CLEAN AIR TASK FORCE

Brazil Waste Sector Methane Analysis Factsheet

Brazil is the largest greenhouse gas (GHG) emitter in the Latin America and the Caribbean region and the sixth largest emitter in the world.[1]

The country's waste sector—which includes municipal solid waste (MSW) and wastewater—contributed to **15% of annual national methane emissions**.[2] In 2025, CATF published the Brazil Waste Sector Methane Analysis, which assesses waste management in Brazil and explores solutions to improve practices and reduce methane emissions. This factsheet highlights key findings from the analysis.

Brazil's Waste Methane Emissions

15%

In 2022, Brazil's waste sector contributed to **15% of total methane emissions**.[3]

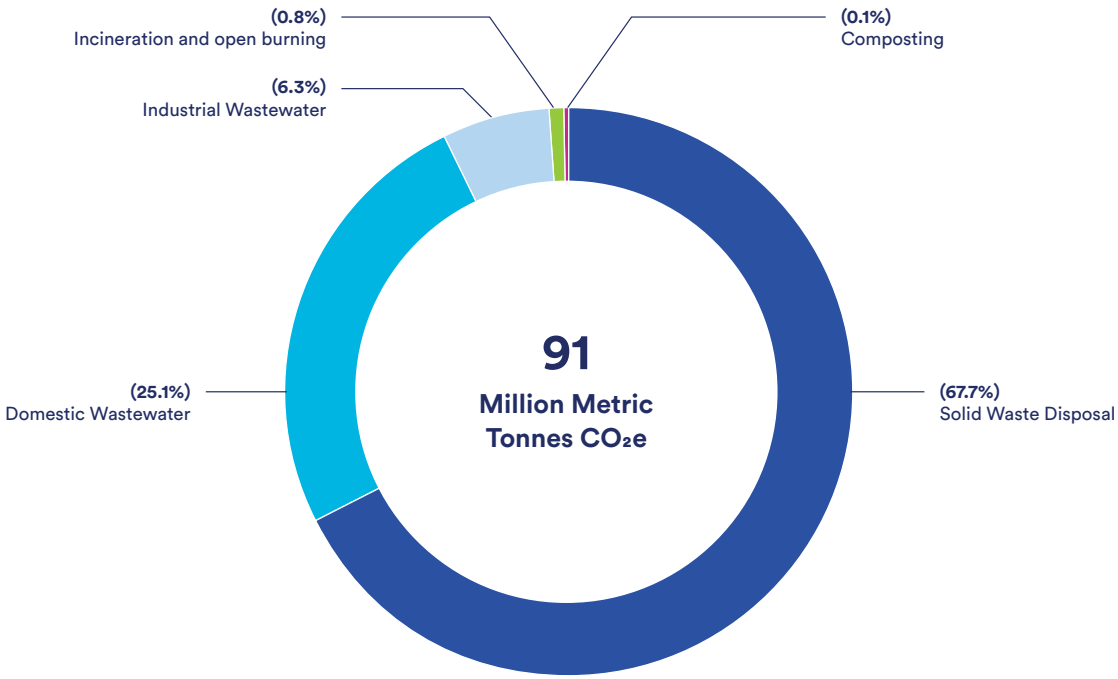
68%

Of the total waste sector methane emissions, roughly **68%** stem from **solid waste disposal** (i.e., managed and unmanaged disposal sites, as well as open dumpsites).[4]

97%

On average, 97% of GHG emissions from waste in Brazil are **methane.**[5]

Brazil Waste Sector Methane Emissions in 2022[6]



Institutional Framework for Waste Management and Methane Mitigation

Brazil's national framework for waste management and methane mitigation includes several key policies. The **National Solid Waste Policy (Law No. 12,305/2010)** establishes shared responsibility for waste management and promotes methane mitigation through landfill diversion, while **Federal Decree No. 10.936/2022** provides further guidance for implementation of the policy.[7] The **Basic Sanitation Legal Framework (Law No. 14.026/2020)** integrates waste into broader sanitation goals, driving investments in waste infrastructure and fostering methane capture.[8] Programs like **Zero Dumpsites** and **Zero Methane** directly target methane reduction through dumpsite closure and biogas capture.[9] Furthermore, the **Brazilian National Biofuels Policy (Law No. 13.576/2017)** and the **Fuel for the Future Law (Law No. 14.993/2024)** support methane recovery and use as a renewable energy source.[10] Currently, Brazil is developing the **National Plan for Organic Waste Reduction and Recycling** which will set specific goals for waste separation and treatment.[11]

Solid Waste Management in Brazil

Generation	More than 78 million metric tons of MSW were generated in 2023.[12] On average, organic waste accounts for 45% of the waste stream.[13]
Collection	91% of the Brazilian population have access to collection services, but only 36% have access to segregated collection services.[14]
Recycling and treatment	4% of waste is recovered for recycling and treatment, of which 3% is dry waste and 1% is organics that are treated in composting plants.[15]
Final Disposal	70% of collected MSW is sent to sanitary landfills, while 26% goes to open dumps and uncontrolled landfills. 9% of MSW generated is not collected; instead, it is illegally dumped, burned or leaked to the environment.[16]

Challenges and Opportunities

Brazil faces several major hurdles to cutting methane emissions from the waste sector. Many areas in Brazil still do not have access to waste collection, waste recycling and treatment rates are low, and a large portion of collected waste is still sent to open dumps and uncontrolled landfills. Generally, there is a fragmented waste management approach that contributes to implementation challenges and methane emissions. Data gaps and financial barriers further limit the understanding and proper allocation of funding for organic waste treatment and methane capture. Despite these barriers, there are promising opportunities for Brazil to improve solid waste management and mitigate methane emissions in the coming years.

Key Stakeholders

- **Ministry of Environment and Climate Change (MMA):** Sets guidelines for methane reduction strategies and regulates GHG mitigation actions in waste sector.
- **Ministry of Cities (Mcid):** Oversees urban development policies, including infrastructure, sanitation, and land use for final disposal of MSW.
- **Ministry of Regional Development:** Promotes sustainable development initiatives in both urban and rural areas. Finances waste management infrastructure and sanitation projects targeting methane emission reduction.
- **National Water and Basic Sanitation Agency:** Oversees the prevention of water contamination from waste disposal sites, contributing to methane mitigation efforts.
- **Other Federal Government Agencies/Ministries:** Includes Ministry of Science, Technology and Innovation, Ministry of Development, Industry, Commerce and Services, Brazilian National Environmental Council, Brazilian Agency of Technical Norms, which address waste sector issues that fall within their jurisdiction.

State Environmental Agencies: Issue environmental permits for waste management activities at the state level. Ensure methane reduction measures are implemented in local jurisdictions.

Municipal Governments: Manage household waste, including collection, transportation, treatment, and final disposal. Ensure adherence to methane emission regulations and implement waste collection fee systems to fund proper waste management.

National Congress and State Parliaments: Pass national/state laws and approve budgets.

	Challenges	Stakeholder(s)	Opportunities
Integrated Waste Management System			
Waste Diversion and Reduction	Limited waste reduction and source separation resulting in organic waste at final disposal sites.		Where available, local governments should enforce policies and programs by promoting food banks, redefining product expiration dates, establishing waste fees and "pay as you throw" schemes, and developing public awareness campaigns and education programs, among others. Where lacking, governments should develop local policies and/or programs that incentivize these best practices.
Compsosting and Anaerobic Digestion	Limited organic waste treatment infrastructure (e.g., composting and anaerobic digestion plants) to treat organic waste.		Support the development of municipal composting and anaerobic digestion plants for organic waste. Increase the role of other stakeholders such as the Ministry of Agriculture and National and Regional Development Banks. For example, promote the development of small-scale organic treatment infrastructure alongside the Brazilian Agricultural Research Corporation.
Final Disposal Sites	Few methane mitigation and recovery systems at final disposal sites.		MMA, together with the Brazilian National Environmental Council, should mandate implementation of improved operational practices, biocovers, and – where technologically viable– methane recovery systems at landfills. When feasible biocovers and methane recovery systems should be implemented at open dumpsites.
Enabling Factors			
Regulatory Framework	Lack of regulations on landfill operations, waste segregation, and methane usage, as well as weak enforcement of existing regulations.		Evaluate reasons for improper enforcement, establish an inspection scheme to promote compliance, and develop new regulations on landfill operations, waste segregation at source, and methane usage as energy source that address enforcement barriers.
	Slow closure of dumpsites.		Enforce the closure of all Brazilian dumpsites, to accomplish the national mandatory targets.

	Challenges	Stakeholder(s)	Opportunities
Financing	Lack of incentives and limited knowledge of existing incentives for organic waste treatment and methane capture technologies.		Disseminate information, knowledge, and create incentives for operators to treat organic waste and to capture methane from landfills to flare or convert into energy.
	Lack of a waste-fee system that adequately finance costs for waste management.		Provide guidance and training in developing waste fee systems for municipalities, to enable the recovery of running costs and finance of new infrastructure required to reach the targets set by PLANARES.
	Limited market demand and policy support for biomethane and compost.		Develop new legislation which includes biomethane as a target within public sustainable purchase policies (as a fuel for public service vehicles, for example). Develop subsidies or incentives for purchase of compost.
	Mobilizing global climate funding and technology transfer.		Mobilize international partnerships and global climate funding to access technologies and best practices, which allow scaling of solutions.
Capacity Strengthening	Lack of skilled workforce and training opportunities.		Develop training programs for local authorities and waste management professionals in advanced waste management techniques and on methane mitigation.
Research and Data Collection			
Improve Emissions Data	Absence of common standards, methodologies, and integradated reporting system for data collection and analysis on waste data and methane emission estimation.		Develop standards to set guidance for methane measurement across different waste management practices. In addition, the National government should set a unified data system for data collection that includes methane emissions.
Pilot Projects and Case Studies	Insufficient data and successful local examples of waste methane reduction projects.		Through different agencies, support pilot projects and document case studies on successful methane reduction interventions, including costs, emissions impact, and replicability.

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