through 2010, on the *Taking Stock Online* website. The *Taking Stock Online* searchable database allows users to explore pollutant releases and transfers from more than 35,000 facilities in North America; generate reports in a variety of formats; create maps and view them using Google Earth, and analyze PRTR data in the context of information such as locations of watersheds and population centers, using geospatial data from the CEC's North American Environmental Atlas.

The next edition of the *Taking Stock* report, to be published this year, provides a review of North American PRTR reporting from 2005 through 2010, with analyses of the changes in pollutant releases and transfers and the role of corporate environmental sustainability on these changes.

Since 2002, a key area of collaboration involving the CEC's NAPRTR project and the three PRTR programs has been improvements in the area of PRTR data quality and comparability. In 2002, the Action Plan to Enhance the Comparability of Pollutant Release and Transfer Registers in North America was published, and subsequently revised in 2005. Since then, substantial progress has been made with respect to PRTR data coverage, quality and accessibility; as a result, a revised Action Plan is currently being drafted.

The JPAC has consistently expressed its support and recommendations on the project, as part of its regular Advice to the CEC on the collaborative work program (see Advice 98-05 and 10-03).

CEC Council Resolutions on these matters include:

- 97-04 – Promoting Comparability of Pollutant Release and Transfer Registers (PRTRs)
- 00-07 – Pollutant Release and Transfer Registers
- 02-05 – Action Plan to Enhance the Comparability of Pollutant Release and Transfer Registers (PRTRs) in North America

North American Air Quality Management

In 1996 and 2001, under Resolution 01-05, the CEC Council agreed to work towards promoting the comparability of air emissions inventory information in North America. In 2001 the CEC produced the report, *Enhancing the Comparability of the Air Emission Inventories in Canada, Mexico and the United States*, followed in 2003 by the sector-specific report, *Availability and Infrastructure of North American Electric Generating Utility Emission Inventories and Opportunities for Future Coordination*.

The CEC carried out extensive work in 2003-2004, promoting the development of North American air emissions inventories, supporting Mexico's first national air emissions inventory in a manner that directly aids cross-border air quality planning, as well as meeting Mexico's planning needs. The first Mexican National Emissions Inventory (MNEI) was completed in October 2006, and included emissions of criteria air pollutants for 1999.

In April 2004, the CEC produced *Next Steps Towards a Shared Emissions Database for North America*. Later that year, the CEC Council created the North American Air Working Group (NAAWG) to provide the CEC with advice and commentary related to the development of the annual CEC work plan for the Air Quality Program and for other related activities.[2] Also in 2004, the CEC produced a report, *North American Air Quality and Climate Change Standards, Regulations, Planning and Enforcement at the National, State/Provincial and Local Levels*.

Regarding emissions from power plants, in 2005 the CEC published *North American power plant air emissions report*, and in 2011, the *Update of the North American power plant air emissions report.* In addition, a *North American power plant air emissions report searchable database* is available on the CEC website.

In 2007, the NAAWG was charged to work with the Secretariat to review current air quality efforts and to formulate a comprehensive vision for enhancing North American Air Quality Management for 2010-2015. As a result, the Enhancing North American Air Quality Management project was established with the goal of providing a more complete North American picture of air quality and air emissions to support decision-making on air quality management. In 2009, the CEC published online a report entitled, Comprehensive Assessment of North American Air Emissions Inventories and Ambient Air Monitoring Networks. As part of the air emissions inventory compilation process, the CEC obtained information on vehicle activity data in six representative cities in Mexico.

Children's Health and the Environment

In 2000, the CEC held a symposium on children's environmental health and established an initiative on Children's Health and the Environment (Resolution 00-10) to enhance data and information to improve public policy in this area. In 2001, the Council created an Expert Advisory Board on Children's Health and the Environment in North America (Resolution 01-04), whose mandate was extended in 2003 (Resolution 03-09).

The CEC then published *Making the Environment Healthier for Our Kids – An overview of environmental challenges to the health of North America's children*, and in 2002 formally adopted a Cooperative Agenda for Children's Health and the Environment in North America (Resolution 02-06) and established an Expert Advisory Board.

In 2003, the Council adopted the Expert Advisory Board's Recommendations for the Development of Children's Health and the Environment Indicators in North America, and instructed the CEC to develop these indicators. In 2004 the CEC published a related document, *Taking Stock 2001: A Special Report on Toxic Chemicals and Children's Health in North America*.

[2] The group is currently inactive.

The first integrated, regional report providing indicators for a series of children's health and environment issues, *Children's Health and the Environment in North America*, was published in January 2006, accompanied by country-specific reports for Canada, Mexico and the United States. These were followed by *Toxic Chemicals and Children's Health in North America: A Call for Efforts to Determine the Sources, Levels of Exposure, and Risks that Industrial Chemicals Pose to Children's Health* in May 2006.

The CEC's Children's Health and the Environment initiative was carried out in cooperation with the International Joint Commission's Health Professionals Task Force, the World Health Organization, and the Pan American Health Organization, among other partners. It focused on supporting the development of the capacity of health professionals to address the inter-relationship between health and environment, particularly for children and other populations at risk. In 2010, the CEC Council resolved to strengthen strategic linkages with health organizations, including the trilateral network of Pediatric Environmental Health Specialty Units (PEHSUs), to assist in the advancement of issues concerning children's health in North America from 2010-2015 and to support the establishment of a PEHSU in the Lake Chapala district of Jalisco, Mexico (Resolution 10-02).

The JPAC provided the following Advice to Council on this topic:

- 00-05 – Children's Health and the Environment
- 02-01 – Children's Health and the Environment in North America

Hazardous Waste in North America

In 1995, the North American Working Group on Environmental Enforcement and Compliance Cooperation, commonly referred to as the Enforcement Working Group (EWG) formed a task force of hazardous waste officials from the three countries was formed to identify barriers and constraints to effective tracking and enforcement of laws regulating the trade and transportation of hazardous wastes and chlorofluoro carbons (CFCs), and to pursue joint actions for improvement.[3] In 1999, the CEC published a needs assessment: *Tracking and Enforcement of Transborder Hazardous Waste Shipments in North America.*

In 2003, the Hazardous Waste Task Force (HWTF) was mandated to execute projects that will improve the sound management and tracking of hazardous waste in North America. The HWTF is composed of senior enforcement officials and IT specialists in the hazardous waste management area. Following Council Resolution 03-08, the CEC held a public workshop on Environmentally Sound Management and Tracking of Hazardous Wastes and Recyclables in November 2003. The JPAC provided Advice 03-04 to the CEC Council, regarding the need for a life cycle approach, improved tracking and verification systems and public information, among other recommendations.

The CEC focused efforts on electronic tracking of hazardous wastes in 2007. In 2011, the CEC published *Crossing the Border: Opportunities to Improve Sound Management of Transboundary Hazardous Waste Shipments in North America*. Then in 2012, the *Notice and Consent Electronic Data Exchange* created by the CEC's Hazardous Task Waste Force became fully operational.

[3] The work on this issue has been conducted mostly under the CEC's Law, Policy and Enforcement Program (subject of a separate *CEC@20 Backgrounder*) rather than under the Pollutants and Health area.

In Advice 11-04, the JPAC noted the growing concern over the cross-border movement of spent lead-acid batteries to Mexico. In April 15, 2013 the CEC Secretariat released the independent report: *Hazardous Trade? An Examination of US-generated Spent Lead-acid Battery Exports and Secondary Lead Recycling in Mexico, the United States and Canada*. The report analyzes the reported cross-border trade in lead-acid batteries and presents recommendations on how to better monitor their handling to the CEC Council.

Other 1994 – 2010 Projects

In 1996, the CEC Council agreed to cooperate on the Promotion of Pollution Prevention in North America, establishing a revolving pilot fund for pollution prevention in small and medium-sized enterprises, which resulted in valuable support of pollution prevention initiatives in Mexico (Fiprev). That year, the CEC also published *Status of Pollution Prevention in North America* and a follow-up report, Moving Forward with Pollution Prevention in North America: A Progress Update, was produced in 2004.

In 2007, the CEC Council instructed the Secretariat to support the development of a North American indigenous environmental health assembly; the Assembly was held in Mexico in 2008 with the financial and coordinating support of the CEC.

In 2008, the CEC published *The North American Mosaic*, as per the requirement in the NAAEC that the CEC Secretariat "periodically address the state of the environment in the territories of the Parties". Among other issues, the report addresses acid deposition, ground-level ozone, industrial pollution and waste, particulate matter, persistent bioaccumulative toxic substances, and stratospheric ozone. Also in 2008, the CEC held a Conference on the future of the North American environment – including discussion on pollutants as environmental stressors – projected to the year 2030, and published the report North American Environmental Outlook to 2030.

CEC's 2010–2015 Priorities: Healthy Communities and Ecosystems

Over the 2010–2015 period, Canada, Mexico and the United States are focusing their cooperative work to protect, sustain and restore the health of communities and ecosystems using integrated and comprehensive approaches and partnerships. Many of the issues covered by the former Pollutants and Health program are now approached through the strategic objective of promoting healthy communities and ecosystems. Projects include:

Approaches for Identifying and Tracking Chemicals in Commerce in North America – This project aims to complete the Mexican National Chemicals Inventory to achieve compatibility with other national inventories in North America. This will allow the Parties to increase transparency and provide information to the North American public, while supporting efforts to track and address chemicals of mutual concern.

Capacity Building to Improve the Environmental Health of Vulnerable Communities in North America **–** This project has two capacity building components: One involves the development of a framework document to assist communities in the identification of potential health risks associated with environmental pollution; The second supports the implementation of the AirNow-International system for the processing and generation of

reliable air quality data in Mexico, providing the capability to inform the public about air quality conditions that can impact human health.

Environmental Monitoring and Assessment of Chemicals of Mutual Concern -This continuing project will measure selected chemical compounds in environmental media, such as in soil, water and air, as well as in plants, animals and selected human populations. In addition to supporting Mexico's monitoring network, *Proname*, the CEC continues to support the development of analytical capacity in Mexican labs through high-level analytical training and quality assurance and quality control exercises.

Improving Indoor Air Quality in Alaskan Native Populations and Other Indigenous Communities in North America – This project aims to demonstrate that education, along with no-cost/ low-cost home modifications such as replacing wood-burning stoves and improving home ventilation, can reduce the need for respiratory medical care in Alaskan Native populations by reducing exposure to airborne contaminants in homes.

Risk Reduction Strategies to Reduce the Exposure to Chemicals of Mutual Concern – This project aimed to:

- Continue risk evaluation and management work to reduce risks related to dioxins and furans, as outlined in the North American Strategy for Catalyzing Cooperation on Dioxins and Furans, and Hexachlorobenzene.
- Create a mercury (Hg) framework; and
- Finish risk evaluation work on polybrominated diphenyl ethers (PBDEs) in Mexico and, as appropriate, expand this to include trilateral risk reduction work on flame-retardants.

Tracking Pollutant Releases and Transfers in North America – As noted earlier, the CEC will continue publishing, on a biannual basis, the *Taking Stock* report, as well as providing PRTR information through its website and online database.

In 2012, the CEC published: Assessment of the Comparability of Greenhouse Gas and Black Carbon Emissions Inventories in North America.

Further documentation related to the work of the CEC on pollutants and health is available in the reports, background papers, executive summaries and brochures sections of the CEC website.