

ZERO PLASTIC WASTE: ADVANCING A CIRCULAR PLASTICS ECONOMY FOR CANADA

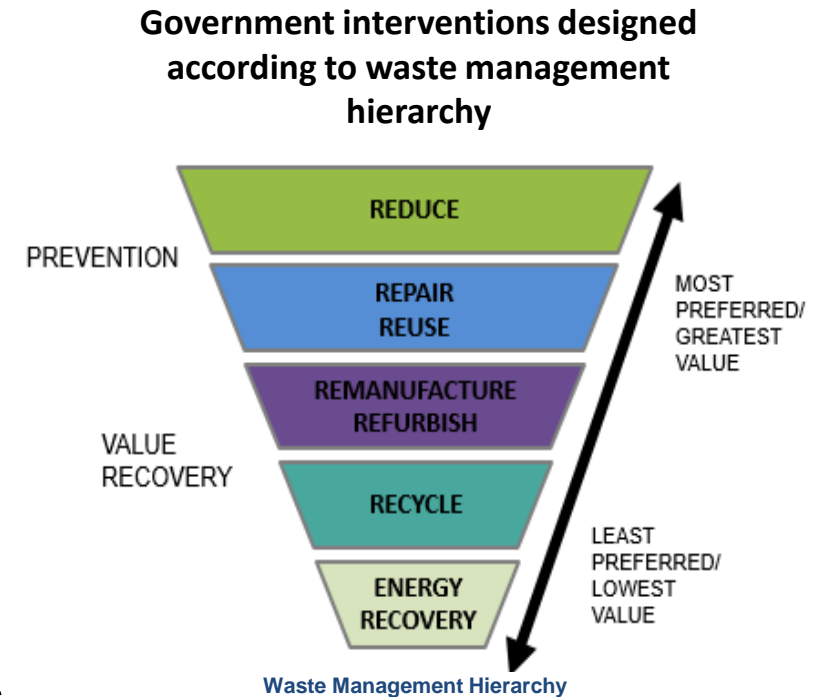
Presentation for APRA's Alberta Circular Plastics Day
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Susan Young
Plastics and Marine Litter Division
Environment and Climate Change Canada

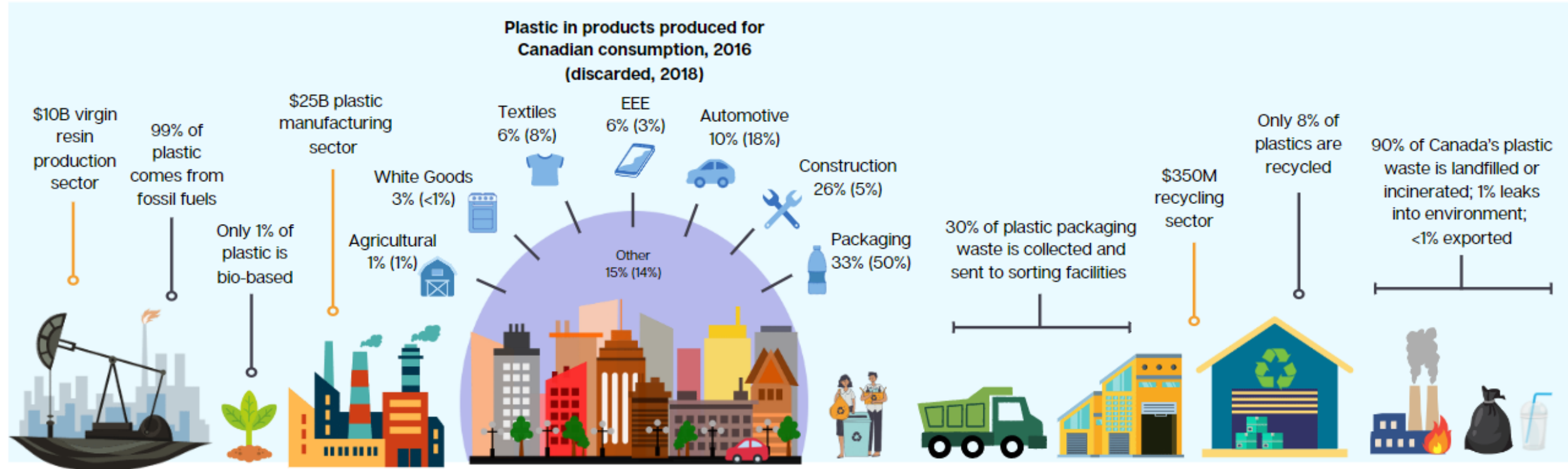


Plastics: Canadian context

- **Economic context (2016)**
 - \$10B primary (virgin) resin industry – 72% for export
 - \$25B plastic manufacturing sector – about 1,845 companies, mostly small and medium
 - \$350 million recycling industry – about 80 facilities producing secondary (recycled) plastics
- **87% of Canada's plastic waste landfilled (2019)**
 - 9% recycled, 3% incinerated and 1% leaked into the environment
 - Landfilled plastics were worth \$7.8 billion in 2016
 - 95% of Canadians are concerned about the impact of plastic pollution on oceans (Oceana/Abacus, 2021)



Canada's Plastics Value Chain



Raw materials Production

Manufacturing & Use

Disposal & End-of-Life Treatment

Oil production

Monomer & Polymer production

Plastic conversion

Manufacturing of plastic products

Use

Collection/transportation

Sorting/processing

Reuse, refill, remanufacturing, refurbishment & recycling

End-of-life (landfill, incineration, leaks)

Data Sources:

- Deloitte, and Chem Info. 2019. *Review of Economic Study of the Canadian Plastic Industry, Markets, and Waste*. Environment and Climate Change Canada.
- Statistics Canada. 2022. *Pilot physical flow account for plastic material*



Environment and Climate Change Canada

Environnement et Changement climatique Canada

Canada

Key challenges

- Canada's large and complex plastics economy is mostly **linear** (“take-make-waste”) with **key systemic market challenges**:
 - **Primary (virgin) and secondary (recycled) markets compete**: recycling is a more labour-intensive cost structure compared to primary resin production, which benefits from subsidies and economies of scale
 - **Weak end-markets for recycled plastics**: an inconsistent supply of quality feedstock at competitive prices undermines the establishment of viable and lasting end-markets
 - **Material collection rates are low**: only 30% of plastics are collected and sent to sorting facilities and only 9% are recycled because of consumer confusion, contamination, infrastructure deficiencies, and lack of markets
 - **Insufficient recovery options**: limited high-volume recovery options compete with low-cost disposal alternatives such as landfills – recycling receives the most attention, but upstream innovations in product design, recyclability, and reuse business models are also necessary
 - **Costs of plastic pollution borne by individuals and communities**: municipalities, civil society organizations and volunteers left to prevent and manage land-based sources of pollution such as urban/roadside litter



Federal zero plastic waste agenda

Science

- Implementing Canada's Plastics Science Agenda including conducting and investing in research along the life cycle of plastics, including on the impacts on human health

Policies and regulations

- Preventing plastic pollution and supporting circularity through management measures (e.g., ban of microbeads in toiletries and of certain harmful single-use plastics, requirements for recycled content, labelling)

Plastics innovation

- Enabling innovative social and technological solutions in order to reach plastics circularity, including through Canada's Plastics Innovation Challenges

Greening government

- Reducing plastic waste from federal operations and introducing sustainable procurement

Canadian Council of Ministers of the Environment

- Working with provinces and territories to implement the Canada-wide Strategy on Zero Plastic Waste and Action Plan – Phase 1 and Phase 2

Capture and clean-up

- Ghost Gear Fund; innovation testing program

International

- Working with governments and stakeholders to develop a legally-binding global agreement on plastic pollution, and advancing action on plastic waste and pollution in multilateral fora



Moving to circularity: 2021 federal mandate letter commitments

REDUCE

- *Ban select harmful single-use plastics*
- *Work with PTs on the zero plastic waste action plan*
- *Eliminate fossil fuel subsidies*



Reduced plastic waste and pollution; better management practices; closer to fully priced plastics in the economy

REUSE

- *Implement right to repair legislation*
- *Prioritize reusable and recyclable products in procurement*
- *Strengthen federal procurement policies to integrate environment, human rights and supply chain transparency principles*



Less plastic waste generated via substitution and longer product life

RECYCLE

- *50% recycled content for plastic packaging*
- *Recyclability and compostability labelling rules*
- *90% collection for recycling target for plastic beverage containers*
- *Federal plastics registry to support producer responsibility*



Predictable demand for and improved supply of recycled plastics; incentive to design products for circularity

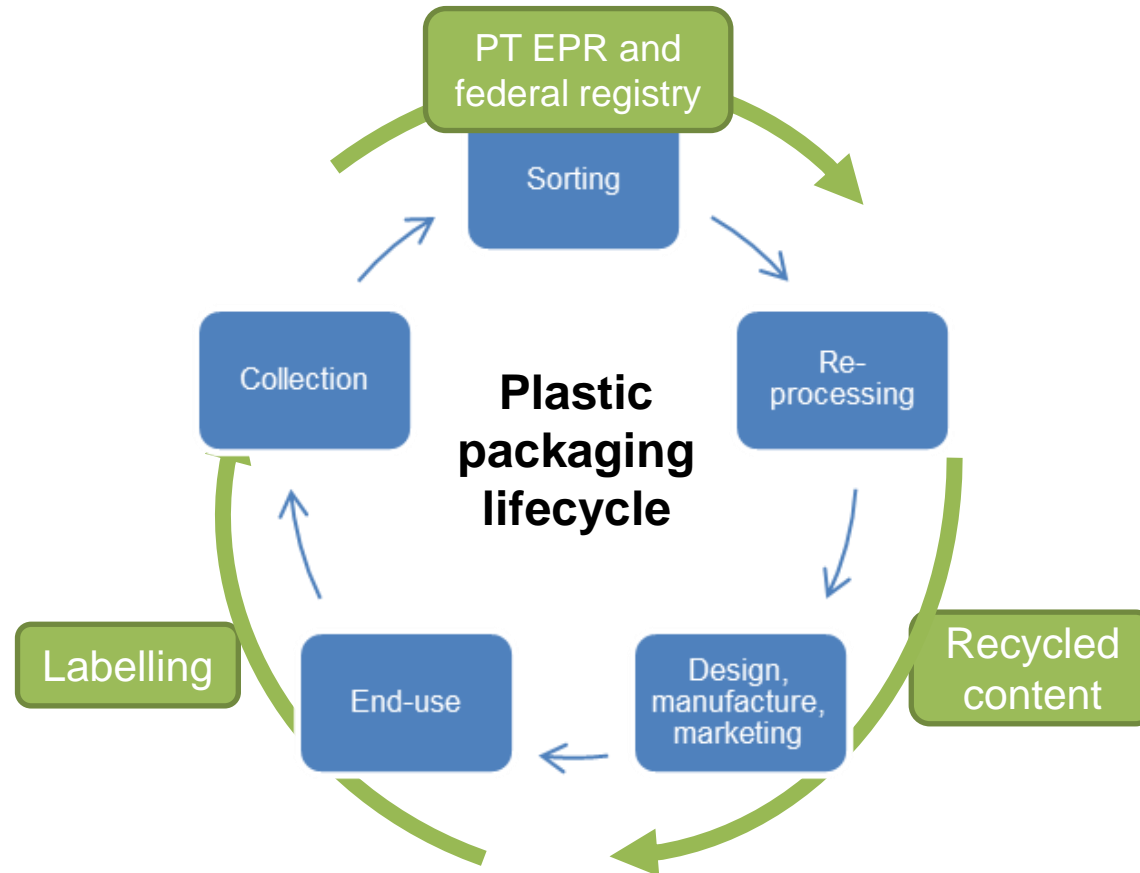


CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT (CCME)

COMPLETED	IN PROGRESS	FUTURE PRODUCTS
<ul style="list-style-type: none"> • Guidance to facilitate consistent Extended Producer Responsibility policies and programs for plastics • Roadmap to strengthen the management of single-use and disposable plastics • Best management practices: disposal bans, levies, and incentives for end-of-life plastics 	<ul style="list-style-type: none"> • Compendium of existing recyclability guidelines • Guidance on labels and terms (such as “recyclable” and “compostable”) • Assessing policy options for end-of-life management of fishing and aquaculture gear • Guidance for preventing and reducing plastic pollution in stormwater and industrial discharges • Guidance on preventing and managing plastics in organic waste and biosolids 	<ul style="list-style-type: none"> • Guidance on preventing and managing plastic pollution from natural disasters and spills • Guidance for Canada-wide monitoring of plastic pollution

ECCE REGULATORY FRAMEWORK PAPER

- Describes approach for **recyclability** and **composability labelling**, and **recycled content** requirements



- Spring release for a 30-day public comment period
- Draft regulations before the end of 2023

Combined impact of measures aims to drive the necessary system changes for a circular plastics economy

Contacts

Susan Young
Head, Strategic and Horizontal Policy
Plastics and Marine Litter Division
Environmental Protection Branch
Susan.Young@ec.gc.ca

Learn more about Canada's Zero Plastic Waste efforts at:
www.Canada.ca/zero-plastic-waste



New sorting and recovery facilities

- **Problem:** The total volume of plastics discarded each year is expected to rise 66% by 2030, and provincial and territorial regulations are requiring that greater quantities of plastic waste are collected for recycling – Canada lacks the infrastructure to handle these increases
 - At the same time, market demand for recycled plastic is expected to increase:
 - Corporate ESG commitments to increase resource efficiency with recycled materials; consumer demand; first round of federal regulations for recycled content in Fall 2023
- **Investment needs:**
 - By 2030, an additional **115-166** new low-carbon sorting, mechanical, and advanced recycling facilities are needed to reach ZPW under a best imaginable scenario
 - This translates to **between \$4.6B and \$6.5B**; costs range from **up to \$40M/facility** for mechanical; **\$40M++/facility** for chemical
 - Some recyclers have identified a challenging investment climate in Canada, e.g., small project sizes are barriers to funding, private capital attracted to large government-subsidized net zero projects
 - Technology innovation also needed for more robust and comprehensive sorting and recycling facilities
 - Innovations in organics facilities would support compostable plastics for **niche** applications
- **Potential applicants:** Recycling companies (e.g., GFL, WasteManagement, Loop Industries); petrochemical companies; plastics manufacturers (e.g., Merlin Plastics, TC Transcontinental)



Source: <https://www.ecohome.net/guides/3572/home-recycling-correctly-importance-how-to/>

Advanced Recycling

- Umbrella term for expanding list of different processing technologies: chemical, heat, biological, gasification, pyrolysis, pyrowave, etc.
- Only recommended for **niche** applications
- Converting plastics into fuel, heat energy, or landfill cover etc. is not considered recycling



RDA funding examples

Federal Economic Development Agency for Southern Ontario

- \$500,000 investment in A Friendlier Company Inc.
- Investment will be used to standardize the company's reusable takeout packaging system through a network of businesses across Canada
- Since launching, Friendlier has reused over 400,000 food containers, diverting 23 tons of waste and reducing over 67 tons of carbon emissions

Canada Economic Development for Quebec Regions

- \$280,000 investment for the Régie intermunicipale de traitement des matières résiduelles de la Gaspésie (RITMRG)
- Investment will be used to acquire an innovative digitally automated sorting process to make it easier to sort recyclable materials received at the centre, improving its productivity and reducing its rejection rate

Prairies Economic Development Canada

- PrairiesCan will support an upcoming Government of Alberta study to determine the feedstock supply available for value-added applications in Alberta



Federal funding programs

- **ISED** Strategic Innovation Fund
- **ISED/HC** Strategic Science Fund
- **ISED** Jobs and Growth Fund
- **ISED** Clean Tech Fund
- **NRCan** Zero Emission Vehicle Infrastructure Program
- **NRCan** Science and Technology Internship Program – Green Jobs
- **AAFC** Agricultural Clean Technology Program: Research and Innovation Stream
- **AAFC** Canadian Agricultural Strategic Priorities Program (CASPP)

- **TCS** Canadian Technology Accelerators
- **TCS** CanExport Innovation, SMEs
- **NRC** Industrial Research Assistance Program (IRAP)
- **NSERC** Alliance Grants
- **TC** Incentives for Medium- and Heavy-Duty Zero-Emission Vehicles (iMHZEV) Program
- **BDC** Clean Tech Practice; Industrial, Clean and Energy (ICE) Technology Fund
- **EcoCanada** Environmental Employability Pathways
- **SDTC**

Regional Federal regional economic development agencies:

- Atlantic Canada Opportunities Agency (ACOA)
- Canada Economic Development for Quebec Regions (CED)
- Federal Economic Development Agency for Southern Ontario (FedDev Ontario)
- Pacific Economic Development Canada (PacifiCan)
- Federal Economic Development Agency for Northern Ontario (FedNor)
- Canadian Northern Economic Development Agency (CanNor)
- Prairies Economic Development Canada (PrairiesCan)

