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Chemicals Management Forum

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Meeting Summary
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1 Background / Context

Chemicals are used in everyday consumer products such as clothes, furniture, automobiles, electronics and toys, and play an important role in our quality of life. However, if poorly managed, some chemicals can be harmful to our health and our environment. Since chemicals move across national boundaries in air, water, sediment as well as in traded goods, international cooperation is important to managing chemicals effectively. As major producers and consumers of chemicals, Canada, Mexico and the United States have an important role to play in the sound management of chemicals nationally, regionally and globally. The North American Commission for Environmental Cooperation (CEC) Sound Management of Chemicals (SMOC) program is a trinational initiative to reduce the risks of industrial chemicals to human health and the environment in North America. The SMOC Working Group, comprised of senior level government representatives from the three countries, is responsible for managing the SMOC program.

The CEC places a high priority on providing opportunities for expert, public and stakeholder involvement in the SMOC program. Stakeholders are invited to undertake activities to support the work of the SMOC Working Group in delivering their program. To this end the SMOC Working Group sponsored a two day forum on 15 – 16 May, 2012 in San Antonio, Texas to bring stakeholders from Canada, Mexico and the United States together to discuss matters of mutual interest. Approximately 60 individuals affiliated with governments, environmental non-government organizations, industry, Aboriginal organizations and academia from the three countries attended the session. The participants list is available in Appendix 1.

2 Purpose and Content of this Report

The purpose of this Report is to provide a summary of the information presented at the Forum, and capture substantive discussion, issues raised, and suggestions for next steps. The Report is organized in accordance with the Forum agenda (see Appendix 2, or click here.) All presentation "PowerPoint" slide shows used throughout the Forum are hyperlinked in this Report. They are also available at http://www.cec.org/chemicals2012. This Report also includes a section highlighting several themes that emerged during the two day forum.

3 Overarching Themes

This section summarizes several overarching themes that emerged as a result of the discussions among Forum participants.

- Value of the three countries working cooperatively: The value of sharing experiences, successes, lessons learned and perhaps most importantly, the high level of expertise in all three countries was viewed by all as a very positive component of the SMOC program. Participants were particularly impressed with the cooperation and coordination, and the breadth and extent of the work being done to address the sound management of chemicals in Mexico. Several Mexican participants expressed their thanks to Canada and the United States for sharing their expertise, through training sessions, workshops, exchange visits and through the SMOC initiatives, including the SMOC Task Forces and Standing Committees.

- Value of promoting public awareness of SMOC projects: Participants urged SMOC to continue promoting public awareness in the sound management of chemicals and in SMOC activities in particular. The need to utilize strategic, appropriate communications tools to targeted audiences was stressed. While social media tools were strongly encouraged to help reduce human and financial costs, and to reduce the environmental footprint associated with some more traditional communications tools (e.g., face-to-face meetings), caution was expressed to ensure that the targeted audiences were able to access those tools. Among other matters, selecting the most appropriate / effective communications tool must consider the socio-economic status of the targeted audiences, literacy, ability to access social media tools (or not), the use of local popular radio stations, translation requirements, and the implications of poverty when seeking participation in engagement initiatives. Of primary importance is the need in appropriate circumstances to engage local communities in helping to determine the most appropriate communications initiatives.

- Value of promoting "greener" products and processes: Participants were generally very supportive of SMOC activities and the efforts of Forum presenters in promoting "greener" chemistry (products and processes) but flagged the need to be careful to ensure that alternatives to certain chemicals truly reflect sustainability principles and practices. While recognizing the critical importance that price and efficacy play in determining market acceptance of greener chemistry, participants stressed that industry, governments and NGOs all have roles to play in ensuring that consumers have appropriate information to make informed choices. Among other matters, full cost accounting, cradle to grave / cradle impact assessments, clear and plain language information on greener chemistry, appropriate alternatives assessments, honest branding to reach targeted audiences and recognition that price points are vital to people living in poverty, are essential for informed consumer decisions.

- Importance of ongoing regional stakeholder networking and engagement: Participants were supportive of efforts aimed at encouraging efficient and effective regional stakeholder engagement in SMOC activities. Participants fully appreciated the current realities of significant human and financial resource

constraints and time pressures that dominate the directive to "do more with less". Opportunities to use engagement tools that minimize these stresses including social media tools were strongly encouraged. Participants generally felt that SMOC needs to be more consistent in promoting better transparency and engagement in its activities. Several suggestions for addressing this issue are detailed in the Report (see especially Section 11), including SMOC efforts to promote regional stakeholder networking, better follow-up and progress reports on the status of activities subsequent to public meetings, and more opportunities to be directly involved in specific SMOC projects. Participants also generally agreed that responsibility to improve engagement requires concerted efforts by stakeholders as well as governments / SMOC.

- ❖ Caution not to lose ground on chemicals management progress to date: Participants generally felt that governments and stakeholders, through SMOC activities and myriad other efforts, have made significant contributions to the sound management of chemicals in North America. Updates on SMOC initiatives throughout the Forum confirmed the value of trinational cooperation and coordination of projects such as the development of national inventories, pollution transfer and release registers, environmental monitoring and assessment initiatives, concerted action on targeted chemicals to reduce risk of harm to the environment and human health, and initiatives to promote more sustainable cities. However participants agreed they had a responsibility, especially in trying economic times, to remain vigilant to avoid becoming complacent or slipping back from progress made.

4 Welcome and Forum Objectives

The Forum facilitator, Hajo Versteeg, reviewed the Forum agenda and introduced the SMOC Working Group members:

- Eduardo Enrique González Hernández: the General Director of Comprehensive Management of Hazardous Materials and Activities with the Secretariat of the Environment and Natural Resources for Mexico (SemarNat);
- Leonora Rojas Bracho: the General Director of Urban and Regional Pollution Research with the National Institute of Ecology (INE-Semarnat);
- Margaret Kenny: the Director General of the Chemicals Sector Directorate in Environment Canada;
- Suzanne Leppinen: the Director of the Chemicals Policy Bureau in the Safe Environments Directorate in Health Canada; and,
- Barbara Cunningham: the Deputy Director of the Office of Pollution Prevention and Toxics in the U.S. Environmental Protection Agency, and the Chair of the SMOC Working Group.

Barbara reviewed the Forum objectives, as follows:

- To provide stakeholders with information on the activities, including results, associated with the SMOC Working Group's regional projects in chemicals management;
- To provide an opportunity for stakeholders to share their initiatives related to the SMOC major areas of work in their respective countries; and,
- To discuss opportunities to strengthen North American contributions by governments and stakeholders related to SMOC objectives in order to make progress towards international chemicals management goals.

Barbara then introduced the keynote speaker, Mr. Jim Jones.

5 Keynote Presentation

Jim Jones, Acting Assistant Administrator for the Office of Chemical Safety and Pollution Prevention, U.S. Environmental Protection Agency (EPA), provided an overview of the history of the CEC-SMOC initiative and objectives, and highlighted activities of the SMOC program. Mr. Jones discussed US EPA's chemicals management efforts, including risk assessment and management; data collection and screening; public access to chemical data and information; and alternatives assessments. He also emphasized the significance of regional (SMOC) cooperation and the importance of active participation and collaboration by all. The presentation is available here.

5.1 Plenary Discussions

Following the Keynote presentation, participants had an opportunity to provide comments and ask questions. The following summarizes the key discussion points:

- EPA does a global search to aid in their existing chemical assessments, including where available assessments / data from Canada and Mexico. All relevant information is used by EPA to assist in their assessments.

- EPA employs a variety of mechanisms to ensure effective on-going stakeholder engagement / feedback including face-to-face meetings and social media tools such as webinars and web posts. EPA has compiled a comprehensive stakeholder list over time, including coordinates for individuals and organizations attending EPA sessions or email/ write in to EPA. The *Toxic Substances Control Act* (TSCA) review process has provided a large number of contact stakeholder names. Outreach is primarily conducted through a listserv.

- The EPA works closely with other US federal agencies that have a mandate to regulate chemicals (e.g., the Food and Drug Administration) to minimize overlap and duplication for chemicals assessment and management.

6 National Chemicals Management Programs in Canada, the United States and Mexico

The goal of this session was for SMOC Working Group members to provide an overview of key features and highlighted initiatives from their national chemicals management programs. While this session focused on the national chemicals management programs in each of the three countries, its purpose was to provide participants with a 'backdrop" to promote better understanding of how national programs inform regional SMOC activities. Note that the Undersecretary of Mexico's Environment and Natural Resources Secretariat (Semarnat) provided the overview of Mexico's chemicals management program on behalf of the Mexican Working Group members.

6.1 Mexico's Chemicals Management Program—Mauricio Limón Aguirre, Secretariat of the Environment and Natural Resources

Mauricio Limón Aguirre, Undersecretary of Management for Environmental Protection, Secretariat of the Environment and Natural Resources (Semarnat) provided a comprehensive overview of Mexico's chemicals management program. He noted that while chemicals management in Mexico has historically been very divided institutionally, significant progress is being made in coordinating efforts for effective chemicals management efforts. In particular, in promoting environmental sustainability and comprehensive management of chemicals, Mexico has established 10 national chemicals priorities. These include: implementing and updating the National Implementation Programme of the Stockholm POPs Convention; using synergies among several international chemicals management conventions (e.g., Stockholm, Basil, Rotterdam) to help manage chemicals in Mexico; using life cycle management principles and practices; through the CEC / SMOC, focus on developing a chemicals inventory, risk reduction work and monitoring dioxins and furans; and establishing a National Advisory Committee for the Comprehensive Management of Chemicals that includes 10 experts from each of the business sector, academia and civil society. The presentation is available here.

6.2 US EPA's Chemicals Management Program—Barbara Cunningham, US EPA

Barbara Cunningham, Deputy Director, Office of Pollution Prevention and Toxics, US Environmental Protection Agency and Chair of the SMOC Working Group of the CEC, described the EPA's chemicals management program. She highlighted the key laws used by EPA to manage chemicals, and detailed key features of the existing chemicals management program including chemical data reporting, public access to information, ongoing activities and EPA participation in the CEC SMOC program. The presentation is available here.

6.3 Canada's Chemicals Management Program—Margaret Kenny, Environment Canada, and Suzanne Leppinen, Health Canada

Margaret Kenny, Director General, Chemicals Sector Directorate, Environment Canada described the Government of Canada's chemicals management program on behalf of Health Canada and Environment Canada. Margaret highlighted the key laws regulating chemicals in Canada, the joint role of Health Canada and Environment Canada in implementing those laws, the national pollutant release inventory, the Chemicals Management Plan that details the approach to managing the assessment and management of existing chemicals in Canada, stakeholder outreach, key achievements and the coordination of Canada's chemicals management program and SMOC activities. The presentation is available here.

6.4 Plenary Discussions

Following the presentations, participants were invited to dialogue with presenters. Suzanne Leppinen, Director, Chemicals Policy Bureau, Safe Environments Directorate, Health Canada, and Eduardo González, the General Director of Comprehensive Management of Hazardous Materials and Activities with the Secretariat of the Environment and Natural Resources for Mexico joined their SMOC Working Group colleagues in participating in the plenary discussions. The following summarizes the key discussion points:

- In response to a concern raised to the effect that PCB incineration is not effective, Mauricio Limon noted that management, including disposal of PCBs in Mexico has been greatly assisted with input from the UNEP. After a workshop on disposal technologies, it was determined that Mexico did not have the proper technology to appropriately destroy PCBs. As a result, Mexico is currently exporting PCBs for disposal. However he did express hope that Mexico would develop appropriate technologies in the future to avoid the need to export PCBs.

- One participant emphasized that the Mexican experience in managing chemicals highlights the value of international cooperation but queried the implication that the United States is not signatory to some key international chemicals management treaties. SMOC Working Group members did not consider this a limiting factor to effective North American management efforts. Canadian and Mexican SMOC Working Group members in particular acknowledged the EPA's ongoing involvement in regional efforts to manage chemicals and stressed that the trinational coordination and cooperation of SMOC programs has worked very well. Several substantive examples (e.g., lindane, mercury) as well as technical examples (e.g., Mexican national chemicals inventory, pollutant release and monitoring training sessions) were cited as illustrative.

- Barbara Cunningham noted that EPA efforts at chemical data reporting, high production volume chemical procedures and public access to information had been

improved, and that steps to eliminate unwarranted confidential business information claims are being implemented.

- With respect to mercury exports, it will be important to look at how mercury is moving among the three jurisdictions, at the implications of the export ban and at the regulations being put into place to address this. Margaret Kenny also noted that Canada is party to the Basel Convention, which controls the movement of most of the exports of hazardous waste and recyclable materials. Some of this work is also done through Canada's Chemicals Management Plan.

- In response to a comment on the challenges in ensuring public participation in Mexico where the required infrastructure and budget is not seen as adequate, SMOC members agreed that public participation is an ongoing challenge for all countries. In Canada, transparency and public participation relating to chemicals management are built into the legal system, at the draft and final assessment stages as well as at the draft and final risk management stages. However, actual participation is limited by very full workloads and time and budget constraints for non-government organizations and government departments alike. Canada has used electronic media (e.g., webinars, web posts and videoconferencing) to reduce costs and travel time, but found that while these mechanisms tend to work well to give information out, they are not as effective in promoting dialogue, feedback or problem solving. The United States has similar stakeholder engagement processes in place.

- It was noted that the session highlighted a few key differences among the chemicals management programs in the three countries and that each country does have its own priorities, infrastructures, and approaches to risk assessment. While recognizing these differences, SMOC Working Group members stressed the value of the collaborative approach adopted by the SMOC program and several significant successes as a result of that collaboration. For example, Mauricio Limon noted that in Mexico the list of existing chemicals (the inventory) will be recognized formally in the next few weeks. This would not have been possible without extensive ongoing collaborative SMOC efforts. In addition, collaborative risk reduction work has been undertaken, as well as monitoring and evaluation through PRONAME. Margaret Kenny noted that Canada reviewed the list of 83 work plan chemicals from the United States within a week of its release, with a view to determining opportunities for collaboration.

7 North American Perspectives on the Sound Management of Chemicals

The purpose of this session was to provide participants with information on the activities of some of the "non-government" participants to further the sound management of chemicals. Three speakers from stakeholder groups in Canada, Mexico and the United States outlined their activities and perspectives related to the sound management of chemicals in North America.

7.1 A Canadian Perspective—Laurie Chan, University of Ottawa

Laurie Chan, Professor and Canada Research Chair in Toxicology and Environmental Health, Director of the Center for Advanced Research in Environmental Genomics, University of Ottawa provided a description of his work related to chemical pollution, ecosystem health and food security. He detailed the interrelationship between his research / laboratory work on environmental and nutritional toxicology with participatory research in Aboriginal communities in Canada's north. He outlined the First Nations Food, Nutrition and Environment Study as an example of the critical need to build and maintain trust required to do effective research relating to sustainable chemicals management with Aboriginal communities. The presentation is available here.

7.2 A Mexican Perspective—Cristina Cortinas de Nava, Chair, Querétaro Waste Management Network

Cristina Cortinas de Nava is the chair of the Queretaro Waste Management Network, a member of the National Advisory Committee for the Sound Management of Chemicals, Persistent Organic Pollutants and Hazardous Waste under International Environmental Conventions, and the Mexican NGO representative. Cristina described efforts to foster innovative chemicals management in Mexico within a CEC framework. Among other matters, she promoted the need for a cooperative trinational multistakeholder forum in Mexico to share ideas for phasing out hazardous chemicals, technical assistance to encourage alternative, greener chemistry and trinational cooperation to develop Mexican laws that minimize chemical risks. The presentation is available here.

7.3 A US Perspective—Michael Lefenfeld, SiGNa Chemistry, Inc.

Michael Lefenfeld, President and Chief Executive Officer, SiGNa Chemistry, Inc. provided insights in developing strategies as well as lessons learned in building a green start-up company. He used several examples from his own business experiences to emphasize the need to begin with a clear vision to promote greener chemistry, build that vision into corporate values, promote green science through education, and never forget that green products must be design and cost competitive with existing products to gain consumer acceptance. He described a few of his own company's products and design processes as illustrative of successful approaches / solutions to promoting greener chemistry as well as ongoing challenges. The presentation is available here.

7.4 Plenary Discussions

Following the presentations, SMOC Working Group members joined the presenters at the head table and participants were invited to provide comments and ask questions. The following summarizes the key discussion points:

- Currently the major players in the chemical industry are very cautious about investing in greener chemistry because the very small market shift (~ 0.5%) brought by greener products is often considered high risk for low reward (not worth the effort). Collaborative behavior has to occur from the initial research and development (R&D) phase right through to final marketing, and indeed through the full life cycle of the product. In today's economic environment, big industry players are working on small margin / high volume and are rarely interested in "small players". In the result, venture capital is difficult to generate for start-up companies promoting greener products or processes.

- In response to a query about the hazards of old polluting technology used for open air mining for precious metals in Mexico, it was noted that green chemistry could potentially offer less damaging alternatives to these activities (e.g., chelation, bacteria used to bioleach remaining amounts of product and clean mining sites) but these alternatives still require basic R&D work.

- Care must be taken before labelling a product or process "green" or "greener". Often, "green" products and processes still pollute, and generate unacceptable by-products and wastes. Responsibility for waste must remain with the companies who produce the products (polluter pays).

- Extensive discussions ensued with respect to role of economics and in particular the need to ensure full cost accounting and that price points for greener products and processes are competitive. The points raised include the following:
    - The price point argument is flawed unless it accounts for the total cost of the product, including potential environmental impacts (e.g., full life-cycle cost accounting).
    - How to fully price a greener product or process properly is very challenging. Several participants felt strongly that not only economic principles but also environmental and ethical considerations should play a role in pricing and in market availability / acceptability.
    - The end price of a product or process is very important to those living in poverty.
    - It was pointed out that only one Forum participant was an economist and only one participant was a lawyer. Given the importance of these two disciplines in shaping greener chemistry policies and practices, future sessions should strive to attract more individuals with this expertise.

- In response to a query about SMOC activities to promote greener chemistry with, for example, supply chain groups, it was noted that the SMOC program is a part of "Healthy Communities and Ecosystems", one of CEC's three priority areas; the others are "Greening the North American Economy" and "Climate Change". CEC's Greening the Economy priority includes activities that promote green building construction and improve the economic and environmental performance of the North American automobile industry supply chain.

- University science researchers should be encouraged to play a more significant role in developing greener alternatives to the more hazardous chemicals currently in use in North America. However a preliminary step in promoting alternative chemistry is to get a clear understanding of the chemicals currently in use (i.e., an inventory) in all three jurisdictions.

- Public education is fundamental to encouraging better / more environmentally responsible consumer choices. To overcome public skepticism, greener chemistry successes must be showcased while at the same time clearly recognizing the limits to science.

- For an issue or activity to be addressed by the SMOC Working Group, it has to be in the CEC operational plan. It was suggested that a SMOC-sponsored stakeholder meeting on alternatives assessment be organized for Mexico in the very near future to share experiences and help influence SMOC work planning efforts as early as possible.

- SMOC Working Group members emphasized that suggestions from participants on new projects or how to improve ongoing SMOC activities are vital to the success of the SMOC program and will be carefully considered by the Working Group as they plan their work activities for 2013 -14, and beyond.

8 CEC Sound Management of Chemicals Program

Ned Brooks, Program Manager, Chemicals Management, Commission for Environmental Cooperation, provided a comprehensive review of the SMOC program, a summary of SMOC strategic plan objectives, and an overview of the current work plan. This session helped to set the stage for subsequent sessions where SMOC activities and results were discussed in detail. The presentation is available here.

9 General Chemical Data Issues

The SMOC Chemical Inventory Team presented SMOC activities related to chemical data reporting and management. Topics included national chemicals inventories and comparison of chemicals data among the three countries.

9.1 Mexico's Chemicals Inventory— Leonor Cedillo, Director, Chemical Research and Ecotoxicological Risk, National Institute of Ecology (INE-Semarnat)

Leonor Cedillo, Director of Chemical Research and Ecotoxicological Risk, National Institute of Ecology (INE-Semarnat) and Chair of the Chemical Inventory Team of the

SMOC project described the progress of the trinational Inventory Team in developing Mexico's national chemicals inventory. The Team relied heavily on the experiences and lessons learned from Canadian and US efforts in constructing and maintaining their chemical inventories. She identified several milestones against specified timelines for developing the Mexican inventory, including an analysis of an appropriate legal framework, development of a system to manage the data, import volume information, and chemical production information in Mexico. Stakeholders have been involved throughout the process to provide their insights through several periodic meetings with technical experts in governmental institutions (Grupo Intersecretarial sobre el Inventario Nacional de Sustancias Químicas) over the period of a year and a half; two National Workshops with assistance of the chemical industry, NGOs, government and academia; two specific meetings with academia and NGOs; and three meetings with the chemical industry (ANIQ & CANACINTRA). The inventory is anticipated to be published in the summer or early fall, 2012. The presentation is available here.

9.2 Comparing Chemical Information Across National Inventories - Laura Nazef, International Team, Office of Pollution Prevention and Toxics, US EPA

Laura Nazef works with the International Team in the Environmental Assistance Division, in the Office of Pollution Prevention and Toxics, U.S. EPA. She is also a member of the SMOC Staff. She described a pilot project that compared the Canadian and US inventories and the interim Mexican inventory to better inform regional chemicals risk management decisions. The pilot identified clear differences as well as similarities in information (levels of manufacture, import and usage) across the three jurisdictions. Next steps include determining data gaps and analysis of data variability to help inform exposure variability in each country and regionally and publication of the findings. The presentation is available here.

9.3 Plenary Discussions

Following the presentations, participants were invited to provide comments and ask questions. The following summarizes the key discussion points:

- In addition to CAS numbers, chemical names will be included on the specific slides of the presentation that discusses initial findings.

  A question was raised on the differences in the number of substances contained in, and which overlap between the Canadian and the US inventories. The difference is also attributable to differing thresholds for adding substances, and updating inventory frequency in the 2 countries.

In Canada information to populate the existing chemicals inventory (called the Domestic Substances List) came in part from industry surveys and from government sources, such as customs import forms. Following the completion of initial drafts of the existing chemicals list companies were given the opportunity to comment on the accuracy of the list.

- Populating the existing chemicals inventories in Canada and the United States is managed by the government, based on laws that require industry reporting. Both countries have legal authority to require more information from the "owner / importer / manufacturer" of a chemical if they are of the opinion that they need more data to determine whether a chemical is in commercial use in their jurisdiction or if more data is required to assess risk or to manage the substance.

10 It was suggested by one participant that the SMOC Working Group discuss potential mechanisms for Mexico to update its inventory in the future.Implementation of Risk Reduction Strategies

This session provided an overview of SMOC activities related to implementation of risk reduction strategies for specific chemicals, including mercury, dioxins / furans / hexachlorobenzene (HCB), lindane, and polybrominated diphenyl ethers (PBDEs).

10.1 Risk Reduction Strategies for Dioxins, Furans and Hexachlorobenzene - Beatriz Cardenas, Co-Chair, SMOC Dioxins, Furans and Hexachlorobenzene Task Force

Beatriz Cardenas, Director of Air Pollution Monitoring and Characterization, National Institute of Ecology (INE-Semarnat) and co-Chair of the Dioxins, Furans and Hexachlorobenzene Task Force of the SMOC project described cooperative trilateral initiatives for reducing risk from dioxins, furans and hexachlorobenzene. She detailed monitoring and assessment initiatives to establish baseline data, including freshwater sediment cores, human biomonitoring, food pathway analysis and fate and transport modeling. Frequent trinational technical training and workshops have proven invaluable for capacity building, sharing experiences and developing and implementing pollution prevention and control initiatives in all three jurisdictions. The presentation is available here.

10.2 Risk Reduction Strategies for Mercury — Jesús López, Chair, SMOC Mercury Task Force

Jesús Ignacio López Olvera, Deputy Director of Transboundary Movements, Semarnat and Chair of the Mercury Task Force of the SMOC project detailed the risk assessment and management activities under the North American Regional Action Plan for mercury. He described the targeted actions for atmospheric emissions of mercury, mercury in processes, operations and products, mercury waste management and mercury monitoring and inventories as the priority focal points for achieving the ultimate goal of reducing anthropogenic releases of mercury to naturally occurring levels. The presentation is available here.

10.3 Risk Reduction Strategies for Polybrominated Diphenyl Ethers — Arturo Gavilan, Chair SMOC PBDE Team

Arturo Gavilan, Deputy Director of Chemical Studies, National Institute of Ecology (INE-Semarnat) and Chair of the PBDE Team of the SMOC Project described the SMOC initiatives aimed at risk reduction strategies for PBDEs. He detailed a comprehensive trilateral plan and timelines to develop and implement risk reduction activities for this group of chemicals. In particular he summarized work undertaken to develop the Mexican PBDE inventory, and testing to assess levels of PBDEs in targeted landfills and in blood in children. Work planned for 2012-2013 includes identification and prioritization of alternatives and the costs of those alternatives in Mexico, additional sampling and analysis at landfills with the focus of capacity building for analysis in Mexico, and the development of a factsheet on brominated flame retardant use in Mexico. The presentation is available here.

10.4 Plenary Discussions

Following the presentations, participants were invited to share comments and ask questions. The following summarizes the key discussion points; however, the discussion largely focussed on mercury-related issues:

- Participants were very impressed with the breadth, the quantity and the quality of work being done by all SMOC teams. Anyone not convinced of the importance of SMOC's trinational initiatives, should review the SMOC projects described throughout the Forum.

- Some participants suggested that the SMOC Working Group should consider addressing some of the gaps highlighted during the Forum discussion (e.g., does Mexico have the capacity to deal with possible consequences of the upcoming U.S. Mercury Export Ban; better technologies for extracting gold).

- Scientists should take a lead role in helping to shape regional and national policies relating to sound management of chemicals.

- One participant noted that while no permits are issued for primary mining of mercury in Mexico, it is not certain that all mining has stopped. Poverty makes mining by artisan miners (for primary mercury) a reality. There are bans on use of mercury in open air mining in other countries.

- One participant congratulated all three countries on the progress made in reducing anthropogenic sources of key pollutants but cautioned against becoming complacent. It was noted, for example that new incinerators are called "cleaner" but they still emit dioxins and furans.

- In 2011 Mexico updated its dioxin and furans release inventory (from its 2004 base year). A question was raised about activities related to HCB. A preliminary inventory of HCB emissions in Mexico was completed in 2010 and consideration is being given to next steps.

- Progress can be made as Mexico builds on the experiences of Canada and the United States in prohibiting the import, sale, and use of certain hazardous chemicals. Industry cooperation would also be very helpful in this regard.

11 Transparency, Risk Communication & Stakeholder Engagement

In this session, speakers from a variety of stakeholder groups discussed examples of efforts and tools they used to promote transparency, risk communication and stakeholder engagement. Following the presentations, a panel discussion with the presenters and SMOC WG members focused on ideas to enhance stakeholder engagement in SMOC activities.

11.1 Transparency, Risk Communication and Stakeholder Engagement in the 21st Century — Ruth Hull, Intrinsik Inc.

Ruth Hull, Senior Scientist, Intrinsik Inc, Mississauga, Ontario provided a comprehensive overview of the principles and practices for effective transparency, risk communication and stakeholder engagement for diverse audiences in the 21st century. Developing and maintaining trust, tailoring clear, plain language and honest messages to identified, targeted audiences, allowing appropriate time to absorb information and to dialogue and provide feedback, and using both traditional and newer social media tools to establish and maintain communications are all essential prerequisites to effective stakeholder participation. The presentation is available here.

11.2 JPAC and Lessons from Border Environmental issues — Irasema Coronado, University of Texas at El Paso

Irasema Coronado, Professor of Political Science, University of Texas at El Paso and CEC Joint Public Advisory Committee (JPAC) member described the objectives and role of the JPAC and used her extensive experiences with border (United States and Mexico) environmental groups to detail effective practices for stakeholder engagement. These include the need to be sensitive to differences in socio-economic status, language, culture, literacy, ability to access and use social media tools (e.g., the internet), and thoughtful use of effective, targeted communication techniques (e.g., radio vs. internet). She stressed the importance of engaging youth and developing youth programs to promote environmental awareness and opportunities for citizen engagement. The presentation is available here.

11.3 Successful Partnership Between Health Researchers and First Nations Communities — Laurie Chan, University of Ottawa

Laurie Chan, Professor and Canada Research Chair in Toxicology and Environmental Health, Director of the Center for Advanced Research in Environmental Genomics, University of Ottawa detailed his experiences with the First Nations Food, Nutrition and Environment Study as an example of a very successful collaborative approach for building trust, risk communication and engagement between researchers and Aboriginal communities. The study was methodically planned in partnership with the Assembly of First Nations and the communities where the research would take place, and was preceded by a comprehensive Community Research Agreement. The Agreement detailed virtually all aspects of the research study, including its purpose, methodology, responsibilities of parties involves, confidentiality, informed consent, data ownership and dissemination of results. The presentation is available here.

11.4 Plenary Discussions

Following the presentations, participants were invited to ask questions and provide comments. The following summarizes the key discussion points:

- Concern was expressed that this panel did not include an environmental NGO (ENGO) presenter, and that there were no US ENGO representatives at the Forum. The extensive efforts to invite stakeholders from all three countries including ENGOs were described to participants. Several participants noted that ENGOs have several significant challenges relating to participation in government initiatives aimed at sound management of chemicals, including lack of resources and time constraints.

- One participant stated that in Mexico there are significant capacity issues around stakeholder engagement. Only a few NGOs are knowledgeable on the topic of chemicals management, and are too often not well organized. This person stated that she had organized an NGO meeting to prepare for this Forum and had 40 – 50

individuals attend. This allowed her to bring a "common view" to the Forum. Among other matters, this group decided to organize themselves into a risk communication association and would continue to work as a network. This person emphasized that NGOs cannot rely exclusively on governments to build NGO capacity and must do their best to share responsibility in organizing themselves and building capacity wherever possible.

- Bringing groups together even at the local community level can be difficult where basic resource limitations can be daunting (e.g., gas money, computers, social media are not accessible to all). Creative ways to communicate with, and engage these stakeholders must be developed and implemented with these realities in mind.

- It was suggested that some NGOs are not participating fully in CEC / SMOC activities because they feel that CEC work is not directly relevant to their work and there is often too little follow up. At SMOC meetings in the past, participants were divided into issues working groups, but after those meetings participants would not hear about any follow- up work relating to their issue groups. Environmental citizen activists from the three countries used to meet before SMOC public meetings to network, share experiences and help focus NGO agreement on common regional issues and common approaches for addressing those issues. NGOs suggested that a North American network of interested stakeholders might be worth consideration.

- Jeff Stoub, the communications manager for the CEC provided an update on the CEC's communications strategy that was released just before the Forum. The strategy was developed with JPAC inputs and with the wider stakeholder community. It promotes transparency through more efficient engagement mechanisms including social media tools. He invited participants to comment on the document, which is available here.

- It was noted that CEC communications efforts are generally good, but CEC programs and activities must provide more consistent, on-going follow-up and debriefing. This is especially important for activities that involve stakeholder inputs / engagement. A few examples were cited as illustrative of poor or non-existent follow-up, including a couple of high profile NAAEC Article 14 and 15 processes ((known as the "Citizen Submissions on Enforcement Matters", or "SEM" process). The CEC has undertaken a review to modernize and speed up the SEM process and make it more accessible. A draft of the new process was posted for stakeholder review in April. The JPAC also provided comments on the SEM process modifications. The revised SEM guidelines are anticipated to be presented to the CEC Council for adoption at their July 2012 session.

- It was suggested that SMOC get into a mode of regular reporting out, engaging NGOs and academics, and helping people to engage.

- Mexico sees CEC's regional environmental activities as very useful. In Mexico in particular, work in improving chemicals management moves much faster by having a

regional approach. SMOC and NGOs have shown that they can all work together and there is extensive and positive input across the three jurisdictions.

- SMOC Working Group members recognized the extensive challenges and frustrations including significant financial constraints and work load pressures faced by stakeholders as well as governments in promoting consistent, effective and fair stakeholder engagement. Working Group members thanked participants for a very productive session and stressed that the suggestions for improving SMOC transparency, risk communication and engagement would be discussed in detail by the Working Group in the coming weeks and months.

12 Environmental Monitoring & Assessment

Representatives from the SMOC Environmental Monitoring & Assessment Standing Committee (EM&A SC) presented an overview of Mexico's PRONAME Program and other EM&A activities, including monitoring results. The presenters discussed how the program complements other national, regional, and international monitoring efforts. This session also covered SMOC chemical-specific monitoring activities (e.g., dioxins and furans, and mercury). The presentation is available here.

12.1 SMOC's Environmental Assessment and Monitoring Standing Committee — Nicole Davidson, Environment Canada

Nicole Davidson, Director, Emerging Priorities, Environment Canada and co-Chair of the EM&A Standing Committee of the SMOC project described the historical events leading up to the formation of the EM&A SC, its objectives and some of its work activities, including comparability and reliability of data, information for assessing trends and concerns and Mexico's monitoring and some trilateral studies conducted by the EM&A SC.

12.2 PRONAME — Ana Patricia Martinez Bolívar, National Institute of Ecology (INE-Semarnat)

Ana Patricia Martinez Bolívar, Director of Air Monitoring Research and Analytical Pollutant Characterization, National Institute of Ecology (INE-Semarnat) and Chair of the EM&A Standing Committee of the SMOC project, described Mexico's National Environmental Monitoring and Assessment Program (PRONAME), including its purpose, objectives, and monitoring sites and substances. She reported the presence of persistent bioaccumulative toxic substances at PRONAME sites in different environmental media & components, some additional preliminary results and the PRONAME web microsite where the public could access information on the program. She also presented synergies with other global programs.

12.3 EM&A Standing Committee Next Steps — Ana Corado, US EPA

Ana Corado, Environmental Engineer, Environmental Assistance Division, Office of Pollution Prevention and Toxics, U.S. EPA and co-Chair of the EM&A Standing Committee of the SMOC project detailed the next steps for the EM&A SC, including ongoing support for research needs for specific chemicals, support for two new Proname sites, and continuing support in developing Mexico's biomonitoring program. Ongoing challenges were also highlighted. These include consolidating methodologies, consolidating a network of laboratories in Mexico and increasing transparency with stakeholders by sharing results and interpretation and evaluation of data, including data comparisons at the regional level and how best to use current available data.

12.4 Plenary Discussions

Following the presentations, participants were invited to ask questions and provide comments. The following summarizes the key discussion points:

- With respect to EM&A next steps, it was stressed that data analysis and interpretation are keys to sound risk assessment. The American Chemistry Council and others have developed biomonitoring equivalents, a tool used to evaluate the meaning of the concentrations measured. Participants were encouraged to go to www.biomonitoringequivalents.net to learn more. The chemical industry is very involved in this exercise.

- It was also noted that environmental quality guidelines are used in interpretation of environmental monitoring data.

- The meaning of monitoring and assessment results must be explained to local communities, that is, just how risky an exposure to a chemical may be for a given population. While it is imperative to promote transparency, it is equally important to ensure that the transparent information is useful at the community level (e.g., clear, plain language, use of easily understandable visual aids and avoidance of messages / visual aids that are complex or too detailed).

- Communications strategies should be developed with local input to minimize suspicion and build trust. There is also a timing issue – if the data is perceived as too "old" when it is finally released, some parties may claim it is no longer relevant. One participant provided an example of First Nations being directly involved in developing a communications plan for biomonitoring initiatives in First Nations communities.

- Some participants noted that transparency was a challenge in all three countries. One participant suggested that for Mexico the PRONAME website could be used as a relatively quick way to make data available.

- SMOC Working Group members agreed on the importance of having a clear, well defined strategy when releasing data, to ensure that it is understood by the public and accessible to other researchers.

- One participant asked about selection of monitoring sites and how the EM&A SC works with various sectors and stakeholders to reduce chemicals in the environment. A representative from the EM&A SC responded that PRONAME monitoring sites are very different from each other, both in terms of type of site (agricultural, industrial, etc.) and level of community involvement. Priorities for PRONAME are based on initial data collected, and are further developed by Mexico at the national level. It was also noted that monitoring programs need to be designed to answer specific questions; it is not enough to just collect data. Mexico is considering initial monitoring results and will adjust sampling frequencies according to results, after discussion in a workshop.

13 Fostering Innovative Approaches to Promote Sustainability

Panelists discussed their experiences with implementing innovative approaches for promoting sustainability, such as green chemistry, alternatives assessments, and design of more sustainable products. Speakers shared their experiences, including their successes as well as challenges they faced in promoting and implementing these innovative approaches to sound chemicals management in North America. The ensuing plenary discussions expanded on the presentations and explored opportunities to apply lessons learned and successes for implementing innovative approaches to chemicals management and risk reduction.

13.1 Examples of Innovative Approaches— Leonora Rojas Bracho, National Institute of Ecology; Michael G. Szarka, GreenCentre Canada; Spencer Williams, Baylor University; and Ruth Hull, Intrinsik Inc.

Leonora Rojas, General Director of Urban and Regional Pollution Research, National Institute of Ecology (INE-Semarnat) and Member of the SMOC Working Group described the project to identify and implement chemicals management indicators in the movement towards sustainable cities in Mexico. The goal of the project is to measure compliance with regulations, and to eliminate non-essential uses and reduce releases of hazardous chemicals in targeted mid-sized and large cities in Mexico. Some of the challenges include limited regulation, limited information on chemicals and acceptable alternatives and very few international precedents. The path forward includes finding acceptable alternatives to identified hazardous chemicals, looking for international precedents to help justify and implement the interventions, and establishing a regional

forum with the objective of identifying acceptable substitutions to hazardous chemicals. The presentation is available here.

Michael (Mike) G. Szarka, Director, Commercial Development, GreenCentre Canada described the potential of greener chemistry to reduce waste, eliminate end-of-pipe treatment, develop safer / less risky products and save energy and resources. He then described the role of GreenCentre Canada in bridging the commercialization gap from university laboratories to market availability. He identified ongoing challenges, including: universities are sometimes reluctant to surrender management of their technologies; the difficulty in selecting one technology over another to move forward; and, long research development time versus industry and government need for speed. The presentation is available here.

Spencer Williams, Research Scientist, Baylor University, Waco, Texas described the unique, integrated approach that Baylor University adopts in promoting environmental education at the undergraduate, graduate and post-graduate levels. The Bachelor of Science degree in Environmental Health Science in particular takes an aggressive approach to exposing all students to comprehensive multidisciplinary required courses (e.g., toxicology, environmental law, biostatistics, risk assessment, chemistry) to ensure well-rounded graduates at the bachelors level. The presentation is available here.

Ruth Hull, Senior Scientist, Intrinsik Inc, Mississauga, Ontario used her 20 years of experience in advising industry clients to highlight how sustainability can be promoted through innovative uses of existing chemicals management tools. She noted that industry understands the need to balance profits, product effectiveness, and environmental responsibility in order to market greener, more sustainable products. Existing tools that can be used to assess the environmental impacts and sustainability of products include risk assessment, full life-cycle analysis, ecosystem services evaluations and the global harmonized system of classification and labelling of chemicals. She also followed up on Spencer Williams' comments relating to the role and benefits of membership in the Society of Environmental Toxicology and Chemistry (SETAC). The presentation is available here.

13.2 Plenary Discussion of Emerging Ideas to Advance the Sound Management of Chemicals

Participants had an opportunity to brainstorm ways for stakeholder groups and governments to work together to advance the adoption of innovative approaches to chemicals management and risk reduction. Participants provided the following comments and identified the following opportunities to apply lessons learned and replicate successful models for innovative approaches:

- In response to a query about the added value of GreenCentre Canada given that some federal government agencies support start-up technology firms, the following points were noted: the gap between industry and academia has widened and industry is

rapidly moving away from R&D. Also the GreenCentre can promote commercialization of greener chemistry where governments may not be initially interested. One participant observed that historically, Canada has not been the most successful in commercializing innovation and an industry / university collaboration is in many cases better positioned to fill that gap.

- Caution must be the watchword in promoting green / greener chemistries as they may have their own negative environmental and human health implications (e.g., one stakeholder felt that creating green solvent based cleaning processes targeted for use in bitumen sands only promoted more pollution from oil sands development). This dialogue led to a more generalized discussion that no manufacturing process can be made free of negative impacts and, at least in the near and midterm, science can focus efforts on "greener", safer products and processes. While not perfect, greener products that can be demonstrated to have less environmental impacts and be more sustainable than current products or processes are worth marketing. It was stressed that the GreenCentre commercializes greener, not green chemistry (see for example the switchable solutions website: http://www.switchablesolutions.com).

- Participants were cautioned to be wary of the potential for, and negative impacts of "green washing" where in effect consumers are tricked into thinking certain products are green when they might still have significant environmental impacts. The analysis for greener products and processes must take into account sustainability principles and practices.

- Marketing of greener products must still take into account price points and effective strategic "greener marketing pitches" to appropriate consumers. Informed consumers make better, more environmentally responsible choices especially if the price point for the greener product is the same or better than the competing product. The quality / utility of the greener product must also be as good as or better than the competing product. Significant innovations that promote sustainability are often driven by market forces, not regulation.

- There seems to be good participation of academia in developing green processes and sustainable chemistry but there does not seem to be concerted effort by industry in promoting greener products and processes. This is particularly acute in Mexico where "foreign" companies are sometimes seen as not being too interested in chemical risk reduction procedures.

- The Strategic Approach to International Chemicals Management (SAICM), a voluntary international framework managed by UNEP that involves governments, industry and NGOs, is a good example of international collaboration by various groups to promote risk reduction and innovative approaches to chemicals management. A representative from the American Chemistry Council noted that in the context of SAICM, the International Council of Chemical Associations (ICCA) engages in global efforts to promote safer chemicals and develop global product stewardship, with public posting of extensive chemical summaries.

- Newer chemical sequestration technologies are being developed in an effort to reduce emissions. It is a very busy field, highly competition and involves extensive and complex intellectual property issues.

- Epigenetics is a rapidly growing research field that can provide insights to better assess the correlation between chemicals and human health. Whole genome studies suggest that disease has only a ~ 15% genetic basis, leaving the rest to environmental factors (widely defined to include for example parenting, lifestyle choices, etc). Canada is supporting environment-gene research with the expectation that it will help to lower uncertainties linked to chemicals and health.

- There seems to be a trend whereby undergraduate students are forgoing basic sciences, in favor of more specialized programs such as environmental health studies. In the result many recent graduates with bachelors' degrees have problems finding work, perhaps indicating a disconnect between career choices and training. The key is to train students how to think. All employers look for bright people who can think, even where they want graduate degrees.

- Efforts by Mexican cities to promote sustainability partly by eliminating or reducing the use of hazardous chemicals were applauded. Portland (United States) and Vancouver (Canada) are two cities that are attempting to "go green" but are likely not using their respective pollution release and transfer registries (PRTR) to reduce chemical usage as is being done in Mexico. This is a project SMOC might consider expanding beyond Mexico.

- Toronto (Canada) has used PRTR data to assess possible correlations between the location of certain air contaminants and household income. But there are limitations to national PRTRs: levels / volumes triggering reporting mechanisms are usually set too high for local uses, and as a result many problem facilities are not captured. PRTRs tend to have a "national level" focus, but a community right-to-know requires community-level results. Toronto had to go through a bylaw to have smaller industrial facilities report on certain substances (e.g., dry cleaners).

- San Antonio (United States) has developed Vision 2020, based on community surveys that help to identify priorities that are important to residents. It is a good example of using community input in helping to set municipal policy directions.

14 Closing Remarks and Next Steps

Barbara Cunningham, as chair of the SMOC Working Group thanked the presenters for their thought provoking presentations and all of the participants for their active involvement throughout the Forum and their insightful comments. She also thanked the

CEC secretariat for their hard and productive work in organizing the two day session. Barbara felt the Forum confirmed the value of the CEC and the SMOC program in promoting the sound management of chemicals through regional cooperation and coordination. She assured participants that the rich constructive dialogue would be most helpful as the SMOC Working Group developed its work plan for the next couple of years. Barbara also stressed the importance of continuing the dialogue with stakeholders and expressed the Working Group's appreciation for the numerous suggestions for improving this engagement. She noted that the CEC will have the "PowerPoint" presentations posted on the SMOC web site by early June and the Forum Report summarizing the discussions posted by the end of July.

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16 Appendix B—Forum Agenda

CEC Chemicals Management Forum Agenda

Sheraton Gunter Hotel, Crystal Ballroom (second floor)
San Antonio, Texas, USA

FORUM OBJECTIVES

- provide stakeholders with information on the activities, including results, associated with the SMOC WG's regional projects in chemicals management;
- provide an opportunity for stakeholders to share their initiatives related to the SMOC major areas of work in their respective countries; and,
- discuss opportunities to strengthen North American contributions by governments and stakeholders related to SMOC objectives in order to make progress towards international goals to integrate national chemicals management programs.

Day 1: Tuesday, 15 May 2012

Time	Topic
8:00 AM–8:45 AM	**Registration**
8:45 AM–9:00 AM	**Welcome, Forum Objectives & Agenda Review**
9:00 AM–9:45 AM	**Keynote Speaker - Jim Jones, Acting Assistant Administrator for the Office of Chemical Safety and Pollution Prevention, U.S. EPA**
9:45 AM–11:00 AM Presentation time 45 minutes	**National Chemicals Management Programs in Canada, the United States & Mexico** CEC Sound Management of Chemicals (SMOC) Working Group Representatives from Canada, the United States, and Mexico will provide an overview of key features and highlighted initiatives from national chemicals management programs. Speakers will also discuss how national chemicals management priorities inform current regional activities under SMOC. ***Speakers:*** • ***Barbara Cunningham****, Deputy Director, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency (U.S. EPA) and Chair of the SMOC Working Group of the CEC* • ***Margaret Kenny****, Director General, Chemicals Sector, Environment Canada and Member of the SMOC Working Group of the CEC* • ***Suzanne Leppinen****, Director, Chemicals Policy Bureau, Safe Environments Directorate, Health Canada and Member of the SMOC Working Group of the CEC* • ***Mauricio Limón Aguirre****, Undersecretary of Management for Environmental Protection, Secretariat of the Environment and Natural Resources (Semarnat)*

11:00 AM–11:15 AM	**Break**
11:15 AM–12:30 PM Presentation time 45 minutes	**North American Perspectives on the Sound Management of Chemicals** Speakers from stakeholder groups in Mexico, Canada, and the United States will present activities and perspectives related to the sound management of chemicals in North America. The session will also include a panel discussion with stakeholders and SMOC WG members. ***Speakers:*** • ***Laurie Chan**, Professor and Canada Research Chair in Toxicology and Environmental Health, Director of the Center for Advanced Research in Environmental Genomics, University of Ottawa* • ***Cristina Cortinas de Nava**, Chair of the Queretaro Waste Management Network and Member of the National Advisory Committee for the Sound Management of Chemicals, Persistent Organic Pollutants and Hazardous Waste under International Environmental Conventions, Mexican NGO representative* • ***Michael Lefenfeld**, President and Chief Executive Officer, SiGNa Chemistry, Inc.* ***Panel Members:*** • ***Barbara Cunningham**, U.S. EPA* • ***Margaret Kenny**, Environment Canada* • ***Suzanne Leppinen**, Health Canada* • ***Eduardo Enrique González Hernández**, Semarnat*
12:30 PM–1:30 PM	**Lunch** - Yellow Rose/Blue Bonnet/Magnolia Rooms, second floor
1:30 PM–2:00 PM Presentation time 20 minutes	**Overview of the CEC Sound Management of Chemicals Program** This presentation on the CEC Sound Management of Chemicals Program will help set the stage for subsequent discussions of SMOC activities and results. The session will provide general background on the SMOC program, summary of SMOC strategic plan objectives, and overview of the current workplan. ***Speaker:*** ***Ned Brooks**, Program Manager, Chemicals Management, Commission for Environmental Cooperation*
2:00 PM–3:15 PM Presentation time 45 minutes	**General Chemical Data Issues** Members of the SMOC Chemical Inventory Team will present SMOC activities related to chemical data reporting and management. Topics include national chemicals inventories and comparison of chemicals data among the three countries. ***Speakers:*** • ***Leonor Cedillo Becerril**, Director of Chemical Research and Ecotoxicological Risk, National Institute of Ecology (INE-Semarnat) and Chair of the Chemical Inventory Team of the SMOC project* • ***Laura Nazef,** U.S. EPA*
3:15 PM–3:30 PM	**Break**

3:30 PM–4:45 PM Presentation time 45 minutes	**Implementation of Risk Reduction Strategies** This session will provide an overview of SMOC activities related to implementation of risk reduction strategies for specific chemicals, including mercury, dioxins/furans/hexachlorobenzene (HCB) and polybrominated diphenyl ethers (PBDEs). ***Speakers:*** • ***Beatriz Cardenas****, Director of Air Pollution Monitoring and Characterization, National Institute of Ecology (INE-Semarnat) and co-Chair of the Dioxins, Furans and Hexachlorobenzene Task Force of the SMOC project* • ***Jesús Ignacio López Olvera****, Deputy Director of Transboundary Movements, Semarnat and Chair of the Mercury Task Force of the SMOC project* • ***Arturo Gavilan García****, Deputy Director of Chemical Studies, National Institute of Ecology (INE-Semarnat) and Chair of the PBDE Team of the SMOC Project*
4:45 PM–5:00 PM	**Summary and Close of Day**
6:30 PM–8:00 PM	**Evening Reception - Yellow Rose Room/Gunter Terrace, second floor**

Day 2: Wednesday, 16 May 2012

Time	Topic
8:45 AM–9:00 AM	**Recap of Day One and Agenda Review for Day Two**
9:00 AM–10:15 AM Presentation time 45 minutes	**Transparency, Risk Communication & Stakeholder Engagement** In this session, speakers from a variety of stakeholder groups will discuss examples of efforts and tools to promote transparency and effective risk communication. A panel discussion with SMOC WG Members will focus on ideas to enhance stakeholder engagement in SMOC activities. ***Speakers:*** • ***Irasema Coronado****, Professor of Political Science, University of Texas at El Paso and CEC Joint Public Advisory Committee (JPAC) member* • ***Laurie Chan****, University of Ottawa* • ***Ruth Hull****, Senior Scientist, Intrinsik Inc, Mississauga, Ontario* ***Panel members:*** • *SMOC WG Members*
10:15 AM–10:30 AM	**Break**
10:30 AM–11:45 AM Presentation time 45 minutes	**Environmental Monitoring & Assessment** Representatives from the SMOC Environmental Monitoring & Assessment Standing Committee (EM&A SC) will present an overview of Mexico's PRONAME Program and other EM&A activities, including monitoring results. Panelists will discuss how the program complements other national, regional, and international monitoring efforts. This session will also cover SMOC chemical-specific monitoring activities (for example, dioxins & furans or

	mercury), as appropriate. ***Speakers:*** • ***Ana Patricia Martinez Bolívar****, Director of Air Monitoring Research and Analytical Pollutant Characterization, National Institute of Ecology (INE-Semarnat) and Chair of the EM&A Standing Committee of the SMOC project* • ***Nicole Davidson****, Director, Emerging Priorities, Environment Canada and co-Chair of the EM&A Standing Committee of the SMOC project* • ***Ana Corado****, Environmental Engineer, Environmental Assistance Division, Office of Pollution Prevention and Toxics, U.S. EPA and co-Chair of the EM&A Standing Committee of the SMOC project*
11:45 AM–1:00 PM	**Lunch** - Yellow Rose/Blue Bonnet/Magnolia Rooms, second floor
1:00 PM–2:15 PM	**Fostering Innovative Approaches to Promote Sustainability** **<u>Part One</u>: Examples of Innovative Approaches** Panelists will discuss their experiences implementing innovative approaches, such as green chemistry, alternatives assessments, and design of more sustainable products, to promote sustainability. They will share their observations about models that have worked and/or challenges faced in promoting and implementing innovative approaches to sound chemicals management in North America. ***Panel members:*** • ***Leonora Rojas Bracho****, General Director of Urban and Regional Pollution Research, National Institute of Ecology (INE-Semarnat) and Member of the SMOC Working Group* • ***Michael G. Szarka****, Director, Commercial Development, GreenCentre Canada* • ***Spencer Williams****, Research Scientist, Baylor University, Waco, Texas* • ***Ruth Hull****, Senior Scientist, Intrinsik Inc, Mississauga, Ontario*
2:15 PM–2:30 PM	**Break**
2:30 PM–3:45 PM	**Fostering Innovative Approaches to Promote Sustainability** **<u>Part Two</u>: Roundtable Discussion of Emerging Ideas to Advance the Sound Management of Chemicals** This session will expand on the ideas discussed during the previous session. Roundtable participants will explore opportunities to apply lessons learned and replicate successful models for implementing innovative approaches to chemicals management and risk reduction. ***Roundtable members:*** • *Speakers from previous session* • *SMOC WG Members*
3:45 PM–4:15 PM	**Forum Wrap-up**

17 Appendix C—External Presenter Biographies

Laurie Chan, Professor and Canada Research Chair in Toxicology and Environmental Health, Director of the Center for Advanced Research in Environmental Genomics, University of Ottawa: Prof. Laurie Chan recently joined the University of Ottawa as Professor and Canada Research Chair in Toxicology and Environmental Health and Director of the Center for Advanced Research in Environmental Genomics in 2011. He was the holder of the BC Leadership Chair in Aboriginal Health at the University of Northern British Columbia and a Founding Member of the Centre for Indigenous Peoples Nutrition and Environment at McGill University. Prof. Chan's research in environmental and nutritional toxicology spans from the lab developing new techniques for contaminant analysis, to participatory research in the community on the risks and benefits of traditional foods and impact of environmental change on food security. He is the Principal Investigator of two national projects on First Nations and Inuit Food Safety and Environmental Health. Prof. Chan was involved in the drafting of the 2nd edition of Tri-Council Human Research Ethics Guideline as well as the CIHR Guidelines for Health Research involving Aboriginal People. He has also served as an advisor for international and national governments and organizations and numerous Aboriginal communities on environmental health issues. Further information on Dr. Chan is available at: http://www.biology.uottawa.ca/details.php?lang=eng&id=476.

Irasema Coronado, Professor of Political Science, University of Texas at El Paso and CEC Joint Public Advisory Committee (JPAC) member: Dr. Coronado is currently Professor of Politics at The University of Texas at El Paso. She is also a faculty member in the Environmental Science and Engineering Ph.D. program. Dr. Coronado has served as Associate Dean of the College of Liberal Arts (2006-2008), chair of the Political Science Department (2005- 2006), and Assistant Professor of the Center for Inter-American and Border Studies (1999-2003) at The University of Texas at El Paso. Dr. Coronado was also a Fulbright Scholar at the Universidad Autónoma de Ciudad Juárez in Mexico (2004-2005), and a faculty member at the University of the Incarnate Word in San Antonio, Texas (1995-1999). Dr. Coronado has held other academic and visiting scholar positions at the University of Texas at San Antonio (1998-1999), the University of Arizona (1997 and 2001), El Colegio de la Frontera Norte in Sonora, Mexico (1992-1995), and Cochise College (1991). Dr. Coronado is currently a Board member of Frontera Women's Foundation, the Coalition Against Violence Toward Women and Children on the Border, and FEMAP (Mexican Federation of Private Associations). Dr. Coronado holds a B.A. from the University of South Florida and an M.A. and Ph.D. from the University of Arizona. Further information on Dr. Coronado is available at: http://academics.utep.edu/Default.aspx?tabid=21276.

Cristina Cortinas de Nava is Chair of the Queretaro Waste Management Network, a member of the National Advisory Committee for the Sound Management of Chemicals, Persistent Organic Pollutants and Hazardous Waste under International Environmental Conventions, and a Mexican NGO representative. Dr. Cortinas has extensive experience

and numerous publications addressing efforts to foster innovative chemicals management in Mexico including approaches for phasing out hazardous chemicals, technical assistance to encourage alternative, greener chemistry and trinational cooperation to develop Mexican laws that minimize chemical risks. Her work promotes the reduction, reuse, utilization, recovery and environmentally sound management of chemicals and wastes. Further information on Dr. Cortinas and her projects is available at: http://www.cristinacortinas.net.

Ruth Hull, Senior Scientist, Intrinsik Environmental Sciences, Inc., Mississauga Canada. Intrinsik is a private, employee owned company that applies best available scientific knowledge and expertise to guide clients in making the right choices about health, safety and environmental quality. Ms. Hull brings twenty years of international consulting experience in ecotoxicology and ecological risk assessment to the firm. Ms. Hull's client services include both managing and conducting complex risk assessments, as well as providing advice and review on risk assessment and other related environmental issues. She assists industrial clients with the assessment and management of environmental challenges. She also provides expert advice to Federal and Provincial government agencies on ecotoxicology, ecological risk assessment of contaminated sites and other related environmental issues. Ms. Hull participates in workshops related to environmental toxicology and risk assessment, and has authored numerous publications on these topics. Ms. Hull is also a member of the Board of Directors of the Society of Environmental Toxicology and Chemistry (North America). SETAC is a non-profit worldwide professional society with the mission to support the development of principles and practices for protection, enhancement and management of sustainable environmental quality and ecosystem integrity. Further information on Ms. Hull and Intrinsik is available at: http://www.intrinsik.com.

James (Jim) Jones, Acting Assistant Administrator for the Office of Chemical Safety and Pollution Prevention (OCSPP) with the US Environmental Protection Agency (EPA). Mr. Jones is responsible for managing the office that implements the nation's pesticides, toxic chemical, and pollution prevention laws. The office has an annual budget of approximately $260 million and more than 1,300 employees. From April through November 2011, he served as the Deputy Assistant Administrator for EPA's Office of Air and Radiation. From January 2007 until April 2011, he served as Deputy Assistant Administrator for OCSPP, including six months as Acting Assistant Administrator. From 2003 – 2007, Mr. Jones served as the Director of the Office of Pesticide Programs. In this role he was responsible for the regulation of pesticides in the United States with a budget of approximately $150 million and 850 employees. His career with the EPA spans more than 24 years. Mr. Jones has an M.A. from the University of California at Santa Barbara and a B.A. from the University of Maryland, both in economics. Further information on Mr. Jones and the EPA is available at: http://www.epa.gov/aboutepa/ocsppaa.html.

Michael Lefenfeld, President and Chief Executive Officer, SiGNa Chemistry, Inc.: Mr. Lefenfeld has dedicated his career to cutting-edge scientific research and developing innovative technologies that make people/industries safer, products greener and societies more sustainable. He holds an M.Phil. in Chemistry from Columbia University and a B.S. in Chemical Engineering and Physics from Washington University in St. Louis. At age

19, he created a medical sensor that became the basis for most pulse oximeters in use today. He then leveraged this success into developing the world's first biocompatible water soluble polymer with high strength enabling its use in medical sanitation, consumer product packaging, and edible products Mr. Lefenfeld's latest discovery - a process to stabilize reactive metals - led to the formation of SiGNa to advance the technology. SiGNa has since created products that improved the safety, efficiency, and sustainability of many industries and is now commercializing its revolutionary hydrogen generation technology, which will make affordable and sustainable energy a reality for all. Lefenfeld serves on numerous corporate boards and has been recognized with the Presidential Green Chemistry Award, the WEF Technology Pioneer Award, the ICIS Top Chemical Power Player Award, Businessweek's and Inc's Best Entrepreneur Award, among others. He is an adjunct faculty member at Michigan State University and a member of the Alzheimer's Drug Discovery Foundation's Board of Overseers. Further information on Mr. Lefenfeld and SiGNa is available at: http://www.signa.com.

Michael (Mike) Szarka, Director, Commercial Development for GreenCentre Canada: GreenCentre Canada is a national centre of excellence for technology transfer and commercialization of new green chemistry technologies. In his role as director of commercial development, Dr. Szarka is responsible for sourcing, assessing, managing and commercializing inventions from universities across Canada, with emphasis on technology licensing and creation of start-up companies. Prior to working at GreenCentre, he held technology management positions with the University of Ontario Institute of Technology, the University of Toronto, and the Ontario Centres of Excellence. Dr. Szarka obtained Bachelor's and Master's degrees in Chemistry from the University of Waterloo, and a PhD in physical chemistry from the University of Toronto before post-doctoral work in atmospheric chemistry at York University. He is a frequent speaker on topics related to intellectual property and technology transfer. He is currently Assistant Vice-President for Metrics and Surveys for the Association of University Technology Managers, is co-chair of the metrics committee for the Alliance for Commercialization of Canadian Technologies (ACCT Canada), has served on the board of the Ontario Society of Excellence in Technology Transfer (OnSETT), and is an active member of the Licensing Executives Society. Further information on Dr. Szarka and GreenCentre Canada is available at: http://www.greencentrecanada.com.

Spencer Williams, Research Scientist, Baylor University, Waco, Texas: Dr. Williams received his B.A. in biology in 1993 and his Ph. D. in toxicology in 2003, both from Texas A & M University. From 2005 - 2009 Dr. Williams worked as a health scientist for ChemRisk Inc. in Houston, Texas. Since 2009 he has been a research scientist at Baylor University and since 2010 he is the visiting scholar at Texas A&M University Health Science Center. He has a significant number of peer reviewed research papers on topics relating to toxicology, risk assessment and management and the European Union's REACH regulations. Currently his professional associations include: Associate Member, International Society of Toxicology; Member, Society for Environmental Toxicology and Chemistry; and, Secretary, SETAC Human Health Risk Assessment Advisory Group. Further information on Dr. Williams is available at: http://www.baylor.edu/content/services/document.php/144120.pdf.