

How waste is measured by Statistics Canada and how progress toward Zero Waste can be quantified

Presentation given to **mwin**
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Environment Accounts and Statistics Division

Division des comptes et de la statistique de l'environnement



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Agenda

- The StatCan surveys
- Measurement challenges
- Disposal data and how to measure progress



The waste management surveys

- What we want to find out:
 - Financial information
 - Quantities of waste (hazardous and non-hazardous):
 - Disposal, recycling, generation, exports, imports
 - Per capita disposal rates tracked
 - Specialised modules
 - Landfill site characteristics in 2000
 - Use of greenhouse gas technologies in 2002
- What we use - two surveys:
 - Business sector : 1994, 1995, 1996, 1998, 2000, 2002, 2004, 2006
 - Government sector: 1993, 1994, 1996, 1998, 2000, 2002, 2004, 2006



Government Sector

- Sent to public bodies that have waste management programs, including:
 - local governments
 - waste management boards and commissions
 - provincial waste programs
- The survey frame is developed using the following criteria:
 - population... threshold varies according to province / territory
 - if a municipality has a waste disposal or material recycling facility within its borders
 - 2006: N = 750



Business Sector

- Sent to waste management firms, including those that:
 - collect solid waste and recyclables
 - operate solid non-hazardous and hazardous waste disposal facilities as well as recycling and composting facilities
- The survey universe is derived from the Statistics Canada's Business Register
- The survey frame was developed using:
 - revenue and employment levels that vary according to the province/territory of operation
 - 2006: N = 570



Survey Response Rates

- Based on the number of respondents:

	1998	2000	2002	2004	2006
– Business sector:	75%	74%	75%	83%	83%
– Government Sector:	90%	83%	91%	92%	88%

- High response rates due to
 - the extensive collection/processing infrastructure that exists at Statistics Canada
 - mandatory nature of the surveys



Measurement Challenges

Or, why I am completely bald



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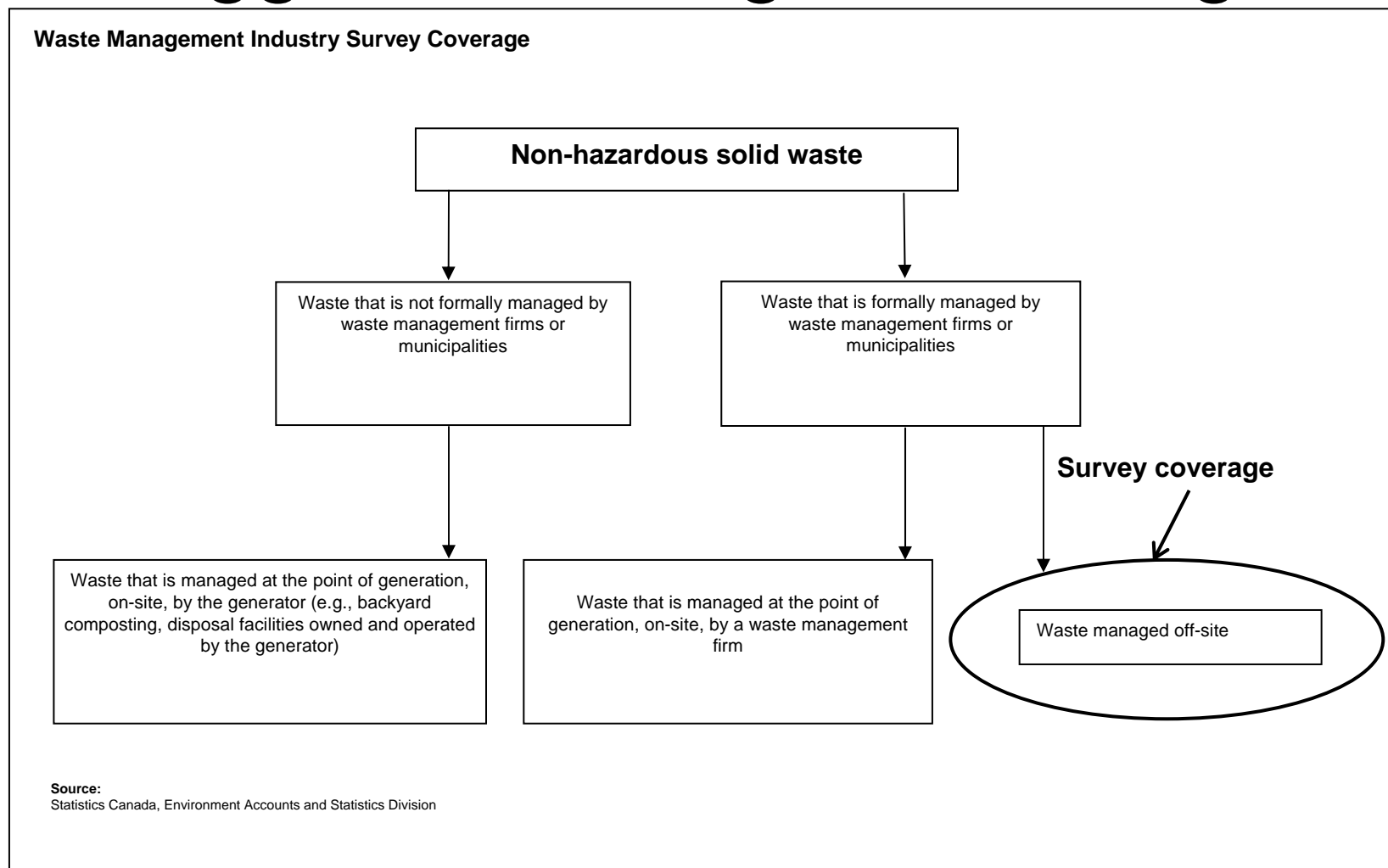
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Measurement challenges

- Until recently, differences in concepts and definitions across Canada
 - The manuals and methodologies developed by the GAP working group have solved some of these problems
- Difficulties in identifying the sources (Residential, IC&I, C&D) of waste and recyclables
 - Improving as tracking technologies improve
 - Large private firms much better at tracking
- Lack of weigh scales at the gates of facilities
 - Less of a problem in Ontario than other provinces, but still a problem in smaller facilities



Biggest challenge - coverage



Biggest challenge - coverage

- NOT included in survey frames
 - First, the diversion figures include **only** materials that were processed for recycling or reuse at publicly or privately owned material recycling facilities
 - data **do not include** materials that were processed and reused by a business or public body on site as part of its production process or as part of a secondary economic activity
 - those materials never entered the non-hazardous waste stream and therefore are not considered to be waste for the purposes of this survey.



Biggest challenge - coverage

- NOT included in survey frames
 - data from a large portion of the “reuse” category are not included in these tables
 - used clothing that is donated to a retailer and resold is excluded, as are used appliances that are refurbished and resold
 - deposit-return materials, such as beer bottles, are considered to be “reuse” and are not included in these tables unless they have been processed at a material recovery facility.



Biggest challenge - coverage

- NOT included in survey frames
 - data do not include those materials managed by wholesalers of scrap metal, plastics or paper
 - data cover only those firms whose primary source of income accrues from waste management activities and those public bodies that provide waste management services.



Biggest challenge - coverage

- NOT included in survey frames
 - the agricultural sector is largely excluded from these data
 - waste and recyclable materials (e.g., dead livestock, manure) from farms are generally managed on-site by the producer or managed by firms who specialize in the management of agricultural waste



Biggest challenge - coverage

- NOT included in survey frames
 - contaminated soil that is used as landfill cover or some other beneficial purpose at a disposal facility (e.g. the building of berms) is excluded
 - other high tonnage excluded materials that should be noted are asphalt from road-works, as well as debris from land clearing operations (e.g. soil, brush, stumps).



Biggest challenge - coverage

- NOT included in survey frames
 - a potentially large quantity of materials diverted from landfills may be collected under stewardship or take it back programs.
 - some of these materials may be included in data collected by the survey:
 - if the firms involved in the collection and/or processing of these materials fall under the waste management industry as defined by NAICS or,
 - if a municipality involved in the collection of materials or administration of a program has reported these materials on their survey.



Biggest challenge - coverage

- Included in survey frames
 - composting data include tonnages managed through centralized programs that are owned and operated by municipalities or boards or the private sector.
 - compost data exclude:
 - on-site composting programs such as backyard composting or operations run by food retailers or restaurants (for example).



Biggest challenge - coverage

- Compost data exclude
 - on-site composting of industrial organic wastes, for example, those firms engaged in the composting of wastes from primary resource extraction like forestry may be excluded if their main business activity does not fall under the waste management industry as defined by NAICS.



Coverage - summary

- We like to measure diversion and talk about diversion rates,
 - We have been doing this in Ontario since 1988
 - If memory serves me correctly
- BUT, the simplicity in kg/cap disposed is important - AND, by targeting what is disposed and not what is diverted, allows for more efforts to be put on the disposal side.



Disposal data

Or, how I have stayed fairly sane over the
past 11 years...



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Disposal data

- Unlike diversion numbers, we are certain of our coverage.
 - All landfills and incinerators accepting significant quantities of waste are included
 - Very small operations are not surveyed
 - Under 500 tonnes / year in most cases
 - Though even some of these are captured in smaller provinces



Disposal data

- More consistent across the country
 - Disposal is disposal
- Though there are still some materials that fall into a grey zone for some jurisdictions
 - e.g., contaminated soil, land-clearing debris and bottom ash from sewage sludge incineration is excluded.



Disposal data

- Kilograms per capita – progress measure that StatCan has adopted
- Diversion rates will not be published after 2006 data report release



Kg / cap

- Controls for population changes
- Consistent material types
- Little undercoverage
 - Service areas populations are calculated using Census data and raw numbers are “blown-up” to account for undercoverage
 - Very little undercoverage in Ontario: approx. 3%
- For facilities without scales, the same equivalency ratios are used from coast to coast

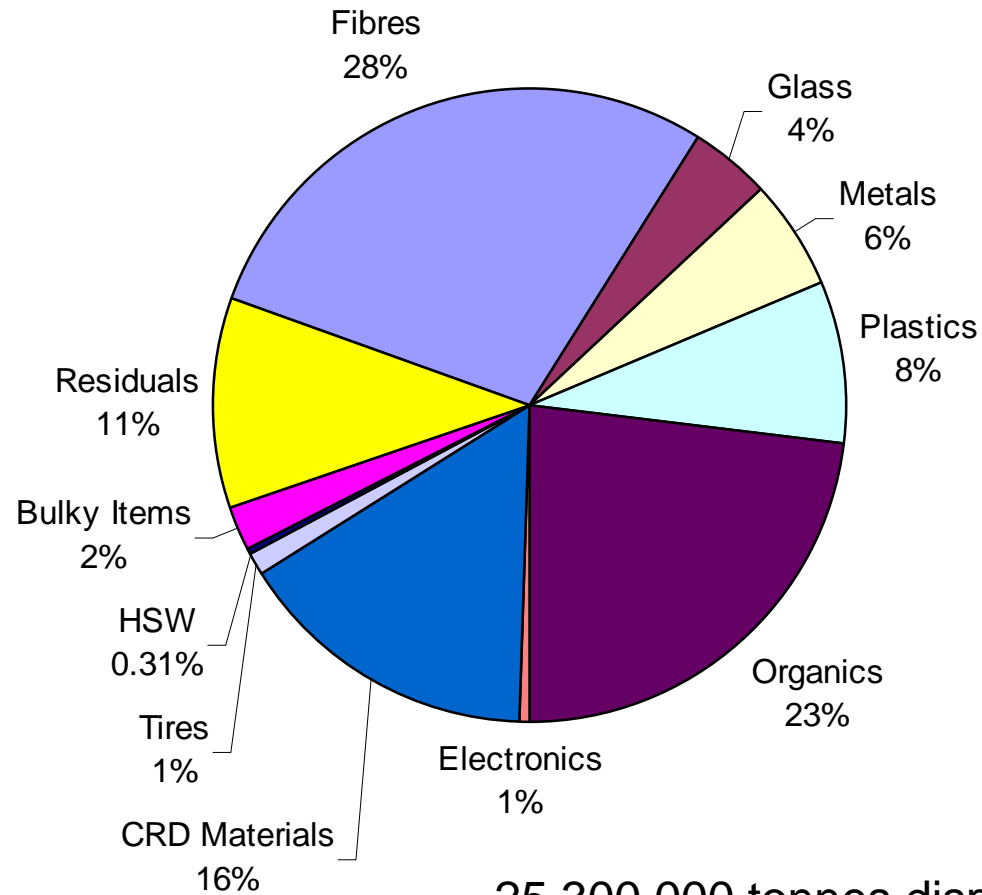


Kg / cap

- Alberta has target of 500 kg / cap by 2010
 - Currently 959 (StatCan 2004)
- Nova Scotia has set a target of 300 kg cap for both residential and non-residential waste disposed
 - Currently 426 (StatCan 2004)



MSW Composition Disposed



25,300,000 tonnes disposed in 2004



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Zero waste – by the material

- According to these splits:
 - 221 kg/cap fibres disposed
 - 181 kg/cap organics disposed
 - 127 kg/cap CRD disposed
 - 63 kg/cap plastics disposed
- Diversion programs exist for most of these materials in many jurisdictions across the country
 - Target programs and measure progress



Summary – measuring progress toward Zero Waste

- CAN be measured accurately
 - but not by using diversion data
- Kg / cap is simple and does not have the inherent coverage problems seen in the diversion data
- StatCan will continue to collect these data into the foreseeable future
 - Even in the case of budget cuts, the need for disposal data can be easily demonstrated



Thanks!

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