



CANADIAN INSTITUTE FOR ENVIRONMENTAL LAW AND POLICY

L'INSTITUT CANADIEN DU DROIT ET DE LA POLITIQUE DE L'ENVIRONNEMENT

# Understand Waste

CIELAP Shelf:  
Canadian Institute for Environmental Law and Policy

Understanding Hazardous Waste in Ontario  
RN 27144

2006

Around 6 million tonnes of hazardous and liquid industrial waste are produced in Canada each year - this has decreased from an estimated 8 million tonnes produced in 1986. It is still, however, an alarming figure. Although there are no accurate figures about how much hazardous waste is produced in Ontario, one estimate\* suggests that around 2.8 million tonnes of Canada's hazardous waste was produced in this one province in 2004.

\* This estimate should be viewed in the context of the fact that some of the waste that is passed through transfer stations is counted twice in the source data (the Ministry of the Environment's manifest data). At the same time, some hazardous waste is never reported to the Ministry and so would be missing from this estimate.

## What is Hazardous Waste?

Hazardous Waste is waste that is:

- Toxic
  - Explosive
  - Ignitable
  - Radioactive
  - Corrosive
  - Carcinogenic
  - Bioaccumulative
  - Mutagenic
  - Infectious
  - Chemically Reactive
- OR • Likely to Spread Disease



Hazardous waste has the potential to seriously harm human health and the environment. It is the by-product of:

- **Industrial manufacturing processes** (eg. waste acids, solvents, oils and PCBs);
- **Commercial activities** (eg. dry cleaning wastes, paints);
- **Agriculture** (eg. some pesticides and fertilizers);
- **Common household products** (eg. batteries, drain cleaners, oil paint and syringes, electronics);
- **Waste Disposal** (breakdown of garbage in landfills creates a toxic liquid leachate)

## Hazardous Waste and your Health

In the short term, contaminants found in common hazardous household and industrial materials can cause eye and skin irritation, vomiting, dizziness, and headaches. Over the longer term these contaminants can negatively affect the central nervous system, damage kidneys, the liver or the brain, or cause various cancers, among other health effects.

The amount of harm caused by hazardous waste is determined by the physical characteristics, quantity and concentration of the substance, as well as the length and frequency of a person's exposure to it.



Children are more vulnerable than adults to hazardous materials for many reasons:

- (1) Their bodies are still developing and are more sensitive to hazardous substances;
- (2) They take in higher amounts of air, food, and water for their body sizes; and
- (3) Their behaviour makes them come into greater contact with hazardous materials (children have frequent hand-to-mouth activity and they play close to the ground, where you find contaminated dust, soil, carpets, and low-lying pesticide vapours).



## Hazardous Waste Production

The top producers of hazardous waste are facilities related to waste management (i.e. municipal landfill sites), and businesses related to the chemical, steel producing and automobile industries.



## Household Hazardous Waste

Canadians incorrectly dispose of 27,000 tonnes of household hazardous waste each year, including motor oil, paint, pesticides, pharmaceuticals, batteries and cell phones. Incorrect disposal of hazardous waste can cause many problems. Hazardous waste poured down the drain can damage sewer systems; hazardous waste put out with the trash can hurt sanitary workers; hazardous waste can also harm children and pets if it is simply left around the house or yard.

## E-Waste

According to the Environmental Commissioner of Ontario, Canadians threw out 74,000 tonnes of computer waste in 2002, including 1.7 million desktop computers, 1.9 million cell phones, 2 million television sets and 1.1 million VCRs. The amount of e-waste is only expected to grow, posing a big problem for our landfills. The U.S. Environmental Protection Agency reported that 70% of the heavy metals (e.g. lead, cadmium and mercury) found in U.S. landfills came from discarded electronic products.



In Canada there are no federal programs or specific pieces of legislation to meet this challenge. Most provinces have been working on e-waste programs to meet this growing concern. In December 2004 Ontario's Ministry of the Environment asked Waste Diversion Ontario (WDO) to develop a waste diversion program for Electronic waste. The government is now working to implement many of WDO's suggestions.

Many industries and environmental groups are also figuring out how to design products so that their parts can be recycled and used to create other, perhaps different, products that don't end up in our landfills.

## Industries have to report their Hazardous Waste!

Since January 1, 2002, the Ontario Ministry of the Environment (MOE) has required that hazardous waste producers register their wastes (type and quantity) on a yearly basis and pay a fee according to how much they have generated. This was the first major change to the producer registration and tracking systems since the Ministry first began tracking hazardous wastes in 1985. Companies who fall under these reporting requirements are:

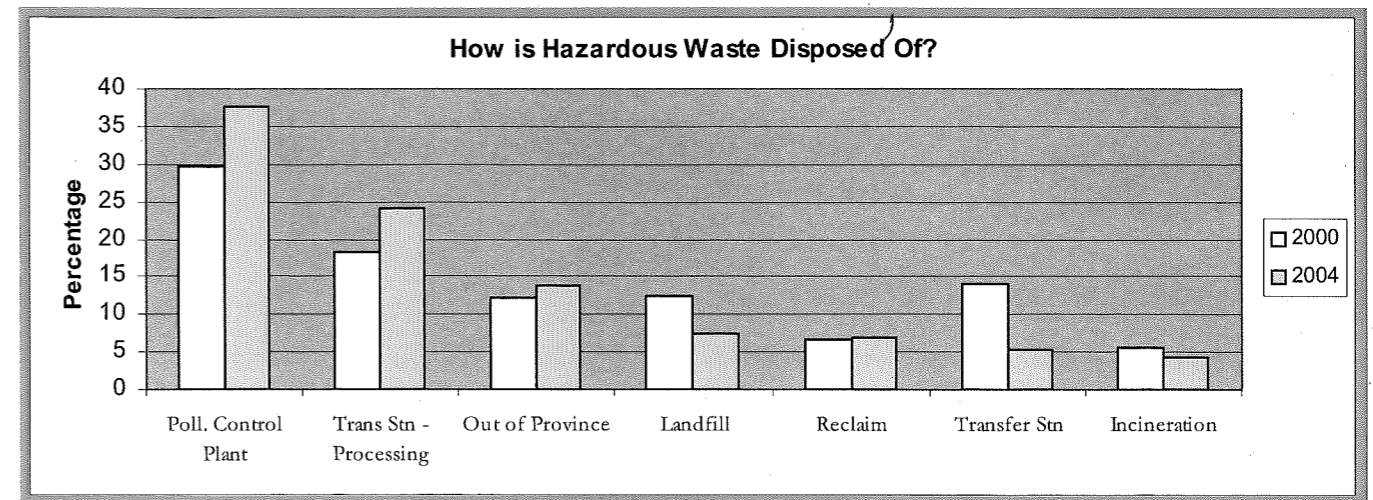
- Hazardous waste producers who produce their hazardous waste in Ontario and dispose of their waste off the site of production. (Estimates suggest that approximately 60% of Ontario HW producers dispose of their waste off-site.)
- Hazardous waste producers who produce their hazardous waste in Ontario and dispose of their waste on-site and on land (instead of sewer systems, waterways, etc...). Resulting from new regulations passed in 2005, this reporting requirement will come into effect on January 1, 2007.
- Hazardous waste producers from outside of Ontario who dispose of their waste in or move it through the province.

While most companies have complied with these requirements, the Auditor General of Ontario found that approximately 30% of hazardous waste generators have not. This is partially due to the fact that the Ministry has not been regularly following up on unauthorized hazardous waste movements identified by their systems.

## Where Does Hazardous Waste End Up?

The following estimates are from 2004.\* Note that this only takes into account the 60% of waste disposed of off-site:

- 37.5 % of HW is discharged into municipal sewer systems to be treated by Water Pollution Control Plants
- 24 % is sent to a transfer station for processing.
- 13.5 % of Ontario hazardous waste is shipped out of the province for disposal (10 % to the United States; 3.5 % to other Canadian provinces, mainly Quebec). This has risen from around 12% in 2000.
- 7 % is sent to landfills
- 7 % is reclaimed
- 5 % is sent to a transfer station without processing
- 4% is incinerated



\* Transfer stations are facilities that receive, sort and dispose of waste. Most of the waste brought there is later moved to a landfill, incinerator or other site for disposal. However, the source data that we used in this analysis counts the waste when it is sent to transfer stations as well as when it is sent away from the stations, leading to duplicate data. This means that the above numbers don't accurately reflect the final disposal of waste and many of the percentages are lower than they should be.

## About Sewer Systems:

Many hazardous wastes, such as paints, chemicals, pesticides and toxic metals, get into municipal sewer systems by being put down drains or by getting into gutters through water runoff. In 2004, hazardous waste producers reported that they had disposed of around 700,000 tonnes of hazardous waste into sewers. Most (600 000 tonnes) of this was landfill leachate.

**Problem:** Sewers and sewage treatment plants are designed to handle biological human waste, not toxic chemicals, heavy metals, used motor oil or other hazardous waste. These plants can only partially break down many substances and others pass untreated into lakes or rivers. In fact, in 2002, sewer systems were the 4<sup>th</sup> largest releaser of dioxins and furans – these substances are highly carcinogenic and pose a threat to human health. These toxins can also interfere with the treatment plants' processes by poisoning the microorganisms that are used to break down human waste in sewage, making our water systems even more vulnerable to harmful contaminants.

Sewer use is controlled by municipal by-laws rather than provincial regulation. This makes it difficult to regulate industrial and household waste disposal across the province. Such regulations were proposed as long ago as the 1980s but have never been developed and implemented.

## Recent Regulatory Changes:

In August 2005, a new regulation imposed **Land Disposal Restriction (LDR)** requirements in Ontario. Waste now needs to meet specific treatment standards before being put in landfills or landfarms (which are used for sludge produced in petrochemical refining). Ontario now has the same pre-treatment requirements as those that are imposed in the United States.

Before passing this legislation, Ontario was the only jurisdiction in all of North America that accepted untreated hazardous waste and so a lot of hazardous waste was sent to Ontario for cheap disposal.

The new legislation hopefully will discourage US producers from dumping their waste in Ontario and will encourage Ontario producers to reduce the amount of hazardous waste that they produce in the first place so that they can avoid the higher costs of treatment.

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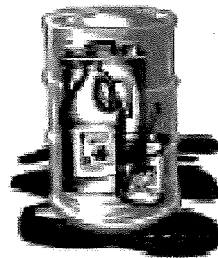
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## Pollution Prevention is the Solution:

The best way to deal with hazardous waste is not to create it in the first place. This approach is called pollution prevention, or source reduction. It can involve replacing toxic substances with non-toxic alternatives, and redesigning industrial processes so that toxic substances are no longer needed to make a product. Many companies have found that pollution prevention not only reduces hazardous waste, but it also saves money. Canadian governments have relied almost exclusively on voluntary efforts by industry to promote pollution prevention but, unfortunately, this has been largely unsuccessful. See CIELAP's Citizens' Guide to Pollution Prevention for more information.



## What Can You Do?

### Rethink, Reduce and Reuse

Buy products that will not become hazardous waste. Read the label carefully and shop at stores that offer alternatives that are less hazardous. Here are some ideas:

- ✦ Purchase durable, long-lasting goods
- ✦ Buy only the amount you need
- ✦ Use up or find other homes for hazardous products (eg. paint)
- ✦ Use rechargeable batteries
- ✦ Avoid products that say "poison" or "danger" on the label

## Assure Proper Disposal

Many municipalities have Environment Days, drop-off programs and depots where you can bring products such as electronics, paints, and batteries. Contact your local solid waste management facility or city government for more information.

**Visit the National Pollutant Release Inventory website:** [http://www.ec.gc.ca/pdb/npri/npri\\_home\\_e.cfm](http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm)

*Learn about the NPRI. This online database allows members of the public to find out what pollutants are being released to the environment in their area and across Canada.*

## Ask Our Governments to:

- 1) Establish regulations to control the dumping of industrial waste into municipal waste water treatment systems.
- 2) Assess the impacts of landfill leachate being dumped into municipal waste water treatment systems.
- 3) Develop an integrated strategy for Household Hazardous Waste collection. In 2002, collection programs diverted 12,280 tonnes of HHW from municipal landfills.
- 4) Require producers to take back and responsibly deal with products that become household hazardous waste, such as batteries, waste oil and pesticides.
- 5) Make pollution prevention a bigger priority than it is now. A policy to reduce the use of toxics should be developed and promoted by government.
- 6) Issue an annual report detailing hazardous waste generation. This information should be more publicly available and accessible, and those who manage hazardous waste in the province should be held more accountable.

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