GMI Biogas Subcommittee Meeting

Brasilia, Brazil

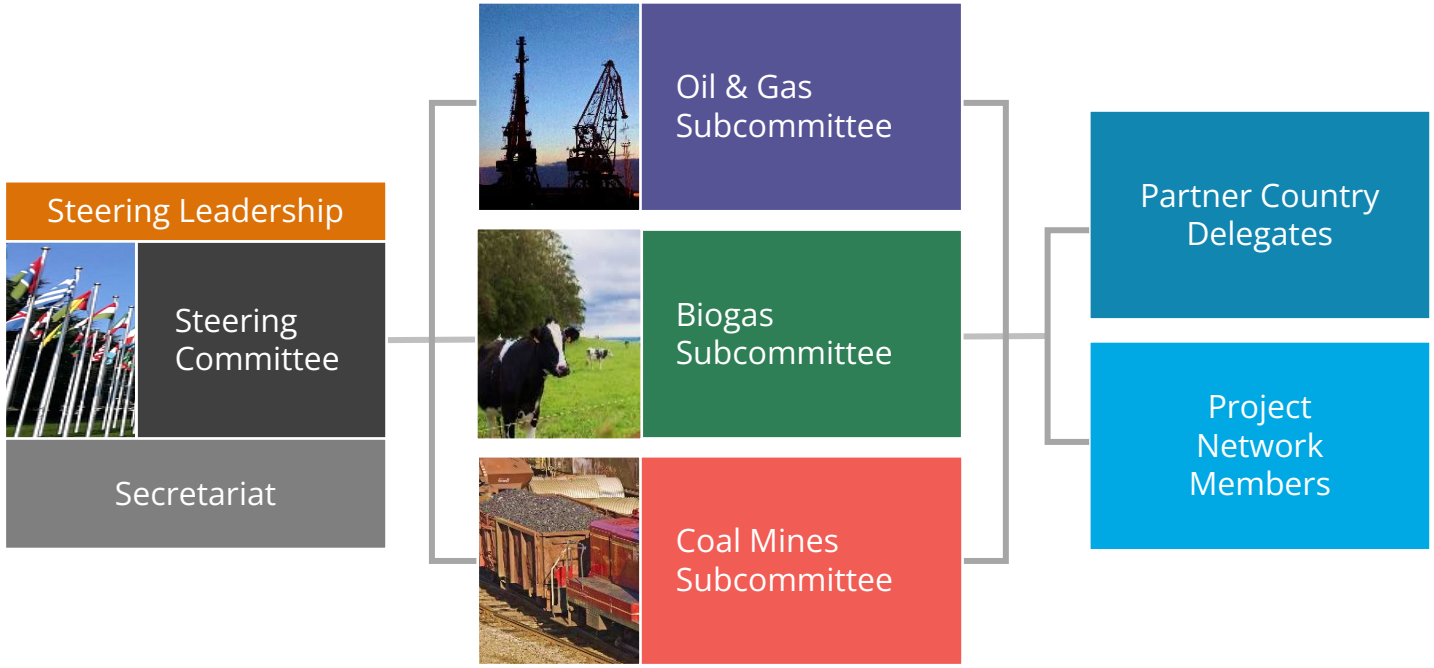
20 March 2025

Global Methane Initiative

GMI Secretariat Updates

Global Methane Initiative (GMI)

GMI is an international public-private partnership committed to reducing methane emissions and capturing methane as a valuable energy source.



Global Methane Initiative
Since 2004

- 49 Partner Countries
- 1,000+ Project Network members
- Alliances with international organizations focused on methane recovery and use

CLIMATE & CLEAN AIR COALITION TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

UNECE

UN environment programme

Global Methane Hub

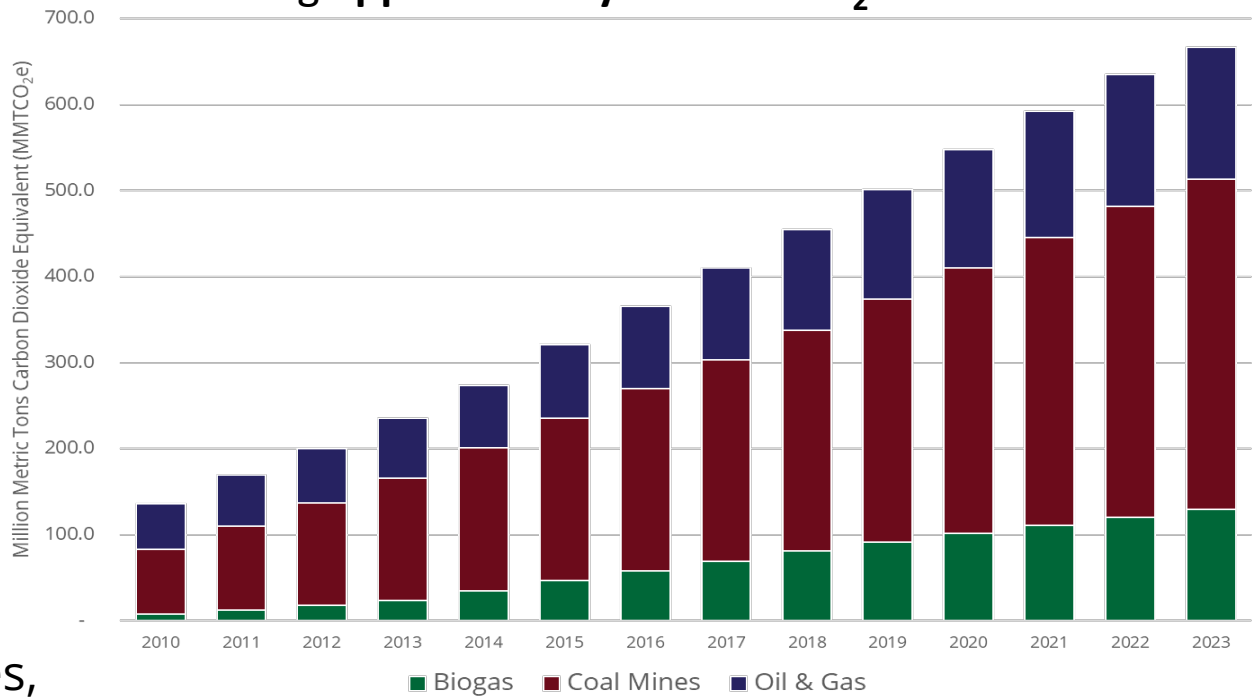
THE WORLD BANK IBRD • IDA

GMI Partner Countries represent approximately 75% of methane emissions from human activities.

GMI Accomplishments *Since 2004*

- Grown from 14 to 49 Partner Countries
- More than $650 million in leveraged funding for projects and training
- More than 1,000 Project Network members
- Conducted or developed more than 3,500 assessments, pre-feasibility studies, feasibility studies, study tours, reports, guidance, and site visits
- Provided trainings for more than 55,000 people in methane mitigation
- Developed more than 60 tools and resources for methane mitigation

Since 2004, GMI has reduced CH_4 by approximately **670 MMTCO$_2$e** including **approximately 31 MMTCO$_2$e** achieved in 2023*



670 MMTCO$_2$e is approximately equivalent** to the CO_2 emissions from any one of the following:

285 Billion
liters of gasoline consumed

335 Billion
kilograms of coal burned

44 Trillion
smartphones charged

*Data is preliminary
**epa.gov/energy/greenhouse-gas-equivalencies-calculator

GMI Steering Committee 2024-2025 Priorities

Promote GMI's successes to foster information sharing and replication

- Promote GMI 20th Anniversary and Accomplishments via web and social media
- Expand availability of information products such as updated Partner Country pages, Case Study Library, Policymaker Framework, and website

Enhance Engagement across GMI membership and beyond

- Increase Partner Country engagement and collaboration with key strategic partners through bilateral outreach and regional meetings
- Enhance Project Network engagement, including through a new *Find an Expert* feature
- Host informative and engaging Steering and Subcommittee meetings
- Gather input for future GMI Quarterly Newsletters

Support development of impactful Subcommittee Sprint Action Plans

- Support development of Action Plans that address partner goals and needs

Begin planning for the next Global Methane Forum

- Explore options for venues and hosts
- Convene 2026 Global Methane Forum Executive Planning Committee and begin planning meetings

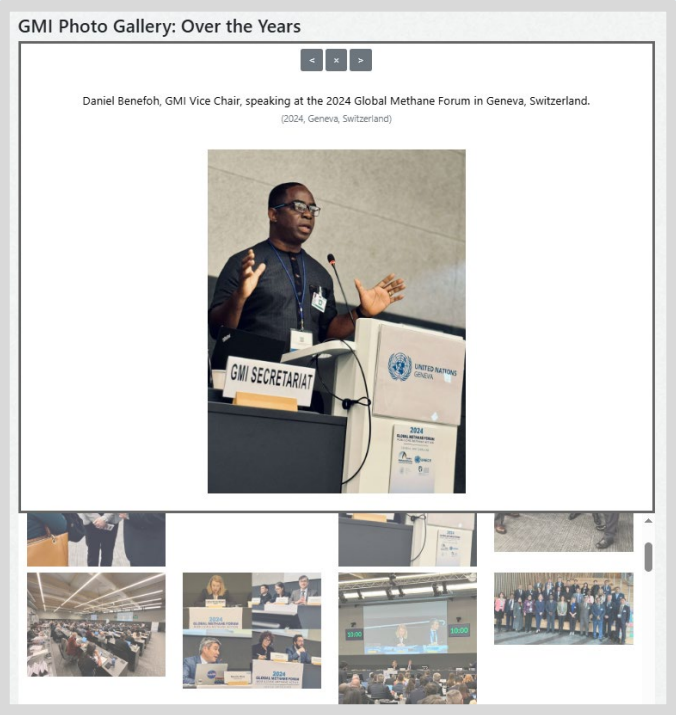
Celebrating 20 Years

GMI launched a new webpage to showcase accomplishments, Partner Countries, case studies, technical resources, and events!

globalmethane.org/20years

Links to **UPDATED** comprehensive Partner Country Profiles detailing emissions and actions

Celebrating 20 Years of Methane Action



Includes a GMI Photo Gallery with more than 100 images from the past 20 years

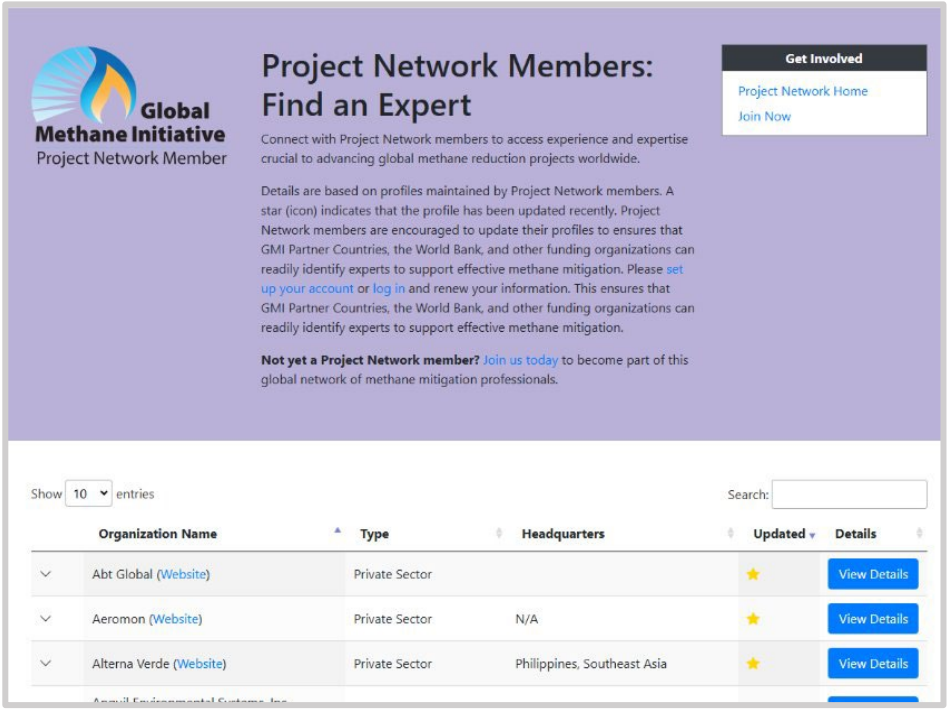
NEW! GMI Resources

- **Case Study Library**

  Highlights more than 130 methane mitigation best practices of GMI partners. Case studies can be filtered by sector, topic, and country. Submit an idea for the Case Study library!

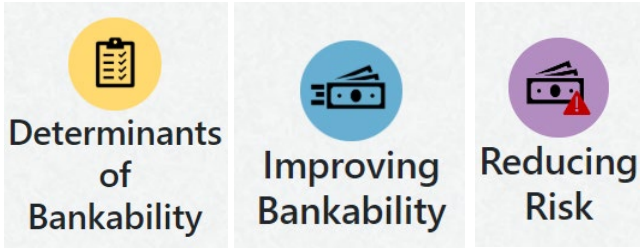
- **Project Network Find an Expert Tool**

  Provides details about expertise of private sector members by sector, type of methane mitigation activities, and geographic experience.



GMI Financial Readiness Framework for Organic Waste Management

- **What:** The *Framework* provides high-level practical guidance to help stakeholders understand the process for:
  - financing organic waste management projects that reduce methane emissions,
  - mitigating potential investment risks, and
  - improving the bankability of projects.
- **Why:** One of the main obstacles for implementing organic waste management projects is securing financing for capital and operation costs.
- **Where:** Available at globalmethane.org/frf



GMI Financial Readiness Framework for Organic Waste Management (cont'd)

- **How:**
  - Organizes extensive research of existing resources and consultations with finance experts and implementers into a helpful system to orient key stakeholders.
  - Summarizes key steps for financing organic waste management infrastructure. Each step includes:
    - Best practice activities that stakeholders can consider,
    - General and sector-specific resource links that can provide additional guidance and support, and
    - Case study examples of policies and programs from around the world to help countries learn from others' experiences.
- **Audience**: National and subnational governments, investors, solid waste professionals, project developers

Summary of Steps in the Financial Readiness Framework

Framework Steps*	Goal	Resources Examples
1 Develop Project Plan	Define project scope, expected outcomes. and Incorporate bankable project concepts.	Solid Waste Management Toolkit
2 Assess Feasibility	Evaluate financial readiness of involved organizations. Determine project technical and financial feasibility.	Risk Analysis Checklist for Biogas Projects
3 Identify and Select Financing	Identify potential financing sources and instruments and select.	Handbook on Urban Infrastructure Finance
4 Mitigate Risks	Consider regulations, and financial and technical best practices to mitigate risks.	Financing Readiness Questionnaire for Municipal Solid Waste Sector
5 Secure Permits and Approvals	Identify necessary permits and approvals. Plan and submit documentation.	Landfill Gas Project Development Handbook
6 Seek Project Funding/ Finance	Determine project eligibility and develop a high-quality proposal.	Anaerobic Digester/Biogas System Operator Guidebook
7 Structure and Close Financing	Select financial instruments, close financing, and develop a plan for measurement, reporting, and verification (MRV) of results.	GMI's MRV Resource Center

*The Framework steps may occur concurrently or iteratively, and the numbers do not imply a rigid sequence.

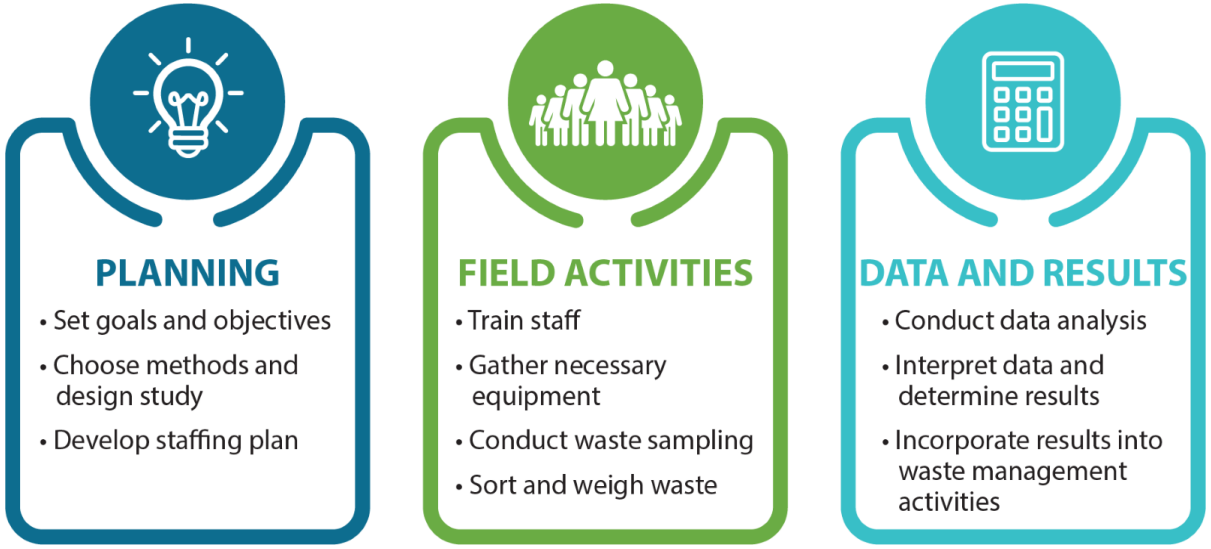
Waste Characterization Handbook & Excel Tool

- **Handbook** for planning and conducting waste characterization studies
  - Resources for study design, field activities, data collection, and analysis for solid waste programs
- **Excel-based tool** that streamlines data entry and analyzes the composition of waste streams
  - Designed for field use
  - Analyzes material types and amounts

https://globalmethane.org/resources/details.aspx?resourceid=5399

Waste Characterization Handbook & Excel Tool

- The **Handbook** includes recommended activities and resources to:
  - Plan an appropriate study for specific site conditions
  - Conduct field activities to collect the data
  - Analyze the data to help make informed solid waste planning decisions



- **Excel-based tool** that streamlines data entry and analyzes the composition of waste streams
  - Designed for field use
  - Analyzes material types and amounts

Visit GMI's Tools and Resources Library to download the Handbook and tool: https://www.globalmethane.org/resources

Overview of the Excel Tool

Tab
Definitions
Site and Staff Requirements
Supplies
Tare Weights
Sampling Plan & Pre-Sort Weight
Record Sort Data
Data Analysis

View Results Using the Excel Tool

Table. 1 Waste Weight (kg) and Composition by Waste Type							
Waste Type	Weight (Day 1)	Weight (Day 2)	Weight (Day 3)	Weight (Day 4)	Weight (Day 5)	Total (All Days)	% Composition (All Days)
Organics	365	231	252	253	254	1,355.0	13%
Paper	54	36	46	46	46	228.0	2%
PlasticsDense	104	68	93	93	93	451.0	4%
PlasticsFilms	16	11	11	16	26	80.0	1%
Metals	662	617	642	603	603	3,127.0	31%
Glass	421.5	376.5	401.5	401.5	401.5	2,002.5	20%
Textiles	55	46	51	51	90	293.0	3%
Wood	7	3	3	42	3	58.0	1%
Others	0	13	0	0	0	13.0	0%
Electronics	99	180	290	95	1594	2,258.0	22%
Hazardous	73	64	69	69	71	346.0	3%
Total	**1,856.5**	**1,645.5**	**1,858.5**	**1,669.5**	**3,181.5**	**10,211.5**	**100%**

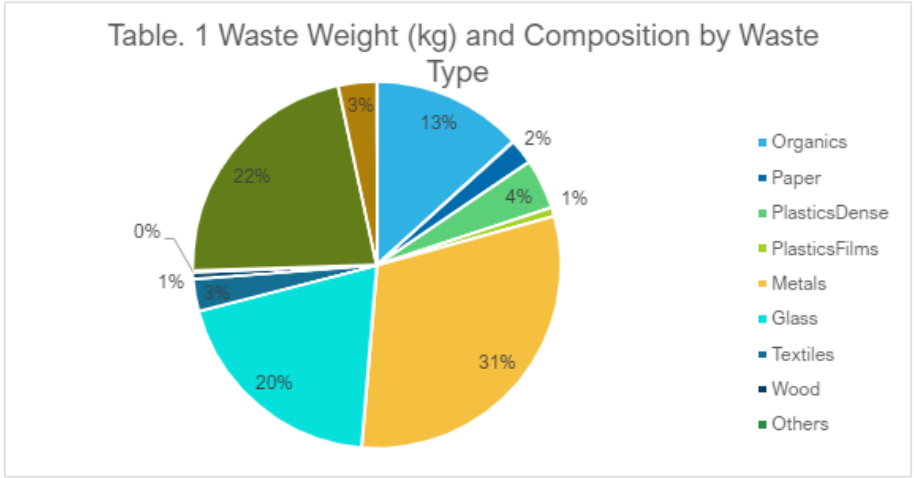
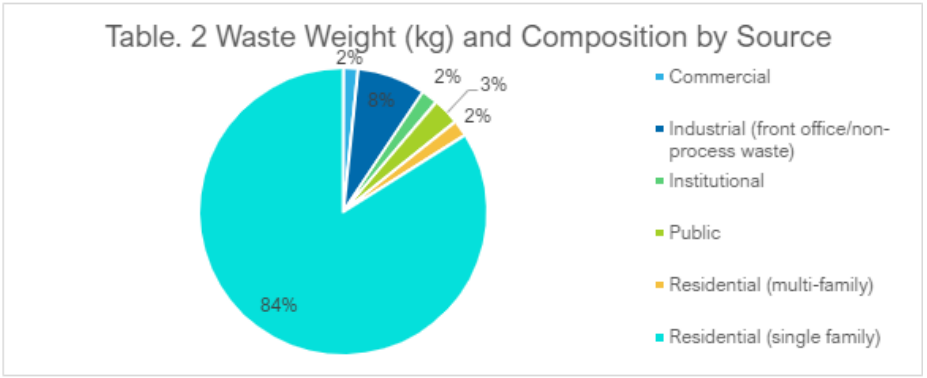


Table. 2 Waste Weight (kg) and Composition by Source							
Source	Weight (Day 1)	Weight (Day 2)	Weight (Day 3)	Weight (Day 4)	Weight (Day 5)	Total (All Days)	% Composition (All Days)
Commercial	55.0	50.0	0.0	0.0	63.0	168.0	2%
Industrial (front	180.0	470.5	69.0	3.0	62.0	784.5	8%
Institutional	54.0	0.0	39.0	95.5	2.0	190.5	2%
Public	57.0	0.0	243.0	0.0	7.0	307.0	3%
Residential (multi-family)	73.0	0.0	0.0	115.0	0.0	188.0	2%
Residential (single family)	1,437.5	1,125.0	1,507.5	1,456.0	3,047.5	8,573.5	84%
Total	**1,856.5**	**1,645.5**	**1,858.5**	**1,669.5**	**3,181.5**	**10,211.5**	**100%**



Using Study Data with Other GMI Resources

SWEET

✓ Emissions reductions estimates for MSW strategies

AD-ST

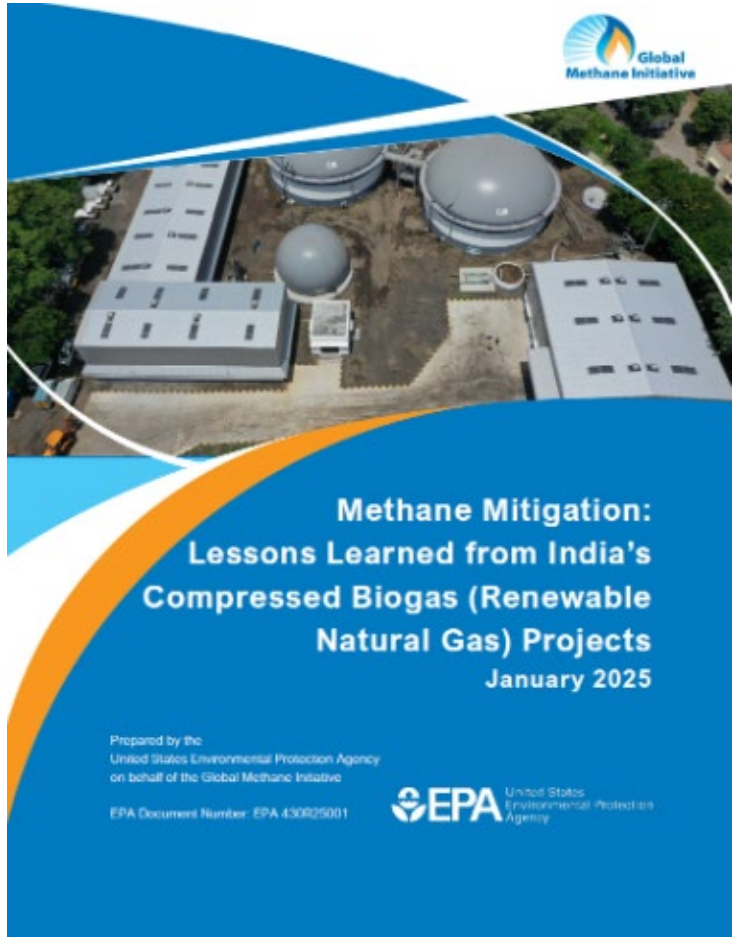
✓ AD project feasibility for organic materials (feedstocks)

LFG-ST

✓ Estimate future LFG production and feasibility for LFG energy projects.

Methane Mitigation: Lessons Learned from India's Compressed Biogas Projects

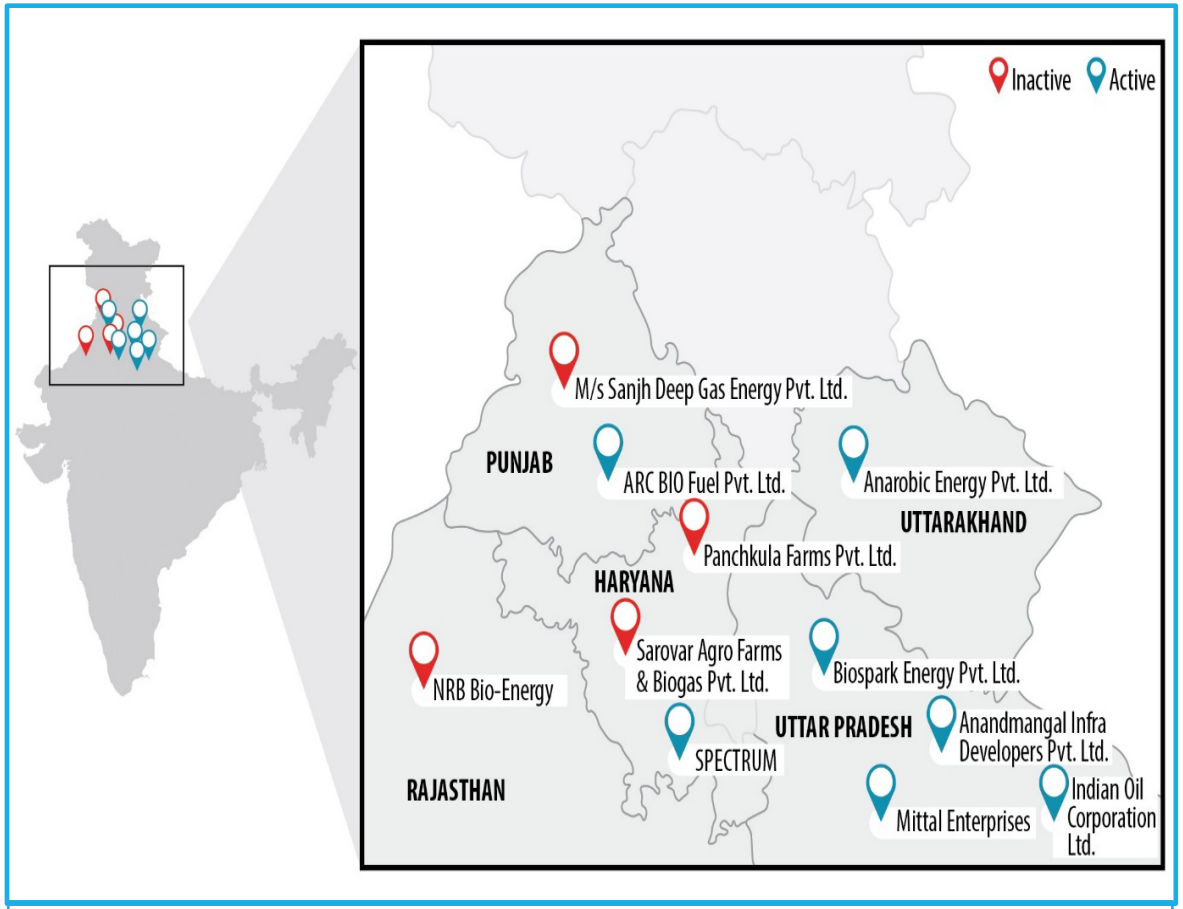
- Assesses facilities in India generating compressed natural gas (CNG) from anaerobic digesters utilizing biogas feedstocks, such as livestock manure and agriculture waste.
- Summarizes the developmental and operational challenges for "Compressed BioGas (CBG)" plants
- Recovering methane from agriculture and food waste and converting it to energy resources is critical to methane mitigation efforts in India and energy security in developing countries



https://www.globalmethane.org/resources/details.aspx?resourceid=5447

Overview of Study

- **11 Compressed Biogas** project sites across five states of northern India
- Qualitative and quantitative data was collected to evaluate factors contributing to success or failures of the plants.
- **Diverse feedstocks analyzed**: press mud, cow dung, poultry litter, sewage sludge and paddy straw.
- **Technology types:**
  - Pressure Swing Adsorption (PSA)
  - Vacuum Pressure Swing Adsorption (VPSA)
  - Membrane Pressure Swing Adsorption (MPSA)
  - Water Scrubbing



Map of project locations

Recommendations for Enhancing Success of Compressed Biogas Projects

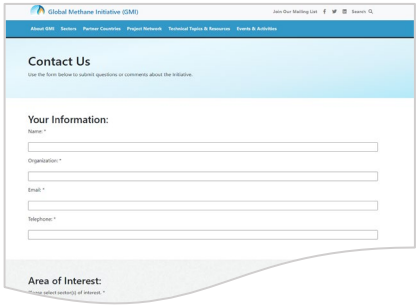
External to Project

- Standardization of Feedstock Agreements
- Incentivizing Investment and Collaboration
- Market Research and Product Diversification
- Streamlined Permitting and Financial Instruments

Internal to Project

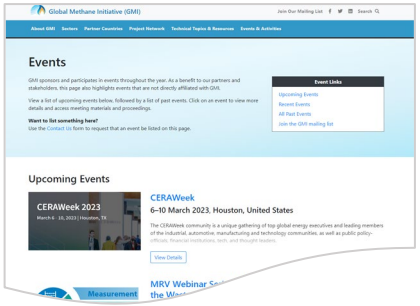
- Capacity Building of Operational Staff
- Investment in Storage Infrastructure – feedstock and Bio-CNG
- Monitoring and Technical Support

Engage with GMI



Submit a Contact Us Request

Let us know how we can help you:
globalmethane.org/contact-us/



Share Events or Resources

Recommend items to publish on the GMI website:
globalmethane.org/resources/recommend.aspx

Join the GMI Mailing List

Receive updates from GMI by joining at:
eepurl.com/ggwT3T

Follow GMI

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Thank you!

Questions?
Ideas for increasing engagement?
Activities you want to share in GMI's newsletter?

Please contact the Secretariat at: secretariat@globalmethane.org

Global Methane Initiative
Leading methane action since 2004

Methane Emission Reduction Challenges and Priorities for Ethiopia

Lemesa Hirpe

Ethiopia

20 March 2025

Brasilia, Brazil

Methane Emission Reduction in Ethiopia

- *Methane* is one of the most dangerous greenhouse gases and has a significant impact on climate, environment, and public health.
- *Ethiopia is an active participant* in international efforts to address methane emissions and reach global climate targets.
- Ethiopia joined the *GMI in 2010, CCAC in 2012, and GMP in 2021* to catalyze action to reduce methane emissions.
- *Ethiopia supports voluntary actions* to reduce methane emissions by 30% by 2030 compared to baseline levels in 2020.
- Ethiopia submitted its *NDCs in 2021, aiming at reducing 68.8% of emissions by 2030.*

Methane Emission Reduction in Ethiopia

- Ethiopia developed LT-LEDS, which aims to achieve net-zero emissions by 2050.
- It outlines sectoral priority interventions and suggestions for reducing methane emissions from *agriculture, municipal solid waste, and wastewater sectors.*
- Ethiopia launched various initiatives that directly support the reduction of methane emissions.
  - *Waste to Energy Initiative*
  - *National biogas program*
  - *Black Soldier Fly - organic waste processing initiative*
  - *Transition to sustainable agricultural practices*
  - *Urban greening development*

Challenges to Reduce Methane Emissions

High dependence on agriculture and livestock

Inadequate manure management

Lack of National Methane Reduction Roadmap

Lack of financial and technical capacity

Low public awareness and engagement

Weak methane emission inventory/data

Comprehensive Approach Solutions/Priorities

A comprehensive approach solution that aligns with the country's broader development priorities is required to reduce the methane emission in Ethiopia.

- *Development of a national methane roadmap*
- *Financial, technical assistance, and capacity building to address methane emissions*
- *National Methane Emission Inventory*
- *Identifying prioritized mitigation measures*
- *Stakeholder engagement*
- *Policy advocacy and regulatory frameworks*

Conclusions

- *The Ethiopian government is committed and working to reduce the emission of short-lived climate pollutants and other greenhouse gases.*
- *The implementation of existing policies, strategies, and initiatives is key to reducing methane emissions across various sectors.*
- *The development partners' technical support is pivotal to ensure the initiatives and strategies of Ethiopia that enhance tackling the global methane emission.*

Thank you for your kind attention!

Recycle Organics Program

Main results and further opportunities in biogas

Gerardo Canales – Program Director

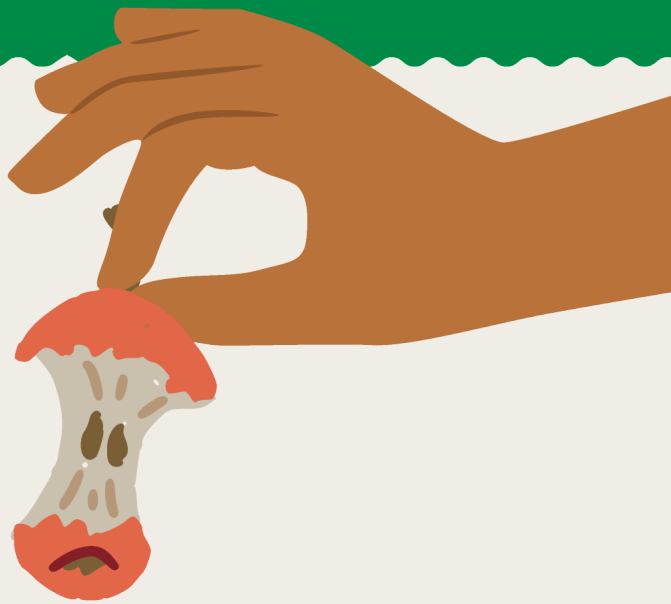
RECYCLE ORGANICS
Reducing Methane From Waste

LEAVE THE CAR AT HOME AND COMPOST

Did you know that composting your organic waste prevents more emissions than leaving your car at home?

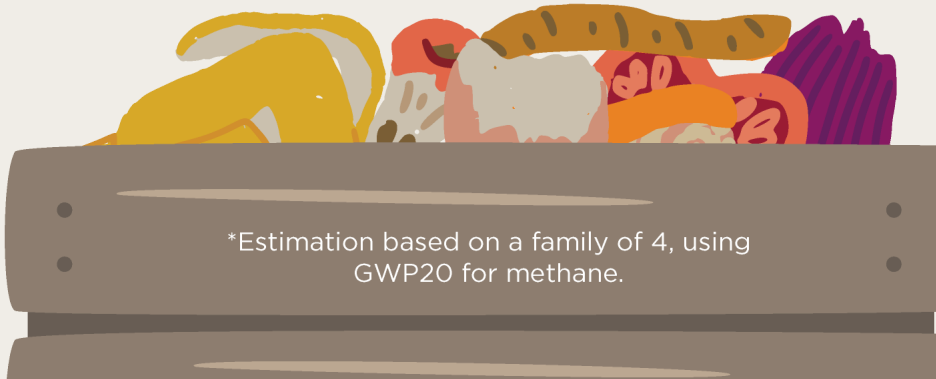
7KG
CO2e/day

10KG
CO2e/day*



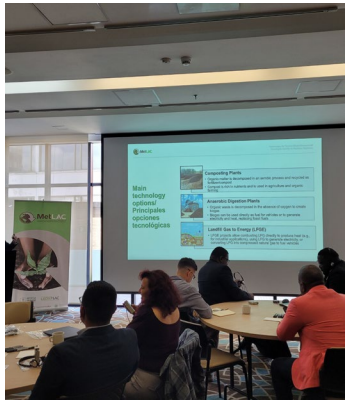
Source:
Recycle Organics adapted from

Global Methane Hub



*Estimation based on a family of 4, using GWP20 for methane.

RECYCLE ORGANICS



Our mission

The Recycle Organics Program helps countries take meaningful action to cut methane emissions from organic waste, a critical step in tackling climate change.

Led by the Center for Clean Air Policy (CCAP) and ImplementaSur, with 35+ years of experience in the sector, Recycle Organics delivers significant environmental, economic, and social benefits to local communities around the world.

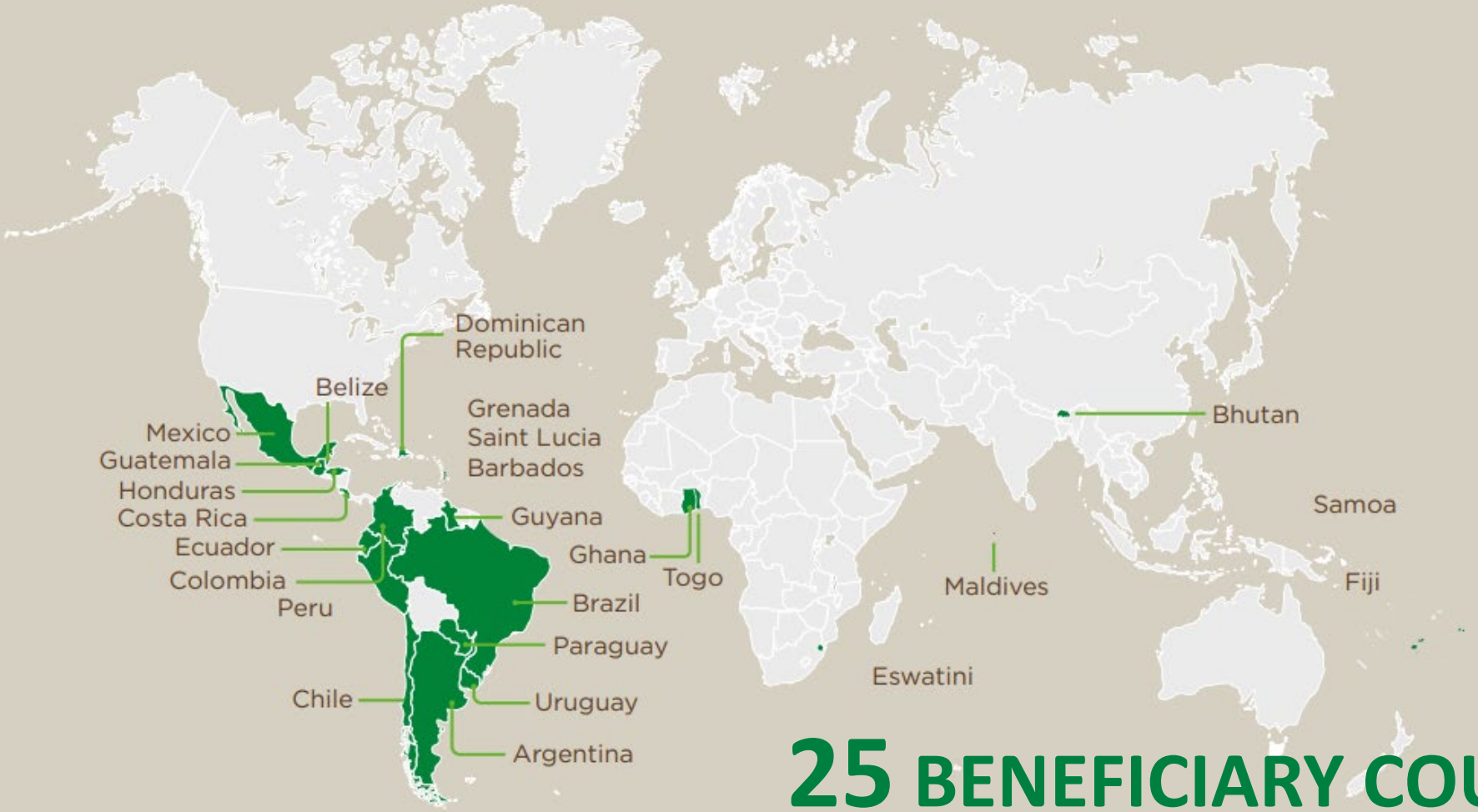
(*) Also with the Lowering Organic Waste Methane Initiative (LOW-Methane) and the Global Methane Pledge (GMP)

Together, addressing methane mitigation in the waste sector for over 8 years

Latin America

Caribbean

Asia, Africa and Oceania



25 BENEFICIARY COUNTRIES

Our work

01 Accelerate the implementation of methane mitigation projects

02 Development of enabling policy frameworks for project implementation

03 Knowledge sharing and capacity building

- Advancing Policy Frameworks
- Accelerating Project Development
- Climate Finance
- South-to-south Learning
- Capacity Building and Knowledge Sharing
- Tracking and Monitoring with MRV frameworks

Accelerate the implementation of methane mitigation projects

We provide technical assistance to support the structuring of country-tailored projects for the prevention of waste generation and various technologies for waste valorization, such as composting, anaerobic digestion and landfill gas capture, among others.

We evaluate the effort required for project implementation, in terms of addressing both the associated costs and the barriers that need to be overcome for successful implementation.

Accelerate the implementation of methane mitigation projects: Biogas

- Technical assistance: technical and economic assessment, including analysis of business models and estimation of emission reduction potential.
  - Anaerobic Digestion: From large scale projects to household projects (modular equipment). Feedstock: urban solid waste and agro-industrial waste such as pig manure.
  - Landfill gas capture and recovery: Consideration of different business models such as electricity and heat production, direct sale of biogas, active flaring and financing with carbon markets.

True Blue Bay Hotel, Grenada, 2023

In 2025 we had a training session for the workers

Technical Assistance in Anaerobic Digestion

*Prefeasibility studies

Sir Arthur's Community College Modular Anaerobic Systems, Saint Lucia
Treatment Capacity: 440 TPY
CAPEX: 10,300 USD
Mitigation reduction potential: 6,000 tonCO_2e

MNRE Modular Anaerobic Digestion Systems, Samoa
Treatment Capacity: 540 TPY
CAPEX: 41,500 USD
Mitigation reduction potential: 9,000 tonCO_2e

Central de Abastos Anaerobic Digestion Plant, México
Treatment Capacity: 54,750 TPY
CAPEX: 7 MMUSD
Mitigation reduction potential: 172,000 tonCO_2e

Learnings

Business model observations: In large-scale projects: savings from diversion of final disposal, valorization of digestate and biogas, increased revenues from marketing or savings from consumption. In small scale: savings from cooking gas consumption, potential electricity generation with small generators and use of digestate as fertilizer.

Barriers: A buyer of biogas/heat/electricity/digestate is required. High technical expertise is required for operation and maintenance.

Complementary actions: analysis of digestate quality as soil fertilizer, incentives for OW source separation.

Technical Assistance in Landfill Gas Capture and Valorization Project

*Prefeasibility studies

Benito Juárez's landfill gas capture system, Mexico

Treatment Capacity: 76,360 TPY
CAPEX: 5 MMUSD
Mitigation reduction potential: 430,000 tonCO_2e

Puerto Varas' landfill gas capture system, Chile

Treatment Capacity: 315,000 TPY
CAPEX: 2.3 MMUSD
Mitigation reduction potential: 925,000 tonCO_2e

Gas Capture System for the Expansion of Felipe Cardoso's Landfill, Uruguay

Treatment Capacity: 335,000 TPY
CAPEX: 7 MMUSD
Mitigation reduction potential: 1.2 MMtonCO_2e

Gas Capture System for the Parque Tecnológico Ambiental Aczarrí, Costa Rica

Treatment Capacity: 770,000 TPY
CAPEX: 4.5 MMUSD
Mitigation reduction potential: 4.1 MMtonCO_2e

Learnings

Business model considerations: Costs depend on the local context, making it difficult to provide general estimations. Revenues from biogas valorization, increased income from sales, or savings from self-consumption. To generate electricity, a minimum disposal of 500 tons per day is required in average, with a useful life of at least 10 years.
Barriers: High technical expertise is required. Higher costs may require a disposal tariff increase.
Complementary actions: incentives to implement carbon markets, incentives for the use of renewable energies, simplifying the processes for selling energy or injecting natural gas into the grid, stricter regulation on % capture and destruction.

Other examples

Rincón de Albano, Uruguay
23,725 ton/year
Feedstock: Dairy industry waste
Image source: Biovalor

Ecoparque do Caju, RJ, Brasil
3,600 ton/year
Feedstock: Urban Solid Waste
Image source: Instituto Pólis

Santa Marta landfill, Chile
2,800 ton/day
4 MW
Image source: Recycle Organics

Huaycoloro Landfill, Perú
3,500 ton/day
4.4 MW
Image source: Petramás

Rincón Blanco, Uruguay
25,695 ton/year
Feedstock: Dairy industry waste
Image source: Biovalor

BioE Molina, Chile
36,500 ton/year
Feedstock: Agricultural and municipal waste
Image source: Micor.cl

KDM Loma los Colorados Landfill, Chile
6,000 ton/day
12 MW
Image source: Unicarbo.com

CRVR Minas do Leão Landfill, Brasil
2,750 ton/day
8.5 MW
Image source: CRVR

Development of enabling policy frameworks to ensure long-term impact

Country-tailored support based on national context and specific needs. We have worked with countries with different political structures and maturity in waste management.

Collaboration agreements with national governments and strategic alliances with local governments to achieve program endorsement.

Collaboration with regional development agencies

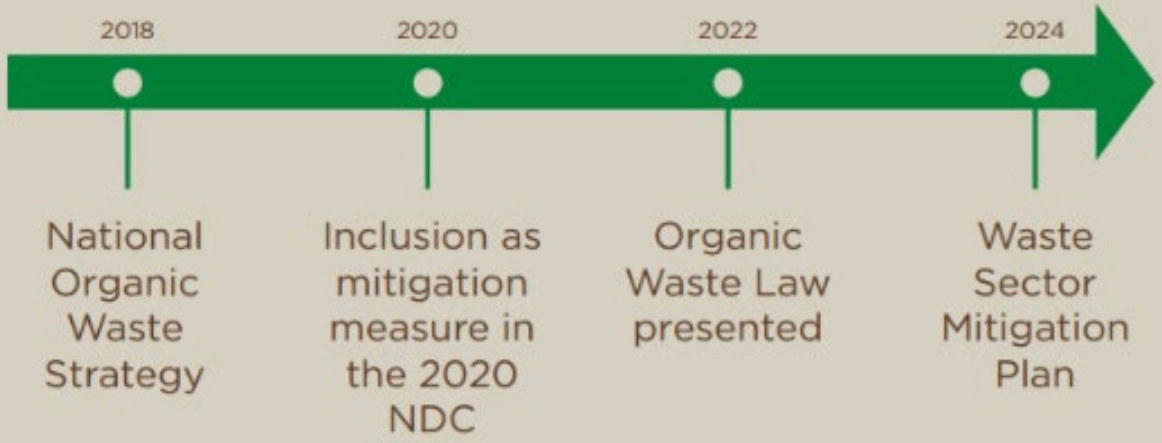
Support in the development of public policies, such as strategies, regulations and draft legislation.

RECYCLE ORGANICS

Case Study:

Advancing organic waste policy in Chile

Since 2017, the program has played a key role in integrating organic waste into the country's policy agenda, providing expert technical assistance to support:

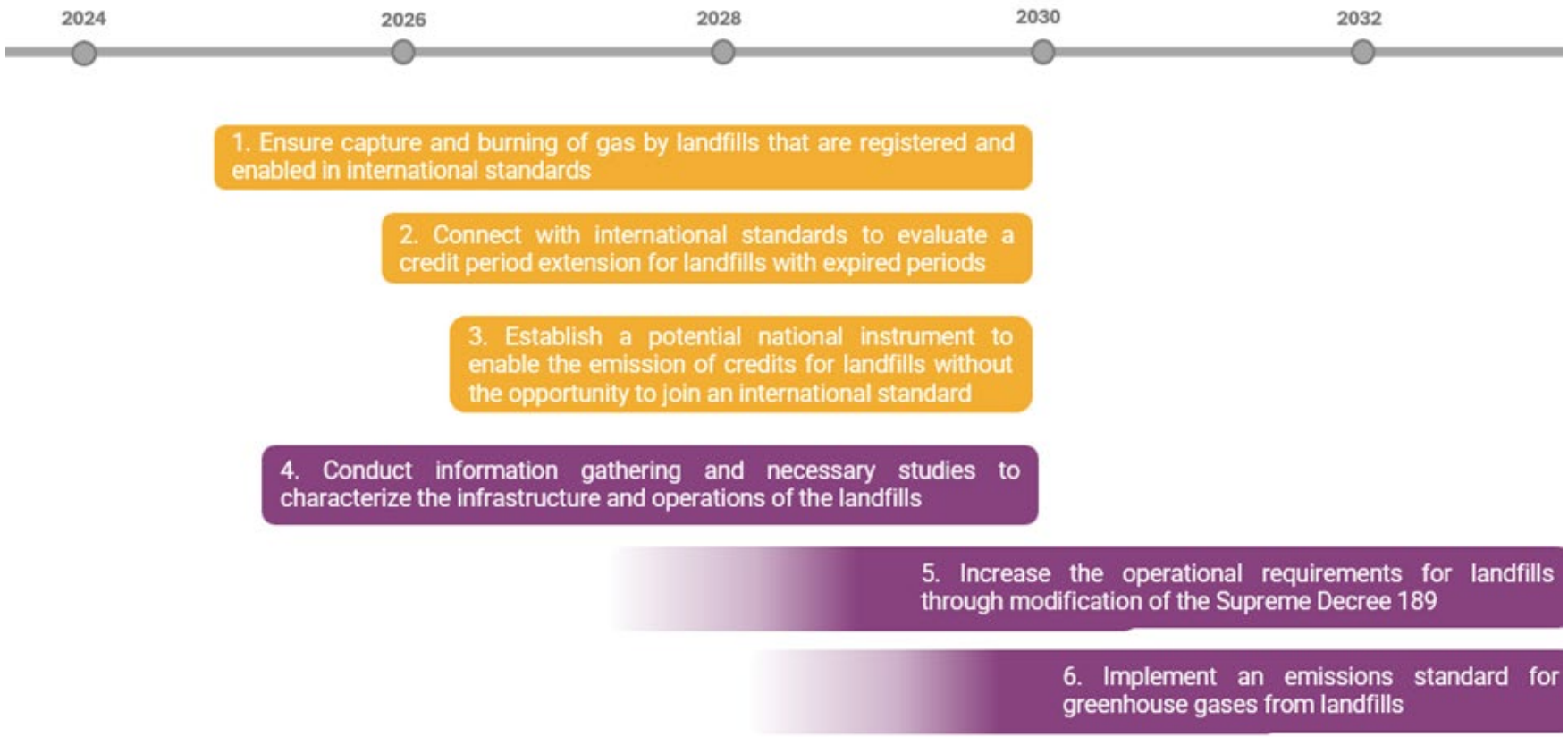


Development of enabling policy frameworks to ensure long-term impact – Chile example

Recommendations for the Waste Sector Mitigation Plan for Chile:

- Regulations to ensure capture and burning (Regulatory measure)
- In the meantime, align with international standards to assess carbon market eligibility or establish a potential national instrument (Market measure)
- Improve data collection and MRV systems
- Increase operational requirements
- Implement an emissions standard for GHG from landfills
- Local capacity-building for biogas project implementation
- Promote the development of the digestate market

Development of enabling policy frameworks to ensure long-term impact – Chile example



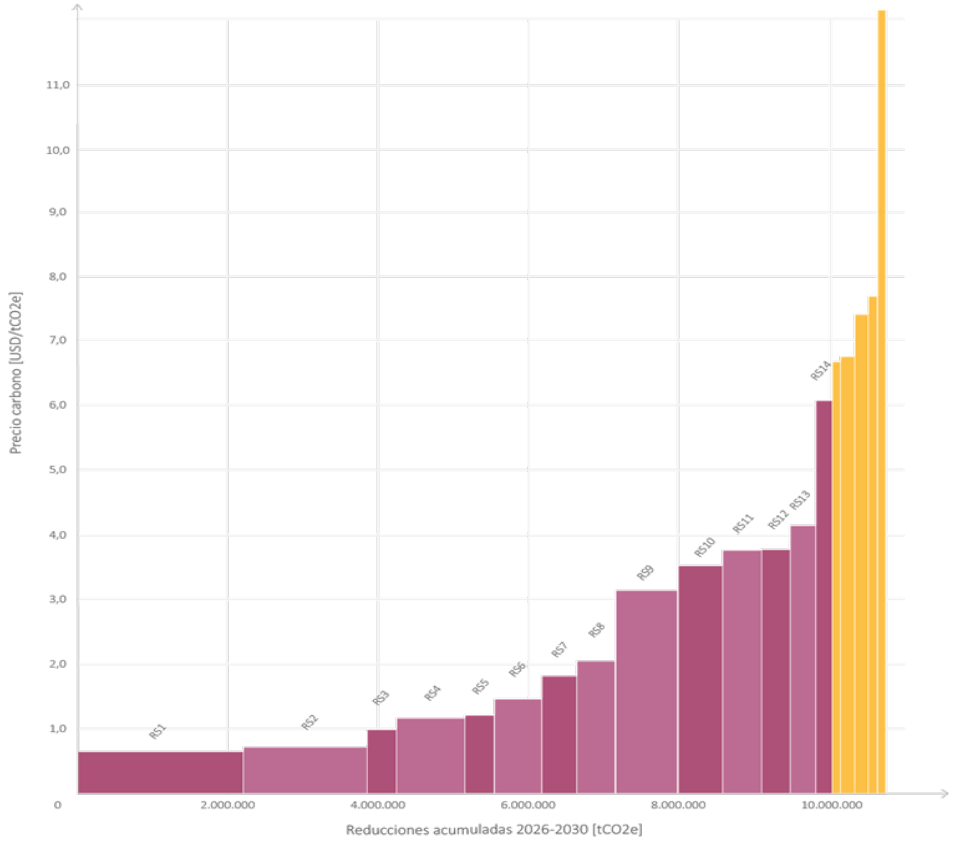
"A roadmap was developed for enabling a carbon market that could accelerate mitigation actions in the short term, and complementary regulatory measures to secure a paradigm shift in the long term without risking not achieving national climate goals. This has helped the Government make decisions towards Article 6 assessments and prioritize efforts in landfills with greater impact opportunities."

Recommendations' economic assessment for the Waste Sector Mitigation Plan for Chile

MACC obtained from the model for the 19 most cost-efficient landfills

- Purple bars: Represent landfills that would meet the SMP target by 2030 if they capture and burn 100% of their potential.
- Yellow bars: Indicate less cost-efficient landfills, requiring higher carbon prices to be profitable and not contributing under market measures alone

It is important to note that each landfill has unique characteristics, resulting in different indicators, which makes equitable comparisons challenging



Knowledge sharing and capacity building

We encourage knowledge sharing and south-south collaboration, scaling up, replicating, and creating synergies between projects and policies in the region.

We develop:

- Knowledge products that are shared online in our website, such as public policy recommendations,
- Case studies
- Manuals and educational material

We are the coordinators of the MetLAC Community of Practice (*). It was launched in 2023, with the purpose of promoting and supporting the development of public policies, business models and investment projects to reduce methane emissions from organic sources in 12 countries around Latin America and the Caribbean.

(*) More details: https://www.ledslac.org/en/comunidades-de-practica/metano/

WEBINAR:

HOW TO INCENTIVIZE SEPARATION AT THE SOURCE

Register Today!

Successful Strategies for Managing Organic Waste

Myrna Julien
Communications Manager,
Grenada Solid Waste
Management Authority (GSWMA)

Tiago Lacerda
Mayor, City of Santiago,
Rio Grande do Sul

RECYCLE ORGANICS
Reducing Methane From Waste

Wednesday **March 20th**

11:00 am GUYANA, SAINT LUCIA AND GRENADA (GMT-4)

9:00 am BELIZE (CST)

12:00 pm SAO PAULO (GMT-3)

CCAP | ImplementaSur CLIMATE ACTION

This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de:
Environment and Climate Change Canada | Environnement et Changement climatique Canada

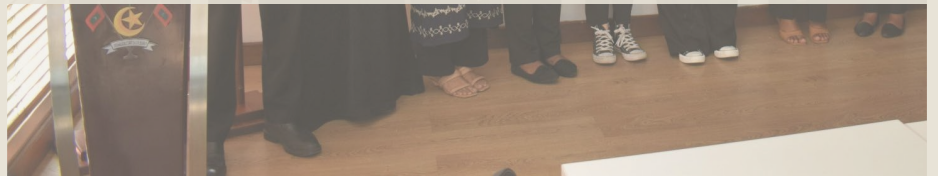
+4 International workshops

+10 Webinars

+15 Training sessions

+4 Knowledge products

Free material on our website and social media



Opportunities to expand our work

- Scale up and multiply the already existing successful cases in the global south
- Provide technical assistance to national and local governments to identify and evaluate projects and business models
- Develop MRV protocols for monitoring emission reduction projects
- Transform NDC targets into concrete investment sectoral plans.
- Support finance leverage to increase investments
- Improve capacities and promote knowledge exchange

Between 2017 and 2025, the Recycle Organics Program has managed more than 12 projects worth more than $13.5 million in funding.

Between 2025 and 2026, the Program aims to raise $2.5 million to expand the Program with $300,000 already raised from the CCAC for implementation in Paraguay. In addition, the Program is looking for funding to implement the identified project portfolios and expand existing methane mitigation programs to maximize the opportunities already invested in partner countries.

(*) Also with the Lowering Organic Waste Methane Initiative (LOW-Methane) and the Global Methane Pledge (GMP)

RECYCLE ORGANICS

Reducing Methane
From Waste

/ Recycle Organics

www.recycleorganics.org/

Strategic Partners: CCAP ImplementaSur CLIMATE ACTION

Funders: Environment and Climate Change Canada | Environnement et Changement climatique Canada

Global Methane Hub

CLIMATE & CLEAN AIR COALITION TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS


WORLD BIOGAS
ASSOCIATION
#MakingBiogasHappen
2025 Climate and Clean Air Conference
#MakingBiogasHappen

About World Biogas Association

- Founded in 2016 by national associations from the UK, USA and Italy and 20 founding company members
- Now represents over **100 organisations**, including national associations, from all over the world
- WBA is an accredited member of **UNFCCC** and **REN21,** an official partner of the **CCAC** (the Secretariat for delivery of the **Global Methane Pledge**) and **GMI**, a founding member of the **Global Biofuels Alliance**, and an Observer Party of the **Global Bioenergy Partnership** and **CTCN**
- WBA works closely with the IEA, UNIDO, FAO, EU Commission, C40 Cities Network, Itaipu and others

UNFCCC · Global Methane Initiative · Climate & Clean Air Coalition to Reduce Short-Lived Climate Pollutants · C40 Cities Climate Leadership Group · CTCN Climate Technology Centre & Network · IEA · Food and Agriculture Organization of the United Nations · Itaipu Binacional Mais que Energia · World Biogas Association

Some of our Members and partners...

WORLD BIOGAS ASSOCIATION

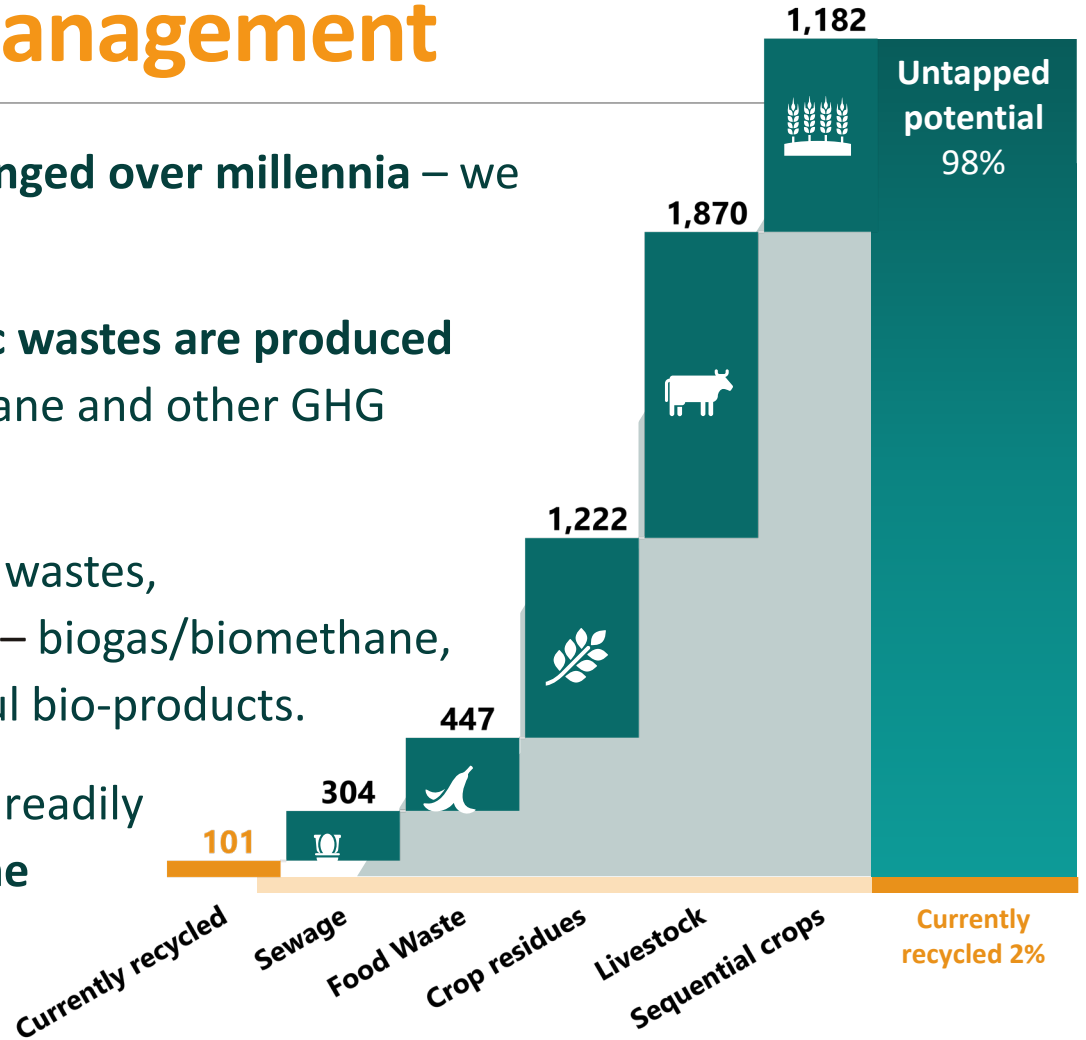
A new era for waste management

Waste management systems haven't changed over millennia – we still either landfill, burn or bury it.

Every year, over **105 billion tons of organic wastes are produced globally,** which, if not recycled, emit methane and other GHG emissions – **98% are not recycled**.

Anaerobic Digestion (AD) recycles organic wastes, **turning a problem into valuable products** – biogas/biomethane, bio-CO_2, natural fertilisers, and other useful bio-products.

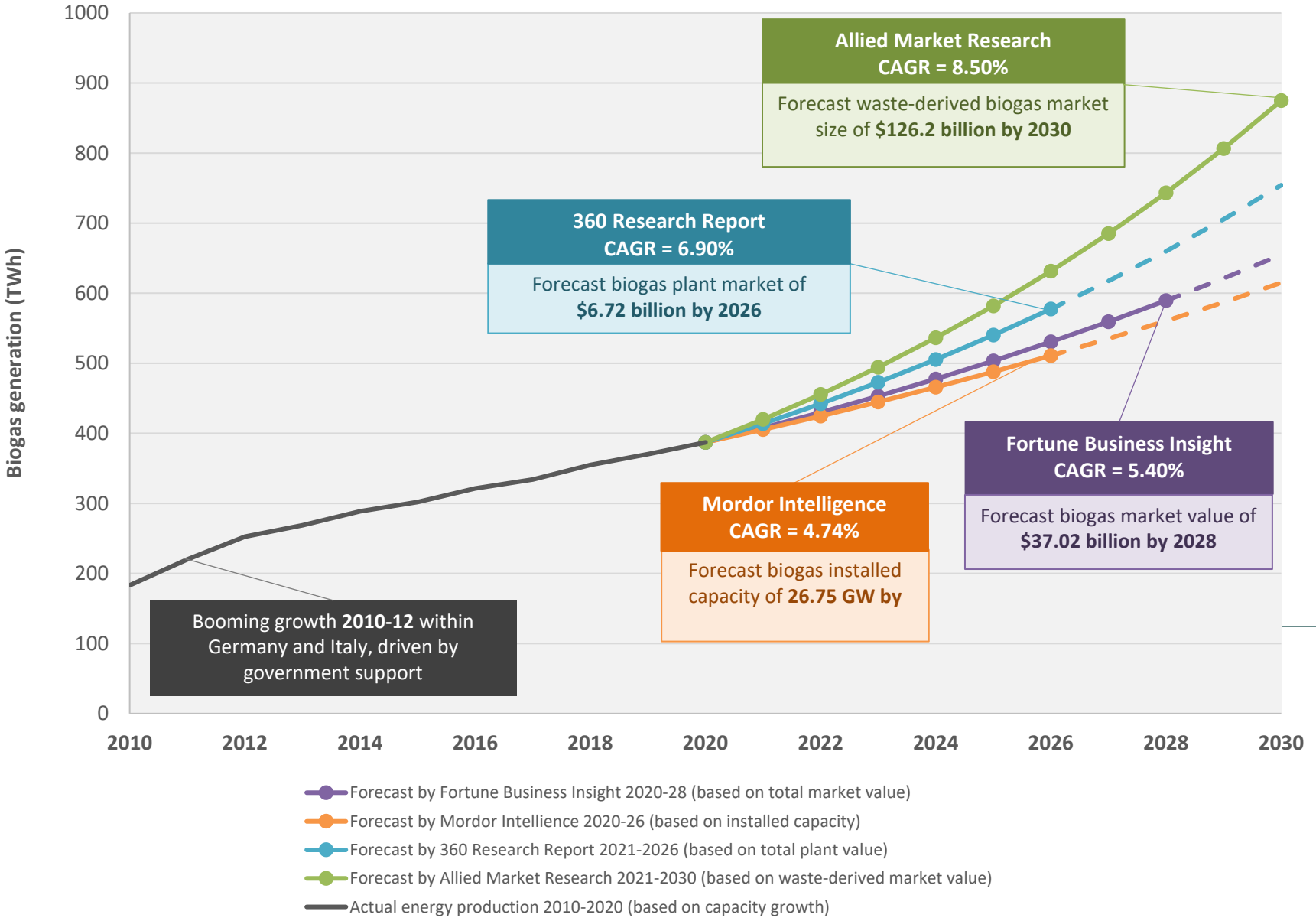
By recycling those organic wastes that are readily available, it is possible to **deliver 50% of the Global Methane Pledge** and **cut global GHG emissions by 11% by 2030.**



Total GHG savings:
5,000 $MtCO_2e$
11% of global emissions

100 $MtCO_2e$

Forecast Market Growth



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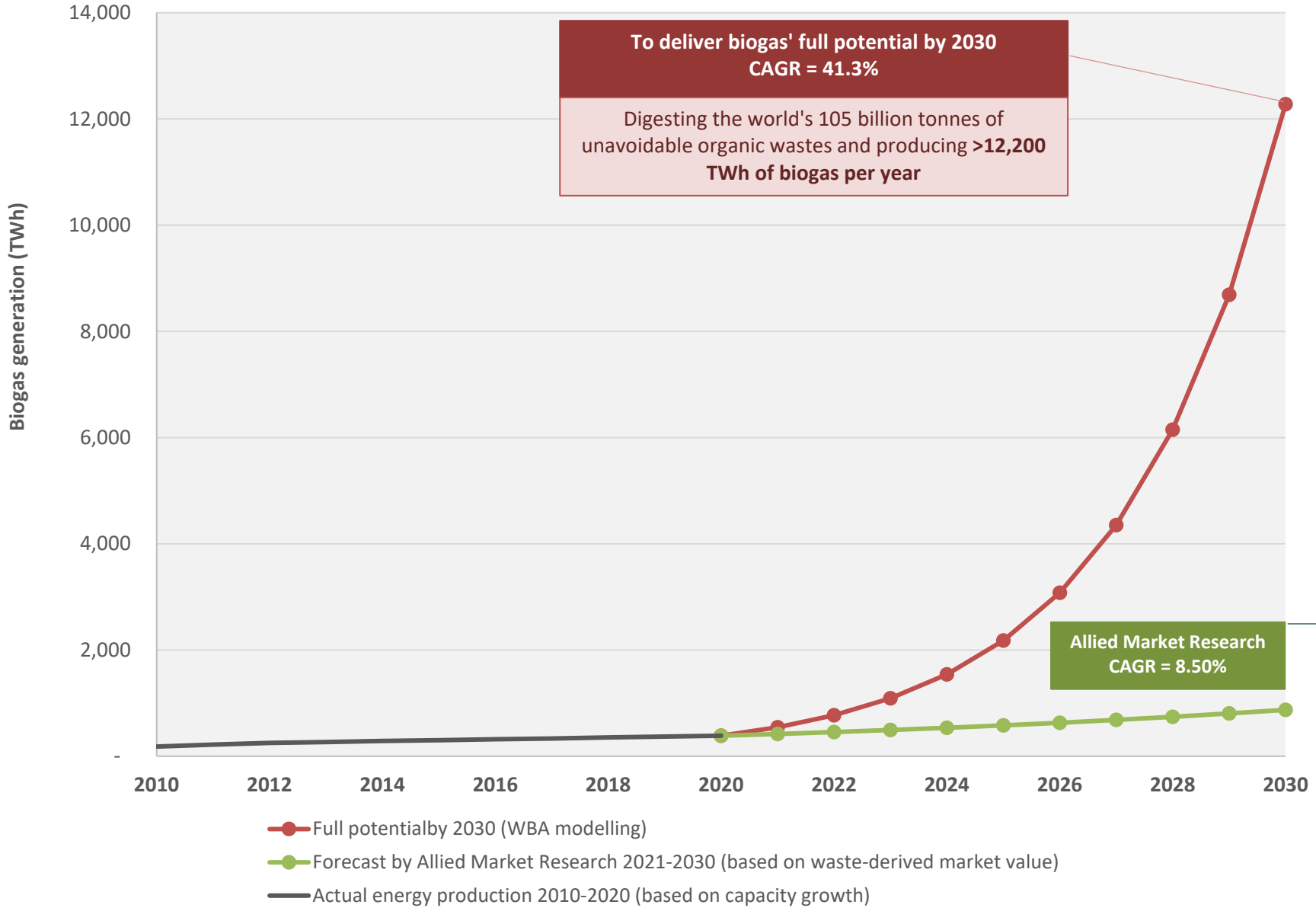
Market growth required to deliver the Global Methane Pledge



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The challenge?

*How can we build **hundreds of thousands** of high-performing biogas plants and related infrastructure **by 2030?***

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#MakingBiogasHappen Programme

Model Global Biogas Regulatory Framework & International AD Certification Scheme

Phase 1: Feb 2024 – Jan 2025

Funded by the **Global Methane Hub** with additional support from **Total Energies and GHD**.

Key Elements:

- **Policy Guidance**: Recommendations for local and national governments to encourage investment.
- **Regulations**: Necessary Standards and Regulations
- Minimum **health and safety standards** for biogas plants
- Transformative process for securing a **permit in 4 months**
- **Standardised LCA** to link to carbon markets

Global Methane Hub TotalEnergies GHD DLA PIPER WORLD BIOGAS ASSOCIATION

#MakingBiogasHappen Programme

Model Global Biogas Regulatory Framework & International AD Certification Scheme

Global Biogas Regulatory Framework:
Development of a framework with all the policies, standards and regulations needed to **support, implement, standardise, and monitor** a high-performing biogas industry at the national level.

Nine pillars:

- International and National Policy
- Feedstock Policy
- Biogas Utilisation
- Digestate Policy
- Gas Quality Regulations
- Technical and Operational Quality standards
- Permitting Regulations
- Planning Policy
- Health, Safety and Environmental Protection

WORLD BIOGAS ASSOCIATION

#MakingBiogasHappen Programme

Model Global Biogas Regulatory Framework & International AD Certification Scheme

International AD Certification Scheme: Development of a standardised international biogas certification scheme and **a standardised Life Cycle Assessment Methodology for Biogas plants to link to carbon markets**. An independently audited scheme.

ADCS INTERNATIONAL

Eleven Modules:

- Site information and understanding
- Managing health and safety risk
- Staff training
- Process monitoring
- Maintenance of the plant, kit and infrastructure
- Procuring services
- Managing environmental risks
- Cross contamination regulations compliance
- Digestate management
- Biomethane process
- Life cycle assessment

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#MakingBiogasHappen Programme – Phase 2

Model Global Biogas Regulatory Framework & International AD Certification Scheme

Global Outreach and Dissemination

- Awareness Raising, Training Workshops, Webinars, Social Media

Roll-out at the Country level (India and Brazil)

- Strategic Partnerships (Gov. Ministries, States, PSUs, Industry Associations, Industry Leaders, Partners, Networks)
- Preparation of Biogas Roadmap / Action Plans at the National / State / City Level
- Adapting and Customising Key Elements of GBRF and ADCS to National/State Biogas Ecosystem
- Technology Benchmarking, Standards, and ADCS Certification
- Advisory Services, Resource Mobilisation, and Capacity Building

Global Methane Hub

WORLD BIOGAS ASSOCIATION

Join us in #MakingBiogasHappen

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