CLEAN AIR TASK FORCE

Colombia Waste Sector Methane Analysis Factsheet

Colombia is the third largest emitter of waste methane in the Latin America and the Caribbean region, following Brazil and Mexico.[1]

Its waste sector—which includes solid waste and wastewater—contributes to **22% of annual national methane emissions**. Over recent decades, Colombia has made notable progress in improving solid waste management by increasing collection rates, sending waste to engineered disposal sites, and developing a sustainable funding mechanism. Building on these successes, **Colombia has a key opportunity to further reduce the climate impact of its waste sector by targeting methane emissions**. In 2024, CATF published the Colombian Waste Sector Methane Analysis, which assesses waste management in Colombia and explores solutions to improve practices and reduce methane emissions. This factsheet highlights key findings from the analysis.

Colombia's Waste Methane Emissions

7%

In 2018, Colombia's waste sector contributed to **7% of total greenhouse gas (GHG) emissions** or 20.46 million metric tonnes of carbon dioxide equivalent.

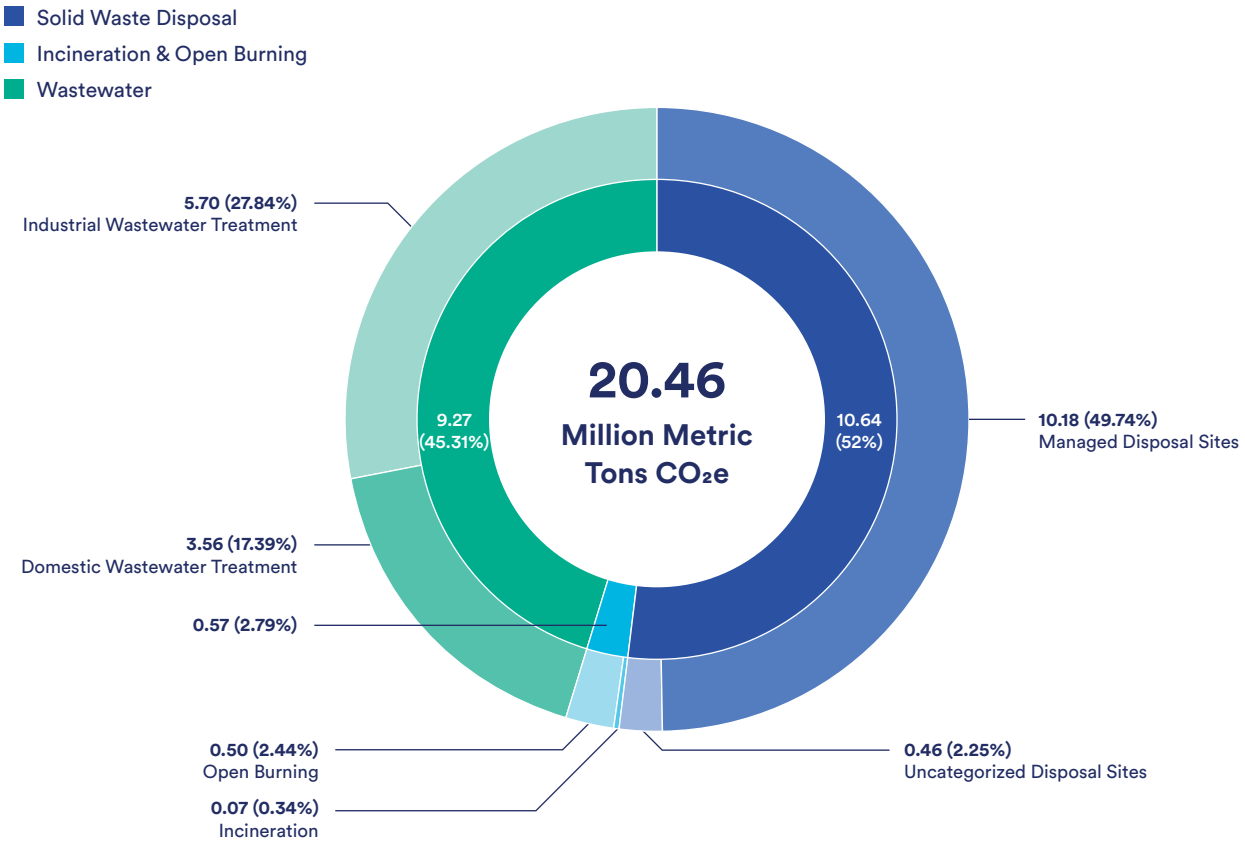
52%

Of the total waste sector GHG emissions, **52% stem from solid waste disposal**.

93.4%

On average, 93.4% of GHG emissions from waste in Colombia are **methane**.

Figure: Colombian Waste Sector GHG Emissions in 2018



Institutional Framework for Waste Management and Methane Mitigation

Colombia's institutional framework for waste management includes **Law 142 (1994)**, which established the Public Sanitation Service and assigned responsibilities for service provision to public utilities.[2] **Decree 838 (2005)** and **Resolution 1890 (2011)** ban open dumping and burning, promoting sanitary landfills.[3] **Resolution 1045 (2003)** mandates Integrated Solid Waste Management Plans (Planes de Gestión Integral de Residuos Sólidos or PGIRS in Spanish) for all municipalities.[4] Some reforms through **Decree 1077 (2015)** and **Resolutions 720 and 853** revised tariffs to support alternative waste solutions while **Resolution 2184 of 2019** adopts a waste separation color code.[5] National policies such as **CONPES 3874 (2016)** and the **2017 National Climate Change Policy** support circularity and methane mitigation, respectively.[6] Ongoing policy development efforts, such as the Zero Waste Program and the Law Project N° 085 of 2023, include a larger focus on organic waste management.

However, Colombia lacks any national policies, regulations, or resolutions that specifically target the reduction of methane emissions from the solid waste sector, a key gap in the country's waste and climate governance.

Solid Waste Management in Colombia

Generation	More than 14 million metric tons of municipal solid waste was generated in 2021.[7] Organic waste accounts for 70% of the waste stream.[8]
Collection	82% of total waste generated was collected in 2021. Of the collected waste, 2% ended up in open dumpsites, while the rest were recycled or sent to engineered sanitary landfills.[9]
Recycling and treatment	Over half of municipal recycling is done by informal recyclers.[10] Composting is the most common treatment option for organic waste treatment, with a few anaerobic digestion systems in use.
Final Disposal	70% of collected waste was landfilled in 2021.[11] Illegal waste dumping still occurs in 90 municipalities.[12]

Challenges and Opportunities

Colombia has made significant strides in improving solid waste management over recent decades, supported by a robust regulatory framework for waste management and political will at the national and subnational levels. However, persistent challenges continue to hinder the country's ability to achieve its GHG mitigation and development goals. With waste generation on the rise along with methane emissions from solid waste disposal, Colombia has several opportunities to enhance its waste management system to significantly reduce its climate impacts.

Key Stakeholders

- **Ministry of Environment and Sustainable Development:** Leads environmental and climate mitigation policies, including those that regulate impacts from waste disposal sites.
- **Ministry of Housing, City, and Territory:** Oversees technical aspects of waste and landfill management; co-leads the National Policy for ISWM with MinAmbiente.
- **National Planning Department:** Coordinates cross-sectoral public policy and investment planning, including for ISWM.
- **Super-intendent of Residential Public Utilities:** Regulates and oversees public utility providers, including sanitation services.
- **Institute of Hydrology, Meteorology and Environmental Studies:** Manages national climate data and GHG inventories.
- **Drinking Water and Basic Sanitation Regulatory Commission:** Special Autonomous Unit under MinVivienda that sets policies to ensure efficient delivery of household public utilities.

	Challenges	Stakeholder(s)	Opportunities
Emissions visibility	Lack of disaggregated information on waste flows (i.e., composition of waste, organic waste amounts sent to treatment facilities, etc.)		Expand data coverage to include the location and type of non-landfill waste treatment facilities, the amounts of waste processed at these sites, average municipal waste composition, informal sector recycling, and other data points needed to estimate waste methane emissions and track mitigation. Provide guidance and training to service providers on how, and how often, to properly collect and report this information in the system.
	Little use of advanced monitoring and measurement for large disposal sites to detect leaks, prioritize mitigation opportunities, or improve inventory estimates.		Identify opportunities to incorporate remote sensing measurements of waste methane into tracking of emissions and mitigation.
Finance	Current tariff system creates a conflict of interest by rewarding landfill operators based on the volume of waste they receive, thereby discouraging the diversion of organic waste to proper treatment.		Revise the tariff for treatment activities to accurately represent real capital expenses incurred by organics diversion, treatment, and gas capture, rather than being based on a comparison with final disposal and leachate treatment costs.
	Low tariffs for organic waste treatment projects, which contributes to their economic unfeasibility.		Investigate the impacts associated with including the environmental costs of methane emissions from landfills and other final disposal sites in Colombia's waste tariff.
Enabling Policy and Regulatory Framework	Lack of regulatory framework that targets waste methane mitigation.		Develop a national waste methane mitigation, organic waste management strategy, or zero waste target to identify a target for methane mitigation from solid waste disposal and plot Colombia's path toward achieving it.
	Little coordination between different national and subnational entities, which is heightened by the differing municipal conditions that may not be considered at the national level.		Create regional solid waste management working groups with experts from municipalities, including the informal sector; facilitate communication between these groups and other national experts.
	PGIRS are inneffective because they are too general and don't provide a well-developed plan for subsequent administrations to follow.		Publish structured guidelines on the content of PGIRS for local governments to reference and follow. These guidelines should require municipalities to estimate methane emissions at the local level and planned efforts to mitigate these emissions in the waste sector.
	Lack of funding to develop robust PGIRS.		Provide additional funding for developing PGIRS, which will lay the groundwork for improved long-term planning.
Stakeholder Awareness and Capacity Strengthening	Lack of awareness of regulations and programs by stakeholders, which hinders the implementation of actions across the waste management chain.		Improve coordination and information sharing between national, departmental, and municipal government staff to increase awareness of programs and incentives.
	Lack of public awareness and education of the environmental and climate impacts associated with waste management, as well as the best practices for organic waste prevention and separation.		Develop public education campaigns on actions to reduce waste methane including campaigns on waste reduction and source separation at the national and municipal levels.

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