



Canadian Inventories: The Missing Pieces

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Presentation Overview

- What is the Mercury Recovery Fund?
- The role of inventories in Canadian policy
- Product Inventory Gap
- Mercury in Products: Inventory Update
- Mercury in Waste Disposal
- Policy Implications

Mercury Recovery Fund: Background

Established 2002 by the Clean Air Foundation to promote, develop, and finance mercury-product recovery and recycling programs.

The aim of the Fund is to ensure creation and sustainability of these programs, and the Fund will work with governments, organizations and industries across Canada to this end.



Inventories Drive Policy

- Science sets foundation for action
- Inventories developed
- Policy framework is established
- Identification of target sources
- Cost effective opportunities tackled
- Measurable reductions in use, emissions and ecosystem
- Reductions led to reworking of inventory

Mercury Inventories and Action: A Canadian History

1999 Inventory: *80% of mercury emissions from incineration, base metal smelting, coal fired power.*

Basis for CCME mercury priorities.

Due to CCME process, international commitments, and technological changes, significant emission reductions have occurred for most of these sectors.

1998 Study: *Mercury use and release from seven products significant.*

Three products have been targeted for reduction under CCME – lamps, dental amalgam, sewage sludge.

Inventories – the Product Gap

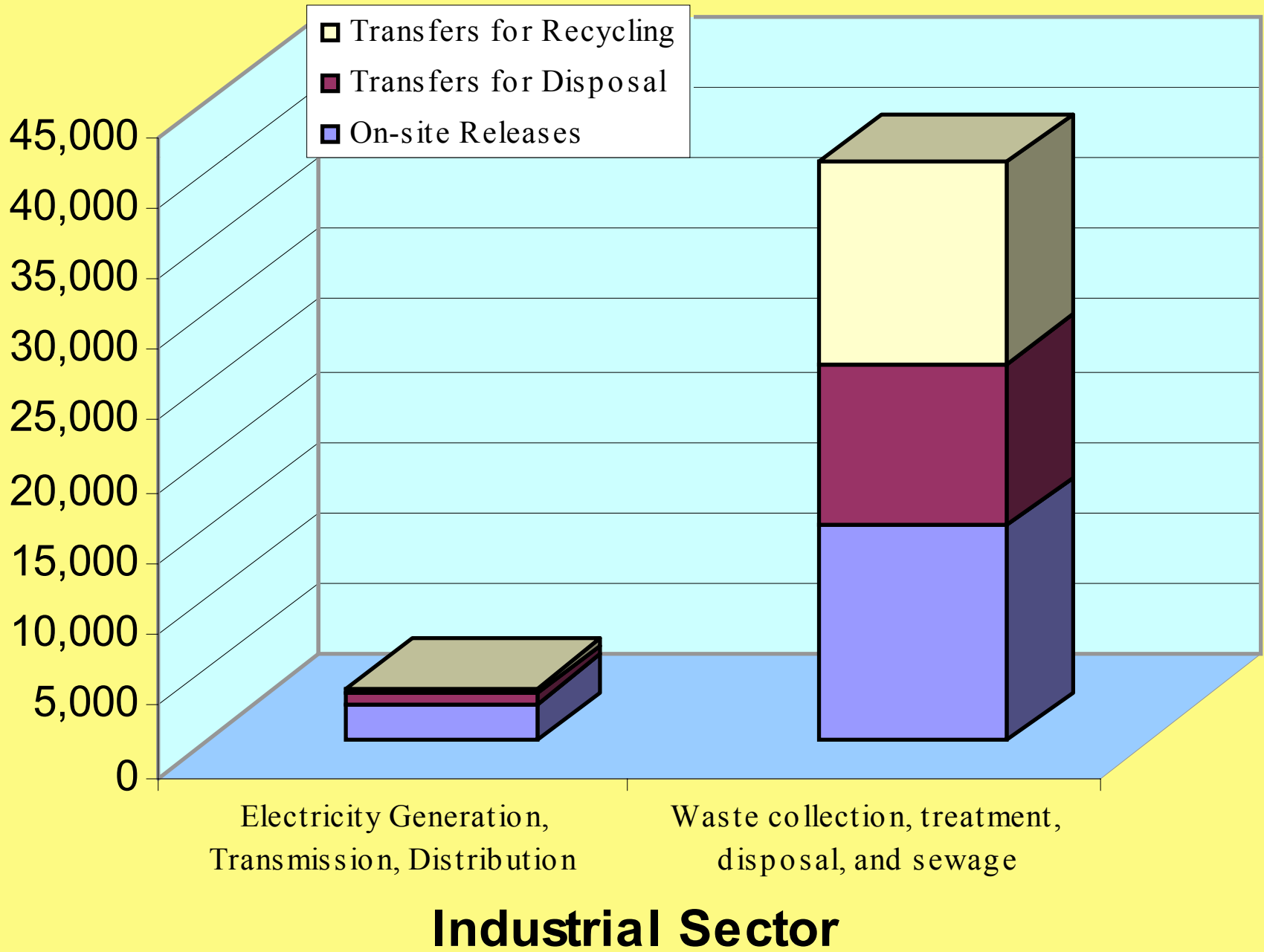
- Current inventory information for mercury in products outdated.
- **This information gap is a significant barrier to reducing releases from these sources.**

Product	Reservoir (kg)	Flux (kg/yr)	Releases to Air (kg/yr)	Releases to Land, Water (kg/yr)
Fluorescent lamps	8,100	4,030	554	3,476
Thermostats	22,700	900	32	868
Batteries	2,019	1,450	45	1,405
Automobiles	13,200	730	292	438
Appliances	11,250	450	180	270
Industrial Switches / Relays	233,400	7,780	277	7,503
Hospital equipment/reagents	20,300	290	140	150
Thermometers	16,500	2,200	550	1,650
Total	327,469	17,830	2,070	16,580

Including dental amalgam and sewage sludge (2,253kg/yr),
> 20 tonnes Hg/yr released to all environmental compartments in
Canada from mercury products.

Mercury Releases from Waste Disposal Sectors in Canada, 2001*

Industrial Sector	On-site Releases (kg)	Transfers for Disposal (kg)	Transfers for Recycling (kg)	Total Mercury Released or Transferred (kg)
Remediation and other waste management services	10	7,932	7,570	15,512
Waste treatment and disposal	14,473	3,067	6,516	24,056
Waste collection	0	0	68	68
Water, sewage and other systems	635	397	8	1,040
Total waste-related mercury releases	15,117	11,396	14,162	40,676
2001 NPRI database total	21,337	16,847	15,947	54,131
% of NPRI database attributable to waste	71%	68%	89%	75%



Policy Implications

- Mercury policy in Canada is based on the concept of *life-cycle management*.
- LCM requires complete information to assess and compare uses and releases, so full range of management options can be evaluated.
- Only then can policy and management priorities be set that reflect the applications of greatest concern, and the areas where the most cost-effective reductions can be found.

Shifting, not Eliminating, Releases: The importance of LCM

- Control decision at one point in the substance life cycle (incinerator stack controls) can shift the release to another point (i.e. landfill).
- The paucity of data on landfills makes it impossible to validate the benefits of the primary control measure.

Inventory and Policy Gaps

- Policy decisions on mercury actions being made with incomplete information.
- Canadian (and US) inventories do not take full account of widespread use of mercury in products, and associated emissions.
- Millions of dollars spent testing stack technologies, yet the deliberate use of mercury in existing and new products and technology continues. Virtually no collection programs exist to prevent this mercury from entering the environment.

Areas for Improvement

- **Inventory Development and Management:** Required reporting of mercury use.
- **Priority Areas for Management:** New information on mercury in waste stream reveals need to reexamine major source categories and types of management decisions.
- **Cost effectiveness of Control:** Utilize low cost options, i.e. eliminating the use of mercury in products sold in Canada; implementing/requiring product collection programs.
- **Public Reporting of Inventory Information:** Pollution intensity and emission growth rates decrease as public awareness on the issues increase (Antweiler and Harrison, 2002).

Summary

- Deliberate use of mercury accounts for 300 tonnes of mercury in use, 20-40 T/yr of releases, and 71% of total reported releases.
- No mechanism in Canada to collect and publicly report the deliberate use of mercury in products and processes.
- Landfilling, a source of MeHg, remains an acceptable method of mercury disposal.
- ***Comprehensive approach to mercury management required.***