

Concept Description: Reduce the Risk from Chemicals of Concern to North America

Objective:

The objective of this strategy is to reduce and eliminate, wherever possible, the risk of exposure from chemicals of concern to the people and environments of North America through collaborative actions based on priorities of the Commission for Environmental Cooperation and its stakeholders.

Rationale:

Council Resolution 95-05 was developed because the three countries recognize that cooperative actions for the sound management of chemicals are needed to protect and improve the environment and to achieve sustainable development. The Parties realize the need for basic chemical management tools and strategies to address chemical issues of common concern to the three countries. Chemical pollutants transported across national boundaries through air and watersheds and chemicals in domestic and North American trade are widely recognized to be a major and shared concern in North America.

Resolution 95-05 gives priority to the management and control of chemical substances of mutual concern that are persistent, bioaccumulative, and toxic. It commits the three countries to regional cooperation on the management of chemicals, throughout their life-cycle, through such approaches as pollution prevention, source reduction, and pollution control.

The sound management of chemicals and pollutants in North American can lead to a fortified environment and result in increased health of not only physical and ecological facets, but also the health of North American peoples and its communities. Given the improvements and opportunities that can arise from the sound use of chemicals, the three countries agree that one aspect of advancing the sound management of chemicals involves implementing actions to reduce the risk of exposure to these substances.

Key components of the work:

Capacity to prioritize and assess chemicals, groups of chemicals or sectors of mutual concern

The objective of this work is to develop a North American program to prioritize and assess chemicals, group of chemicals or sectors of mutual concern. Work will be conducted at multiple levels: under the SMOC Program, trilaterally, bilaterally, and domestically. Such a North American program would be developed in parallel with the work under the project: *Establishment of a Foundation for Chemicals Management Across North America*, as well as existing practices and information in each of the countries (e.g. the categorization process in Canada, the Inventory Rule Update and the High Production Volume (HPV) Challenge Program in the U.S., including reference to notification and assessment) as well as other instruments developed by the international community, such as the global portal to information on chemical substances and the pollutant release and transfer register (PRTR) data, etc. When needed, capacity building and technical support will be provided, particularly in Mexico, to develop the necessary domestic information to implement a common North American program.

Current North American Regional Action Plans (NARAPs)

The Parties will aim to measure use and release reductions of selected chemicals, and periodically report on current NARAP activities, as per requirements described in respective NARAPs. The SMOC Working Group will continue NARAP activities until NARAPs that are in development or are under way are completed. The SMOC Working Group proposes to work diligently with its Task Forces and the CEC Secretariat to identify priority capacity building needs and those responsible for implementing actions that address these needs, and recommend implementation priorities and potential funding options for these activities (e.g., within existing government programs, CEC budget or under other fora, etc.)

In addition, SMOC will look to the involvement of other fora, where available, to provide the venue and funding needed to address issues of concern. This could include the Stockholm Convention for PCBs, chlordane, dioxins, furans, and HCB; the Convention on Long-Range Transboundary Air Pollution (LRTAP) for lindane (in Canada and the United States); and the United Nations Environment Programme for mercury. The Parties will continue to integrate priority issues regarding lead into the ongoing projects and programs of the CEC.

Emerging issues

The following areas have been proposed as priority areas of emerging concern by the Parties and stakeholders. The SMOC Working Group will consider these emerging topics for future work under trilateral, bilateral or domestic programs:

- Brominated flame retardants have widespread use in furniture foam, plastics for TV cabinets, consumer electronics, wire insulation, back coatings for draperies and upholstery, and plastics for personal computers and small appliances. There is growing evidence that some forms of brominated flame retardants persist in the environment and accumulate in living organisms, and toxicological testing that indicates these chemicals may cause liver toxicity, thyroid toxicity, and neurodevelopmental toxicity.¹
- Perfluorinated alkyl compounds include perfluorinated carboxylic acids (PFCAs). This is a family of chemicals that can be unintentionally formed through the transformation of fluorotelomer-based substances, commonly used as water and grease repellents for materials such as paper, fabric, leather and carpets. Perfluorooctanoic acid (PFOA) is a man made PFCA used in the production of products such non-stick coatings for cookware. PFCAs are very persistent in the environment and are found both in the environment and in the blood of humans. Although the current environmental concentrations of PFCAs are low, concern arises from the evidence indicating a rapid upward trend in the levels observed in the environment, particularly those with a long fluorocarbon chain.² Studies indicate that PFOA can cause developmental and other adverse effects in laboratory animals. PFOA also appears to remain in the human body for a long time.³
- The field of Nanotechnology is becoming increasingly widespread in research and applications. Nanoscale materials are used in electronic, magnetic and optoelectronic,

¹ <http://www.epa.gov/oppt/pbde/>

² http://ec.gc.ca/TOXICS/EN/detail.cfm?par_substanceID=227&par_actn=s1

³ <http://www.epa.gov/opptintr/pfoa/pubs/pfoainfo.htm>

biomedical, pharmaceutical, cosmetic, energy, catalytic and materials applications.⁴ Manufactured nanomaterials might pose risks to human health and other organisms due to their composition, reactivity, and unique size and as such should be assessed for their risk to the environment.⁵

Other areas to be considered for possible actions under the SMOC Program, or bilaterally or trilaterally outside of the CEC, including projects based on the outcome of Canada's chemical categorization work, and those that achieve the objectives of the Strategic Approach to International Chemical (SAICM) in North America (i.e. risk reduction, knowledge and information, governance, capacity-building and technical cooperation, and illegal international traffic).

- Electronic waste includes such items as TV's, video and computer monitors containing lead, printer wiring boards containing plastic and copper, chromium, lead solder, nickel and zinc, and relays and switches containing mercury. All these pose environmental risks if incinerated or landfilled.⁶ A preliminary inventory of e-waste generation was developed in Mexico in 2006 including active involvement of industry. Regional inventories on e-waste will be developed for northern and western Mexican states during 2007. The CEC will look for opportunities for management of electronic wastes on a North American scale.

For other work related to pesticides, such as the ecological sound and integrated pest and vector management, the SMOC Working Group will consult with the NAFTA Working Group on Pesticides to determine possible areas of cooperation, similar to the success in assisting Mexico in its efforts to eliminate the use of DDT.

Stakeholder Involvement

Historically, stakeholders have been key players in SMOC activities, including participation in Task Forces and at public sessions hosted by the SMOC Working Group. The SMOC Working Group will now work with stakeholders on a more active level, engaging them as partners in realizing the sound management of chemicals, including taking responsibility for action.

Leveraging Funding

A key component of SCCs is the implementation of leveraging strategies to secure outside partners and resources. The SMOC WG will encourage Mexico (with CEC Secretariat assistance where appropriate) to maintain its efforts on behalf of the SMOC initiatives through meetings with appropriate agencies (GEF, WB, PAHO, UNEP⁷ and others) who might be in a position to support aspects of the program's work.

Examples of future projects

SMOC Working Group

⁴ <http://www.nano.gov/html/facts/appsprod.html>

⁵ <http://es.epa.gov/ncer/nano/factsheet/>

⁶ <http://www.westp2net.org/hub/toc.cfm?hub=936&subsec=7&nav=7>

⁷ GEF: The Global Environment Facility, [WB](#): World Bank, PAHO: Pan-American Health Organization, UNEP: United Nations Environment Programme.

Capacity to prioritize and assess chemicals, groups of chemicals or sectors of mutual concern

The SMOC Working Group will develop capacity to prioritize and assess chemicals, through SMOC, bilaterally and through trilateral cooperation based on the information gained through such tools as the Canadian categorization of chemicals, Mexican PRTR data and the U.S. HPV Challenge. Canada's categorization of chemicals represents a vast data source that could be used by Mexico to set its own national chemical priorities. Data is readily available on the Government of Canada's website, via the Chemical Substances Portal (www.chemicalsubstances.gc.ca). In addition, experts in Canada who were involved in the categorization process could also contribute their expertise and knowledge to assist North American counterparts in identifying and evaluating their own priority substances. The Parties could also work to promote the use of HPV data as a source of chemical toxicity and environmental information for stakeholders in North America, and share experiences about how stakeholders use the data available by the U.S. HPV Challenge Program.

Current North American Regional Action Plans (NARAPs)

The SMOC Working Group will continue to implement actions under the NARAPs as identified in each NARAP (http://www.cec.org/programs_projects/pollutants_health/smoc/smoc-rap.cfm?varlan=english) and will engage stakeholders and other fora for implementation where applicable. Work on monitoring of NARAP chemicals continues through the efforts of the Environmental Monitoring and Assessment Standing Committee and under the project *Promotion of a Sustainable Regional Approach to Monitoring and Assessment of Toxic Chemicals*. These projects will build on existing NARAP implementation activities, such as: mercury reductions in specific sectors (e.g. hospitals, schools, switches) and improved inventory of mercury containing products.

Emerging issues

The SMOC Working Group will work to identify possible actions to address emerging issues. Scoping work will be undertaken to identify possible future actions on brominated flame retardants, polyfluorinated alkyl compounds and nanotechnology. As the US EPA moves forward with its Stewardship Program on PFOA and Canada establishes an Environmental Performance Agreement on PFCAs and their precursors, the Parties will consider how lessons from these initiatives can be shared across North America.

Stakeholders

The SMOC WG will work in an open, inclusive, participatory and transparent manner, which will include making linkages to other relevant activities, leveraging resources with other funding institutions, and actively involving industry, business, trade unions, environmental nongovernmental organizations, Aboriginal organizations, academic institutions and other members of civil society in chemicals management initiatives, including a transparent process for selection and prioritization of the initiatives of the Sound Management of Chemicals program.

The CEC will be looking for support from stakeholders to identify possible actions such as:

- continued support of implementation of current NARAPs, for example, support to implementation of mercury reductions in specific sectors, such as hospitals and schools;

- support to risk management activities related to lead;
- dissemination of toxicity and environmental information from the U.S. HPV Challenge Program to stakeholders in North America;
- training on risk assessment methodologies; and
- developing of communication/outreach materials regarding emerging issues.

Linkages to work in other international fora/under other international agreements

The CEC's work on the sound management of chemicals shares goals with the work proposed under the Strategic Approach to International Chemicals Management (SAICM) specifically the goal agreed to at the 2002 Johannesburg World Summit on Sustainable Development (WSSD): "aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures and science-based risk management procedures, taking into account the precautionary approach, as set out in principle 15 of the Rio Declaration on Environment and development, and support developing countries in strengthening their capacity for the sound management of chemicals and hazardous wastes by providing technical and financial assistance."⁸ Additionally, like SAICM, SMOC also embraces the important contributions to sound chemicals management by industry, nongovernmental public health and environmental organizations, trade unions and other members of civil society.⁹

The work under NARAP on Mercury supports the goals of such work as the Great Lakes Binational Toxics Strategy, and work under the UNEP Mercury Programme, specifically to reduce the exposure of ecosystems, fish, wildlife, and humans, to mercury through the prevention and reduction of anthropogenic releases of mercury to the environment. Work under the Lindane NARAP supports efforts under the UN ECE Convention on Long-Range Transboundary Air Pollution, as well as Mexico's efforts to include lindane as a substance for elimination in Annex A of the Stockholm Convention. Work under the NARAP on dioxins, furans and hexachlorobenzene supports the ongoing efforts of the Great Lakes Binational Toxics Strategy, the UN ECE Convention on Long-Range Transboundary Air Pollution as well as the Stockholm Convention on Persistent Organic Pollutants.

⁸ from paragraph 23 of the WSSD Plan of Implementation

⁹ <http://www.chem.unep.ch/saicm/SAICM%20texts/SAICM%20documents.htm>

Annex: Past CEC Activities and Planned CEC Activities to Reduce the Risk from Chemicals of Concern to North America.

Past/current contributions of SMOC, CEC and the Parties

CEC

The SMOC Working Group, working since 1995 in open and transparent engagement with North American stakeholders and experts has developed a *Process for Identifying Candidate Substances for Regional Action under the Sound Management of Chemicals Initiative* in accordance with Resolution 95-05; and has developed and implemented NARAPs on chlordane, DDT, PBCs, mercury, lindane, environmental monitoring and assessment, and is developing an action plan for dioxins, furans and hexachlorobenzene.

NARAP on Chlordane

Canada, Mexico, and the United States approved the NARAP on chlordane in 1997 with a goal of phasing out registered uses of the substance by 1998. The United States encouraged industry to voluntarily phase out the production of chlordane. Canada and the United States worked closely with Mexico to provide available risk assessments for suitable alternatives to chlordane. Canada and the United States continued to provide support for hazardous waste collection programs that included chlordane. Information on these programs was shared with Mexico, which in turn administered its own hazardous waste collection program. All three countries reported publicly available data on the use, production, importation and exportation of chlordane. Canada, Mexico, and the United States made annual reports on progress achieved under the NARAP. The goals of the NARAP were achieved, and the Implementation Task Force on Chlordane disbanded.

NARAP on DDT

Canada, Mexico, and the United States approved the NARAP on DDT in 1997 with a goal of reducing Mexico's use of DDT by 80 percent by 2002. Efforts focused primarily on employing alternative methods of controlling mosquitoes and were so successful that DDT use was stopped in 2000. This NARAP adopted a number of strategies to reduce Mexico's use of DDT including testing of alternatives to DDT, such as biological controls; strengthening public health measures to ensure early detection and immediate treatment for those exposed to malaria; public education, with an emphasis on the health and environmental effects of DDT, and information on community hygiene practices to reduce habitat and breeding sites of insects that transmit malaria; and integration with international activities. The goals of the NARAP were achieved, and the Implementation Task Force on DDT disbanded.

The results achieved under the DDT NARAP were shared with the Central American in a joint project funded by the CEC, Pan American Health Organization and the Global Environment Facility (GEF) in order to prevent the reintroduction of DDT in Mexico and throughout the entire region of Central America.

NARAP on PCBs

Canada, Mexico, and the US recognized the need to cooperate on the development of a NARAP on PCB management to organize and encourage individual and joint actions by the three

countries that promote sound life cycle management of PCBs. The deliberate production of PCBs has been eliminated in the three countries and the use of equipment containing high concentrations of PCBs continues to decline. The goals of the PCB NARAP have been largely met through the implementation of domestic activities in the three countries, including regulatory control measures, action plans and management policies on persistent, bioaccumulative and toxic substances. The three countries have agreed to continue to share inventory and technical information on an ongoing basis and to cooperate in any issues that may arise. The goals of the NARAP were achieved, and the Implementation Task Force on PCBs disbanded.

NARAP on Mercury

The mercury NARAP developed by Canada, Mexico, and the United States is a comprehensive action plan that addresses the reduction of emissions of mercury from human activities throughout North America. Its goal is to significantly reduce North American levels of mercury in the environment to those attributable to naturally occurring sources. It contains some 85 individual action items under six major categories:

- Management of atmospheric emissions of mercury. This includes a goal of a 50 percent reduction in national mercury emissions by 2006 from existing major stationary sources, based on 1990 emissions. This includes the electric power generating sector and industrial and commercial sources.
- Mercury management in processes, operations and products. This includes adopting life cycle management practices, substitution options, and specific actions in the automotive, electrical and dental care sectors, as well as in several other sectors.
- Mercury waste management approaches. This includes action on waste from combustion and industrial processes, incinerator waste streams and wastewater treatment.
- Research, monitoring, modeling, assessment and inventories. This includes the development of consistent and comparable data from Canada, Mexico and the United States.
- Communication activities. This includes a North American educational awareness program, and communication of best practices.
- Implementation and compliance. This requires each country to develop an implementation plan to address how and when the actions in the NARAP will be undertaken.

Several successes have already been achieved under the NARAP, including:

- completion of projects to identify and quantify North American sites where mercury may be a significant concern;
- development of an atmospheric emissions inventory for major stationary sources of mercury in Mexico to complement similar inventories that have been prepared for Canada and the United States;
- development of a project to reduce the use of toxics in a pilot hospital in Mexico, with a focus on mercury; and
- monitoring of mercury in air, rain, soils and vegetation in various locations in Mexico to generate data comparable to similar data found in Canada and the United States.

NARAP on Lindane and other HCH Isomers

The NARAP for lindane was accepted by Canada, Mexico and the United States in November 2006. This NARAP will help to characterize the regional risks posed by the pesticide, facilitate the exchange of information on alternative practices and pest control products, and consider actions to address local public health uses.

The goals and objectives of the *North American Regional Action Plan on Lindane and other HCH isomers* are to cooperatively take actions within the three member countries towards the reduction of exposure of humans and the environment to lindane and other HCH isomers; by

- reducing or eliminating uses,
- providing and promoting outreach and education in North America,
- encouraging science and research,
- encouraging the use of safer alternatives,
- engaging in capacity building through the development of strong and effective partnerships, and
- strengthening working relationships between regulatory agencies in the three countries.

NARAP on Dioxins, Furans and Hexachlorobenzene

The North American Task Force on Dioxins, Furans and Hexachlorobenzene continues with the development of the NARAP to address these substances in North America. Actions identified in the NARAP will be carried out under the CEC, bilaterally or trilaterally by the Parties outside of the CEC, or through international fora currently addressing these substances. The NARAP will:

- provide a framework for information sharing and expert exchanges to reduce generation of dioxins and furans and hexachlorobenzene;
- define actions to reduce releases and exposure of dioxins and furans and hexachlorobenzene to the North American environment; and
- develop and promote outreach and communication of environmental monitoring and assessment results to be undertaken under the Environmental Monitoring and Assessment Standing Committee.

Lead Safe Practices

In 1998, the United States nominated lead for consideration under the CEC *Process for Identifying Candidate Substances for Regional Action*. Following the US nomination of lead, the Substance Selection Task Force (SSTF), in its evaluation of lead, concluded that mutual concern exists for collective trilateral action. In May 2004 the SSTF concluded that the most effective and efficient mechanism for implementation of recommendations put forward in [the lead decision] document is discrete actions that are integrated within existing CEC activities and which utilize the CEC's cooperative role for promotion of action. This approach takes into consideration the scope and breadth of discrete activities on lead already in place or under development, whether cooperatively among the three countries, bi-nationally or domestically, while recognizing that for those activities recommended in the decision document to address remaining gaps.

NARAP on Environmental Monitoring and Assessment

This NARAP, accepted by the Parties in June of 2002, focuses on the coordinated collection of comparable representative data on the pathways, fates and effects of targeted substances. This NARAP also recognized that additional aspects require development and integration, including: standardization of data and metadata systems to ensure effective coordination, inquiry and access; supplementary monitoring of biota and ecosystem changes to provide timely information on cumulative effects and on the presence of non-targeted contaminants; and coordinated communications and development of products that better inform and encourage sound decision-making.

The Environmental Monitoring and Assessment Standing Committee, formed to oversee implementation of this NARAP, has supported monitoring of NARAP chemicals in different media in Mexico and across North America, as well as worked to build capacity in Mexican laboratories in efforts to ensure quality assurance and quality control of analytical methods in participating laboratories in the three countries. Additionally, implementation activities include a health biomonitoring component through which North American health experts are advising and helping to guide CEC work aimed at developing a North American baseline on exposure to NARAP substances. Work under this NARAP is now contributing to the *Promotion of a Sustainable Regional Approach to Monitoring and Assessment of Toxic Chemicals*.

Projects identified for immediate action

The priority projects that contribute to the establishment of a Foundation for Chemicals Management Across North America are summarized below. These projects are identified in the CEC's Operational Plan for 2007-2009.

Through the Mercury Task Force, the SMOC Working Group proposes to implement a partnership project to reduce use, discharges and emissions of toxic substances in the healthcare sector in Mexico, with an emphasis on mercury reductions. The project is modeled after the Hospitals for a Healthy Environment (H2E) Program, the joint program between Health Care Without Harm, the American Nurses Association, the American Hospital Association and the US EPA. Technical experts from Health Care Without Harm will work closely with hospital administrators and government officials in the Mexican healthcare sector to reduce the uses, discharges and emissions of mercury and other toxic substances in a pilot hospital. Lessons learned from this demonstration project will be shared, so that the success of the project may be replicated in other hospitals and health care facilities in Mexico and elsewhere.

The SMOC Working Group will exchange information regarding lead in on-going domestic pollution prevention programs, with special emphasis on processes, alternatives, product design, and risk communication and proposes to present this information during a session on lead to be held at the North American Pollution Prevention Summit in 2008 (for more information on the National Pollution Prevention Roundtable see <http://www.p2.org/about/>). The SMOC Working Group also proposes to develop information on characterization of sources of lead exposure in North America.

Assessment of NARAP implementation: This is a multiyear project that is gathering information from academic studies and previously established monitoring exercises about the status and

trends of NARAP substances across the region. This assessment will validate spatial and temporal information on the benefits of the established NARAPs. To be completed in 2008, this report is collating information on the status and trends of NARAP substances in the North American countries and will provide full data summaries and identify networks and programs in which these substances are monitored.