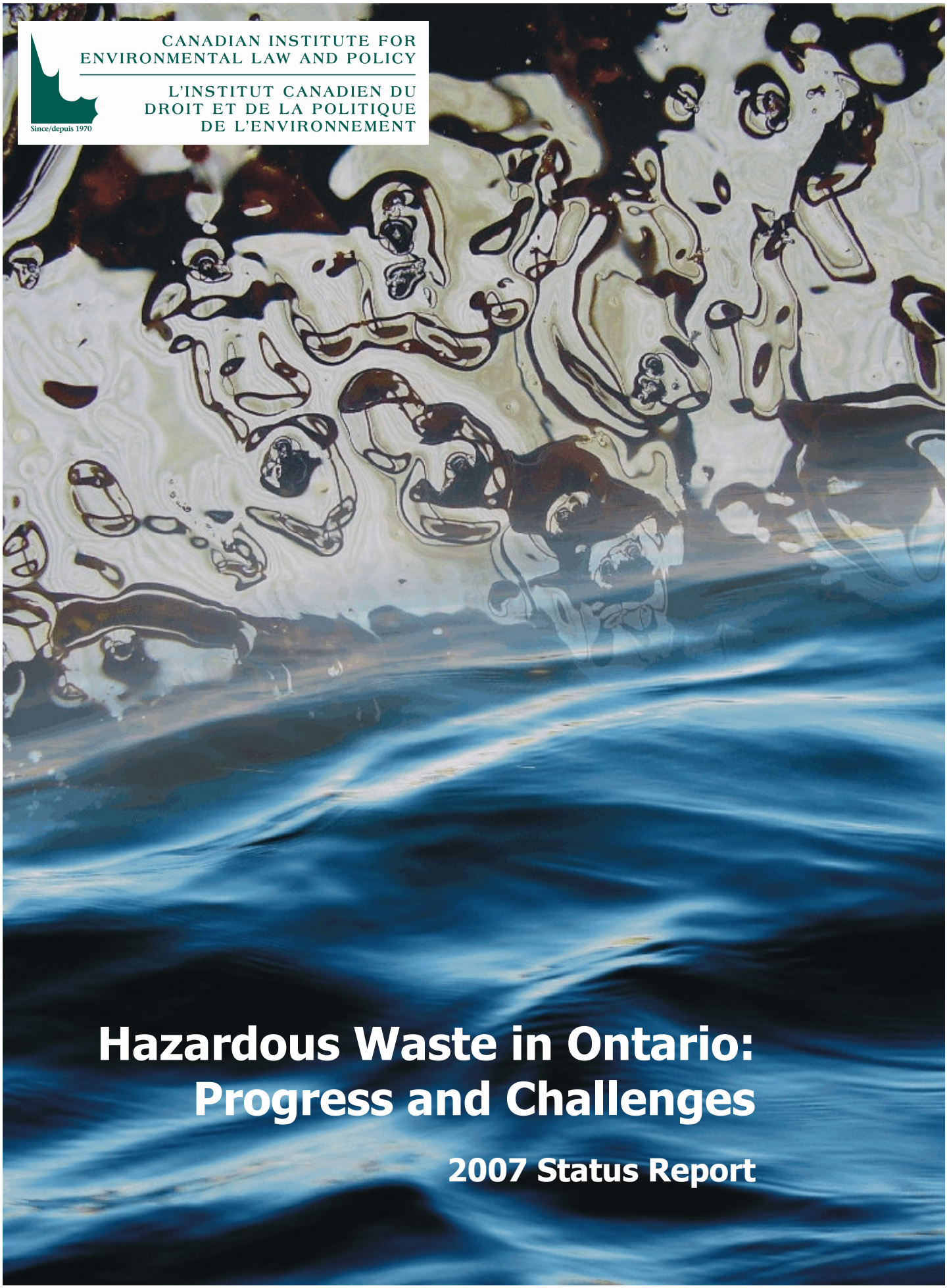

CANADIAN INSTITUTE FOR
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L'INSTITUT CANADIEN DU
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Hazardous Waste in Ontario: Progress and Challenges

2007 Status Report

Hazardous Waste in Ontario: Progress and Challenges

By Maureen Carter-Whitney
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Canadian Institute for Environmental Law and Policy

With research support from
Allison Ross
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Founded in 1970, as the Canadian Environmental Law Research Foundation (CELRF), the Canadian Institute for Environmental Law and Policy (CIELAP) is an independent, not-for-profit professional research and educational institute committed to environmental law and policy analysis and reform. CIELAP is incorporated under the laws of the Province of Ontario and registered with Revenue Canada as a charitable organization. Our registration number is 11883 3417 RR0001.

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Maureen Carter-Whitney is an environmental lawyer with a background in legal research and environmental public policy analysis, and a strong interest in public engagement in environmental decision-making. Prior to joining CIELAP in September 2005, Maureen worked as a legal analyst with the Environmental Commissioner of Ontario. She also teaches courses in environmental law. Maureen has a Bachelor of Laws from the University of British Columbia and Master of Laws in administrative law from Osgoode Hall Law School at York University. She is also the updating author of *Environmental Approvals* in Canada, published by LexisNexis Butterworths.

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Executive Summary

For over three decades the Canadian Institute for Environmental Law and Policy (CIELAP) has worked to improve the management of hazardous waste in Ontario and Canada. Among its more recent projects, CIELAP published a report in 2000 called *Open for Toxics: A Study of Hazardous Waste Generation and Disposal in Ontario* that presented a comprehensive analysis of the hazardous waste generated and received in Ontario from 1994 to 1998. Three years later, CIELAP produced the 2003 *Ontario: Open for Toxics* report, which updated the earlier analysis and informed Ontarians on the trends in hazardous waste in the province between 1998 and 2000.

CIELAP's reports brought to light Ontario's history of being a 'dumping ground' for hazardous waste. The movement of U.S. hazardous waste into Ontario rose by 138% between 1994 and 1998. During the same period, hazardous waste generation by Ontario industries and facilities increased by 41.8 %. Ontario was the only jurisdiction in all of North America that accepted untreated hazardous waste. The principle conclusion in both of CIELAP's 2000 and 2003 reports was that the disturbing trend of the US sending hazardous waste to Ontario for cheap disposal would continue due to the fact that Ontario did not have detailed regulatory standards for hazardous waste handling and disposal.

Since CIELAP issued these reports the provincial government has made significant progress to address hazardous waste in Ontario on a number of fronts, including: the Land Disposal Restriction Regulation; waste storage, mixing and processing requirements; the Hazardous Waste Information Network; new generator registration requirements; notification, certification and reporting requirements; the phase-out of existing hospital incinerators; the decision not to require mandatory destruction of PCBs at this time; and the proposed diversion program for household hazardous waste.

There remain, however, a number of gaps in regulation of hazardous waste in Ontario and many areas for improvement. Issues that still require focused attention include: the need to enforce compliance for the recently legislated Land Disposal Restriction Regulation and to target the worst offenders; the lack of regulation for land disposal by small-quantity producers; the lack of compliance in registering with the Hazardous Waste Information Network and the lack of a mechanism to present the information from this database to the public; the need for regular reporting to the public on hazardous waste in the province; the need to control the disposal of hazardous wastes to sewers; and the need to develop adequate hazardous waste disposal facilities for compact fluorescent bulbs.

Recent data shows no substantial reduction in the amounts of hazardous waste generated overall in Ontario over the years 2000 to 2005. As well as refining, implementing and enforcing existing hazardous waste management initiatives, it is essential that the Ontario government actively promote pollution prevention through toxics use reduction, extended producer responsibility and design for environment in addressing the problem of hazardous waste.

Recommendations

1. The Ontario government should invest in adequate resources to enforce compliance with the timeline for implementation of the Land Disposal Restrictions Regulation, and target the worst offenders.

2. The Ontario government should address unresolved issues related to land disposal of hazardous waste that were not dealt with in the Land Disposal Restriction Regulation, particularly with respect to small-quantity producers of hazardous waste.

3. The Ontario government should ensure that the new programs for the diversion of household hazardous wastes and special wastes, and of waste electrical and electronic equipment, are effectively implemented and promoted to the public.

4. The Ontario government should evaluate and improve treatment standards included in the Land Disposal Restriction Regulation and ensure that they are followed. The Ontario government should also develop a guideline specific to hazardous waste incinerators setting out rigorous emissions and operating standards.

5. The Ontario government should continue to work to ensure that all active hazardous waste generators are registered on the Hazardous Waste Information Network.

6. The Ontario government should give the public access, free of charge, to information on the Hazardous Waste Information Network, through a website that is user-friendly, clear and useful, and includes: locations of hazardous wastes; industrial sectors generating hazardous waste; total hazardous and liquid waste generation; total hazardous and liquid waste generation by sector, class, code, and type; and the fates of all wastes generated, both on and off site. The government should also provide its own analysis of the hazardous waste generation data and make it available to the public.

7. The Ontario government should publish annual reports that contain: a summary of the types, volumes and weights of municipal and industrial wastes, household hazardous wastes and hazardous industrial wastes; and information about the end disposal of the wastes by different methods, such as reuse, recycling, landfill and incineration.

8. The Ontario government should address the problem of hazardous waste discharges into sewage systems by: developing a revised model sewer use by-law; better assessing the environmental health impacts of landfill leachate discharged into sewage treatment plants; documenting and reporting on the quality of sewage treatment plant discharges into water; and addressing the issue of how to deal with the increasing volume of persistent toxic contaminants in the sewage system.

9. The Ontario government should require municipalities to submit their Pollution Prevention and Control Plans, and MOE should review these plans and monitor the municipalities for compliance with the plans.

10 The Ontario government should take a stronger role in stormwater monitoring and management in Ontario.

11 The Ontario government should invest further resources in public education, research, and improved regulation and monitoring of sewage treatment plants with respect to emerging contaminants such as pharmaceuticals and personal care products.

12 The Ontario government should address the issue of safe disposal of compact fluorescent light bulbs, and ensure that future policy initiatives are evaluated for potential impacts on hazardous waste disposal.

13 The Ontario government should actively pursue a pollution prevention strategy for hazardous wastes that focuses on toxics use reduction. Regulatory tools and voluntary programs should both be considered. The government should also report to the public on its efforts to promote pollution prevention planning since 2001.

14 The Ontario government should use municipal hazardous and special waste diversion plans to promote Extended Producer Responsibility in Ontario, and should develop other policy and regulatory initiatives to do this as well. These could include regulations requiring specific "design for environment" changes, and the phase-out of specific hazardous materials in products.

Hazardous Waste in Ontario

In recent decades, there has been unprecedented growth in new chemicals being produced for consumer and industrial use in North America. Many of these chemicals, and the residues from their production, become hazardous waste and require careful disposal. In Canada, millions of tonnes of wastes are generated every year as by-products of industrial activities, and six million tonnes of these wastes contain toxic substances such as arsenic, lead, and mercury.[1] Consumers also use products containing these chemicals and are left with household hazardous wastes that require proper disposal.[2] Many chemicals in hazardous waste products are potentially harmful to human health and the environment. They may present immediate dangers, such as flammability and corrosivity, as well as longer-term risks stemming from the accumulation and persistence of toxics in the environment.[3] Until recently, toxic pollution has generally not received the attention it deserves. This is likely, in part, because the damage they cause is invisible. Studies have only recently examined and revealed the presence of toxic chemicals in people's bloodstreams.[4] Many of these chemicals have been linked through scientific studies to specific known health effects.[5]

Most of the chemicals in use in Canada have never undergone full health and environmental risk assessment.[6] In 2007, the Canadian government categorized existing substances and identified 200 chemical substances with the potential to harm human health or the environment as the highest priorities for risk assessment and control. The government plans to assess these chemicals over the next three years and then decide on further actions to manage them.[7]

The problem of hazardous waste requires urgent attention not only from environmental and ethical perspectives, but also from a cost perspective. Various negative external costs must be addressed, including water contamination, air pollution, and clean-up costs from accidents. Contaminants are also entering the food chain and affecting the health of Ontario residents. This environmental health issue is likely creating significant costs for the public health care system as well as employers.

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1 Environment Canada. *Hazardous Waste Fact Sheet*_ from the General Information Section of CEPA's web site: http://www.ec.gc.ca/CEPARegistry/gene_info/fact_16.cfm.

2 CIELAP, *Understanding Hazardous Waste in Ontario*, June 2006: http://www.cielap.org/pub/pub_hwfactsheet.html.

3 Environment Canada. *Hazardous Waste Fact Sheet*_ from the General Information Section of CEPA's web site: http://www.ec.gc.ca/CEPARegistry/gene_info/fact_16.cfm.

4 See recent reports by Environmental Defence: *Toxic Nation: A Report on Pollution in Canadians* (2005); *Polluted Children, Toxic Nation: A Report on Pollution in Canadian Families* (2006); and *Toxic Nation on Parliament Hill: A Report on the Pollution in Four Canadian Politicians* (2007) – http://www.environmentaldefence.ca/toxicnation/resources/publications.htm.

5 More detailed information about the known health effects of specific toxic chemicals found in hazardous wastes is available on the US Agency for Toxic Substances & Disease Registry: http://www.atsdr.cdc.gov/toxfaq.html.

6 Environment Canada, *Focus on Issues Fact Sheet* from the General Information Section of CEPA web site: http://www.ec.gc.ca/CEPARegistry/gene_info/fact_16.cfm

7 Government of Canada, Chemical Substances Website, *Chemical Management*: http://www.chemicalsubstanceschimiques.gc.ca/plan/index_e.html.

For over three decades the Canadian Institute for Environmental Law and Policy (CIELAP) has worked to improve the management of hazardous waste in Ontario and Canada. Among its more recent projects, CIELAP published a report in 2000 called *Open for Toxics: A Study of Hazardous Waste Generation and Disposal in Ontario* that presented a comprehensive analysis of the hazardous waste generated and received in Ontario from 1994 to 1998.[8] Three years later, CIELAP produced the 2003 *Ontario: Open for Toxics* report, which updated the earlier analysis and informed Ontarians on the trends in hazardous waste in the province between 1998 and 2000.[9]

CIELAP's reports brought to light Ontario's history of being a 'dumping ground' for hazardous waste. The movement of U.S. hazardous waste into Ontario rose by 138% between 1994 and 1998. During the same period, hazardous waste generation by Ontario industries and facilities increased by 41.8 %. Ontario was the only jurisdiction in all of North America that accepted untreated hazardous waste. The principle conclusion in both of CIELAP's 2000 and 2003 reports was that the disturbing trend of the US sending hazardous waste to Ontario for cheap disposal would continue due to the fact that Ontario did not have detailed regulatory standards for hazardous waste handling and disposal.

Since the release of CIELAP's reports the provincial government has made some significant progress in addressing hazardous waste in Ontario. One of the most significant changes was the introduction of the Land Disposal Restrictions program in 2005. Gaps remain, however, that need to be addressed through further development of laws and policies to manage hazardous waste.

Also, recent data shows no substantial reduction in the amounts of hazardous waste generated overall in Ontario over the years 2000 to 2005. As well as refining, implementing and enforcing existing hazardous waste management initiatives, it is essential that the Ontario government actively promote pollution prevention through toxics use reduction, extended producer responsibility and design for environment in addressing the problem of hazardous waste.

This report aims to bring attention to recent progress in hazardous waste management made by the provincial government and to make recommendations on the gaps and opportunities for improvement that remain. Appendix A has been provided to update some of the key trends that were highlighted in CIELAP's previous *Open for Toxics* reports; the appendix examines and compares data on the amounts of hazardous waste generated and received in Ontario from 2000 to 2005. A glossary has also been included in the appendix to provide definitions for a number of terms used in the paper.

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[8] CIELAP, *Open for Toxics: A Study of Hazardous Waste Generation and Disposal in Ontario*, 2000: http://cielap.org/pdf/hazard.pdf.

[9] CIELAP, *Ontario: Open for Toxics*, 2003: http://cielap.org/pub/pub_oft.html.

Positive Progress

The provincial government has made significant progress to address hazardous waste in Ontario since CIELAP's 2003 *Open for Toxics* report. This section reviews a number of important changes to hazardous waste management in Ontario and recent initiatives that have been introduced.

Land Disposal Restriction Regulation

In August of 2005, the provincial government amended Regulation 347, the general waste management regulation under the *Environmental Protection Act*, to end the land disposal of untreated hazardous waste.[10] Amendments made by the Land Disposal Restriction Regulation now prohibit the disposal of untreated hazardous waste in landfills or landfarms (which are used to dispose of sludge produced in petrochemical refining), and provide for the same pre-treatment requirements that are used in the United States. This action responded to the grave concerns expressed in both of CIELAP's 2000 and 2003 reports that the U.S. was using Ontario as a cheap disposal ground for hazardous waste.

This move by the provincial government is a significant step towards decreasing hazardous waste in Ontario. Implementation of the amendments is being phased in as follows: land disposal restrictions for listed and characteristic inorganic wastes came into effect on August 31st, 2007; and land disposal restrictions for listed and characteristic organic and mixed wastes, and for listed and characteristic wastes treated to specified standards with removal of all underlying hazardous constituents, will come into effect on December 31st, 2009.[11] As the Environmental Commissioner of Ontario has observed,

> [t]he newly amended regulation lessens the risk of groundwater and other contamination by requiring treatment to change wastes physically or chemically in order to limit the potential for future impacts to soil, groundwater and air. The LDR program should also provide an incentive for industry to reduce the generation of hazardous waste.[12]

Waste Storage, Mixing and Processing Requirements Effective March 31, 2006

Another of the August 2005 amendments to Reg. 347 added requirements for the on-site storage, mixing and processing of wastes, depending on the nature of wastes generated (non-hazardous and hazardous) and the waste activities occurring on-site. As of March 31, 2006, these additional

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[10] O. Reg. 461/05 amending Reg. 347, R.R.O. 1990, under the *Environmental Protection Act*.

[11] Ministry of the Environment, *Fact Sheet: New Pre-Treatment Rules for Hazardous Waste*, August 2005: http://www.ene.gov.on.ca/en/news/2005/081001mb.pdf.

[12] Environmental Commissioner of Ontario, *Neglecting our Obligations: Annual Report 2005-2006* at 87: http://www.eco.on.ca/english/publicat/ar2005_en_report_01.pdf.

requirements apply to most of the hazardous waste generators in Ontario.[13] Overall, this change provides more clarification and requests more information from hazardous waste generators. It prohibits the mixing of wastes with other wastes or materials to address the concern that some waste generators may attempt to dilute their wastes in order to evade the pre-treatment standards. This amendment also provides more clarification as to when Certificates of Approval are required for certain on-site waste processing practices. Wastes that are stored on-site for more than three months will be required to meet new standards and will need a certificate of approval if stored on-site for more than two years.[14] According to the provincial government, this ensures that wastes are stored appropriately and not indefinitely. It also allows for some flexibility because it enables waste generation facilities to accumulate a sufficient volume of waste before disposal.[15]

Hazardous Waste Information Network

Past CIELAP reports on hazardous waste have consistently highlighted the need for improved reporting of hazardous waste generation, handling and disposal. Since January 1, 2002, Ontario MOE has required that hazardous waste producers register their wastes by type and quantity every year. They must also pay a fee that is determined according to how much hazardous waste they have generated. CIELAP has noted the fact that "[t]his was the first major change to the producer registration and tracking systems since the Ministry first began tracking hazardous waste in 1985."[16] The Hazardous Waste Information Network (HWIN) allows generators, carriers, and receivers to register their activities with MOE online. The HWIN also makes it possible for users to pay generator registration fees and create and process electronic manifests over the web.[17]

New Generator Registration Requirements

On January 1st, 2007, amendments to Reg. 347 came into effect that require that generators provide additional information on waste characterization gained from analytical testing or other knowledge about the wastes. In addition, generators must identify contaminants, pre-treatment requirements and the intended treatment method for hazardous wastes that are proceeding to land disposal.[18]

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[13] Ministry of the Environment, *Fact Sheet: New Pre-Treatment Rules for Hazardous Waste*, August 2005: http://www.ene.gov.on.ca/en/news/2005/081001mb.pdf.

[14] Ministry of the Environment, *Waste Storage, Mixing and Processing Requirements Effective March 31, 2006*, April 2006, at 2: http://www.ene.gov.on.ca/envision/gp/5540e.pdf .

[15] *Ibid.*

[16] CIELAP, *Understanding Hazardous Waste in Ontario*, June 2006 at 2: http://www.cielap.org/pub/pub_hwfactsheet.html.

[17] HWIN: https://www.hwin.ca/hwin/index.jsp.

[18] Ministry of the Environment, *Fact Sheet: New Pre-Treatment Rules for Hazardous Waste*, August 2005: http://www.ene.gov.on.ca/en/news/2005/081001mb.pdf.

Notification, Certification and Reporting

Further amendments to Reg. 347 introduce notification, certification and reporting requirements related to hazardous waste that came into effect on August 31st, 2007. The new requirements apply to notification and reporting for those who: generate hazardous wastes requiring pre-treatment; treat and process these wastes; and receive and dispose of these wastes. Those that treat and process hazardous wastes are also subject to waste analysis requirements.[19]

Phase-out of Existing Hospital Incinerators

On December 6, 2002, the provincial government filed regulatory amendments to Reg. 347 aimed at phasing out existing hospital incinerators.[20] The amendments required that all existing hospital incinerators operating under Reg. 347 and all hospital incinerators operating under a certificate of approval issued prior to the amendments cease operations within one year of the regulation taking effect. The government took this step because most hospital incinerators were more than 20 years old and not adequately designed to incinerate biomedical waste safely. These old incinerators had been approved on the basis of criteria that had subsequently become outdated. MOE stated that the phase-out was necessary because hospital incinerators were estimated to be the largest emitters of dioxins and the 13th largest emitters of mercury in Ontario.[21] To support the phase-out of hospital incinerators, MOE issued two guidelines along with the regulatory amendment in October 2002: *Guideline A-1 – Combustion, Air Pollution Control and Monitoring Requirements for Biomedical Waste Incinerators in Ontario*, and *Guideline C-17 – Non-Incineration Technologies for Treatment of Biomedical Waste (Protocols for Microbiological Testing).*[22] In a July 2005 CCME report, *Canada-wide Standards for Mercury – A Report on Progress*, MOE staff verified that all hospital incinerators had been closed, and stated that there was only one commercial biomedical incinerator operating in Ontario.[23]

Proposed Amendment Requiring Mandatory Destruction of PCBs in Storage Not Pursued

In December 2001, MOE proposed a draft regulation that would have required the mandatory destruction of PCBs already in storage at approved facilities within three years of the regulatory change, and would have provided a destruction schedule for PCB wastes placed in storage after the regulation took effect. In a notice posted on the Environmental Registry one year later, MOE

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[19] Ministry of the Environment, *Fact Sheet: New Pre-Treatment Rules for Hazardous Waste*, August 2005: http://www.ene.gov.on.ca/en/news/2005/081001mb.pdf.

[20] O. Reg. 323/02 amending Reg. 347, R.R.O. 1990, under the *Environmental Protection Act*.

[21] See Environmental Registry decision notice RA01E0023: www.ebr.gov.on.ca.

[22] *Ibid.*

[23] Canadian Council of Ministers of the Environment (CCME), *Canada-wide Standards for Mercury – A Report on Progress*, June 2005 at 29: http://www.ccme.ca/assets/pdf/joint_hg_progress_rpt_e.pdf.

stated that it would address the draft regulation regarding the destruction of PCBs at a later date.[24] As of June 2007, the Ministry has not pursued this proposed regulation further.

CIELAP supports MOE's decision against requiring mandatory destruction of PCBs in storage at this time. As noted in CIELAP's 2003 *Open for Toxics* report, there are concerns that implementing such a regulation could place the health and safety of Ontario residents at higher risk.[25] CIELAP's 2003 report noted comments by the Pembina Institute for Appropriate Development that the existing regulatory regime subjected PCB storage sites to extensive federal and provincial regulatory requirements and oversight, and that MOE's proposal for mandatory destruction of these stored wastes did not include "any assessment of the adequacy of existing PCB disposal capacity in Ontario to destroy these wastes safely."[26] The Pembina Institute urged the deferral of the proposal that PCBs in storage be destroyed within three years pending a thorough investigation of Ontario's PCB destruction needs and options.[27]

Plans for Diversion of Household Hazardous Waste and Waste Electrical and Electronic Equipment

In December 2006, MOE made a regulation that designated a number of hazardous and special wastes under the *WDA*.[28] In doing so, the Minister asked Waste Diversion Ontario (WDO) to develop a new program for household hazardous and special wastes, including materials such as paint, household cleaners, fluorescent tubes, batteries and pharmaceuticals.[29] In May 2007, WDO submitted the first phase of the Municipal Hazardous or Special Waste (MHSW) program plan and a consultation plan to the Minister of the Environment. The first phase of this program addresses reduction, reuse and recycling approaches to divert target wastes from homes and some small businesses, including: paints; solvents; oil filters; oil containers; single use batteries; antifreeze; pressurized containers, such as propane cylinders; fertilizers; and pesticides. Both the program plan and the consultation document were posted on the Environmental Registry on June 11th, 2007 for a 30-day public comment period.[30]

MOE is also proceeding with its request to WDO that it develop a diversion program for Waste Electrical and Electronic Equipment (WEEE). In June 2007, the Minister of the Environment sent a final Minister's Program Request Letter to WDO, requiring it to develop the WEEE program. This will be significant because WEEE typically contains hazardous materials. The Minister's letter requires that the program ensure that WEEE is processed in a safe and

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[24] See Environmental Registry decision notice RA01E0023: www.ebr.gov.on.ca.

[25] CIELAP, *Ontario: Open for Toxics*, 2003 at 5: http://cielap.org/pub/pub_oft.html.

[26] Correspondence from Mark Winfield, Pembina Institute for Appropriate Development to Frank Coschi, Waste Management Policy Branch, MOE, March 15, 2002: http://pubs.pembina.org/reports/2002-03-18_pcb_risk.pdf.

[27] Correspondence from Mark Winfield, Pembina Institute for Appropriate Development to Frank Coschi, Waste Management Policy Branch, MOE, March 15, 2002: http://pubs.pembina.org/reports/2002-03-18_pcb_risk.pdf.

[28] O. Reg. 542/06 made under the *Waste Diversion Act, 2002*: http://www.ene.gov.on.ca/envision/land/wda/542-06.pdf.

[29] See Environmental Registry proposal notice RA06E0003: www.ebr.gov.on.ca.

[30] See Environmental Registry proposal notice 010-0558: www.ebr.gov.on.ca.

environmentally sound manner in accordance with local, provincial and national regulations, and international laws such as the *Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and the Disposal*.[31]

[31] Correspondence from Hon. Laurel Broten, Minister of the Environment to Gemma Zecchini, Chair, Waste Diversion Ontario, June 11, 2007: http://webservices.siriusweblabs.com/dotconnector/files/domain4116/Minister's%20WEEE%20Program%20Request%20Letter%20June%2012%2007.pdf.

Continuing Concerns Regarding Hazardous Wastes in Ontario

It is clear from the numerous initiatives and amendments highlighted above that the provincial government has taken significant steps towards better addressing the problem of hazardous waste in Ontario. However, a number of serious issues related to hazardous waste management still need to be addressed through further development of laws and policies. As well, given that there was no substantial reduction in the amounts of hazardous waste generated overall in Ontario from 2000 to 2005, stronger measures are required to prevent pollution due to hazardous waste in addition to simply focusing on disposal. This section makes recommendations on a number of gaps that should be addressed and prevention measures that could be taken.

Land Disposal Restrictions Regulation

As noted above, it is commendable that the provincial government has introduced the Land Disposal Restriction Regulation to require pretreatment of hazardous wastes that is equivalent to American standards. However, despite the great urgency to implement these changes as quickly as possible, the government established a phase-in period running over the years 2005 to 2009. This is intended to give the regulated industries time to work towards compliance.[32] It is important that the government invests in adequate resources to enforce compliance to this timeline and to target the worst offenders.

In recent years, MOE has found non-compliance with hazardous waste requirements to be a serious problem. MOE's Sector Compliance Branch (formerly known as the Environmental SWAT Team) began inspecting hazardous waste transfer and processing facilities in June 2001 and has continued to conduct inspections of these facilities since that time. According to MOE, inspections have revealed non-compliance issues at all facilities, including problems such as: improper record keeping; inappropriate disposal of wastes; a lack of spill contingency plans and preventative maintenance programs required by regulation; improper storage of waste; improper classification of waste types; and potential irregularities in mixing and disposing of waste types.[33] As of February 28th, 2007, MOE inspections results showed that after conducting 82 inspections, the Sector Compliance Branch had issued: one violation notice for minor administrative non-compliance; 141 Provincial Officer Orders setting out corrective actions required for the facilities to comply with hazardous waste laws and regulations; and 8 tickets or court summonses under the *Provincial Offences Act*.[34]

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[32] Environmental Commissioner of Ontario, *Neglecting our Obligations: Annual Report 2005-2006* at 87: http://www.eco.on.ca/english/publicat/ar2005_en_report_01.pdf.

[33] Ministry of the Environment, Sector Compliance Branch: Inspections – Hazardous Waste Transfer and Processing Facilities website: http://www.ene.gov.on.ca/envision/scb/work/hazardous.htm.

[34] Ministry of the Environment, The Sector Compliance Branch: Our Work – Inspection Results website: http://www.ene.gov.on.ca/envision/scb/work/table1.htm#hazardous.

Recommendation 1

The Ontario government should invest in adequate resources to enforce compliance with the timeline for implementation of the Land Disposal Restrictions Regulation, and target the worst offenders.

There are a number of other issues related to land disposal of hazardous waste that were not addressed by regulatory changes. For example, the new regulatory amendments do not apply to small-quantity producers.[35] Local dry cleaners, one of these exempted groups, generate 450 tonnes of hazardous waste annually.[36] Although dry cleaners produce lower amounts of hazardous waste compared to the other sectors that are subject to the new regulatory provisions, there is still concern about the use of chemicals in this sector. Many dry cleaners continue to use the chemical perchloroethylene, which has been designated under the *Canadian Environmental Protection Act* as a persistent, bio-accumulative chemical toxic to the environment.[37]

Recommendation 2

The Ontario government should address unresolved issues related to land disposal of hazardous waste that were not dealt with in the Land Disposal Restriction Regulation, particularly with respect to small-quantity producers of hazardous waste.

The Land Disposal Restriction program also allows an exemption for household hazardous waste.[38] As discussed above, MOE has requested that Waste Diversion Ontario develop a new program for the diversion of household hazardous wastes and special wastes, and public consultation has been conducted on a proposed plan. MOE has also submitted a final Minister's Program Request Letter to WDO, requiring it to develop the WEEE program. Both of these initiatives are welcome and it will be important that they are properly implemented and promoted to the public.

Recommendation 3

The Ontario government should ensure that the new programs for the diversion of household hazardous wastes and special wastes, and of waste electrical and electronic equipment, are effectively implemented and promoted to the public.

The treatment standards put in place by the Land Disposal Restriction Regulation mandate the use of specific technologies, such as incineration. The Environmental Commissioner has reported that members of the public who commented on the proposed regulation expressed concern about the potential environmental risks of increased incineration and advocated more rigorous operating and emissions standards for facilities that burn hazardous wastes.[39] Ontario needs a guideline

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[35] Environmental Commissioner of Ontario, *Neglecting our Obligations: Annual Report 2005-2006* at 87: http://www.eco.on.ca/english/publicat/ar2005_en_report_01.pdf.

[36] Ministry of the Environment, *Press Release: Provincial Action will Protect the Environment for Future Generations*, August 10, 2005: http://www.ene.gov.on.ca/en/news/2005/081001.pdf.

[37] Green Ontario, *Dry Cleaning Fact Sheet*: http://www.greenontario.org/strategy/dryclean.html.

[38] Environmental Commissioner of Ontario, *Neglecting our Obligations: Annual Report 2005-2006* at 87: http://www.eco.on.ca/english/publicat/ar2005_en_report_01.pdf.

[39] *Ibid.*

specific to hazardous waste incinerators that sets out strict emissions and operating standards; guidelines that already exist for incinerators of municipal solid waste[40] and biomedical waste.[41]

There may also be opportunities for the provincial government to evaluate and improve other treatment standards included in the regulatory changes. For instance, the Environmental Commissioner has encouraged MOE to pursue a higher treatment standard for mercury.[42]

Recommendation 4

The Ontario government should evaluate and improve treatment standards included in the Land Disposal Restriction Regulation and ensure that they are followed. The Ontario government should also develop a guideline specific to hazardous waste incinerators setting out rigorous emissions and operating standards.

Hazardous Waste Information Network

Although the establishment of the Hazardous Waste Information Network was an important step, Ontario's Auditor General reported in 2005 that approximately 30% of hazardous waste generators had yet not complied with the producer registration and reporting requirements under the HWIN. At that time, MOE reported that it was responding to this situation by sending out further reminder notices to known generators who had not registered, and by streamlining and simplifying the registration system.[43]

Recommendation 5

The Ontario government should continue to work to ensure that all active hazardous waste generators are registered on the Hazardous Waste Information Network.

Currently, the public may gain access to limited information on the HWIN for a fee of $150 plus tax. This price allows access to a Public Information Data Set that includes specific information provided on the generator registration report and manifest used to track the waste: the company name and address; waste numbers (types); and volumes generated.[44]

The HWIN should be made available on the Ministry's web site so that it is accessible to the public free of charge. There are precedents for making this kind of information available to the

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[40] Ministry of the Environment, *Guideline A-7: Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators*, February 2004: http://www.ene.gov.on.ca/envision/gp/1746e.pdf.

[41] Ministry of the Environment, *Guideline A-1: Combustion, Air Pollution Control and Monitoring Requirements for Biomedical Waste Incinerators in Ontario*, October 2002: http://www.ene.gov.on.ca/envision/gp/1310e02.pdf.

[42] Environmental Commissioner of Ontario, *Neglecting our Obligations: Annual Report 2005-2006* at 89: http://www.eco.on.ca/english/publicat/ar2005_en_report_01.pdf.

[43] Auditor General of Ontario, *2005 Annual Report of the Office of the Auditor General of Ontario*, at 340: http://www.auditor.on.ca/en/reports_2005_en.htm.

[44] Ministry of the Environment, *Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste* – Draft for Consultation, amended February 2007, at 107: http://www.ene.gov.on.ca/envision/env_reg/er/documents/2007/Registration%20Guidance%20Manual.pdf.

public at no cost. In the United States, the Environmental Protection Agency (EPA) provides access to comprehensive hazardous waste information through RCRAInfo under the 1976 *Resource Conservation and Recovery Act* (*RCRA*) and the 1984 *Hazardous and Solid Waste Amendments*. RCRAInfo provides free public access to extensive information on *RCRA* hazardous waste handlers including facility status, regulated activities, and compliance histories. RCRAInfo also provides detailed data of hazardous waste generation from large quantity generators and on waste management practices from treatment, storage, and disposal facilities. Access is available on-line both through monthly extracts on the EPA's Envirofacts Data Warehouse and through the Right to Know Network, which is operated by two nonprofit organizations (OMB Watch and the Unison Institute) and funded by a number of government agencies and foundations, including the EPA. The Right to Know Network provides free access to various databases, text files, conferences on the environment, housing, and sustainable development.[45]

In releasing information, businesses may have reasonable concerns about the confidentiality of sensitive information. Consistent with principles in the *Freedom of Information and Protection of Privacy Act*, however, the HWIN should contain clear, useful information of interest to members of the public, including: locations of hazardous wastes; industrial sectors generating hazardous waste; total hazardous and liquid waste generation; total hazardous and liquid waste generation by sector, class, code, and type; and the fates of all wastes generated, both on and off site. To enhance its usefulness for the interested public, the HWIN should be designed to be user-friendly for a broader audience than practitioners in the hazardous waste sector. The site should include a list of definitions so all members of the public can understand the data, terms and codes used.

As noted in the earlier section on report data and definitions, the Manifest data alone does not provide a precise understanding of how much hazardous waste is being generated and received in Ontario. It would greatly assist the public's understanding of the data if the government were to provide its own analysis of the data and make it widely available.

Recommendation 6

The Ontario government should give the public access, free of charge, to information on the Hazardous Waste Information Network, through a website that is user-friendly, clear and useful, and includes: locations of hazardous wastes; industrial sectors generating hazardous waste; total hazardous and liquid waste generation; total hazardous and liquid waste generation by sector, class, code, and type; and the fates of all wastes generated, both on and off site. The government should also provide its own analysis of the hazardous waste generation data and make it available to the public.

Reporting on Hazardous Waste

As well as making information from the Hazardous Waste Information Network more accessible to the public, the Ontario government should provide the public with annual reports containing a

[45] United States Environmental Protection Agency, Hazardous Waste Data website: http://www.epa.gov/epaoswer/hazwaste/data/index.htm#rcra-info.

summary of the volumes and weights of municipal and industrial wastes, household hazardous wastes and hazardous industrial wastes. The summary should include information about the end disposal of the wastes by different methods, whether by reuse, recycling, landfill or incineration.

> **Recommendation 7**
>
> The Ontario government should publish annual reports that contain: a summary of the types, volumes and weights of municipal and industrial wastes, household hazardous wastes and hazardous industrial wastes; and information about the end disposal of the wastes by different methods, such as reuse, recycling, landfill and incineration.

Hazardous Wastes in Sewer Systems

In his 2005/2006 annual report, the Environmental Commissioner of Ontario commented on the need to control the disposal of hazardous wastes to sewers and urged the government to make progress in this area.[46] The new Land Disposal Restriction Regulation does not address hazardous waste disposal into sewer systems.[47] The provincial government is responsible for both waste disposal and sewage treatment, and should take action to ensure that this regulatory gap is addressed.

Sewage Treatment Plants

In 2002, Hamilton residents requested a province-wide review under the *Environmental Bill of Rights* of the laws and policies addressing the discharge of landfill leachate into municipal sewage treatment plants (STPs).[48] MOE conducted a review and admitted that most STPs are designed to treat sanitary sewage and not landfill leachate.[49] According to the Environmental Commissioner's 2004/2005 annual report, MOE explained that:

> STPs are not designed to treat persistent organic compounds, toxic metals and many other contaminants routinely discharged to sewers; these substances are not normally monitored in the effluents of STPs; and there are no legal limits in certificates of approval for STPs to control their discharge to the environment.[50]

In 1998, MOE had proposed to update its 1988 model sewer use by-law but then decided against it.[51] Instead, MOE opted to develop a best management practices guide for municipalities. While this will assist municipalities, it would be more effective if each were to pass an updated by-law. The provincial government is currently involved with the Canadian Council of Ministers of the Environment (CCME) in working to develop a Canada-wide Strategy for Municipal

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[46] Environmental Commissioner of Ontario, *Neglecting our Obligations: Annual Report 2005-2006* at 89: http://www.eco.on.ca/english/publicat/ar2005_en_report_01.pdf.

[47] *Ibid* at 87.

[48] Environmental Commissioner of Ontario, *Planning Our Landscape: Annual Report 2004-2005* at 127: http://www.eco.on.ca/english/publicat/ar2004.pdf.

[49] *Ibid* at 128.

[50] *Ibid.*

[51] *Ibid* at 131.

Wastewater Effluent. The CCME has recognized that municipal wastewater effluent has been governed through a patchwork of policies, by-laws and laws at the federal, provincial and municipal levels of government, and this has created confusion and complexity for regulators, system owners and system operators.[52] A round of public consultation on the proposed strategy took place in early 2007.

The provincial government must ensure that the discharge of hazardous waste into sewage systems is tightly regulated, and provide a revised model sewer use bylaw. It is also important to better assess the environmental health impacts of landfill leachate that is being discharged into sewage treatment plants. The quality of STP discharges into water should be documented and reported on by MOE.[53] The government also needs to address the issue of how to deal with the increasing volume of these persistent toxic contaminants in the sewage system.

Recommendation 8

The Ontario government should address the problem of hazardous waste discharges into sewage systems by: developing a revised model sewer use by-law; better assessing the environmental health impacts of landfill leachate discharged into sewage treatment plants; documenting and reporting on the quality of sewage treatment plant discharges into water; and addressing the issue of how to deal with the increasing volume of persistent toxic contaminants in the sewage system.

Combined Sewer Systems and Stormwater Monitoring

Hundreds of municipalities have a combined sewer system, which collects both municipal sewage and stormwater through a single-pipe system, to be carried through sewer pipes to the local sewage treatment plant. During a storm, this mixture of municipal sewage and stormwater overflows to local waterways to help prevent the sewage treatment plants from becoming overloaded. There are concerns about the environmental health impacts of overflowing effluent from the sewage system after a storm. In addition to hazardous contaminants found in municipal sewage, many contaminants are contained in the stormwater that derive from a number of run-off sources dumping into stormwater sewage drains. These contaminants may be difficult to track without a well-established and fully operational monitoring program.[54]

In the mid-1990s, MOE developed *Procedure F-5-5*, a policy directing municipalities with combined sewer systems to develop Pollution Prevention and Control Plans. Although the policy applies to approximately 200 municipalities in the province with combined sewer systems, in practice, MOE has never monitored for compliance. MOE has never required the municipalities to submit their Pollution Prevention and Control Plans or reviewed them to assess their adequacy.[55]

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[52] CCME website, Municipal Wastewater Effluent: http://www.ccme.ca/ourwork/water.html?category_id=81.

[53] Environmental Commissioner of Ontario, *Planning Our Landscape: Annual Report 2004-2005* at 131: http://www.eco.on.ca/english/publicat/ar2004.pdf.

[54] *Ibid* at 132.

[55] *Ibid.*

Recommendation 9

The Ontario government should require municipalities to submit their Pollution Prevention and Control Plans, and MOE should review these plans and monitor the municipalities for compliance with the plans.

Stormwater monitoring also needs to be improved in Ontario. It is difficult to estimate the level of untreated contaminants entering Ontario's water systems through run-off into stormwater drains and gutters, especially given the historical lack of monitoring. In August 2003, the Greater Vancouver Regional District (GVRD) conducted a review of stormwater monitoring in North America to ensure that the municipal stormwater monitoring program being developed there was consistent with programs in other areas with similar population densities. The study found that stormwater monitoring programs are more developed and widespread in the United States compared to Canada.[56] The US programs have been operational for a longer period of time and are mandatory under federal law.[57] Canadian programs "tend to be less formal or in the developmental stages."[58]

Due to the lack of monitoring requirements by federal and provincial governments, stormwater monitoring is usually dependent on the municipal government or local environmental stewardship groups.[59] The GVRD study showed that, compared with Canadian cities, US cities spent more money on stormwater monitoring programs. Education and public involvement were a major part of this expenditure.[60] The study found that there are no formal stormwater monitoring requirements at the provincial level in Ontario.[61] Water quality should not be handled in a piecemeal fashion by vesting the responsibility solely on the municipalities. The provincial government should also have a role in stormwater management.

Recommendation 10

The Ontario government should take a stronger role in stormwater monitoring and management in Ontario.

Pharmaceuticals in Water

The detection of emerging contaminants from pharmaceuticals and personal care products in Ontario's waterways is a developing issue requiring government efforts.[62] Pharmaceuticals have

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[56] Greater Vancouver Regional District, *Review of Stormwater Monitoring in North America*, August 2003 at ES1 & 34: http://www.gvrd.bc.ca/sewerage/pdf/review_stormwater_programs_NA_report.pdf.

[57] *Ibid* at 34.

[58] *Ibid.*

[59] *Ibid* at 32.

[60] *Ibid* at 22.

[61] *Ibid* at 31. Although individual certificates of approval issued by the provincial Ministry of the Environment may include conditions requiring stormwater monitoring for a specific facility, Ontario does not have broad laws or regulations requiring stormwater monitoring at the provincial level.

[62] Environmental Commissioner of Ontario, *Planning Our Landscape: Annual Report 2004-2005* at 183: http://www.eco.on.ca/english/publicat/ar2004.pdf; for a detailed report on this issue, see CIELAP, *There is No "Away" – Pharmaceuticals, Personal Care Products, and Endocrine-Disrupting Substances: Emerging Contaminants Detected in Water*, March 2006: http://www.cielap.org/pub/pub_noaway.html.

been detected in effluents from sewage treatment plants and in drinking water. The human body breaks down approximately 30% to 70% of drugs ingested. It is believed that pharmaceuticals used by people mainly enter the environment through sewage systems.[63]

This issue will be a growing concern, as pharmaceutical use will most likely increase as more drugs are introduced into the marketplace and Ontario's population continues to age. According to a 2002 Health Canada study, unused prescription and non-prescription drugs were dumped down household drains by approximately 20% of Canadians.[64] This strongly suggests the need to invest government resources in public education and further research as well as improved regulation and monitoring of sewage treatment plants for the ever-growing list of contaminants.

A 2006 CIELAP report on this issue set out detailed recommendations, including: developing a process to determine priority endocrine disruptors in sewage and industrial effluents and reviewing licensing of pharmaceuticals and other chemicals as well as effluent permits in that context; increasing research on municipal water treatment technologies that better remove pharmaceuticals and related compounds, and providing ongoing information on these technologies for municipalities; and supporting or developing municipal by-laws banning pharmaceuticals and other chemical discards in sewers and restricting pesticide use.[65]

Recommendation 11

The Ontario government should invest further resources in public education, research, and improved regulation and monitoring of sewage treatment plants with respect to emerging contaminants such as pharmaceuticals and personal care products.

Adequate Hazardous Waste Disposal Facilities for Compact Fluorescent Bulbs

It is important that the Ontario government plan for the impacts of other policy initiatives on hazardous waste disposal in the province. For example, the government recently announced that it would ban the sale of old, inefficient incandescent light bulbs in Ontario by 2012. In addition to supporting the ban, the government will promote the sale of more efficient lighting, such as compact fluorescent light bulbs (CFLs) that use approximately 75 per cent less electricity.[66]

While this is an important initiative for energy conservation in the province, consideration must be given to the fact that fluorescent light bulbs contain mercury, a hazardous waste. Although each CFL contains only about four to five milligrams of mercury, they still require proper

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[63] Environmental Commissioner of Ontario, *Planning Our Landscape: Annual Report 2004-2005* at 180: http://www.eco.on.ca/english/publicat/ar2004.pdf.

[64] *Ibid.*

[65] CIELAP, *There is No "Away" – Pharmaceuticals, Personal Care Products, and Endocrine-Disrupting Substances: Emerging Contaminants Detected in Water*, March 2006: http://www.cielap.org/pub/pub_noaway.html.

[66] Ministry of Energy news release, *McGuinty Government to Ban Inefficient Light Bulbs by 2012*, April 18, 2007: http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&body=yes&news_id=148.

disposal as household hazardous waste.[67] Ontario's Ministry of Energy acknowledges that used and broken CFLs must be saved for proper disposal through community household hazardous waste collection.[68]

However Ontario municipalities are not yet equipped to handle these bulbs in their household hazardous waste programs. Officials at the City of Toronto have expressed concern over how the city will process the waste:

> The first step of processing involves crushing the bulbs in a machine that uses negative pressure ventilation and a mercury-absorbing filter or 'cold trap' to capture and treat the mercury gas and liquid. The crushed glass and metal is stored in drums ready for shipping to recycling factories. It is unclear if the City of Toronto has this type of specialized facility and, if we do, whether the facility can handle the substantially increased volume brought on from this widespread switch to CFLs. It is definitely unclear to the residents of Toronto what they are to do with their used or defective CFLs.[69]

City officials suggested that the provincial government should legislate the proper disposal of CFLs so that disposal is standardized across Ontario.[70] The government's plan to increase the use of CFLs so extensively over the next five years means that disposal will quickly become a major problem for municipalities. The provincial government must move rapidly to address this issue, and also ensure that future policy initiatives are evaluated for potential impacts on hazardous waste disposal.

Recommendation 12

The Ontario government should address the issue of safe disposal of compact fluorescent light bulbs, and ensure that future policy initiatives are evaluated for potential impacts on hazardous waste disposal.

Reducing Hazardous Waste Generation in Ontario

In addition to dealing with the disposal of hazardous waste that is currently generated in and imported into Ontario, the Ontario government needs to put in place policy measures aimed at reducing the amount of hazardous waste generated. This will require a shift in focus on the part of the government. The regulation of hazardous waste must be accompanied by pollution prevention initiatives. The federal government has the discretionary power under the *Canadian Environmental Protection Act* to require the preparation and implementation of pollution

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[67] CBC news website, *Concerns raised over mercury in energy-efficient light bulbs*, April 30, 2007: http://www.cbc.ca/news/story/2007/04/30/mercury-bulbs.html.

[68] Ministry of Energy web site, *Lighting Information – Make the Change from Incandescent to Compact Fluorescent*: http://www.energy.gov.on.ca/index.cfm?fuseaction=conservation.lighting.

[69] City of Toronto, Notice of Motion M49, *Recycling Program For Compact Fluorescent Light Bulbs*, May 23, 2007: http://www.toronto.ca/legdocs/mmis/2007/cc/bgrd/m49.pdf.

[70] *Ibid.*

prevention plans that outline actions to prevent or minimize the creation or release of pollutants and waste. It is also important that the Ontario government take steps to encourage pollution prevention.

Pollution Prevention Planning

In the past, the Ontario government has been involved in efforts to promote pollution prevention. In 2001, the Ministry of the Environment released a progress report on *Ontario Initiatives in Pollution Prevention*. This report set out persuasively the reasons why the provincial government was committed to pollution prevention:

> Anticipating and preventing pollution from toxic chemicals and industrial wastes offers significant advantages over traditional end-of-pipe environmental control techniques. Prevention not only does a better job of protecting our environment, but as our partners in industry have shown time and again, it also provides opportunities to improve operating efficiency, significantly reduce costs, lessen environmental risk and limit liability.[71]

The 2001 report referred to several different programs undertaken by MOE, including: Memorandums of Understanding and other pollution prevention partnerships with industry, ENGOs, municipalities and other government agencies; a Pollution Prevention Pledge Program to reward pollution prevention measures undertaken by industrial, commercial, institutional, community and government sectors; training and educational programs to develop knowledge and skills needed to plan or implement pollution prevention initiatives; and leadership initiatives to integrate pollution prevention and environmental management principles with other environmental protection tools.[72]

Although the 2001 progress report described a number of different initiatives, all were voluntary programs. MOE has not made public any further reports on its pollution prevention programs since 2001. More recently, however, on a website designed to attract business and industry to Ontario, the government states that Ontario has the resources to handle all kinds of hazardous waste, and that "[i]n 2005, there were approximately 180 hazardous waste transfer facilities and approximately 160 hazardous waste transfer and processing facilities in Ontario."[73] The site goes on to detail, based on manifest data, the number and types of Ontario facilities that received shipments of liquid industrial and hazardous wastes in 2005. While it is essential that Ontario have the capacity to properly dispose of hazardous waste, promoting this fact in order to attract new businesses to generate hazardous waste does not seem consistent with Ontario's goals for pollution prevention.

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[71] Environmental Partnerships Branch, Ministry of the Environment, *Progress Report 2001 – Ontario Initiatives in Pollution Prevention*, at 4: http://www.ene.gov.on.ca/programs/3551e_01.pdf.

[72] Environmental Partnerships Branch, Ministry of the Environment, *Progress Report 2001 – Ontario Initiatives in Pollution Prevention*: http://www.ene.gov.on.ca/programs/3551e_01.pdf.

[73] Ontario web site, *Waste Management is an environmental priority*: http://www.2ontario.com/welcome/oout_701.asp.

The Ontario government should continue to actively pursue a pollution prevention strategy for hazardous wastes that focuses on toxics use reduction, and should consider regulatory tools as well as voluntary programs. The government should also report to the public on its efforts to promote pollution prevention planning since 2001.

Recommendation 13

The Ontario government should actively pursue a pollution prevention strategy for hazardous wastes that focuses on toxics use reduction. Regulatory tools and voluntary programs should both be considered. The government should also report to the public on its efforts to promote pollution prevention planning since 2001.

Extended Producer Responsibility

The notion of Extended Producer Responsibility (EPR) extends a producer's responsibility over the entire lifecycle of its product including environmental impacts, and the take-back and recycling or disposal of the product. EPR requires that the producer be accountable for the full cost of its product. Adopting EPR is one way to prevent pollution that is associated with the production and consumption of products. When producers must take full responsibility for their products, it encourages them to redesign those products to have less of an impact on the environment. Therefore, if a company is required take responsibility for a product that becomes hazardous waste at the end of its lifecycle, it may be motivated to redesign the product to minimize or avoid the costs associated with hazardous waste. To ensure this outcome, however, EPR regulations may be required to mandate specific "design for environment" changes, and to phase out the use of specific hazardous materials in products.

As discussed above, the Ontario government has designated Municipal Hazardous and Special Waste under the *Waste Diversion Act*. The final plans for dealing with municipal hazardous and special waste will determine the extent to which producers are required to take responsibility for these hazardous wastes. In an earlier submission relating to municipal hazardous and special waste, the Association of Municipal Recycling Coordinators called on the Province to "recognize that the principles of EPR and Design for the Environment place the responsibility for product residuals and packaging on industry."[74] The province is moving towards a full responsibility model in its proposed diversion program for Waste Electrical and Electronic Equipment (WEEE). The Minister's final program request letter specifies that designated stewards must finance all of the program's costs.

The Ontario government should view the introduction of the municipal hazardous and special waste diversion plans as an opportunity to promote Extended Producer Responsibility in Ontario, and should develop other policy and regulatory initiatives to do this as well.

Recommendation 14

The Ontario government should use municipal hazardous and special waste diversion plans to promote Extended Producer Responsibility in Ontario, and should develop other policy

[74] Association of Municipal Recycling Coordinators, *AMO and AMRC Proposal for a Provincial Household Hazardous Waste and Special Waste Strategy*, June 2006, at 4: http://www.amrc.ca/policy/HHW%20HSW%20Strategy%20June%202006.pdf.

and regulatory initiatives to do this as well. These could include regulations requiring specific "design for environment" changes, and the phase-out of specific hazardous materials in products.

Conclusion and Recommendations

Since CIELAP issued *Open for Toxics* reports in 2000 and in 2003, the provincial government has made significant progress to address hazardous waste in Ontario on a number of fronts, including: the Land Disposal Restriction Regulation; waste storage, mixing and processing requirements; the Hazardous Waste Information Network; new generator registration requirements; notification, certification and reporting requirements; the phase-out of existing hospital incinerators; the decision not to require mandatory destruction of PCBs at this time; and the proposed diversion program for household hazardous waste.

As noted, however, there are a number of gaps in regulation of hazardous waste in Ontario and areas for improvement remaining. CIELAP's recommendations for future work in this area are gathered below. As well as refining, implementing and enforcing existing hazardous waste management initiatives, it is essential that the Ontario government actively promote pollution prevention through toxics use reduction, extended producer responsibility and design for environment in addressing the problem of hazardous waste.

Recommendation 1

The Ontario government should invest in adequate resources to enforce compliance with the timeline for implementation of the Land Disposal Restrictions Regulation, and target the worst offenders.

Recommendation 2

The Ontario government should address unresolved issues related to land disposal of hazardous waste that were not dealt with in the Land Disposal Restriction Regulation, particularly with respect to small-quantity producers of hazardous waste.

Recommendation 3

The Ontario government should ensure that the new programs for the diversion of household hazardous wastes and special wastes, and of waste electrical and electronic equipment, are effectively implemented and promoted to the public.

Recommendation 4

The Ontario government should evaluate and improve treatment standards included in the Land Disposal Restriction Regulation and ensure that they are followed. The Ontario government should also develop a guideline specific to hazardous waste incinerators setting out rigorous emissions and operating standards.

Recommendation 5

The Ontario government should continue to work to ensure that all active hazardous waste generators are registered on the Hazardous Waste Information Network.

Recommendation 6

The Ontario government should give the public access, free of charge, to information on the Hazardous Waste Information Network, through a website that is user-friendly, clear and useful, and includes: locations of hazardous wastes; industrial sectors generating hazardous waste; total hazardous and liquid waste generation; total hazardous and liquid waste generation by sector, class, code, and type; and the fates of all wastes generated, both on and off site. The government should also provide its own analysis of the hazardous waste generation data and make it available to the public.

Recommendation 7

The Ontario government should publish annual reports that contain: a summary of the types, volumes and weights of municipal and industrial wastes, household hazardous wastes and hazardous industrial wastes; and information about the end disposal of the wastes by different methods, such as reuse, recycling, landfill and incineration.

Recommendation 8

The Ontario government should address the problem of hazardous waste discharges into sewage systems by: developing a revised model sewer use by-law; better assessing the environmental health impacts of landfill leachate discharged into sewage treatment plants; documenting and reporting on the quality of sewage treatment plant discharges into water; and addressing the issue of how to deal with the increasing volume of persistent toxic contaminants in the sewage system.

Recommendation 9

The Ontario government should require municipalities to submit their Pollution Prevention and Control Plans, and MOE should review these plans and monitor the municipalities for compliance with the plans.

Recommendation 10

The Ontario government should take a stronger role in stormwater monitoring and management in Ontario.

Recommendation 11

The Ontario government should invest further resources in public education, research, and improved regulation and monitoring of sewage treatment plants with respect to emerging contaminants such as pharmaceuticals and personal care products.

Recommendation 12

The Ontario government should address the issue of safe disposal of compact fluorescent light bulbs, and ensure that future policy initiatives are evaluated for potential impacts on hazardous waste disposal.

Recommendation 13

The Ontario government should actively pursue a pollution prevention strategy for hazardous wastes that focuses on toxics use reduction. Regulatory tools and voluntary programs should both be considered. The government should also report to the public on its efforts to promote pollution prevention planning since 2001.

Recommendation 14

The Ontario government should use municipal hazardous and special waste diversion plans to promote Extended Producer Responsibility in Ontario, and should develop other policy and regulatory initiatives to do this as well. These could include regulations requiring specific "design for environment" changes, and the phase-out of specific hazardous materials in products.

Appendix A: Hazardous Waste Trends in Ontario

About the Data

The raw data that has been analyzed and presented in the figures and charts below originated from the Ontario Ministry of the Environment (MOE)'s Hazardous Waste Manifest Database tracking system. Ontario Regulation 347 requires waste generators to register their hazardous and liquid industrial wastes with the MOE. The Ontario Hazardous Waste Manifest Database records the reported transfers of hazardous waste and liquid industrial waste from generators to receivers within the province as well as imports from and exports to other provinces and the United States. It does not, however, record the total generation of hazardous waste in Ontario. As discussed above, prior to regulatory changes introduced in 2005 hazardous waste that was generated and disposed of on-site (through such means as disposal into municipal sewer systems, on-site landfills and incinerators) did not need to be reported to the Ministry of the Environment. These on-site wastes are thought to account for approximately 40% of hazardous waste generated in the province.

Because of the definition of generator as well as the setup of the reporting system there is some duplication of data within the Manifest Database. Duplication happens when a facility that has received waste from a generator, for instance a transfer station, ships this waste again. The transfer station then becomes a generator and must report the waste a second time.

It becomes apparent that the Manifest data is insufficient to provide a clear understanding of how much hazardous waste is being generated and received in Ontario. However, despite the data's shortfalls, CIELAP believes it is important to analyze and present the data that does exist in order to as much understanding of hazardous waste generation and movement in Ontario as possible.

Glossary

District: Areas in the province where hazardous waste transfers have originated (named generation districts), and where hazardous waste transfers have been received (named receiving districts). It is important to note that each district is comprised of many generating sites and receiving sites.

Generator: "any person, by site, who through ownership, management, operation or control, creates or stores wastes. Generators include operators of commercial and manufacturing facilities that produce wastes as well as operators of waste disposal, transfer, bulking, treatment or processing facilities that forward materials off-site for subsequent management."[75]

Hazardous Wastes: Wastes are considered hazardous if they are ignitable, corrosive, chemically reactive, toxic, or likely to spread disease. They include waste by-products from industrial processes such as waste acids, solvents, lubricants, paints, steel-making residues, contaminated sludges, PCBs, and oils. Many household products, car batteries and biomedical or pathological wastes are also considered hazardous. Discarded material that, because of its inherent nature and quantity, requires special disposal techniques to avoid creating health hazards, nuisances or environmental pollution. Hazardous waste can physically be solid, liquid, semi-solid or gaseous.

Leachate Hazardous Waste: The liquid that escapes from a landfill when water (from precipitation) soaks into and through a landfill, picking up a variety of suspended and dissolved materials from the waste. This report considers both landfill leachate wastes (a grossly polluted liquid from waste disposal sites) and non-leachate waste that is everything else considered in the Hazardous Waste Manifest Database to be hazardous, including severely toxic wastes.

Liquid Industrial Wastes: Liquid wastes that come from industrial or commercial sources but which are not considered to be hazardous. They include spent acid solutions, photoprocessing wastes, emulsified oils, waste oils and lubricants as well as many other types of waste.

Quantity Generated: Quantity of waste transferred off-site of a generating site.

Quantity Received: Quantity of waste received at a receiving site from a generating site.

Receiver: The site where a hazardous waste transfer has been received and the receiver "signs off" on the Manifest. Note that a receiving facility is not necessarily the final receiver of hazardous waste.

Transfer Station: A site dedicated to collecting and transferring waste material to other sites for destruction, transformation, burial, or storage.

Water Pollution Control Plant: The term can be used relatively interchangeably with wastewater Treatment Facility or sewage treatment plant.

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[75] Ontario Ministry of the Environment, *Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste*, December 2001 at 6.

Trends in Hazardous Waste in Ontario

The most recent data available on hazardous waste in Ontario now extends to 2005. This section will update information in CIELAP's earlier *Open for Toxics* reports by looking broadly at the accumulated data for trends on the amounts of hazardous waste generated and received in Ontario.

After a significant increase in amounts generated and received from 1994 to 1998, both of these amounts decrease from 2000 to 2003. However, Figure A shows that the amounts of hazardous waste both generated and received from 2000 to 2005 were relatively consistent overall, although there was a slight drop in the amount received between 2004 and 2005.

Figure A: Quantity of hazardous and liquid industrial waste generated and received in Ontario, 1994 to 2005

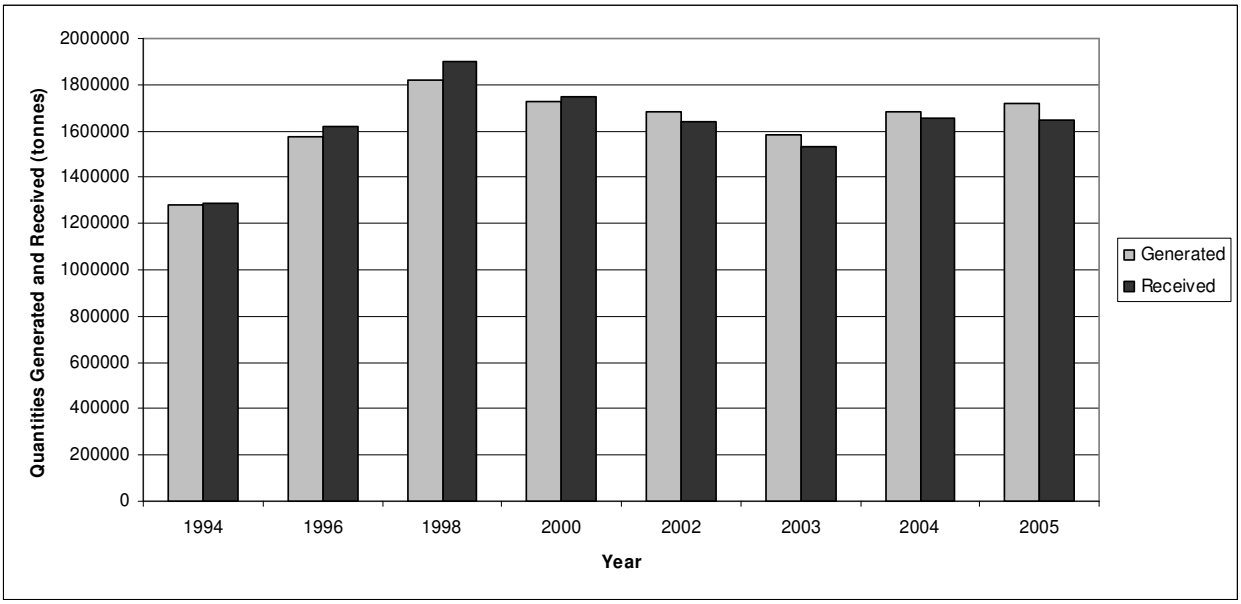


Table 1: Quantity of hazardous and liquid industrial waste generated in Ontario, 1994 to 2005

Year	Quantity generated (in tonnes)	Percentage change from previous year of record	Percentage change from 1994 base year
1994	1,280,674		
1996	1,572,460	22.8%	22.8%
1998	1,816,585	15.5%	41.8%
2000	1,724,933	-5.0%	34.7%
2002	1,684,583	-2.3%	31.5%
2003	1,580,270	-6.2%	23.4%
2004	1,682,548	6.5%	31.4%
2005	1,721,240	2.3%	34.4%

Table 2: Quantity of hazardous and liquid industrial waste received in Ontario, 1994 to 2005

Year	Quantity Received (in tonnes)	Percentage change from previous year on record	Percentage change from 1994 base year
1994	1,286,761		
1996	1,615,461	25.5%	25.5%
1998	1,901,059	17.7%	47.7%
2000	1,748,771	-8.0%	35.9%
2002	1,642,243	-6.1%	27.6%
2003	1,532,905	-6.7%	19.1%
2004	1,651,659	7.7%	28.4%
2005	1,648,889	-0.2%	28.1%

Hazardous and Liquid Industrial Waste Generated in Ontario

Table 3 sets out the hazardous and liquid industrial waste generated in the top ten districts in Ontario in 2005.

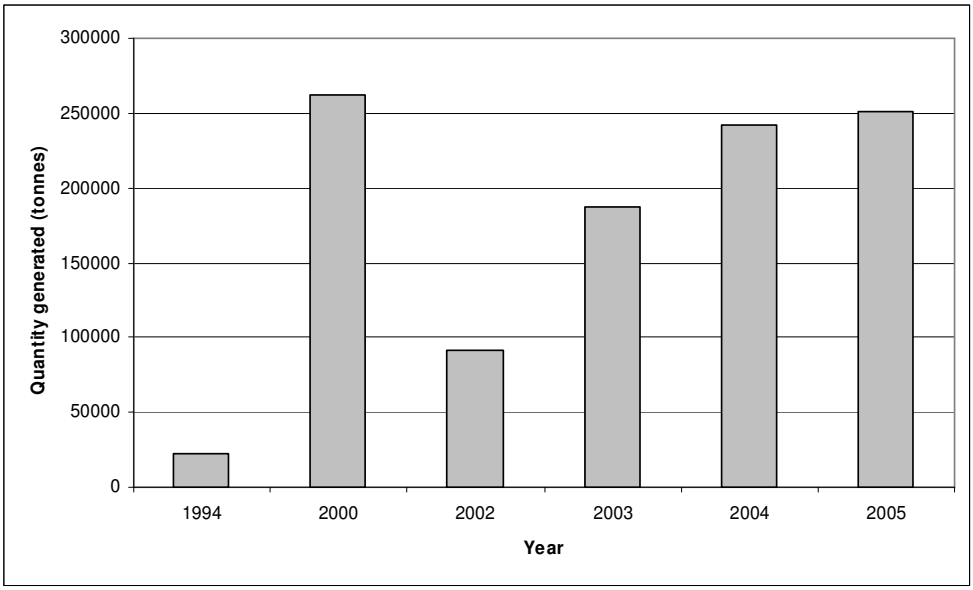
Table 3: Top ten generating districts in Ontario, 2005

Generating district	Quantity of waste generated (tonnes)	Percentage of total
Ottawa	250,887	14.5%
Burlington	233,939	13.5%
Windsor	187,050	10.8%
Hamilton	164,323	9.5%
Ajax	132,238	7.6%
Guelph	122,766	7.1%
Sarnia	114,464	6.6%
London	107,849	6.2%
St. Catharines	85,462	4.9%
Toronto	78,320	4.5%

In order to look more closely at trends in regional generation of hazardous and liquid industrial waste, we will focus on two of these districts: Ottawa and Hamilton.

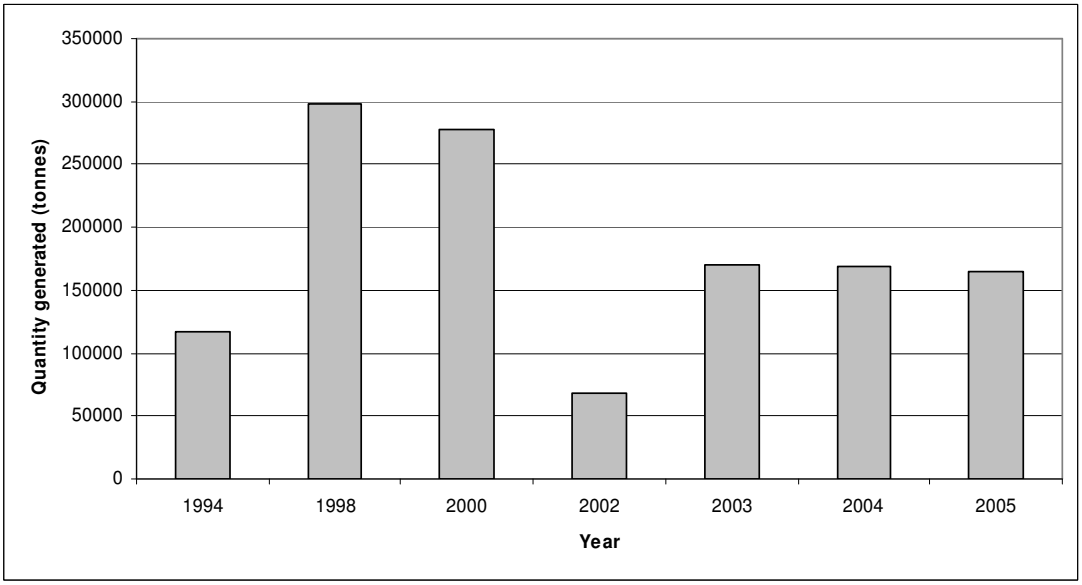
Ottawa was the top generating district in 2005, producing 250,887 tonnes, or 14.5%, of the hazardous and liquid industrial waste in the province, as shown in Figure B. This was the most generated in the Ottawa area since it reached a high point in 2000. In 2002, the total generated in Ottawa had dropped dramatically to under 100,000 tonnes, but it has been rising steadily ever since.

Figure B: Hazardous and liquid industrial waste generation in Ottawa District, 1994 - 2005



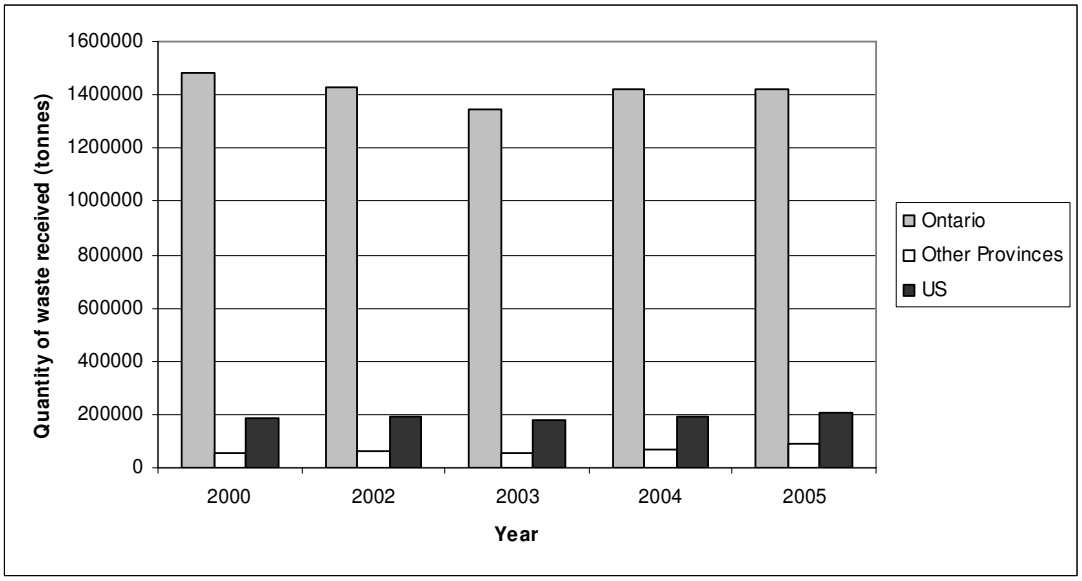
In contrast Hamilton, generally seen as a heavy generator of hazardous and liquid industrial waste in Ontario, ranked fourth in the province in 2005, generating 164,323 tonnes, or 9.5%, of the hazardous waste, as seen in Figure C. After generating a very large amount of hazardous and liquid industrial waste, approximately 300,000 tonnes, in 1998, the amount generated in Hamilton had dropped to just over 50,000 tonnes in 2002. Although that amount has again risen to hover just above 150,000 tonnes per year over the period of 2003-2005, that remains about half of what was generated in 1998 and now places Hamilton below the top three generating districts.

Figure C: Hazardous and liquid industrial waste generation in Hamilton District, 1994 - 2005



The vast majority of the hazardous and liquid industrial waste generated in Ontario remains in Ontario, as is evident in Figure D. This amount has remained at around 1,400,000 tonnes each year from 2000 to 2005. A small quantity is received by other Ontario provinces, and a steady amount of approximately 200,000 tonnes is received in the US.

Figure D: Quantity of hazardous and liquid industrial waste received in various jurisdictions from Ontario generators



Hazardous and Liquid Industrial Waste Received in Ontario

Figure E shows that the amount of hazardous and liquid industrial waste received in Ontario from other provinces has decreased somewhat, while there has been more change in the amounts received from the United States, with a sharp rise from 1994 to 1998, then a gradual decrease until 2003 followed by an upward trend to 2005. The total amount of hazardous and liquid industrial waste both generated and received in Ontario has fluctuated, reaching a peak in 2002 falling to somewhat lower amounts in recent years.

Figure E: Quantity of hazardous and liquid industrial waste received by Ontario sites from various jurisdictions

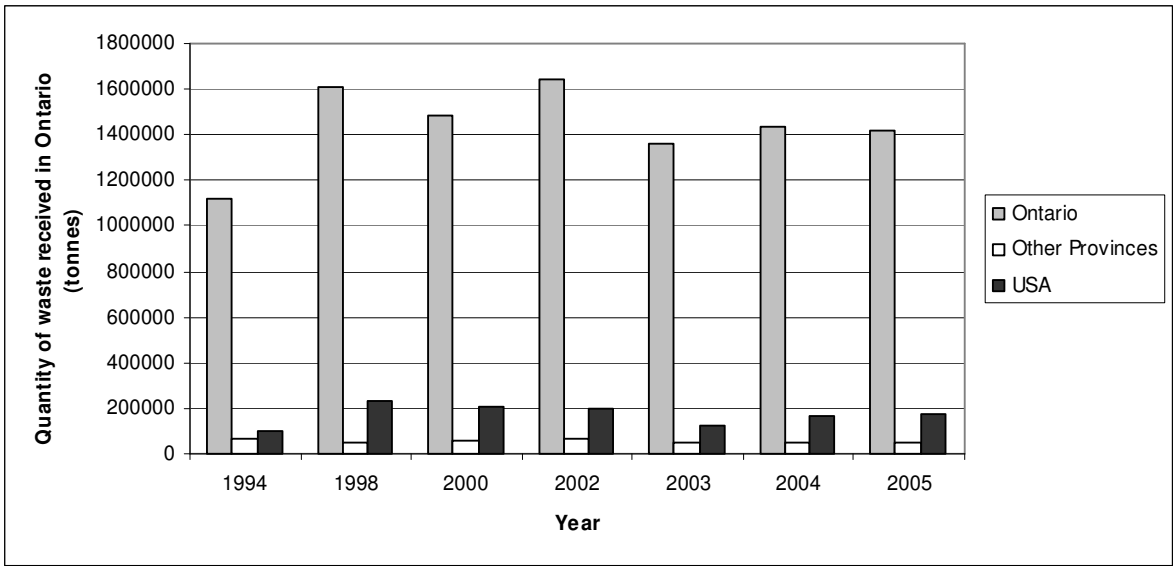


Table 4: Quantity of hazardous and liquid industrial waste received by Ontario sites from various jurisdictions

	Quantity received in year (tonnes)							% increase from 1994 to 2005	% increase from 2000 to 2005
	1994	1998	2000	2002	2003	2004	2005		
Ontario	1120057	1612131	1486232	1642246	1360502	1434332	1422183	27.0%	-4.3%
Canada (other provinces)	66732	53433	56807	63301	49601	52159	52526	-21.3%	-7.5%
United States	99972	235495	205732	194950	122802	165168	174261	74.3%	-15.3%

Table 5 adds to the data on the quantity of hazardous and liquid industrial waste received in Ontario from the US by providing the percentage increase or decrease from the previous data on record. After more than doubling from 1994 to 1998, the amount of hazardous and liquid industrial waste coming from the US decreased over the period of 2000 to 2003, but rose after that by over one-third in 2004 and slightly again in 2005.

Table 5: Quantity of hazardous and liquid industrial waste received by Ontario sites from the United States

	1994	1998	2000	2002	2003	2004	2005
Quantity received from US (tonnes)	99,972	235,495	205,732	194,950	122,802	165,168	174,261
Percentage increase from previous year on record		135.6%	-12.6%	-5.2%	-37.0%	34.5%	5.5%

In Table 6, the quantities of US hazardous and liquid industrial waste received in Ontario are broken down by facility type, and trends over the last ten years and five years are shown. While there have generally been increases in landfill, reclaim, transfer station processing and incineration over the past ten years, there have been varying decreases in the amount sent to landfill, reclaim and incineration in the past five years.

Table 6: Quantities of U.S. hazardous and liquid industrial waste received in Ontario by facility type, 1994 to 2004

	Quantity received in year (tonnes)					Percentage increase from 1994 to 2004	Percentage increase from 2000 to 2004
Facility Type	**1994**	**1998**	**2000**	**2002**	**2004**		
Landfill	33,690	120,934	88,818	32,743	51,456	52.7%	-42.1%
Reclaim	32,407	49,831	48,244	47,838	45,989	41.9%	-4.7%
Transfer Station - Processing	5990	13,737	24,581	15,626	35,161	487.0%	43.0%
Incineration	15,491	32,978	35,800	26,468	32,461	109.5%	-9.3%
Transfer Station	12,395	17,818	8021	127	93	-99.2%	-98.8%
Shipped Out of Province			23		43		86.0%
Water Pollution Control Plant		196	267		8		-97.0%
Total	101,967	235,494	207,755	122,803	165,211	62.0%	-20.5%

Table 7 sets out the 25 types of waste most commonly received in Ontario from the US in 2004.

Table 7: Top 25 waste types received in Ontario from US generating sites, 2004

Waste type	Quantity received (tonnes)
Transfer Station Oils Wastes	46,083
Other Specified Inorganics	22,576
Halogenated Solvents	22,152
Oil Skimmings & Sludges	20,213
Other Specified Organics	19,223
Non-halogenated Lean Organics	9,229
Polymeric resins	5,478
Aliphatic Solvents	3,973
Aromatic Solvents	3,796
Halogenated Pesticides	3,032
Non-halogenated Rich Organics	3,011
Alkaline Wastes - Heavy Metals	1,365
Emulsified Oils	1,296
Paint/Pigment/Coating Residues	877
Inorganic Laboratory Chemicals	829
Waste Oils & Lubricants	486
Phenolic Wastes	447
Acid Waste - Heavy Metals	438
Organic Laboratory Chemicals	279
Neutralized Wastes - Heavy Metals	262
Alkaline Wastes - Other Metals	65
Explosive Manufacturing Wastes	19
Waste Compressed Gases	15
Reactive Anion Wastes	9
Petroleum Distillates	4

Figure F and Table 8 show the trends in quantities of hazardous and liquid industrial waste transfers that were received in Ontario over the period 1994 – 2005, according to receiving facility type. The increase in the amounts of hazardous and liquid industrial waste going to water pollution control plants over that period is quite dramatic, especially relative to the other facility types. Table 9 sets out the top ten districts that received hazardous and liquid industrial waste to water pollution control plants in 2005, and the quantity received by each.

Figure F: Quantities of hazardous and liquid industrial waste transfers received in Ontario by receiving facility type, 1994 – 2005

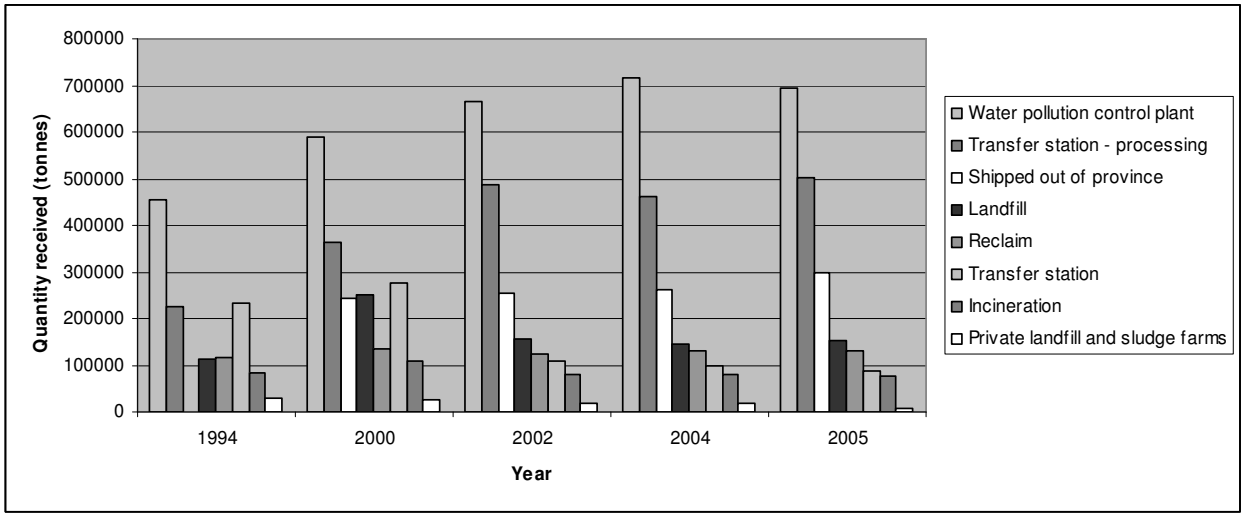


Table 8: Quantities of hazardous and liquid industrial waste transfers received in Ontario by receiving facility type, 1994 - 2005

Receiving Facility	Quantity received in Ontario in year (tonnes)				
	1994	2000	2002	2004	2005
Water pollution control plant	452,926	588,540	664,554	715,420	693,497
Transfer station - processing	227,091	364,665	487,598	463,351	502,040
Shipped out of province	Unknown	243,018	255,576	263,260	299,130
Landfill	112,018	249,957	157,050	144,629	152,679
Reclaim	116,861	132,787	123,668	131,935	130,478
Transfer station	233,976	277,856	110,785	99,796	88,060
Incineration	82,945	110,253	80,919	78,793	76,261
Private landfill & sludge farms	30,766	24,503	17,400	17,714	5,873
PCB storage site		209	239	21	0

Table 9: Top ten districts receiving waste to water pollution control plants in Ontario, 2005

2004 ranking	2005 ranking	Receiving district	Quantity of waste received (tonnes)
1	1	Ottawa	216,720
2	2	Windsor	115,517
3	3	Hamilton	70,009
7	4	Barrie	48,145
*	5	Burlington	47,956
5	6	Kingston	47,948
4	7	London	43,673
8	8	Sarnia	33,021
10	9	Owen Sound	22,545
*	10	St. Catharines	15,256

The most recent data on hazardous and liquid industrial waste received and generated in Ontario suggests that there is room for further progress on these wastes in Ontario. While there has been a reduction in hazardous and liquid industrial waste in some areas, there are increases in others. It should be noted that some of the stricter hazardous waste regulations recently made by the government (and discussed above) are not yet in force and should be reflected by waste reduction in the data once implemented. It is also important to note that some of the increases and decreases in the amounts of hazardous waste generated are tied to periods of growth and decline in the Ontario and wider North American economies. However, continued growth in the generation of hazardous waste is a cause for concern and requires further action on the part of the provincial government.