

Commission for Environmental Cooperation of North America



**Annual Meeting of the Consultative Group for the
North American Pollutant Release and Transfer
Register (PRTR) Project**

3-4 December 2007, Montréal, Québec, Canada

**Meeting Summary, Response to Comments and
Proposed Directions for *Taking Stock 2006***

For more information on the North American PRTR project, please contact:

Orlando Cabrera
Program Manager, Air Quality/PRTR Project
Commission for Environmental Cooperation
393, rue St-Jacques Ouest, Bureau 200
Montréal (Québec) Canada H2Y 1N9
Tel: (514) 350-4300
Fax: (514) 350-4314
Email: ocabrera@cec.org
www.cec.org
www.cec.org/takingstock/

Commission for Environmental Cooperation Meeting Summary

Annual Meeting of the Consultative Group for the North American Pollutant Release and Transfer Register (PRTR) Project 3–4 December 2007 Montréal, Québec, Canada

Introduction

The Commission for Environmental Cooperation (CEC) organized a public meeting in Montréal, Québec, Canada, as a forum for exchanging ideas and obtaining stakeholder input in the implementation of the CEC's Pollutant Release and Transfer Register (PRTR) project, to explore PRTR activities in government, industry and nongovernmental communities, and to guide the development of the *Taking Stock 2006* report and website. *Taking Stock* is an annual report which analyses publicly available data from the Canadian National Pollutant Release Inventory (NPRI), the US Toxics Release Inventory (TRI) and as of the 2004 reporting year, the Mexican *Registro de Emisiones y Transferencia de Contaminantes* (RETC).

About forty people from academia, industrial associations, nongovernmental groups and government from Canada, Mexico and the United States attended the meeting. The list of participants is attached as Annex A. A discussion paper entitled "Discussions on Pollutant Release and Transfer Registers and Consultations for the *Taking Stock 2006* report on North American Pollutant Releases and Transfers" was circulated in advance to provide background for the meeting. The discussion paper and the presentations from the meeting are available on the CEC web site at <<http://www.cec.org>>, or by request. The *Taking Stock* report and database for customized queries are available at <<http://www.cec.org/takingstock>>.

This document summarizes the discussions from the public meeting relative to: progress in the PRTR of each country, current uses of PRTR data in industry, government and non-governmental communities, opportunities for *Taking Stock 2006*, and mapping of PRTR data. It also states the preferences of the stakeholder group relating to the options presented for the special feature chapter in the *Taking Stock 2006* report.

The CEC received comments following the meeting from the Assembly of First Nations and the Ontario Ministry of Environment. The CEC wishes to thank all of the members of the Consultative Group for their comments and suggestions, and for their continued involvement in the *Taking Stock* report and the CEC's PRTR project. Comments on the *Taking Stock* report are welcome at any time.

Monday, 3 December 2007
Session I: Update on CEC Programs

CEC Program Manager for Air Quality/PRTR Orlando Cabrera, welcomed participants to the meeting and described the goals of the meeting. The objectives of the PRTR project are: to publish information on the amounts, sources and management of chemicals across the region, to increase public right to know, to enhance data comparability among the three systems, and to foster reductions in pollution. The implementation of the RETC in Mexico signifies an important step toward fulfilling the CEC's objective of building comparable PRTR systems in North America.

Mr. Cabrera described current activities and progress in the CEC PRTR project: publication of *Taking Stock 2004*, exploring PRTR mapping possibilities, collaboration with indigenous communities, collaboration with the three Parties on data quality issues, and progress toward the expected publication of *Taking Stock 2005* in spring 2008. Danielle Vallée, PRTR project consultant, described the follow-up that has taken place since the previous CG meeting in San Diego in 2006, specifically with regard to involving indigenous communities in PRTR activities: increased outreach with indigenous communities through their participation in CEC meetings, publication of two case studies on PRTR data use and awareness among indigenous communities in border regions, and PRTR project input for an indigenous environmental assembly planned for Mexico next year.

Several recommendations on *Taking Stock* are in an ongoing state of implementation: continued bilateral analysis, a shorter report with more context and improved maps, and an expanded and improved website (some of these efforts are detailed in other sections of this document). In addition, future activities may include: training and ongoing support for RETC implementation in Mexico, and trilateral collaboration on data quality.

Orlando Cabrera described the renewed CEC program on Air Quality, which has a vision of providing a more complete North American picture of air quality and air emissions to support decision-making on air quality management activities will focus on assessing inventory and monitoring systems in Canada, Mexico and the US, assisting with the updating of the Mexican national air emissions inventory, and drafting an air quality strategy for the 2010–2015 timeframe.

Cody Rice, CEC program manager for environmental information, described the creation of a Google Earth map of PRTR facilities in North America and demonstrated how this can be used to access PRTR information from each country. This data layer, using unmatched PRTR data, is available at www.cec.org/takingstock.

Catherine Miller, of Hampshire Research Associates, described the findings of *Taking Stock 2004*. The report includes the first year of mandatory RETC data leading to a trilateral analysis based on a limited set of chemicals (about 60 chemicals) and nine industry sectors, pointing out some similarities and differences in the three-country reporting. For the bilateral analysis, over three million tonnes of chemicals were released and transferred in Canada and the United States for 2004, with releases and transfers declining over time (down nine percent from 1998 to 2004). The report shows that pollution prevention is working to reduce releases and transfers; but it also reveals that

releases and transfers from the group of facilities reporting smaller amounts is tending to increase, compared to decreases over time from the group of facilities reporting larger amounts.

Catherine Miller also outlined the focus of the special feature chapter for *Taking Stock 2005*: the petroleum industry. This feature will include facilities involved in oil and gas extraction, pipelines, refineries and storage terminals. There are about six petroleum refineries in Mexico, 20 in Canada and 150 in the United States. PRTR data will be used, supplemented with data from other sources. Participants were asked for suggestions on scoping, people to contact and other suggestions on the chapter.

Participants provided the following input:

- Some refineries in the Montreal area used a third party for sulfur stripping, which will reduce the sulfur emissions from these refineries but may increase them somewhere else.
- The chapter could include data on toxics, criteria air contaminants and greenhouse gases from the industry.
- Analysis could be based on the years 2003–2005 (since oil and gas started reporting in 2003 to NPRI) to make a link to Canada's Domestic Substances List and the categorization process, by examining the chemicals identified to be released from the petroleum industry.
- It was also noted that some of the petroleum refineries in Mexico did not seem to report to RETC.

Participants encouraged the CEC to continue the valuable work of data analysis provided in *Taking Stock*. Some also noted concerns over facility data accuracy, and expressed interest in governments and facilities improving facility data quality and information flow. Orlando Cabrera noted that the three governments were discussing data quality procedures.

Session II: Updates on the Three North American PRTR Programs

Mexico's *Registro de Emisiones y Transferencia de Contaminantes* (RETC)

Floreida Paz Benito, *Subdirectora de Información y Divulgación*, Semarnat, described the RETC program. The RETC program has been developed over the years, with 2004 marking the first year of mandatory reporting of data. According to a March 2005 agreement, facilities report on 104 chemicals, including greenhouse gases and criteria air contaminants. Over 11,000 reports were received with 2004 data and 25,000 electronic reports with 2005 data. From 1997 to 2003, reporting was voluntary and on a paper format. Manual entry on paper took months and was prone to data errors. In 2004, reporting was mandatory and via electronic (diskettes), which was a great improvement. There is, however, still loss of some information (e.g., 25,000 reports, with only 22,000 incorporated), which Semarnat is working to improve. For 2006, 28,000 reports were received.

Facilities reported releases to air, water, land and transfers to sewage, reuse, co-processing (energy recovery), recycling and final disposal. The federal RETC program covers federally-regulated industries and is being implemented by state and municipal governments that will also collect data from other industries. Many Mexican states have

an agreement with Semarnat on reporting; some have legal frameworks in place and some states are already collecting data.

The preliminary 2005 reporting year data was published on 5 November 2007, to allow facilities to review data before they are finalized. This pre-publication period helps ensure data quality. Common errors are conversion between tonnes and kilograms, and reporting the total amount of material rather than the substance contained within the total amount. Semarnat is working to feed back information to the facilities to improve data quality, and to prevent the same errors from the first year being replicated in the second year. Semarnat is working on industry training and guidance manuals (including one for the paper sector and a greenhouse gas reporting manual for power plants). Because there are only six people working on the RETC program, it is often difficult to manage the load of data corrections, inquiries and training.

For the 2006 reporting year, the use of electronic signatures on RETC forms is being implemented. This is a new concept in Mexico and has been difficult to establish. New criteria for data revisions have been established, as have procedures for information flow. Semarnat will be publishing the finalized 2005 data in spring 2008, and a national report on 2004 and 2005 data; it will continue to work with the states (on the development of reporting software and guidance manuals for states), and will continue developing a method to incorporate state-level data into the RETC (including a pilot project with the Distrito Federal and the state of Mexico). Semarnat is also developing a national standard (NOM) to add chemicals to the RETC list, and is establishing a strategy for outreach and communication of information. More information is available from the web site at <<http://www.semarnat.gob.mx>>. To access the RETC data, see <<http://www.semarnat.gob.mx/gestionambiental/calidaddelaire/Pages/retc.aspx>>.

Following the presentation on the RETC program, participants expressed interest in:

- increased consideration of native groups in RETC activities
- increased involvement and integration of state data into RETC
- publication of the 2004 RETC summary report, as currently, the *Taking Stock* report is the only analysis of 2004 RETC data (Semarnat expects the summary report to be published in spring 2008)
- increased involvement at the municipal level, for example, in Baja California
- increased involvement and coordination of efforts to communicate with environmental journalists, and a communication strategy with involvement of journalists in the recreated multi-stakeholder advisory group.

Canada's National Pollutant Release Inventory (NPRI)

David Backstrom, Environment Canada, presented an overview of Canada's National Pollutant Release Inventory (NPRI). The NPRI program has grown from its beginnings in 1992, and now covers additional pollution sources such as oil and gas, additional chemicals and additional facilities. About 9,000 facilities now report on about 320 chemicals to NPRI. NPRI is one source of information about pollution, complementing other inventories and ambient air monitoring. For some contaminants, such as sulfur dioxide, NPRI represented the majority of emissions, while for others, such as carbon monoxide, NPRI industry emissions were small compared to mobile emissions; for other contaminants, including many toxics, the situation is less clear. NPRI has made some recent changes to dioxin and furan reporting, adding PAHs and other chemicals and removing exemptions for mining.

NPRI will continue to evolve in the future with planned changes, such as adding some chemicals identified through the categorization of Canada's Domestic Chemicals list and additional tools to improve access and understanding of NPRI data. In the past year, Environment Canada has done one redesign of the NPRI website and developed a Google Earth file for facilities. In 2008, Environment Canada will launch its new "Tracking Pollution in Canada" website which will include toxics and criteria air contaminants data, and will also release a new national summary of 2006 NPRI data. More information is at the NPRI web site <<http://www.ec.gc.ca/pdb/npri>>.

Following the presentation of the NPRI program, participants offered the following comments:

- participants stressed the importance of analyzing the NPRI data (including trend analysis), looking at international air and water issues, and linking to international conventions
- data analyses, such as the national summary report, were seen as an essential piece, in addition to data reporting
- participants also welcomed the new emphasis on data quality. Participants asked for a rating of the PM_{2.5} data, and David Backstrom indicated that some data were good, while some may need improvement. Participants noted that there are ranking systems for indicating data accuracy/certainty and that these could be considered for NPRI
- participants encouraged Environment Canada to have a broader outreach of NPRI data and to become more involved in intergovernmental discussions on pollution in Canada. Health Canada is starting discussions about NPRI data and welcomes involvement
- participants also noted that NPRI data and analysis needs to address cumulative emissions and impacts, not just considering one facility or one chemical at a time.

US Toxics Release Inventory (TRI)

Michelle Price, Toxics Release Inventory, described the TRI program in the United States. TRI receives about 90,000 chemical reports, from 23,000 facilities, on up to 650 chemicals. In 2005, total disposal or other releases were 4.3 billion pounds (about 27 percent from mining, 25 percent from electric utilities, 12 percent from the chemical industry, and 11 percent from the primary metal industry). The amounts reported as disposal or other releases have declined by 58 percent from 1988 to 2005. TRI data are used within the US Environmental Protection Agency in the National Partnership for Environmental Priorities, the Risk Screening Environmental Indicators and for sector analyses. A paper on TRI uses is available at <www.epa.gov/tri/guide_docs/2003_datausepaper.pdf>. For TRI information, see <www.epa.gov/tri> and for access to TRI data see <www.epa.gov/triexplorer>.

Recent changes to the TRI program include collecting data using a North American system of industrial codes (NAICS codes), and the burden reduction rule (both for the 2006 reporting year); and dioxin reporting to include toxicity equivalents as well as grams (starting with the 2008 reporting year).

TRI priorities are:

- making data available earlier (through early release of facility data, electronic web-based reporting, and state data exchange)
- improving data quality (through analysis by sectors and a cross-referencing project linking TRI data with data collected in other areas)
- improving understanding of the data (adding context in a new TRI report on Supplementary Information, expected in spring 2008)
- a new National Air Toxics Assessment, expected at the end of 2008
- the expansion of partnerships, though a re-designed TRI conference and increased partnerships with NGOs, communities and health groups.

Following the presentation of the TRI program, participants expressed interest in:

- the possibility of including criteria air contaminants in TRI (current status is for the National Emissions Inventory to collect this information and to provide links through EPA's Envirofacts)
- the number of facilities using the short form under the burden reduction rules (the response was that there are no data yet)
- the number of people working on the TRI program (small by EPA standards: about 20–25 people in the head office and about 1 in each of 10 EPA regions)
- and the status of any further TRI burden reduction proposals (the response was that no additional burden reduction proposals are being considered at this time).

Session III: How Do Stakeholders Use PRTR Data to Foster Reductions in Pollution in North America?

PEMEX

Ing. Mario Alberto Nuñez Diaz, PEMEX Mexico, described the environmental management system and current environmental programs at PEMEX. The environmental management system at PEMEX is known as SISPA, and produces reports on waste generation, spills and leakages, energy consumption, land remediation, air and water releases from PEMEX refineries. These reports are compiled monthly and sent to managers. An annual report is also developed on PEMEX operations and published on the website (www.pemex.com) as a sustainability report. SISPA is audited periodically. The information gathered in SISPA is used to complete the Annual Certificate of Operations (*Cedula de Operación Anual*—COA), and the Mexican RETC reports required by Mexico's environmental protection agency (Semarnat).

PEMEX regularly regenerates its catalysts, and some are sent to the United States and Europe for recycling. Water is reused as much as possible, up to 40 percent, and PEMEX has wastewater treatment facilities for this purpose in four refineries. Recently, new petroleum refineries have been built to remove sulfur from gasoline and reduce sulfur emissions. Large investments have been made in environmental management to modernize the refineries (and to meet new sulfur regulations in gasoline), and this has reduced sulfur dioxide emissions from refineries. PEMEX also has a volatile organic compounds (VOCs) recovery program, consisting of floating roofs on storage tanks; vapor recovery on pipes also helps to reduce VOCs. Modern installations for gas processing LPG in Burgos and Arrenque have contributed to reduced carbon dioxide emissions. For more information, see www.pemex.com.

Following the PEMEX presentation, participants provided the following input:

- They were interested in reviewing the environmental data from PEMEX, and Mario Nuñez noted that the data were both accessible and audited. If information was missing, participants were encouraged to write to him
- Participants asked if the environmental improvements were made as a result of mandatory requirements, or on a voluntary basis. Mario Nunez responded that VOCs reductions were voluntary, as there was not a VOC requirement, but the sulfur dioxide reduction was in response to mandatory requirements
- Participants were interested if PEMEX had talked to the communities surrounding the refineries. Mario Nuñez replied that they had done plume studies around refineries, encouraged people not to live too close to refineries, and with the reductions in sulfur dioxide emissions, they had recently stopped their previous practice of paying to repair damage to zinc roofs and barbed wire in the community
- In response to a question about the effect of pollution on health and climate change, Mr. Nuñez noted that PEMEX benchmarks its operations using the Solomon index. A high Solomon Index reading indicates that they are using more energy than they should to refine a product. Many refinery upgrades and replacements were undertaken to conform to the Solomon Index.

Mexican State of Nuevo León

Ma. Concepción Acosta Reyes, *Agencia de Protección al Medio Ambiente y Recursos Naturales* for the state of Nuevo León, Mexico, described the program of RETC reporting at the state level in Nuevo León. There has been a need to reduce pollution in Nuevo León and so the driver for state RETC reporting was community response to the reduced visibility of the mountain in Monterrey. Nuevo León made legal changes to authorize RETC reporting in September 2005, adopted the Semarnat reporting format, and now requires facilities to register and report annually.

The first year of reporting was 2005, with mandatory reporting in 2006. About 50 percent of the maquiladoras also joined, although they were not legally required to do so. A list of 66 chemicals was created. About 33 percent of the facilities met the chemical reporting thresholds. Facilities with the largest amounts were then targeted to develop an action plan to reduce emissions. Adopting the COA form has reduced the work of reporting for the facilities and the RETC can be used as support for emissions regulations and a decision-making tool to implement international conventions and similar programs. A municipal RETC for the City of Monterrey is also under development. The state of Nuevo León has published its preliminary information and is now working on validating and communicating this information. Resources to support the RETC program are decreasing, despite its use in assisting with pollution prevention planning and in emergency preparation. For more information please see www.nl.gob.mx/apmarn.

Following the presentation, Orlando Cabrera noted that the state of Nuevo León was also active in the development of air emissions inventories for criteria pollutants from point and mobile sources.

Massachusetts Toxics Use Reduction Institute

Rachel Massey of the Massachusetts Toxics Use Reduction Institute (TURI) described the program to reduce toxics in the US state of Massachusetts, begun in 1990. The state's Toxics Use Reduction Act (TURA) required facilities to do three things: report on their toxics, pay a fee and develop a toxics use reduction plan. TURA applied to facilities that met TRI thresholds (generally 10 employees and 10 tonnes of use of the chemical).

Facilities were required to develop a toxics use reduction plan, but were not required to implement it (although many did).

Facilities reported substantial progress over the years: a 91 percent reduction in releases, 56 percent reduction in transfers and 58 percent reduction of toxics shipped in products since 1990 (figures are production adjusted). Now TURA is proposing several changes: the ability to designate chemicals as high hazard (first to be considered are trichloroethylene and cadmium, followed by arsenic, nickel, formaldehyde, benzene and others), which lowers the reporting threshold to 1,000 pounds. A second change is the ability to designate high priority sectors, which lowers or eliminates the 10 employee threshold. These amendments are expected to bring in new facilities reporting for the first time, and also those returning facilities that previously reported, but would now meet the lowered thresholds.

The TURI provides advice, training and support for the TURA. TURI has also analyzed the changes by chemical groups, including carcinogens, organochlorines, acids, metals and will start looking at asthmagens. For more information, see <<http://www.turi.org>>, <<http://turadata.turi.org>> and <<http://www.mass.gov/dep/toxics>>.

Following the presentation on TURI, participants provided the following comments:

- They were interested in the emphasis on the use of chemicals, not just their release, and on expanding the application to other areas.
- Participants were interested in the methods used to assess fees paid (there is a base fee, depending on the number of employees, which ranges from \$3,000 to \$8,500; as well as a per-chemical fee of \$1,100. The fee is not based on the volume of chemicals released, but were large enough to run the TURA program while small enough so as not to be a huge burden).
- Another comment focused on the need to separate analyses of releases and transfers (referring to the *Taking Stock* report and website).
- Participants also noted that TURI does not use a toxicity equivalent approach.
- Another comment saw emphasized the value in the use and analysis of the data, beyond just data collection, to encourage pollution reduction that this approach shows.

Session IV: Opportunities for *Taking Stock*

Sarah Rang, Environmental Economics International, presented four possible topics for the special feature chapter of *Taking Stock 2006*. They were:

1. Water releases
2. Chemicals of special interest
3. Smaller/larger reporters
4. Your ideas

For topic 1, water releases, the special feature chapter could focus on chemicals, sectors and time trends of water releases. Water releases made up about 8 percent of total releases in 2004.

Participants were interested in water releases and suggested that the chapter:

- map water releases by watershed
- map water bodies receiving the largest amounts

- include transfers to sewage as part of the chapter
- include releases from sewage treatment plants (using NPRI data and augmenting with US and Mexican data)
- include time trends
- combine the data with pollution prevention analysis
- consider searching for success stories
- analyze chemicals considered toxic under the Canadian Environmental Protection Act
- look at top chemicals, especially nitric acid and nitrates, as a local eutrophication issue
- consider mapping international waterways and a possible link to International Joint Commission (Great Lakes) work.

For topic 2, chemicals of concern, the chapter could take an in-depth look at chemicals associated with health effects, such as carcinogens and reproductive and developmental toxics. It would ask the question: Why are releases of carcinogens and reproductive and developmental toxics decreasing at a faster rate than the population of all chemicals? Other chemicals of concern, such as dioxins and furans and polyaromatic hydrocarbons (PAHs), could also be included.

For this topic, participants suggested that the chapter:

- also consider other health-based lists, such as endocrine disrupters and asthmagens
- make links to biomarkers
- include mobile sources to get the whole picture, as these are often large sources of some carcinogens
- include spills, as these can be important sources
- not produce analyses giving misleading messages of improvement, when much work remains to be done, and that a different framing of the question may improve analysis.

For topic 3, smaller/larger reporters, the chapter could examine the reasons for the observed decrease in releases and transfers from the group of facilities reporting larger amounts from 1998 to 2004, while the group of facilities reporting smaller amounts during that period show an increase in releases and transfers. The decreases from the larger reporters tend to overshadow the increases from the smaller reporters.

Participants noted that the smallest reporters may not even report; one approach to this topic could be to share some success stories collected from among the smaller reporting group, using the special feature chapter as a vehicle.

Topic 4 was a forum to hear other ideas from the participants.

Attendees suggested that the special feature on water releases would be most interesting if the focus were to be carcinogens and endocrine disruptors rather than conventional pollutants; and if a consideration of watersheds were also expanded to include airsheds.

Participants were reminded that if they wished to provide additional comments, they could do so until 21 December 2007.

It appears that, of the opportunities presented for the feature chapter in *Taking Stock 2006*, participants were most interested in topic 1 (water releases).

Proposed Direction for *Taking Stock 2006*

The annual consultative meetings provide an important opportunity for stakeholders to help guide the development of the *Taking Stock* report. Based on comments heard at the meeting and the availability of resources, the following is an overview of the proposed directions for *Taking Stock 2006*:

- Continue to present the third year of trilateral TRI/NPRI/RETC data
- Continue the existing analyses of TRI/NPRI data
- Disaggregate releases and transfers in the *Taking Stock* report,
- Continue to enhance *Taking Stock Online*
- Continue to develop and use mapping to present PRTR data
- Continue to provide additional analysis and context in the *Taking Stock* report
- Include a special feature on water releases. This feature would include an analysis by chemical, sector, facility and jurisdiction, transfers to sewage, releases from sewage treatment plants (publicly owned treatment works), and mapping.

Comments on the *Taking Stock* reports are welcome at any time. Please direct comments to the CEC at the address shown inside the front cover of this document.

Tuesday, 4 December 2007

Session 5: New ways to Present PRTR data: Mapping Panel

Orlando Cabrera opened the session, and introduced Cody Rice, CEC program manager, environmental information.

The first presentation was given remotely by Andrew King, Harvard Business School and Chris Hughes, Mapmundi. They introduced the MapEcos web site <<http://www.mapecos.org>>. This newly launched website presents air releases from TRI facilities using a variety of measures (by sector, county, state, etc.). Facilities considered high emitters are presented with a red dot on a map, and facilities considered low emitters with a blue dot.

The website is designed as an experiment in voluntary disclosure, and encourages communication from facilities and website users. Facilities were invited to post information about their environmental programs on the website. The information posted was then studied using re-centered US EPA Risk Screening Environmental Indicators to provide a sense of hazard. The website also uses Dun and Bradstreet data to provide information on corporate structure and ownership. To date, the response rate from facilities for information has been low, perhaps because e-mail requests for information are problematic. However, facilities will be asked again to post information for analysis.

Eddie Oldfield of the New Brunswick Climate Change Public Education and Outreach Hub (of the New Brunswick Lung Association) demonstrated the NBLA's system for mapping data and previous work in mapping health data, and identified the potential applications for PRTR data. They have developed a team of people experienced in GIS work and a sophisticated computer mapping system. Mr. Oldfield identified some

different methods to map data and the different approaches to mapping (mass market systems, such as Google Earth, and international geospatial infrastructure standards). He suggested that making web maps of PRTR data could increase the use of PRTR data. Collaboration forums and tracking web transactions could also help communication with people interested in PRTR data. More information is available at <<http://www.nbhub.org>>.

David Mintz of the US EPA Air Quality Office, Research Triangle Park, North Carolina, described a new system to generate dynamic maps and information for websites from databases. He observed that large sums of money are often spent on collecting, storing and analyzing data, with much less spent on communicating these data. He has recently worked with the US National Emissions Inventory criteria air contaminants data to generate dynamic maps.

This approach uses SAS programming to create a KML file that can be used in Google Earth. It has the advantage of reflecting the most recent version of the database, providing a direct link to the database, getting results quickly, improving the links between databases and mapping applications, and allowing people to look at the data in new ways. Users can specify a year, pollutant, or sector and obtain the most current data. Three-dimensional representations can allow users to “fly” over certain geographic areas, with the height of a flagpole representing the amounts of emissions. This allows a user to quickly compare emissions among facilities. The web site is under development and can be seen at <<http://www.epa.gov/airexplorer>>.

James Saad, professor of environmental justice, Occidental College in Los Angeles, California, described his current research on linking environmental issues and social measures, such as income, race, health and learning outcomes. Their analytical strategy was based on mapping, detailed spatial analysis, univariate analysis, multivariate analysis, and model testing.

James Saad described current results linking TRI air releases with a high proportion of people of color in California, lower academic scores, mapping estimated cancer risks, addressing cumulative impacts and community vulnerability, and demonstrating the US EPA Environmental Justice Strategic Enforcement Assessment tool. This tool assigns scores based on a number of demographic, environmental, compliance, and health indicators to produce a composite score of environmental justice for a given area. Once an area is identified as overburdened, it is worthy of special protection and response by regulatory agencies.

Cody Rice (CEC) described several activities at the CEC on PRTR mapping. The current Google Earth map layer with PRTR facilities will be updated with facilities reporting in 2005. Cody demonstrated other possible methods to incorporate mapping into *Taking Stock*, including: a “map it” function for individual facilities, choropleth and proportional symbols, and “heat” maps. Other possibilities include interactive mapping, incorporating fate and transport models, mapping other sources, mapping ambient pollutant concentrations, and mapping population characteristics.

During the discussion, participants asked if linkages could be made to permitting, compliance and enforcement activities at a facility. This could be possible in the MapEcos system. Participants also felt that a “dashboard” indicator to point to areas of

concern was needed for the data, and that developing map layers for watersheds and airsheds would be helpful.

Session 6: Outreach

Danielle Vallée, of the CEC PRTR project, described current PRTR outreach activities, including: annual Consultative Group meeting, publication and distribution of the annual *Taking Stock* report, ongoing development of the *Taking Stock Online* website, and meetings with indigenous communities. Participants were asked for feedback on future outreach activities, including methods, content and frequency of communication, as well as outreach to international communities. Participants are welcome to forward their suggestions to the CEC (PRTR project) at any time.

During the discussion, Talli Nauman and Marissa Jacott and others offered to assist with communications in Mexico on *Taking Stock* and the PRTR program. They suggested that *Taking Stock* could be presented at environmental journalists' conferences, NGO workshops or other forums. They stated that Mexico needs to use the RETC data and that this will lead to improvements in the quality of the data. Discussion centered on which activity came first, improving the data or using the data.

Semarnat was requested to make the RETC database available to assist in analysis and was encouraged to publish the RETC summary report for 2004 and 2005. The RETC information needs a careful presentation, as it is the first register and based on a limited number of chemicals and sources. Data quality can be difficult in Mexico, as people filling out forms might not have been trained to do so.

In terms of overall outreach, participants noted that the CEC is not reaching the youth audience. They also stated that a printed copy of the report is essential and that more frequent PRTR communications, such as in the CEC's *TRIO* newsletter, would be helpful. Keeping the language simple would assist in understanding messages.

Taking Stock's presentation of time trends and sector comparisons was seen as useful elements. A participant suggested that the CEC could produce summaries by sector to provide feedback to a given industry sector on its releases and transfers. One participant suggested that releases and transfers be kept separate, as this would help readers to understand the data. Adding additional context on strengths and limitations of data, and on reporting requirements and thresholds would also be helpful. Sectoral comparisons and time trends are useful, if the chemicals being compared are consistent (time trends in *Taking Stock* are currently based on a consistent set of chemicals).

Participants supported the use of choropleth maps and jurisdictional boundaries on maps. They suggested a modification to the traditional saying, "what gets measured, gets managed" to "what gets publicly reported, gets better managed."

The CEC could work to reach the academic audience, including sending *Taking Stock* reports to geography and political science departments. It could also start a call for papers or research topics on PRTRs. The CEC needs to work more with native communities, as these are particularly affected by pollution. This requires continuous hard work and commitment.

At the end of the discussion period, Orlando Cabrera closed the meeting.

Annex A: List of Participants

CANADA

David Backstrom*

Environment Canada
351, St-Joseph Blvd
Gatineau, QC K1A 0H3
T: 819.953.6806
F: 819.956.6047
E: david.backstrom@ec.gc.ca

Pierre Chaput

Director, Sustainable Development
Aluminum Association of Canada
1010, Sherbrooke St. West, Suite 1600
Montréal, QC H3A 2R7
T: 514.288.4842
F: 514.288.0944
E: pierre.chaput@aluminium.gc.ca

Fe de León

Researcher
Canadian Environmental Law Association
130 Spadina Ave., Suite 301
Toronto, ON M5V 2L4
T: 416 960 2284 x 223
F: 416 960 9392
E: deleonf@lao.on.ca

John Jackson

Program Director
Great Lakes United
17 Major Street
Kitchener, ON N2H 4R1
T: 519.744.1546
E: jjackson@glu.org

Louise Lapierre

Conseillère, Bureau des relations
intergouvernementales
et des changements climatiques
Ministère du Développement durable,
de l'Environnement et des Parcs
675 boul. René-Lévesque Est, 6e étage
Québec, QC G1R 5V7
T: 418.521.3828 x 4105
F: 418.646.4920
E: louise.lapierre@mddep.gouv.qc.ca

Richard Martin

Senior Evaluator
Health Canada
269 Laurier Ave West, Suite 4-022
Ottawa, ON K1A 0K9
T: 613.957.1816
F: 613.941.9238
E: Richard.C.Martin@hc-sc.gc.ca

John Mayes

Director, Ontario Ministry of the Environment
Environmental Monitoring and Reporting
Branch
125 Resources Road
Etubicoke, ON M9P 3V6
T: 416.235.6160
F: 416.235.5775
E: john.mayes@ontario.ca

Eddie Oldfield (via teleconference)

Director, New Brunswick Climate Change Hub
and Environmental Health Mapping
c/o New Brunswick Lung Association
65 Brunswick Street
Fredericton, NB E3B 1G5
T: 506.455.8961 ext 113
F: 506.462.0939
E: eddie.oldfield@nb.lung.ca

Ronald Plain

Consultant
No. 2 - 1206 Tashmoo Ave
Aamjiwnaang First Nation, ON N7T 8A6
T: 416.271.6269
F: 519.337.3144
E: rplain@environmentaldefence.ca

Sarah Rang

Partner
Environmental Economics International
317 Adelaide Street West, Suite 705
Toronto, ON M5V 1P9
T: 416.972.7400
E: srang@enveei.com

Jody Rosenberger*

A/Manager, Harmonization & Coordination
Section
Pollution Data Division
351 Saint-Joseph Blvd., PVM, 9th Floor
Gatineau, QC K1A 0H3
T: 819.994.1441
F: 819.956.6047
E: jody.rosenberger@ec.gc.ca

Robert Schutzman

Director, Environmental Affairs, Canada
IPSCO inc.
P. O. Box 1670
Regina, SK S4P 3C7
T: 306.924.7483
F: 306.924.7670
E: rschutzman@ipsco.com

Donald Sharp

Senior Policy Advisor
Assembly of First Nations
473 Albert St.
Ottawa, ON K1R 5B4
T: 613. 241.6789 x 330
F: 613.241.5808
E: dsharp@afn.ca

Julie Sommerfreund

Project Co-ordinator
Pollution Probe
63 Sparks St. Suite 101
Ottawa, ON K1P 5A6
T: 613.237.1790
T: 613.237.6111
E: jsommerfreund@pollutionprobe.org

Anna Tilman

Co-Chair
STORM Coalition
7 Whitfield Court
Aurora, ON L4G 5L8
T: 905.841.0095
F: 905.713.0562
E: annatilman@sympatico.ca

Bruce Walker

STOP
651 Notre-Dame West, Bureau 520
Montreal, QC H3C 1H9
T: 514.393.9559
F: 514.393.9588

UNITED STATES

Shon Doseck

Consultant
Pangaea Information Technologies, Ltd
219 West Chicago Avenue, 5th Floor
Chicago, IL 60610
T: 312.337.5404
F: 312.337.5405
E: sdoseck@pangaeatech.com

Tisha Emerson

Associate Professor of Economics
Baylor University
One Bear Place, No. 98003
Waco, TX 76798-8003
T: 254.710.4180
F: 254.710.6142
E: tisha_nakao@baylor.edu

Chris Hughes (via teleconference)

Consultant
MapMundi
3 Fern Lane
Hanover, NH 03755
T: 603.646.0846
E: hughes036@gmail.com

Andrew King (via teleconference)

Marvin Bower Fellow
Harvard Business School
Morgan Hall T95
Boston, MA 02163
T: 617.495.7562
F: 617.496.4072
E: aking@hbs.edu

Rachel Massey

Policy Analyst
Massachusetts Toxics Use Reduction Institute
University of Massachusetts Lowell
One University Avenue
Lowell, MA 01854
T: 978.943.3124
F: 978.943.3050
E: Rachel.Massey@uml.edu

Catherine Miller

Hampshire Research Institute
P.O. Box 6603
Hamden, CT 06517
T: 203.498.9697
F: 203.498.2501
E: cmiller@hampshire.org

David Mintz

Statistician
US EPA
Mail Code C-304-04
Research Triangle Park, NC 02771
T: 919.541.5224
F: 919.541.3613
E: mintz.david@epa.gov

Talli Nauman

Center for International Policy
Americas Program
11853 Acorn Ridge Rd.
Spearfish, SD 57783-3307
T: 605.269.2206
F: 605.269.2206
E: talli@huges.net / talli@irc-online.org

Michelle Price*

Environmental Protection Specialist
US EPA - TRI Program Division (2844T)
Office of Environmental Information
1200 Pennsylvania Avenue, NW
Washington, DC 20460
T: 202.566.0744
F: 202.566.0741
E: price.michelle@epa.gov

James Sadd

Professor of Environmental Science
Occidental College
1600 Campus Road
Los Angeles, CA 90041
T: 323.259.2518
E: jsadd@oxy.edu

Amelia Simpson

Director, Border Environmental Justice Campaign
Environmental Health Coalition
401 Mile of Cars Way, Suite 310
National City, CA 91950
T: 619.474.0220 x 116
F: 619.474.1210
E: amelias@environmentalhealth.org

Steven Shumaker

Consultant
Pangaea Information Technologies, Ltd
219 West Chicago Avenue, 5th Floor
Chicago, IL 60610
T: 312.337.5404
F: 312.337.5405
E: sshumaker@pangaeatech.com

Taisa Welhasch

Environmental Service Consultant
Independent Contractor: Environmental Management Systems and Environmental Communications
11301 8th Ave. NE, Unit A
Seattle, WA 98125
E: taisawelhasch@gmail.com

México**Ma. Concepción Acosta Reyes**

Jefe de Saneamiento Ambiental e Inspección y Vigilancia
Agencia de Protección al Medio Ambiente y Recursos Naturales
Av. Alfonso Reyes No. 1000
Interior parque Niños Héroes, Colonia Regina
Monterrey, NL 64290
T: 5255 2020 7420
F: 5255 2020 7416
E: maria.acosta@nuevoleon.gob.mx

Rosa María Armendariz Muñoz

Secretaria General y Presidenta de la Región Centro del CCDS
Confederación Nacional Campesina de Indígenas y Productores Rurales A. C.
CNCINPRO
Puebla No. 302 Despacho 601
México, D. F. 00621
T: 5255 5525 8618
F: 5255 5525 8618
E: cncinpro_ac@yahoo.com.mx

Lic. Juan Marin Gracia Gracia

Director de Mejoramiento Ambiental
Agencia de Protección al Medio Ambiente y Recursos Naturales
Av. Alfonso Reyes No. 1000
Interior parque Niños Héroes, Colonia Regina
Monterrey, NL 64290
T: 5255 2020 7420
F: 5255 2020 7416
E: juan.gracia@nuevoleon.gob.mx

Marisa Jacott Jiménez

Directora Programa Ambiental
Fronteras Comunes
Yacatas 483, Col. Narvarte
Del. Benito Juárez
México, DF 03020
T: 5255 5682 6763
E: mjacott@laneta.apc.org

Isabel Kreiner

Directora Programa Ambiental
UV Lateinamerika, SRL de CV
Guerrero 32, Col. Emilio Zapata
México, DF 04815
T: 5255 5286 2342
F: 5255 5286 2342
E: uvlatein@prodigy.net.mx

Rubén Muñoz

Director de Medio Ambiente, Seguridad e
Higiene, Asociación Nacional de la Industria
Química, A.C.
Angel Urza #505, Col. Del Valle
México, DF 03100
T: 5255 5230 5100
F: 5255 5559 2208
E: rgarcia@ania.org.mx

Alvaro Roman Osornio Vargas

Head, Environmental Health
Programa Universitario e Medio Ambiente -
Instituto Nacional de Cancerología.
Av. San Fernando 22, Col. Sección XVI
México, DF 14080
T: 555 622 5212
F: 555 622 5207
E: aosornio_06@servidor.unam.mx

Floreida Paz Benito*

Subdirectoria de Información y Divulgación
Semarnat
Av. Revolución No. 1425 Nivel 33
Del. Tlacopac San Ángel
México, DF 01040
T: 5255 5624 3393
F: 5255 5624 3395
E: bpaz@semarnat.gob.mx

Emilio Javier Manrique Ramírez

Presidente
Colegio de Ingenieros Ambientales de
México, A.C.
Av. Nuevo León 213 – 604
Col. Hipódromo Condesa
México, DF 01600
T: 5255 5276 9249
F: 5255 5277 4712
E: ejmanriquer@yahoo.com.mx

José Ernesto Navarro Reynoso

Consultor
CCA, Oficina México
Av. Progreso No. 3
Col. Sta. Catarina, Del Coyoacán
México, DF 04010
T: 5255 5659 1990 / 1905
F: 5255 5659 5023
E: enavarro@cec.org

Mario Alberto Núñez Díaz

Superintendente, Petróleos Mexicanos
Dirección Corporativa de Operaciones
Gerencia de Protección Ambiental
Marina Nacional 329, Torre Ejecutiva Piso 35
México, DF 11311
T: 5255 1944 2500, x 54774
E: manunez@pemex.gob.mx

José Andrés Sánchez Luna

Jefatura Ambiental
Productos Farmaceuticos SA de CV
Km 4.2 Carretera a Pabellón de Hidalgo
Aguascalientes, Ags 20420
T: 5246 5958 1804
E: asanchez@chinoin.com.mx

CEC SECRETARIAT

Orlando Cabrera-Rivera

Program Manager, Air and PRTR
T: 514.350.4323
E: ocabrera@cec.org

Danielle Vallée

Consultant
T: 514.350-4333
Email: dvallee@cec.org

Mario Cuan Alarcón

Program Manager, Partnership Development
T: 514.350.4307
E: mcuan@cec.org

Marilou Nichols

Assistant, Pollutants and Health
T: 514.350.4341
Email: mnichols@cec.org

Cody Rice

Program Manager, Environmental Information
T: 514.350.4326
Email: crice@cec.org

Jeff Stoub

Publications Manager
T: 514.350.4327
E: jstoub@cec.org

Douglas Kirk

Managing Editor, English
T: 514.350.4352
E: dkirk@cec.org

Olga Sotelo

Meeting Services Assistant
T: 514.350.4343
Email: osotelo@cec.org