



Environment and
Climate Change Canada

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REDUCING METHANE EMISSIONS FROM CANADA'S SOLID WASTE SECTOR

An update from Environment and Climate Change Canada

Organics Recycling Conference

Compost Council of Canada

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Canada

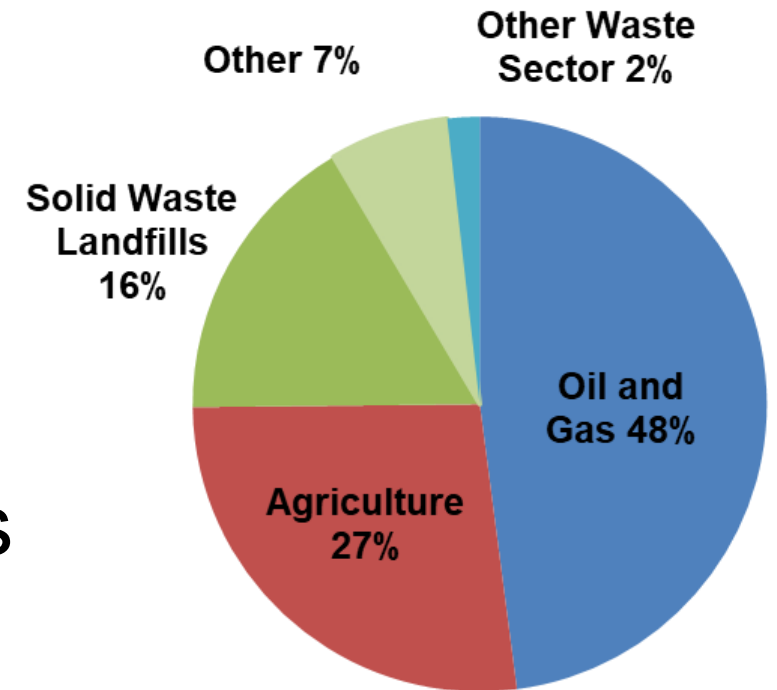
WASTE SECTOR 3RD LARGEST EMITTER OF METHANE IN CANADA

Methane emissions from municipal solid waste landfills currently account for:

- 17.2 Mt CO₂e of Canada's GHG emissions or 2.5% of total emissions
- 16% of national methane emissions

Biodegradable waste disposed in landfills is the source of these emissions and account for more than 60% of the waste landfilled annually

National Methane Emissions by Sector



2022 Methane Emissions, by sector (NIR, 2024)

REDUCING LANDFILL METHANE EMISSIONS SUPPORTS CANADA'S CLIMATE COMMITMENTS

Canadian Net-Zero Emissions Accountability Act

- Reduce GHG emissions by 40-45% below 2005 levels by 2030 and achieve net-zero GHG emissions by 2050

Methane Reduction Commitments

- Canada joined over 100 other countries that pledged to collectively reduce global anthropogenic methane emissions across all sectors by at least 30% below 2020 levels by 2030
- Canada's Methane Strategy: reduce methane emissions by more than 35% by 2030, compared to 2020 levels
- North American Leaders' Summit (2023): reduce methane emissions in the waste sector by at least 15% from 2020 levels by 2030

REDUCING LANDFILL EMISSIONS – PROPOSED FEDERAL LANDFILL METHANE REGULATIONS

- ECCC developing regulatory requirements to reduce methane emissions from MSW landfills under the *Canadian Environmental Protection Act, 1999 (CEPA)*
- The regulations aim to:
 - Increase the number of landfills taking action to reduce methane emissions
 - Ensure methane control is being optimized
 - Increase the detection and repair of methane leaks
- Draft regulations to reduce landfill methane emissions were published for consultation in June for a 60 day comment period
- Reduction potential of 8.5 Mt CO₂e by 2030 in emissions from landfills
- ECCC has supported the development and implementation of modern estimation and measurement approaches and technologies that will support regulatory implementation and performance measurement

REDUCING LANDFILL EMISSIONS – REDUCING QUANTITY OF BIODEGRADABLES LANDFILLED

- Reducing the quantity of biodegradables landfilled is crucial to significantly reducing overall methane emissions generated by Canada's solid waste sector
 - 64% of Canada's residual waste stream is biodegradable
 - By 2030, approximately 40% of the methane that will be generated, will be created by biodegradable waste that was disposed before 2020
 - Importantly, the planned regulations address methane emissions resulting from legacy waste, while reducing the quantity of biodegradables landfilled mitigates against future emissions
 - Landfill gas collection systems, while effective, do not capture all the methane generated – due to the quick decay rate for food, an estimated 61% of the methane emissions generated by landfilled food is released to the atmosphere before it can be captured by landfill gas collection systems
 - Landfill gas capture infrastructure is not technically or economically feasible at smaller landfills – reducing the source of emissions is the most impactful approach for these landfills that will not be captured by the planned regulations
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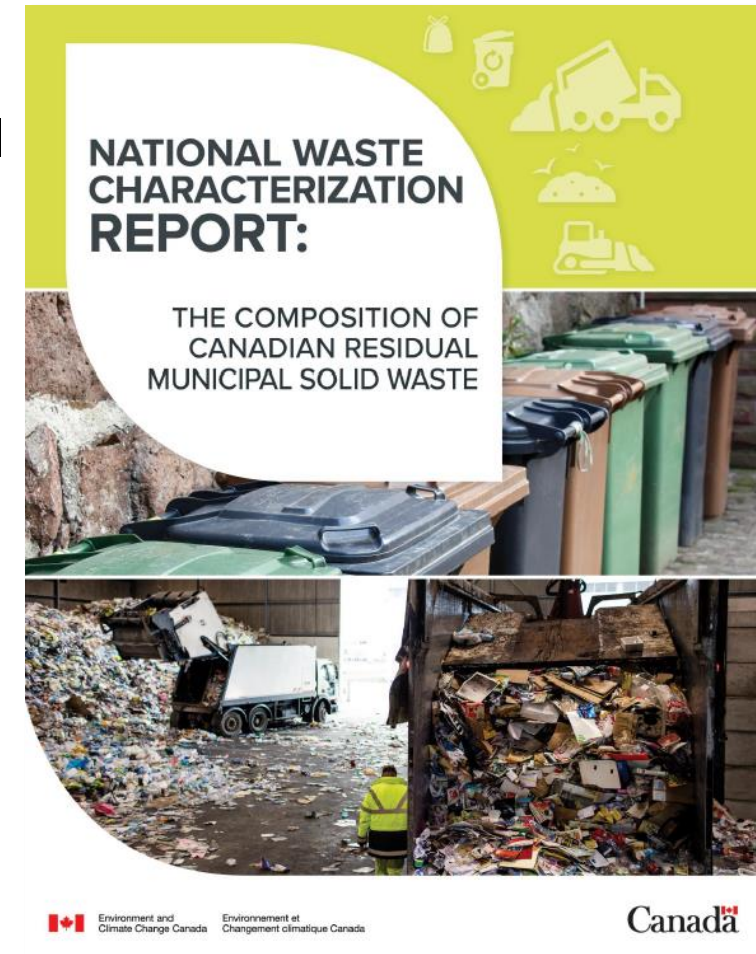
TRACKING BIODEGRADABLE WASTE DISPOSAL TRENDS

- In 2020, ECCC published the first National Waste Characterization Study that estimates the composition of the residual waste stream at the provincial/territorial and national level
- The study is informed by voluntarily provided or publicly accessible waste audits from across Canada
- The team is conducting analysis at this time to publish an updated study based on more recent waste audits received
- The analysis is used to inform the landfill methane emissions generation model and is a key resource for tracking disposal trends for biodegradable materials and other waste categories

ECCC welcomes contributions to our National Waste Characterization Program. If you have waste audit data to share, please send it to:

ges-dechets-ghg-waste@ec.gc.ca.

Data collected from individual jurisdictions or organizations is aggregated before being shared or published.



TRACKING BIODEGRADABLE WASTE DISPOSAL – FOOD WASTE

- Waste audit data received is also being analyzed to assess organics disposal trends – the analysis will be included in a separate report
 - For example, an emerging trend in residential sector waste audits is to break down the ‘food’ material category into ‘avoidable’ and ‘unavoidable’ food waste, which provides deeper insights into household disposal behaviours
 - ‘Avoidable’ food waste is generally categorized as food that was edible at some point before disposal and ‘unavoidable’ is food that is not generally consumed, such as bones, vegetable peelings, eggshells, and coffee grounds (terminology used varies – e.g. edible/inedible)
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MORE 'AVOIDABLE' FOOD WASTE IS DISPOSED IN GARBAGE THAN SSO STREAM



Average avoidable food in garbage stream

65%

Average avoidable food in organics stream

45%

CANADA COMMITTED TO REDUCING FOOD LOSS & WASTE



The Government of Canada is committed to contributing to the achievement of UN Sustainable Development Goal 12.3

Food Policy for Canada

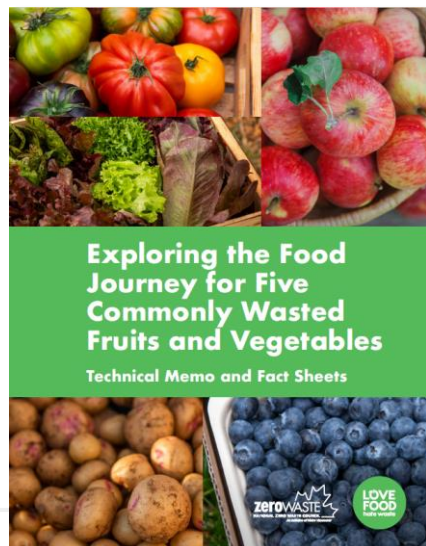
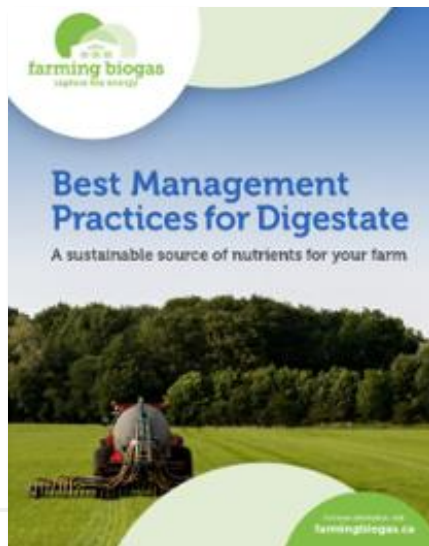
- A roadmap to help build a healthier & more sustainable food system
- \$20M Food Waste Reduction Challenge: Grand prize winners for the [Business Model stream](#) and the [Novel Technologies stream](#) announced earlier this year

Commission for Environmental Cooperation

- ECCC works with USA & Mexico to address FLW in North America
- New project for 2024-2025
 - Development of a Guide for Practitioners on when and how to apply behaviour change theories in public-facing interventions to reduce food waste
 - The Guide will impart knowledge, skills & training to enable more practitioners to design & implement effective public-facing behaviour change interventions to reduce food waste at the household & consumer-level

SUPPORTING BIODEGRADABLE WASTE PREVENTION & DIVERSION INITIATIVES

- ECCC's Contribution funding envelope of \$1.4M spread over five fiscal years is providing financial support to projects seeking to keep biodegradable waste, such as food, paper, and textiles, out of landfills
- Program delivery initially utilized a targeted approach that funded seven projects across Canada



- **Canadian Biogas Association**
 - [raising awareness and use of digestate](#)
- **National Association for Charitable Textile Recycling**
 - [current state and opportunities for increasing textile reuse](#)
- **National Zero Waste Council**
 - [towards circular food systems across Canada](#)
- **Compost Council of Canada**
 - capacity building for underserved small-to-medium sized municipalities
- **Recycling Council of Alberta**
 - [food rescue across western Canada](#)
- **University of Toronto**
 - assessing organics diversion levels being achieved with different multi-residential chute systems
- **Université Laval**
 - assessing the potential for recovering low-quality paper as an organic soil amendment

SUPPORTING BIODEGRADABLE WASTE PREVENTION & DIVERSION INITIATIVES

- The funding program shifted to a public call for project proposals last fall under the Food Waste Prevention & Diversion Research and Capacity Building Fund aimed at local governments
 - ECCC received close to 40 eligible project proposals, which demonstrates the level of activity and interest in reducing the landfilling of food waste across Canada
 - Limited funding allows for four projects to be supported under this fund
 - Projects began this spring and will be completed in March 2026
 - Research project themes include:
 - Organics diversion in public spaces and at events
 - Studying behaviour change interventions to increase organics diversion in multi-residential buildings
 - Researching in-vessel composting options in a northern community
 - Exploring interventions to prevent food waste in the ICI sector
 - Project findings will be shared publicly so other jurisdictions may also benefit from these studies
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REDUCING QUANTITY OF BIODEGRADABLES LANDFILLED

STUDIES, GUIDANCE & RESOURCES

- Overview of Organics Diversion Requirements and Practices for the Canadian Industrial, Commercial and Institutional Sector
- Best Practices for Reducing Costs of Anaerobic Digestion of Organic Waste and Increasing the Valorization of Biogas and Digestate
- Using Low-grade Paper and Papermill Sludge as Soil Amendments: Literature Review and Experiment
- Resource Document: The Role, Management, and Impacts of Plastics in Organics Waste Diversion Programs in Canada
- Waste Generation Trends and Management Practices Across Canada's K-12 Public Sector Education Facilities; & Best Practices for Waste Management: A Guide for School Communities in Canada
- Overview of Multi-Residential Waste Diversion Across Canada
- Characterizing Reuse, Recycling and Disposal of Textiles in Canada
- The Promotion of Carbon Sequestration from the Land Application of Compost

These reports are available upon request at ges-dechets-ghg-waste@ec.gc.ca

CARBON SEQUESTRATION FROM LAND APPLIED COMPOST

Objectives:

- Assess compost's impact on soil carbon storage and GHG emissions
- Identify the potential for carbon sequestration from the land application of compost in Canada
- Identify opportunities for the applications of compost to enhance soil carbon sequestration

Report Highlights:

- Overview of existing calculation methodologies for estimating carbon sequestration from the land application of compost
- Overview of carbon sequestration influencing factors, such as soil type, organic matter, and microbial activity
- Assessing the carbon sequestration potential of different types of land enhancements, including compost, digestate, and biosolids

NEW ECCC PROJECTS FOR FALL 2024

- ECCC has retained consultants to engage with stakeholders to gather expert perspectives on opportunities, barriers, and drivers for reducing the landfilling of organics from the residential and ICI sectors
- This work will complement quantitative analysis of waste audit data by providing qualitative insights from those actively working this space
- Comments will be compiled into publicly available reports later in 2025
- This work is to inform policy development, support enhanced prevention and diversion from landfills, improve circularity of organic materials, and identify areas for potential federal government support (e.g. data repository, convening, research, guidance, funding, etc.)
- As always, ECCC is appreciative of stakeholder participation in these activities

FEDERAL INFRASTRUCTURE FUNDING FOR SOLID WASTE MANAGEMENT

Housing, Infrastructure and Communities Canada will be launching the new \$6 billion Canada Housing Infrastructure Fund, allocated over 10 years, beginning in 2025

The Fund will accelerate the construction and upgrading of housing-enabling water, wastewater, stormwater, and solid waste infrastructure that will directly enable new housing supply and help improve densification

The program supports two streams of funding:

- \$1 billion available directly to municipalities to support urgent infrastructure needs that will directly enable housing supply
- \$5 billion for agreements with provinces and territories to support long-term priorities

More information on the program, as well as how to apply, will be available in the coming months.



ONGOING FEDERAL FUNDING OPPORTUNITIES

Federal funding programs aim to achieve specific objectives and outcomes that advance Canada's broader policy goals and priorities

Programs set specific eligibility and merit-based criteria to assess each application to ensure that projects funded through federal programs contribute to these goals and priorities

Low Carbon Economy Fund (LCEF):

- Supports projects that help to reduce Canada's GHG emissions
- In May 2022, received a \$2.2-billion recapitalization over seven years
- The [LCEF](#) has provided funding to six organics diversion projects in Canada to date

Clean Growth Hub

- Provides no-cost tools/advisory services to connect clean tech projects with federal supports
 - [Clean Growth Hub](#) website has a list of federal clean tech funding programs and services
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CONNECT WITH ECCC!



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