

Commission for Environmental Cooperation

**Special Report:**  
**Toxic Chemicals and Children's  
Health in North America**  
**Priority-Setting for P2**

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## Role of CEC – Information for Decision Making

- Integrate data and information from a regional perspective
- Catalyze action
- Engage policy makers, industry, NGO's, public...

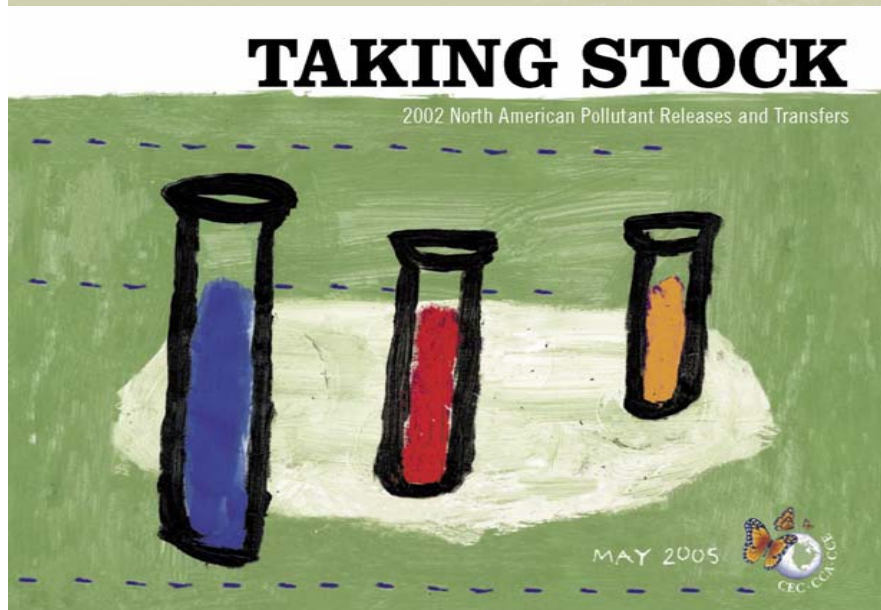


# PRTRs in North America

- U.S. Toxic Release Inventory (*TRI*)
- Canadian National Pollutant Release Inventory (*NPRI*)
- Mexican *Registro de Emisiones y Transferencia de Contaminantes (RETC)*
- *Taking Stock*



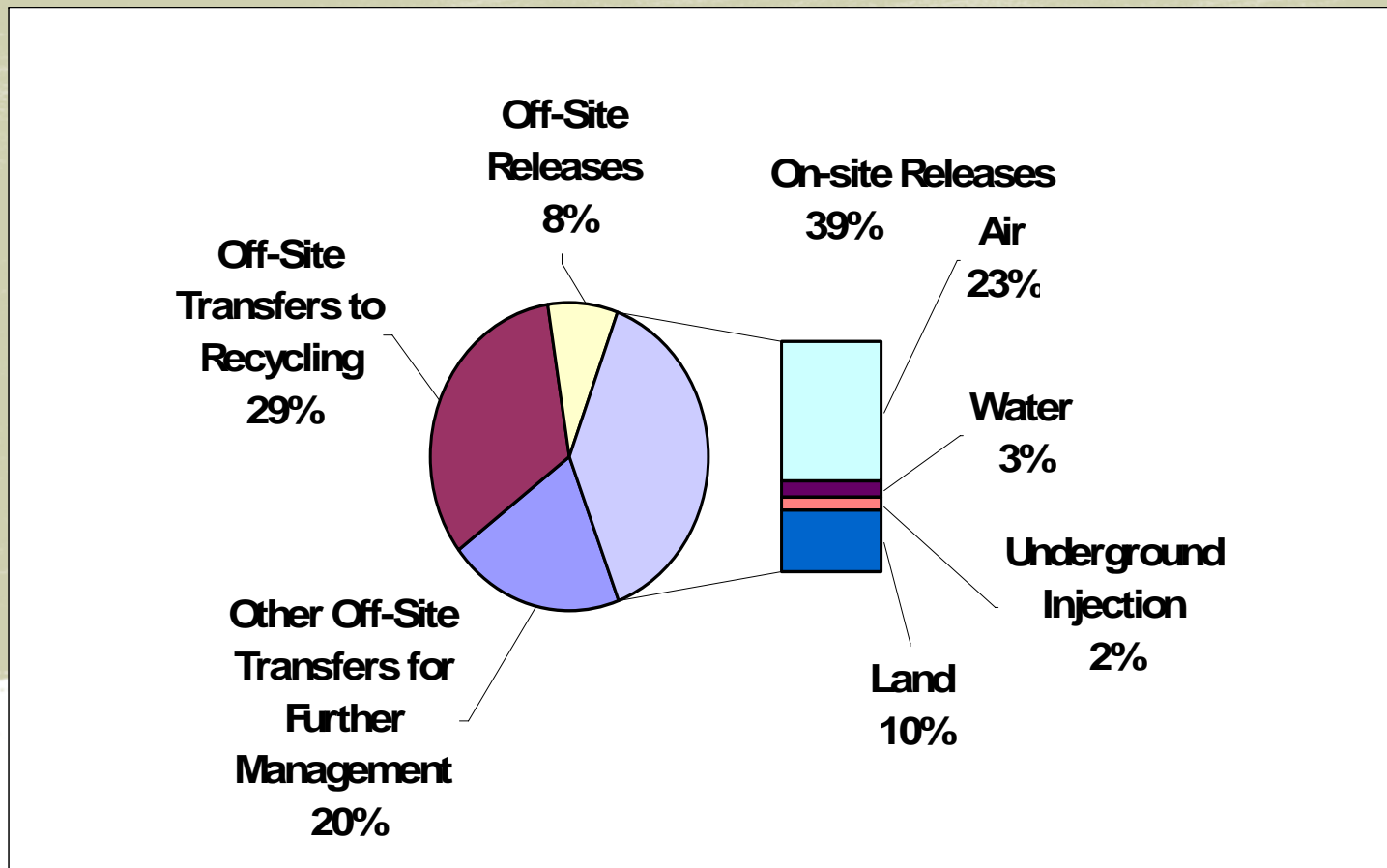
# *Taking Stock (“En Balance”)*



- Measures releases on a North American basis
- Draws upon US TRI and Canadian NPRI; will include Mexican RETC data in future
- Based upon “matched” data set
- Analyses by chemical, industry, jurisdiction and release/transfer category

# Total reported amounts - 2002

## 3.25 million tonnes



## Largest Sources of Total Releases On- and Off-site, 2002



# Special Analyses and Uses of PRTR Data - Links to Pollution Prevention

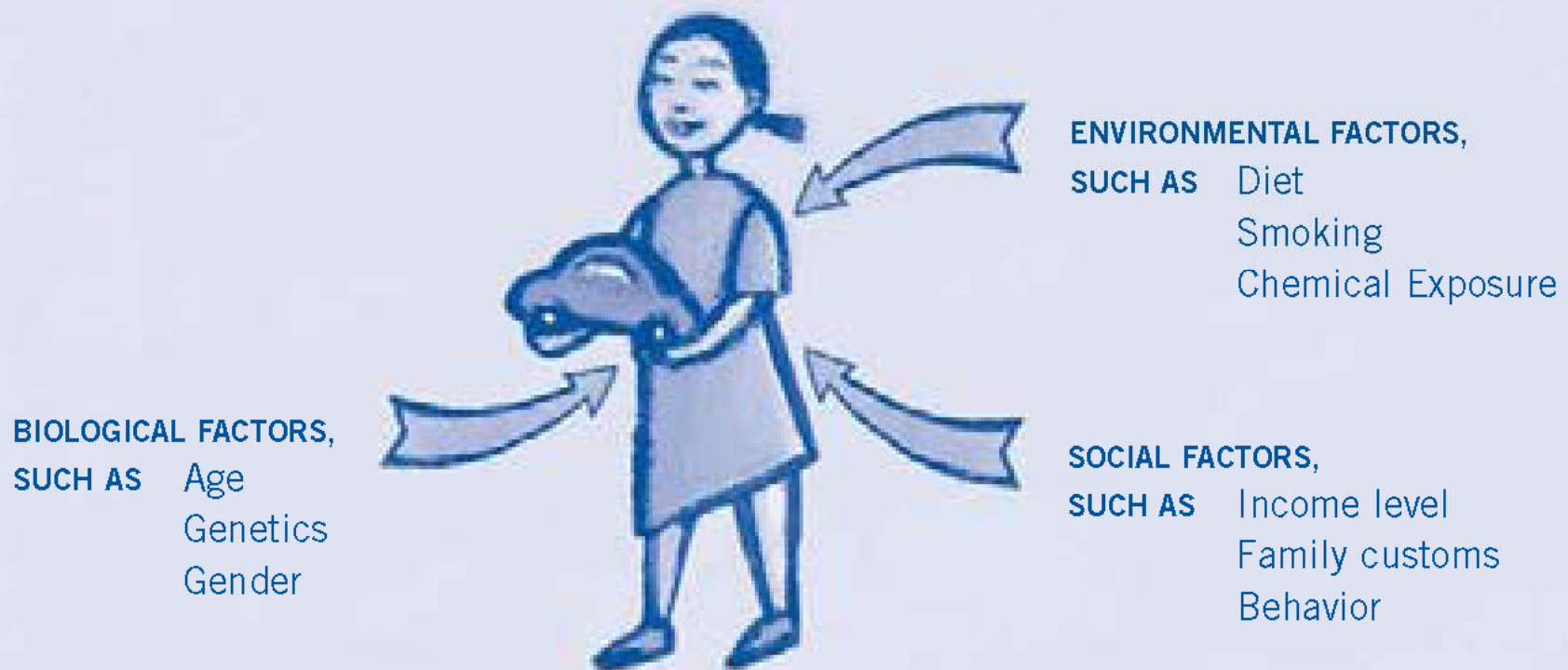
- Special features on specific industry sectors
- Report on “*Children’s Environmental Health Indicators*”
  - First regional report defining core set of indicators and identifying associations between chemical sources, exposure, and health effects on children
- Report on “*Children’s Health and Toxic Chemicals*”
  - Identification and analysis of key chemicals of concern in North America and potential effects on children

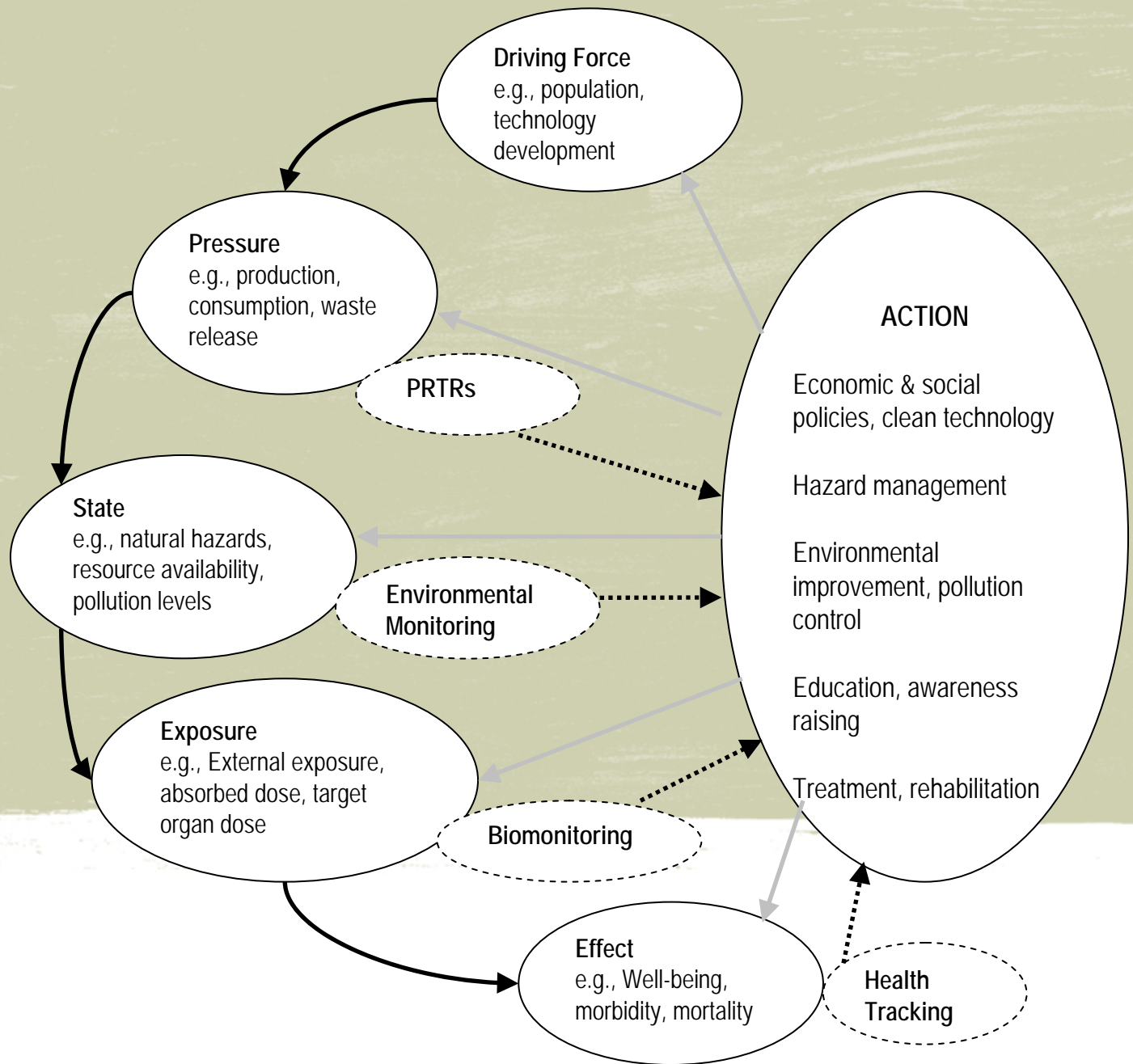


## Targeting P2 using Children's Health Indicators/Tools

- Pollution Prevention Plans, EMS, PRTRs
  - Opportunities to measure emissions, releases, transfers
- Toxicity Equivalency Potentials (TEPs)
- Chemical Groupings:
  - Carcinogens
  - Recognized developmental and reproductive toxicants
  - *Suspected* developmental and reproductive toxicants
  - *Suspected* neurotoxicants

## FIGURE 3. Children's Health is the Net Result of Many Interacting Factors

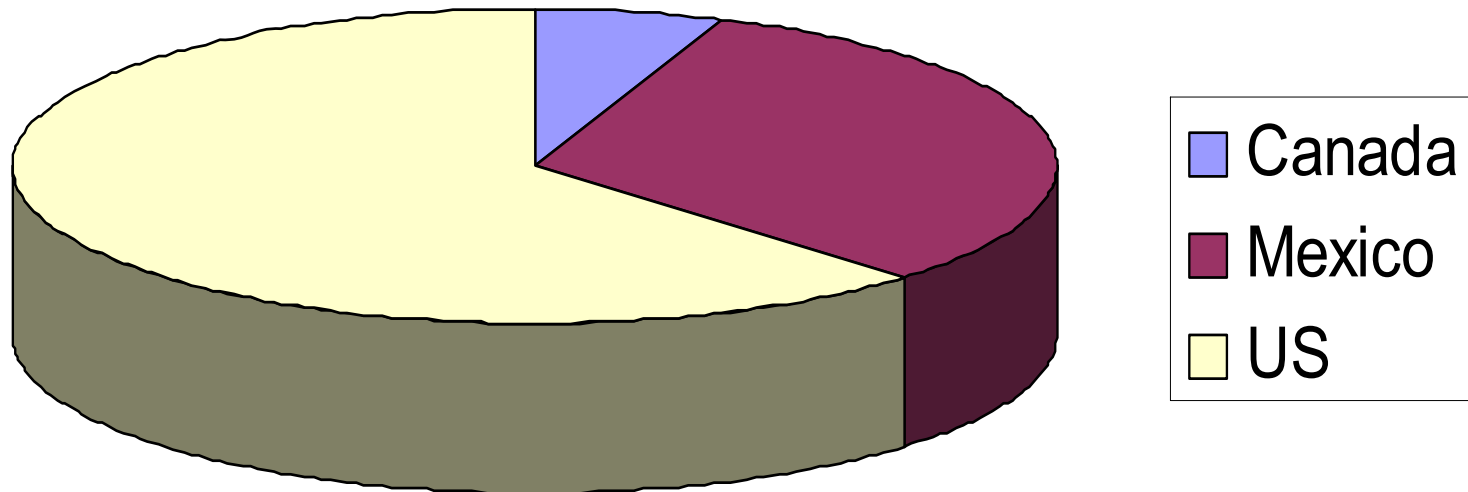




## Distribution of Children in N.A.

**Figure 1-1: Number of Children, aged 0 to 18 years,  
in North America in 2003**

**[Total—122,635,000 children]**



## Primary Causes of Death (per 100,000)

CAUSE OF DEATH	Infant < 1 YR	Pre-schooler 1-4 YRS	School age 5-14 YRS
<b>Congenital malformations</b>			
Canada	137.3	3	0.9
<b>Mexico</b>	<b>339.5</b>	<b>10.1</b>	<b>2.2</b>
United States	136.7	3.6	0.9
<b>Certain perinatal disorders</b>			
Canada	291.4	0.4	0.02
<b>Mexico</b>	<b>872.4</b>	<b>N/A</b>	<b>N/A</b>
United States	340.5	0.5	0.1

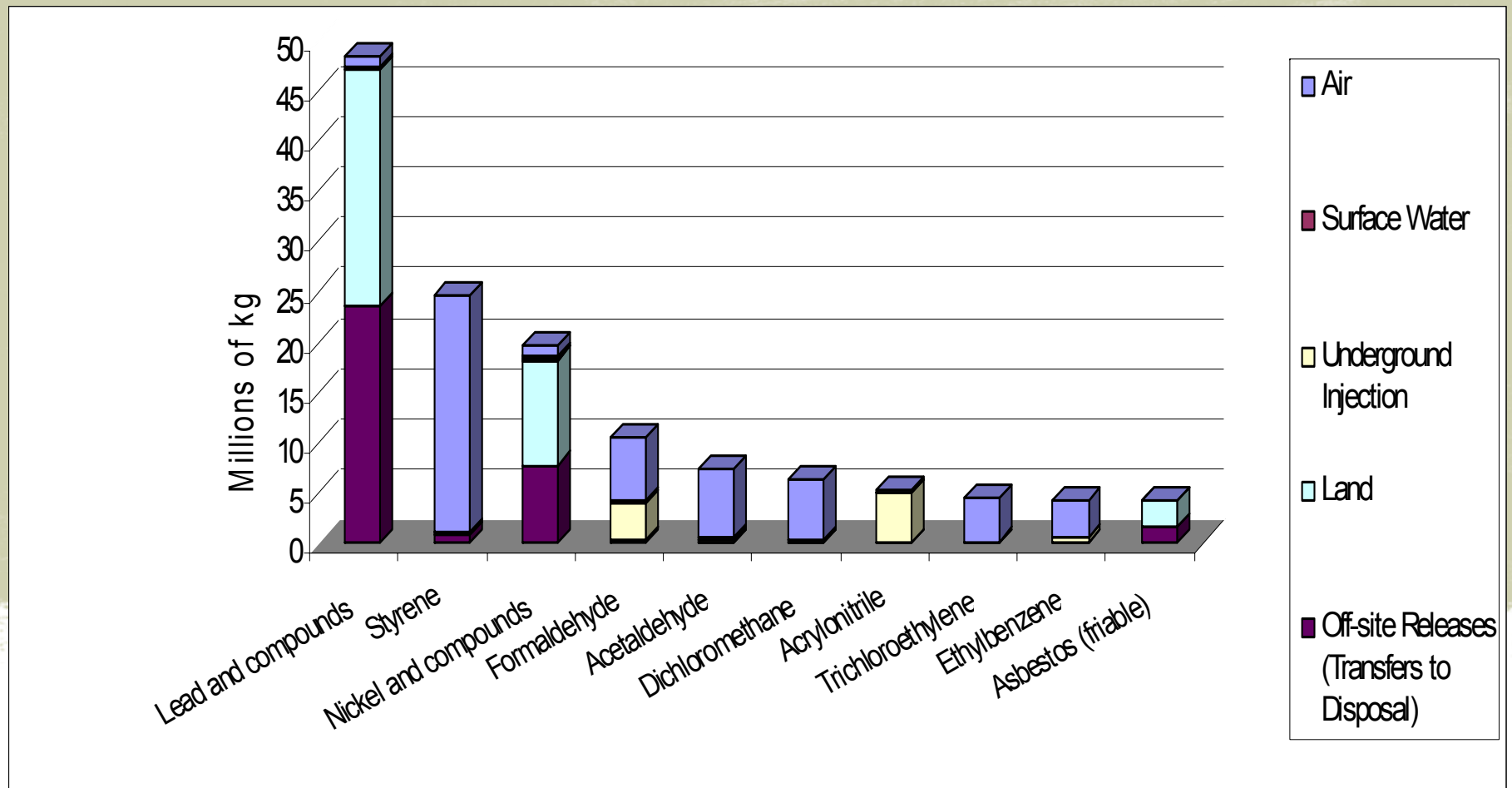
## **Carcinogen Releases in North America: 2002**

- **Total of nearly ½ million tonnes in Canada and the United States**
  - 62,300 tonnes released into the air
  - 700 tonnes released into water
- **15 percent of the total in North America (3.25 million tonnes)**
  - US (TRI) facilities account for 87 %
- **Carcinogens released and transferred in the largest quantities were:**
  - ◆ Lead and its compounds (211,200 tonnes)
  - ◆ Nickel and its compounds (82,900 tonnes)
  - ◆ Styrene (33,100 tonnes)
  - ◆ Dichloromethane (also known as methylene chloride) (27,900 tonnes)

*BUT when ranked by toxicity Carbon Tetrachloride is #1 and Lead is #2*

# Releases of Known or Suspected Carcinogens, 2002

Substances with largest total releases in 2002



Note: Canada and US data only. Mexico data not available for 2002.

## Recognized Developmental and Reproductive Toxics Releases in North America: 2002

- **Total of nearly ½ million tonnes in Canada and the United States**
  - 58.600 tonnes released into the air
- **15 percent of the total in North America (3.25 million tonnes)**
  - US (TRI) facilities account for 87 %
- **Repro/dev toxics released and transferred in the largest quantities:**
  - ◆ Lead and its compounds (211,200 tonnes)
  - ◆ Toluene (134,800 tonnes)
  - ◆ Nickel and its compounds (82,900 tonnes)
  - ◆ Carbon disulfide (13,795 tonnes)
  - ◆ N-Methyl-2-pyrrolidone (13,448 tonnes)

*BUT when ranked by toxicity Mercury is #1 and Lead is #2*

# States/Provinces with Largest Quantities of Releases

## Cancer

- ◆ Texas, 16,900 tonnes
- ◆ Ohio, 9,000 tonnes
- ◆ Indiana, 8,900 tonnes
- ◆ Louisiana, 8,700 tonnes
- ◆ Ontario, 6,700 tonnes

## Repro/dev

- ◆ Tennessee, 14,000 tonnes
- ◆ Ontario, 8,600 tonnes
- ◆ Texas, 7,500 tonnes
- ◆ Indiana, 7,100 tonnes

# Sectors with Largest Quantities

## Cancer

- ◆ Chemicals (includes chemical manufacturing and processing), with 28,800 tonnes
- ◆ Primary metals (includes steel mills, etc.), with 28,700 tonnes
- ◆ Hazardous waste management/solvent recovery, with 21,700 tonnes

## Repro/dev

- ◆ Primary metals (includes steel mills, etc.), with 351,000 tonnes
- ◆ Chemicals (includes chemical manufacturing and processing), with 153,400 tonnes
- ◆ Electric utilities (power plants that burn oil and/or coal), with 99,100 tonnes

# Lead

- 211,157 tonnes of lead and its compounds released and transferred
  - >three-quarters (162,800 tonnes) sent for recycling
  - >960 tonnes of lead and its compounds released into the air
  - Canadian NPRI facilities reported 400 tonnes or over 40 percent for North American
- Sectors with greatest totals:
  - Electronic/Electrical equipment (89,782 tonnes)
  - Primary metals (includes smelters) (52,693 tonnes)
  - Miscellaneous manufacturing industries (24,897 tonnes)
  - Hazardous waste management/solvent recovery (15,246 tonnes)

# Mercury

- 453 tonnes of mercury and its compounds released and transferred from matched TRI and NPRI facilities
  - 66 tonnes were released to the air
  - 1 tonne to the water
  - 91 tonnes sent off site for disposal
  - 82 tonnes disposed of on-site in landfills
- Over half of all releases of mercury and its compounds were contributed by top two industry sectors:
  - Hazardous waste management/solvent recovery (182 tonnes)
  - Primary metals (88 tonnes)
  - Electric utilities (power plants that burn oil and/or coal) (73 tonnes)

## Constraints

- PCBs: Reported under US TRI but not Canadian NPRI
- Dioxins: US and Canada use inconsistent reporting requirements
- PRTR data do not include:
  - Information on chemical exposures to humans or the environment
  - Information on chemical risks
  - Information on potential health effects

## Conclusions

- PRTR data as a tool to measure success of P2, prioritize activities, engage public
- Use of toxic equivalency potentials (TEPs) - redirect attention to the releases with the greatest hazard potential
- Strengthen information – incorporate public health data, monitoring, disease tracking...
- Value of a North American picture of chemical releases and coordinated efforts
- Raise awareness and recognize constraints

# Get Involved

Annual CEC PRTR Consultative Group Meeting  
San Diego, November, 28-29 2006

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