CLEAN AIR TASK FORCE

Ecuador Waste Sector Methane Analysis Factsheet

Methane emissions from municipal solid waste are a growing challenge in Ecuador, driven by increasing waste generation and inadequate management practices.

Since the early 1990s, waste sector emissions have quadrupled.[1] The country's solid waste sector—which includes municipal solid waste and wastewater—contributed to **18% of annual national methane emissions.**[2] In 2025, CATF published the Ecuador Waste Sector Methane Analysis, which assesses waste management in Ecuador and explores solutions to improve practices and reduce methane emissions. This factsheet highlights key findings from the analysis.

Ecuador's Waste Methane Emissions

3%

In 2018, Ecuador's waste sector contributed to **3% of total greenhouse gas (GHG) emissions** or 2.5 million metric tons of carbon dioxide equivalent.[3]

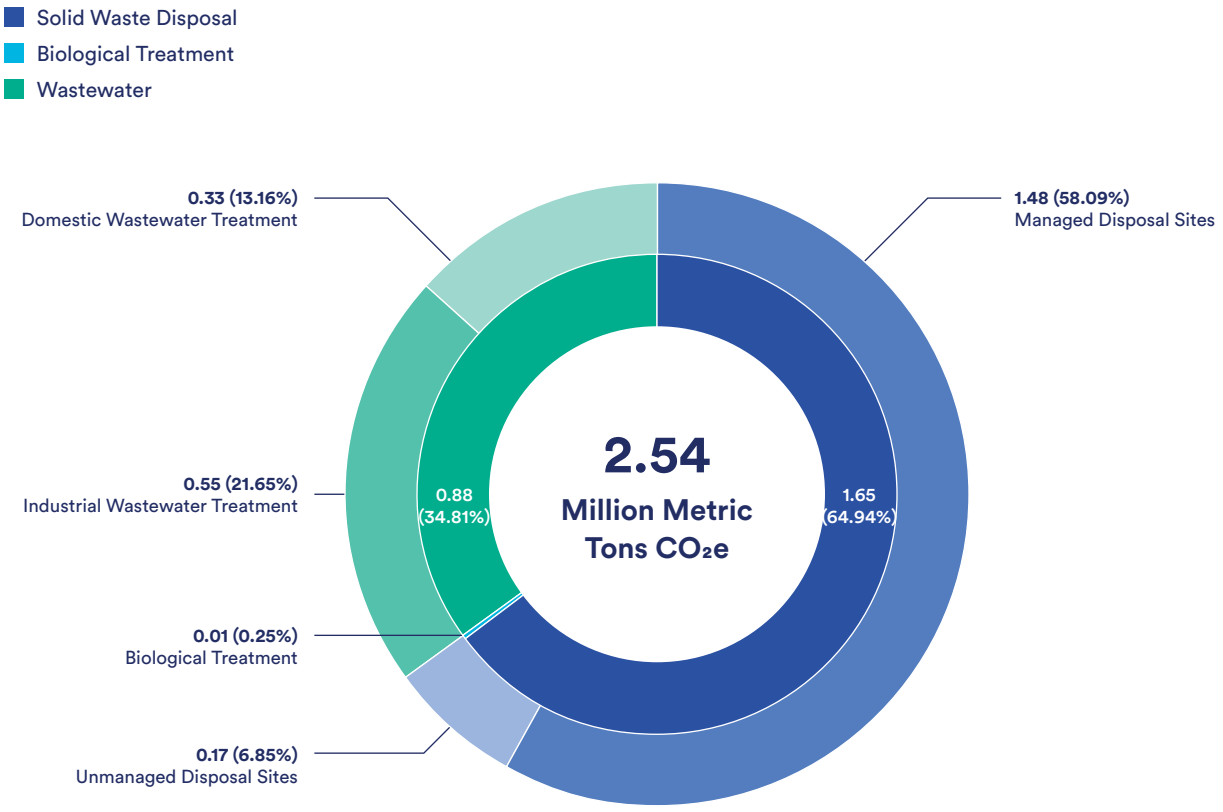
65%

Of the total waste sector GHG emissions, **65% stem from solid waste disposal** (i.e., managed and unmanaged disposal sites, as well as open dumpsites).[4]

92%

On average, 92% of GHG emissions from waste in Ecuador are **methane**.[5]

Ecuadorian Waste Sector GHG Emissions in 2018[6]



Institutional Framework for Waste Management and Methane Mitigation

Ecuador's institutional framework for waste management is grounded it its **National Constitution**, which guarantees the right to a healthy environment and assigns municipalities the responsibility for providing waste services. Following the Constitution, the **Organic Code of Territorial Organization, Autonomy, and Decentralization** designates the Decentralized Municipal Autonomous Government (GADM) responsible for MSW management in the country's 221 municipalities.[7] The **Environmental Code and its regulation** guide MSW management policies, requiring the Ministry of Environment, Water and Ecological Transition Water (MAATE) to develop the National Solid Waste Management Plan, and municipalities to develop local plans, programs, and projects in the waste sector.[8] The main elements of Ecuador's climate mitigation in the solid waste sector are reflected in the **country's Nationally Determined Contributions** and the **National Climate Change Mitigation Plan**.[9] These national documents do not create a specific methane target but outline critical action steps to mitigate GHG emissions from the sector as a whole.

Solid Waste Management in Ecuador

Generation	More than 5 million metric tons of municipal solid waste was generated in 2022.[10] On average, organic waste accounts for 70% of the waste stream.[11]
Collection	Collection coverage is high in urban areas (94%), but lower in rural areas (69%). Only a third of municipalities have adopted source separation practices.[12]
Recycling and treatment	Composting is the most common type of organic waste treatment; there are no anaerobic digestors or other types of organic waste treatment technologies.
Final Disposal	Waste is primarily disposed of in sanitary landfills[13] (55%), followed by emergency cells[14] (28%), and dumpsites (17%).

Challenges and Opportunities

Ecuador faces significant challenges in reducing methane emissions from its waste sector, primarily due to a lack of long-term planning and weak local implementation. While over 70% of municipalities report having sanitary landfills, many of them have short lifespans and reach capacity before new sites are approved. National regulations do not mandate landfill gas capture or organic waste diversion, and broader issues such as lack of coordination, political turnover, limited data, technical capacity, and financing further hinder progress. Overcoming these challenges is critical for the country to curtail waste methane emissions.

Key Stakeholders

- **MAATE:** National environmental authority that develops policies, guidelines, directives on environmental management and climate change issues. The Undersecretariat for Environmental Quality oversees the Solid Waste Management and Inclusive Circular Economy **(GRECI)** project, which promotes integrated waste management, circular economy, and inclusive recycling, while the Undersecretariat for Climate Change manages climate policy, projects, and GHG inventories.
- **Association of Ecuadorian Municipalities (AME):** Supports municipal service delivery and policy implementation while managing the National Municipal Information System Platform for tracking key public services, including waste, water, and sewage management.
- **Ministry of Energy and Mines:** Issues public policies on electricity generation, including from biogas, among other responsibilities.

	Challenges	Stakeholder(s)	Opportunities
Data Availability and Quality	Limited municipal capacity for accurate waste data management.		Provide guidance and capacity strengthening to municipalities on strategies for improving the quality of waste sector data.
	Lack of harmonized information and problems with data quality.		Promote municipal participation in the SNIM-ILGEI portal to conduct local GHG emissions inventories; provide training and capacity-strengthening resources to GADMs.
	Difficulty aligning and integrating local GHG data into national inventories and climate mitigation planning.		Coordinate with AME to provide resources for GADMs and use the data from SNIM-ILGEI to identify projects that can be incorporated into Ecuador's National Climate Change Mitigation Plan and methane mitigation targets; work with AME to develop a methodology to incorporate local inventories and GRECI data into the national GHG inventory development and validation process.
Finance	Lack of standardized methods for setting local waste tariffs.		Establish a working group or round table to identify best practices and develop a transparent and common methodology for local governments to set their waste management tariffs.
	Limited access to and coordination on funding for waste infrastructure.		Regularly identify and publicize funding opportunities at the national and international level for infrastructure capital costs (e.g., InterAmerican Development Bank, the Development Bank of Latin America and the Caribbean etc.); coordinate with the local governments to submit and monitor project proposals.
Enabling Policy and Regulatory Framework	Lack of a comprehensive strategy for waste management and methane mitigation at the national level.		Develop and implement a national plan for integrated solid waste management that incorporates principles of circular economy and sets a methane emission reduction target for the sector.
	Inadequate local capacity to translate national policies into enforceable local ordinances.		Coordinate to provide technical assistance and guidance to municipalities in developing local ordinances that implement existing national-level requirements.
	Limited evidence on effectiveness of mitigation approaches to guide policy decisions.		Develop a study to investigate the impacts of different mitigation approaches to inform national planning and policy development.
	Absence of technical standards and streamlined permitting processes for organic waste treatment.		Establish technical standards for composting and anaerobic digestion of organic waste and develop less burdensome environmental regulatory and permitting processes to facilitate the development of local and private initiatives to collect and treat organic waste.
Stakeholder Awareness and Capacity Strenthening	Limited technical capacity on organic waste management best practices.		Provide training for municipal officials, waste operators, and entrepreneurs on best practices in organic waste management.
	Lack of public awareness and education on the waste sector and its impacts on climate change.		Develop campaigns to educate the general public on the importance of waste prevention, food waste donation, and food banking, and source separation of waste.

References

1 MAATE. (2022). Fourth National Communication and Second Biennial Update Report of Ecuador to the United Nations Framework Convention on Climate Change.

2 *Ibid*.

3 *Ibid*.

4 *Ibid*.

5 *Ibid*.

6 MAATE. (2022). Fourth National Communication and Second Biennial Update Report of Ecuador to the United Nations Framework Convention on Climate Change.

7 **Note:** Organic laws are a special category of legislation, higher than ordinary laws but lower than the Constitution. They deal with matters of great importance for the functioning of the State and the protection of fundamental rights. Presidencia de la República de Ecuador. (2015). Código Orgánico de Organización Territorial, COOTAD. https://www.gob.ec/sites/default/files/regulations/2020-10/codigo-organico-de-organizacion-territorial-cootad.pdf

8 (Code): Ecuador. Ministerio del Ambiente, Agua y Transición Ecológica. (2017, April 12). *Código Orgánico del Ambiente [Organic Environmental Code]* (Registro Oficial No. 983; effective April 13, 2018) [PDF]. Ministerio del Ambiente, Agua y Transición Ecológica. https://www.ambiente.gob.ec/wp-content/uploads/downloads/2018/01/CODIGO_ORGANICO_AMBIENTE.pdf; (Regulation): Ecuador. Presidencia de la República. (2019, June 12). *Reglamento al Código Orgánico del Ambiente [Regulation to the Organic Environmental Code]* (Suplemento Registro Oficial No. 507) [PDF]. https://www.gob.ec/sites/default/files/regulations/2019-09/Documento_RCOA%20RO%20507.pdf

9 República del Ecuador. (2019). Primera Contribución Determinada a Nivel Nacional Para el Acuerdo de París Bajo la Convención Marco de Naciones Unidas Sobre Cambio Climático. https://unfccc.int/sites/default/files/NDC/2022-06/Primera%20NDC%20Ecuador.pdf; MAATE. (2024). Climate Change Mitigation Plan 2024–2070. https://planmicc.ambiente.gob.ec/

10 MAATE & GRECI project. (2023). Quantity and Characteristics of Non-Hazardous Waste and Solid Waste. https://www.ambiente.gob.ec/wp-content/uploads/downloads/2023/07/1.pdf

11 *Ibid*.

12 *Ibid*.

13 According to waste experts and municipal technicians who participated in the workshop in Ecuador, there is a mixture of sanitary and controlled landfills.

14 An emergency cell is a term used for technically designed area for the temporary storage of non-hazardous solid waste. The waste must be compacted and covered daily with suitable material, and includes systems for biogas extraction, leachate collection, etc. Typically, this type of infrastructure is permitted for about two years during the transition from a landfill to a sanitary landfill.