GMI Biogas Subcommittee Technical Workshop



Leading methane action since 2004

31 May 2023 Bangkok, Thailand

Agenda

Part 1:

- Welcome and Opening of the Meeting
- GMI Secretariat Updates
- Overview of the Biogas Subcommittee
- Southeast Asia Biogas Industry: Case Studies
- Next Steps

Part 2:

- Overview of GMI Biogas Tools and Resources
- Country Panel and Roundtable Discussion: Accelerating the Adoption of Biogas



Biogas Subcommittee Co-Chairs



Matt Hamilton Environment and Climate Change Canada (ECCC) Canada



Monica Shimamura

U.S. Environmental Protection Agency (EPA) United States



GMI Secretariat Updates

Denise Mulholland Director, GMI Secretariat

Global Methane Initiative (GMI)

GMI is an international public-private partnership focused on reducing barriers to the recovery and use of methane as a valuable energy source.





- 46 Partner Countries
- 700+ Project Network members
- Alliances with international organizations focused on methane recovery and use





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

Steering Committee and GMI Partner Countries





GMI Accomplishments *Since 2004*



Grown from 14 to 46 Partner Countries

More than \$650 million in leveraged funding for projects and training

More than 700 Project Network members

Conducted or developed nearly 2000 assessments, pre-feasibility studies, feasibility studies, study tours, reports, guidances and site visits



Provided trainings for more than 50,000 people in methane mitigation



Leading methane action since 2004

Developed more than 60 tools and resources for methane mitigation

Since 2004, GMI has reduced CH₄ by nearly

540 MMTCO₂e

including approximately **40 MMTCO₂e** achieved in 2021



540 MMTCO₂e is approximately equivalent* to the CO₂ emissions from any one of the following:



* epa.gov/energy/greenhouse-gas-equivalencies-calculator

GMI's Methane Mitigation Activities Since 2004



- Demonstration projects
- Policy analyses

- Steering Committee meetings
- Subcommittee meetings



Global Methane, Climate and Clean Air Forum a joint event sponsored by GMI and CCAC

Forum Highlights

- 400 in-person attendees from 60 countries and 450 virtual attendees from 29 countries
- 5 high-level plenary sessions on global efforts to reduce emissions from methane and other short-lived climate pollutants
- 36 technical sessions bringing together practitioners, policymakers and technical experts
- 3 site visits to an anaerobic digester, landfill, and wastewater facility

Overview of Participation

Global Methane, Climate and Clean Air Forum



Organizations

Secretariat Priorities Through 2023

- Provide support to countries that are working to aggressively reduce methane emissions, including signatories of the Global Methane Pledge
- Support Subcommittee Co-Chairs to expand GMI Subcommittee membership
- Enhance promotion of GMI through targeted communications
- Leverage strategic partnerships to improve collaboration
 - For example, with the United Nations Economic Commission for Europe (UNECE), Climate and Clean Air Coalition (CCAC), and Global Methane Hub
- Plan the 2024 Global Methane Forum



Geneva, Switzerland March 2024

Save the date! Global Methane Forum 2024

- GMI is co-hosting the upcoming Global Methane Forum with the United Nations Economic Commission for Europe
 - Opportunity to bring together policymakers, industry leaders, technical experts, and researchers from around the world to discuss opportunities to protect the climate and improve air quality with a special focus on methane
- Sign up for the GMI Mailing List to receive more information: <u>http://eepurl.com/ggwT3T</u>.



We look forward to welcoming you in Geneva!



Global Methane Pledge Support and Implementation

Global) Methane Pledge



- Emissions measurement and quantification Data management Monitoring, reporting, and verification (MRV)
- 30% reduction of methane emissions by 2030, compared to 2020 levels
- Leverage momentum
- Engage and connect stakeholders to analyze needs and jointly develop tools and resources
- Provide technical support and capacity building

Coming Soon:

Policy Maker's Framework for Addressing Methane Emissions



- Provides a step-by-step process for developing and implementing policies, programs, and partnerships to reduce methane emissions
- Primarily intended for national policy makers
- Scheduled to be released in September 2023

Engage with GMI

Contact Us	
e the form below to submit questions or comments about the initiative.	
our Information:	
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manipation: *	
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lephone: *	
trea of Interest:	

Submit a Contact Us Request

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

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Events		
M sponsors and participates in events through akaholders, this page also highlights events th	nout the year. As a benefit to our partners and at are not directly atfiliated with GML	Event Links
iew a list of upcoming events below, followed l istails and access meeting materials and proces	by a list of past events. Click on an event to view more dings.	Upcoming Events Recent Events
Want to list something here? Use the Contact Us form to request that an ever	t be listed on this pace.	All Past Events Join the GMI mailing list
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Share Events or Resources

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



Join the GMI Mailing List

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

Thank you!

Denise Mulholland

Director, Secretariat

<u>mulholland.denise@epa.gov</u> <u>secretariat@globalmethane.org</u>

Global Methane Initiative

Leading methane action since 2004

globalmethane.org

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Overview of the Biogas Subcommittee

Matt Hamilton and Monica Shimamura

Biogas Subcommittee Co-Chairs

Ways GMI Biogas Subcommittee Can Support the Global Methane Pledge and Methane Mitigation Efforts

- Convene experts to exchange information
 - For example, Subcommittee meetings, webinars
 - Share tools and resources to assist countries to develop and implement:
 - Baseline emissions and resource assessments
 - Greenhouse gas inventories
 - Measurement, reporting and verification
- Explore full spectrum of options for methane mitigation
 - E.g., alternative waste treatment options, feed and manure additives, biogas to replace fossil fuels, soil carbon benefits from digestate
- Facilitate and provide platform for training, capacity building, and advice to member countries



Biogas Subcommittee Updates

• We are looking for a new Co-Chair!

- Bringing together technical working groups to discuss sector strategies
 - Focused on knowledge transfer and building relationships
 - 3 4 virtual meetings during the year
 - Open to everyone
 - Each technical working group focused on a specific biogas topic
 - What topics would be of interest?
 - Landfill gas
 - Agriculture
 - Wastewater



• Other?

2024 Global Methane Forum – Biogas Joint Technical Sessions

Topics to be identified by the technical working groups

- Suggested agenda topics:
 - Trainings on specific biogas and /or sector tools and resources
 - Financing biogas and/ or sector projects
 - Partner Country case studies with lessons learned
 - How to scale up projects
 - Strengths in your sector and how to use them to your advantage
 - Synergies within the biogas sectors
- If you have suggestions for agenda topics or speakers, please email the Biogas Subcommittee Co-Chairs at <u>secretariat@globalmethane.org</u>.



Southeast Asia Biogas Industry: Case Studies





Climate and Clean Air Conference 2023





Sources



Methane emissions from rotting wastes

MtCO ₂ e	
 329 <u>- 10-10 - 10-10 - 10-10 - 10-10 - 10-10 - 10-10 - 10-10 - 10-10 - 10-10 - 10-10 - 10-10</u>	
754	
 499	

Poorly managed organic wastes emit methane directly into the atmosphere – 19% of anthropogenic methane is derived from the following sources:

Manure management

Cows, pigs and chickens produce over 33 billion tonnes of waste per year. Between 50-90% of these wastes are collected and stored on-farms, where it decomposes and releases methane directly into the atmosphere.

Municipal Solid Waste (MSW)

In 2020, an estimated 1.3 billion tonnes of food was wasted. The vast majority would have ended up in landfill, where it is now releasing around 30 million tonnes of methane.

Wastewater

Up to 80% of sewage produced globally is released into the environment with little or no treatment. Consequently, these wastes emit methane as they rot within water systems – further contaminating potential drinking water supplies. Sources



Methane emissions from rotting wastes The following map highlights where methane emissions are 93 coming from: 156 188 Methane from organic wastes (MtCO₂e) 118 100.0+ 77 20.0 0 All these emissions are derived from poorly managed organic wastes

worldbiogasassociation.org





Avoiding methane emissions via Anaerobic Digestion (AD)

Recycling organic wastes via AD avoids methane emissions from uncontrolled rotting wastes.

If all readily available and unavoidable organic wastes were treated via AD, around 1,152 MtCO₂e of methane emissions would be avoided.







Full potential modelling



Total livestock waste = 33 billion tonnes

applying 50-90% collection rate and 70% AD uptake

Collectible waste for AD = 13 billion tonnes

Average 50 kgCO₂e emissions per tonne digested

Avoided methane emissions = $638 \text{ MtCO}_2 \text{e per year}$



Total food waste = 1.3 billion tonnes

applying 50% food waste reduction and 70% AD uptake

Collectible & unavoidable waste for AD = 449 million tonnes

Average 617 kgCO₂e emissions per tonne digested

Avoided methane emissions = $313 \text{ MtCO}_2 \text{e} \text{ per year}$



World population = 7.9 billion people

applying 85% collection and 128g per person per day (wet weight)

Sewage for AD = 31 billion tonnes

Average 200 kg methane per tonne of waste

Avoided methane emissions = $201 \text{ MtCO}_2 \text{e per year}$

Total = 1,152 MtCO₂e per year or offsetting the equivalent of over 552 million cars

Market forecast











Growth required to deliver the methane pledge



Key policy recommendations







National and international policy

Set ambitious green targets
Estimate the quantity of organic wastes produced and detail a management plan
Divest in fossil industry and reallocate funds to green solutions
Price carbon and natural capital within markets



Feedstockpolicy

Support for waste treatment infrastructure Organic material management hierarchy Sustainable agriculture payment schemes for farm waste treatment Support for sustainable rotational energy crops



Biogas utilisation policy

- Tariff payment for biogas generation
- Innovation funding for improved biogas generation
- Support for CCUS at AD plants Renewable obligation on suppliers



Digestate policy

- Develop regulatory framework for digestate
- Provide sustainable agriculture payment scheme for digestate use
- Innovation funding for digestate enhancement





VIETNAM

- Biogas technology was introduced inVietnam nearly 30 years ago and has gained huge popularity in the last 20 years
- Vietnam's tropical and humid climate suits AD's needs by providing good conditions for microbial activity
- "Biogas Program for the Animal Husbandry Sector of Viet Nam" (BPPMU) implemented by Livestock Production Department with Netherlands Development Organization SNV.
- The project began in 2003 and had three phases:
 - I.Phase I (2003 2006): the project was implemented with a EUR 2.5 million grant from the Netherlands government, and covered I2 provinces nationwide.
 - 2. The bridging phase (2006): the preparatory year for phase II.
 - 3. Phase II (2007 2015): the project was deployed nationwide.







VIETNAM

- Since its inception until March 2017, the Vietnam Biogas Programme has:
 - Facilitated the construction of 158,500 domestic biogas digesters, resulting in access to a clean, renewable and reliable source of energy for more than 790,000 rural individuals across 55 provinces and cities ofVietnam
 - Created more than 2,500 new jobs in rural Vietnam
 - Trained nearly 1,700 biogas masons and supported 355 biogas construction team leaders in establishing biogas businesses
 - Provided pre-installation training to 164,525 households. Provided training on post-installation and use of bio-slurry to 161,397 households
 - Reduced around 800,000 tonnes of CO₂ equivalent per year offsetting the equivalent of nearly 390,000 cars



Biogas: ISolution to 3 Issues







Waste Management

What to do with untreated human and agricultural waste



Health

How to minimise the health impacts of burning wood in the home



Affordable energy

How to access affordable energy





VIETNAM

- Biogas in Vietnam is at all scales, but mainly at household level
- Small Biogas Plants/ digesters are installed at household level and often fed with animal manure, mainly from pigs average volume of 10m³
- At household level, biogas mainly use for cookstoves and lighting
- At industrial scale, biogas plants are coupled with large animal farms and beverage factories, and food and agricultural product processing factories
- Biogas produced normally consumed in loco
- In 2015 only 90% of all installed ADs were operational

BIOGAS PLANTS IN VIET NAM, 2015

TYPE OF TECHNOLOGY USED	TOTAL	FARM SCALE (MBP and LBP)	HOUSEHOLD SCALE (SBP)
TOTAL NUMBER OF BIOGAS PLANTS	465,370	15,370	450,000
KTI, KT2	226, 412	4,032	201,469
COMPOSITE	97,320	2,390	89,147
OTHER TYPES	141,638	8,948	159,384

Source: MARD, 2016



Join a winning team and help put the world on track to keep global warming below 2°C, ideally 1.5°C.

Contact us to find out what value WBA can deliver for you and your organisation. Giulia Ceccarelli | External Affairs Lead | e gceccarelli@worldbiogasassociation.org

Sustainable Workspaces, Office CH5, Fifth Floor, Riverside Building, County Hall, Westminster Bridge Road, London, SEI 7PB worldbiogasassociation.org | info@worldbiogasassociation.org

@WBAtweets
World Biogas Association



Biogas Development in Thailand

Amornwan Resanond, Ph.D. Director,

Clean & Sustainable Energy

USAID SoutheastAsia Smart Power Program (SPP)

May 31,2023

Thailand's Renewable Energy Sources





Biogas Development in the Time Frame of 30 Years





1990: Demonstration Fixed Dome





1990 R&D in Fixed Dome 1st biogas plant

- The Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) and Chiang Mai University (CMU) collaborated on research and development of small-scale biogas plant engineering and demonstrate with pilot livestock farms
- Capacity to generate biogas of **50 m³**
- Small-scale implementation
- Large-scale demonstration
- Public acceptance



Sources: Pruk Aggarangsi, 2021, Pruk Aggarangsi, 2017, Wongkot Wongsapai, 2011

1995: Biogas Plants in Livestock







Biogas Plants in Livestock Subsidy Program
Medium-to-Large Farm
1995-1998: 1st Subsidy 50% capital cost subsidy
1997-2003: 2nd Subsidy 30%
2002-2011: 3rd Subsidy 20%
2009-2017: 4th Subsidy 20% (3.03 USD/0.12 Livestock Unit)
Slaughterhouse
2005-2009: Subsidy 58.28 USD/0.12 Livestock Unit
Small Farm
2012-2017: Subsidy 6.19 USD/0.12 Livestock Unit
Chicken Processing Slaughterhouse
2014-2017: Subsidy 174,830 USD/150,000 Chickens/Day

Program	Projects	Biogas Production (Nm ³)	Electricity Generation (MW)
Pig Farm	1,314	227,788,304	8.83
Cattle/ Buffalo Farm	I	48,900	n/a
Slaughter- house	5	48,900	n/a
Chicken Processing	16	9,282,000	0.92
Total	1,336	237,168,104	9.75

Sources: <u>DEDE biogas database</u>



1995: Biogas Plants in Livestock



Sources: ERDI livestock biogas database

- Biogas production from livestock, mainly from pig farms, generated biogas in a total of 237 million m³.
- Three main livestock sources are the potential biogas producers: Pig Farms (289 million m³), Chicken ٠ Processing (337 million m³), and Cattle/Buffalo farms (246 million m³).



2003: Adder Biogas VSPP - 364 MW



Adder Policy (2003-2015) for very small power producers (VSPPs) of Biogas

Fuel	Adder (THB/kWh)	Adder Adder (THB/kWh) Adder Premium for Diesel Substitute ¹ (THB/kWh)		Period of Support (Years)	
Biogas (all sources)					
Installed Capacity ≤ 1 MW	0.50	1.00	1.00	7	
Installed Capacity > 1 MW	0.30	1.00	1.00	7	

Remarks: I. Power producers in the areas in which electricity is generated from diesel 2. Pattani, Yala, and Narathiwat provinces or one of the 4 special districts in Songkhla province (Incl. Chana, Thepa, Saba Yoi, and NaThawi districts) —effective date: Nov.25, 2010

Electricity Purchase consists of



- Sold units that are not exceeding the consumption units will be purchased at the retail base and F_t rates
- Sold units that are over the consumption units will be purchased at the average wholesale base and F_t rates
- Power plants ≤ 1 MW will not be deducted a 2% process fee charge



2007: Biogas Plants in Agro-industrial



Biogas Plants in Agro-industrial Subsidy Program Tapioca starch, Palm oil

2008-2012: Wastewater (Subsidy 20%), Waste Products (Subsidy 50%) Subsidy ceiling 0.29 million USD/project

Ethanol

2008-2012: Wastewater (Subsidy 20%) Subsidy ceiling 0.58 million USD/project

Rubber and Foods

2008-2011: Wastewater (Subsidy 50%) Subsidy ceiling 0.17 million USD/project

Others

2009: Waste Products (Subsidy 50%) Subsidy ceiling 0.17-0.29 million USD/project

Program	Projects	Biogas Production (Nm ³)	Electricity Generation (MW)	Heat Generation (ktoe)	CBG Production (ton)
Tapioca starch	122	553,273,014	127.53	181.49	0
Palm oil	55	251,745,480	92.10	58.06	0
Ethanol (Molasses/ Cassava)	36	194,290,811	25.36	82.48	0
Rubber	7	12,281,850	3.40	3.57	0
Foods	88	117,098,674	18.99	45.25	660
Others	43	36,700,880	16.26	15.46	0
Total	351	1,165,390,709	283.64	386.31	660

Sources: DEDE biogas database



Sources: DEDE biogas investment manual, 2022

2007: Biogas Plants in Agro-industrial



Sources: Pruk Aggarangsi, 2021

Sources: DEDE biogas database

- Biogas production from agro-industrial sector, mainly from tapioca starch, generated biogas in a total of 1,165 million m³,
- The Food sector can potentially offer a huge amount of biogas of 1,058 million m³.

2010: R&D in CBG/Local Grid/Energy Crop/MSW



Project:Compressed Bio-methane Gas (CBG) Production from POME

.

Project:Demonstration of Local Bio-Methane Grid, Chiang Mai

The recent political-support programs focus on supporting alternative raw materials such as energy

crops/household and community waste, municipal waste-to-energy, as well as the utilization of compressed

Next Challenges: Energy Crop and Municipality SolidWaste Biogas

Project: Multi-Waste Power Plant KCF Green Energy, Energy Crop

Project: Demonstration MSW Dry Fermentation



Sources: Pruk Aggarangsi, 2021, Pruk Aggarangsi, 2015

biogas (CBG) in the transportation sector.

2015: FiT Biogas VSPP - 21 MW



FiT Competitive Bidding Policy (2015-2019) for BiogasVSPP

Fuel	FiT (F) (THB/kWh)	FiT (V2017) (THB/kWh)	Total calculated FiT (THB/kWh)	Period of Support (Years)	FiT Premium For Bio-Energy (8 years) (THB/kWh)	FiT Premium for Southern Provinces (THB/kWh)
Biogas from wastewater/waste products	3.76	-	3.76	20	0.50	0.50
Biogas from energy crops	2.79	2.55	5.34	20	0.50	0.50

Remarks: Pattani, Yala, and Narathiwat provinces or one of the 4 special districts in Songkhla province (Incl. Chana, Thepa, SabaYoi, and NaThawi districts)

• This FiT scheme uses a bidding mechanism to ensure that RE subsidy will not be a burden on the electricity rates.





■ FiT Waste (MW) ■ FiT Energy Crop (MW)

• 13 projects, with a total of 21 MW installed capacity, successfully had SCOD under this program



2022: FiT Biogas VSPP – Target 335 MW under ERC's 5.2 GW



FiT Fixed Policy (2022-2030) for BiogasVSPP

Fuel	FiT (F) (THB/kWh)	FiT (V) (THB/kWh)	Total calculated FiT (THB/kWh)	Period of Support (Years)	FiT Premium for Southern Provinces (THB/kWh)	
Biogas from wastewater/waste products	2.0724	-	2.0724	20	0.50	

Remarks: Pattani, Yala, and Narathiwat provinces or one of the 4 special districts in Songkhla province (Incl. Chana, Thepa, SabaYoi, and NaThawi districts)

ประเภท RE	Pass/	ฝ่าน Fail Basis	<u>ไป</u> ฝ่าน Pass/Fail Basis		Target	เทียบ เป้าหมาย
	คก.	MW	AU.	MW	PTW	MW
Biogas 💼	0	0	2	6.50	335	-355
Wind 1	20	1,291.30	55	2,959.56	1,500	-208.70
Solar+BESS	31	1,253.60	7	216.29	1,000	+253.60
Solar Farm 🐞	267	5,184.18	166	2,944.31	2,368	+2,816.18
รวม	318	7,729.08	230	6,126.66	5,203	

Current Situation

- Energy Regulatory Commission (ERC) announced the FiT program to receive applications for biogas power plants in Nov.2022.
- There are only 2 biogas projects, with a total of 6.5 MV, applying for this round.
- ERC has postponed the biogas winning announcement 4 times according to reevaluate for the developers, who appeal against the minimum technical evaluation by ERC.
- Apr. 5, 2023, ERC announced the winners of the FiT program, including solar, wind, solar and BESS, and biogas.
- There was no winner for the biogas power plant since developers did not pass the technical evaluation step.



Sources: ERC power purchase project, 2023, Thaipublica, 2023

2037: Biogas Target in PDP2018 (Rev1) - 1,565 MW



Existing Biogas (All Source)

■ New Biogas (All Source)

■ Biogas Energy Crop ■ Bio



Sources: PDP 2018 (Rev1)



Thank you!

Amornwan Resanond Director, Clean & Sustainable Energy

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Thank you!

The GMI Biogas Subcommittee Technical Workshop will continue at 11:00.

Global Methane Initiative

Leading methane action since 2004

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Overview of GMI Biogas Subcommittee Tools and Resources

Matt Hamilton and Monica Shimamura

Biogas Subcommittee Co-Chairs

Biogas Toolkit

Highlights of Toolkit:

- **Centralized location** for all U.S. EPA and GMI biogas tools
- Filter categories and guided search to help users find exactly what they need
- Intended for U.S. and international audiences
- Usable by **all knowledge levels** (getting started to advanced)





Filters

Project Phase

Getting Started

Pre-Feasibility

Feasibility Assessment

Development and

Construction
Operations and

Management

Biogas Sector

□ Agriculture □ Solid Waste

Wastewater

Engineering and

Regulatory Compliance

Environment and Social

Technology

Finance
 Business Planning

Topic

Displaying 36 of 36 resources.

10 Keys to Digester Success

- Many factors are required to successfully implement and operate an anaerobic digestion/biogas system. This resource lists 10 key factors essential
- for a successful farm-based digester project.



AgSTAR Operator Guidebook

This guidebook helps operators increase operational performance and efficiency of AD systems, and avoid common challenges.



Î

Is An Anaerobic Digestion Project Appropriate? Anaerobic Digester Project Development Handbook, Chapter 1

This chapter of the AgSTAR Project Development Handbook outlines the factors to consider to successfully implement and operate an AD/biogas system, provides characteristics for farms that might indicate an AD/biogas system is appropriate, and provides limitations and conditions that would determine that AD/biogas is not applicable.

Measuring, Reporting, and Verification (MRV) Resources

- Policy Maker's Handbook for Measurement, Reporting, and Verification in the Biogas Sector
 - An online platform with high-level guiding principles for conducting MRV for biogas projects.
- MRV Webinar Series: MRV Best Practices for Biogas Projects
 - The recording of the latest webinar on 24 May will soon be available on the GMI website: <u>globalmethane.org/events/details.aspx?eventid=706</u>





For more information, visit the GMI website: globalmethane.org/biogas/index.aspx#tools

Other GMI Biogas Tools

- Solid Waste Emissions Estimation Tool (SWEET): <u>globalmethane.org/sweet</u>
- Landfill Gas Screen Tool (LFG-ST): globalmethane.org/resources/details.aspx?resourceid=5215
- OrganEcs Version 3.1: globalmethane.org/organecs
- Anaerobic Digestion Screening Tool, Version 2.2: globalmethane.org/resources/details.aspx?resourceid=5170





Solid Waste Emissions Estimation Tool (SWEET)

- Excel-based tool for quantifying pollutant emissions from sources across the waste sector
 - Project-, source-, or system-level emissions estimates
 - Methane, black carbon, particulate matter, and other pollutants
- Increasing usage among audience
 - Used in 50+ cities to date
 - Adopted by the International Solid Waste Association's Closing Dumpsites campaign
 - Incorporated into the United Nation's Habitat's Waste Wise Cities Tool
 - Used by World Health Organization as part of the Urban Health Initiative







"SWEET can be considered a policy planning tool that requires less data input than the usual life cycle assessmentbased tools." World Health Organization

Landfill Gas Screening Tool

- Excel based tool to assess potential feasibility of landfill gas (LFG) to energy projects
 - Estimates LFG recovery rate
 - Provides potential project type and size

Primary audience

- Landfill/dumpsite operators
- Project developers





Anaerobic Digestion Screening Tool

Excel-based tool to assess potential feasibility of an anaerobic digestion project based on waste stream/feedstock characteristics

Primary audience

- Project proponents to understand the biogas potential of a proposed project
- Lending institutions/banks to determine if a project application is feasible





OrganEcs

- Excel based tool for estimating the costs associated with an organic waste management project
 - Both composting and AD facilities
 - Construction costs, operating costs, revenues

Primary audience

- Local governments
- Policymakers

Globa

Methane Initiative

Leading methane action since 2004

- Facility operators
- Project developers







CCAC Expression of Interest



Country Panel and Roundtable Discussion: Accelerating the Adoption of Biogas

Fred Onyai, Uganda; Nabina Maharjan, Nepal; Camila Labarca, Chile Facilitated by: Charlotte Morton, World Biogas Association

Challenges and Solutions to Implementing Biogas Projects



Country Panel Discussion Questions

- 1. Is there a strategy, or elements of a strategy (policies, programs), to advance biogas in your country?
 - a. What is your country's approach, i.e., regulatory, funding, mandates for fuel content, other?
- 2. How can GMI support your country to build this strategy?
- 3. Is financing an issue to advancing biogas projects in your country?
 - a. What kind of financial support could be useful? National government? Tariffs? Mandates on biogas?
 - b. Is your country engaged in any bilateral activities with other countries related to biogas?
- 4. What is the outlook on biogas in your country based on its current status? Do you see biogas playing a role in your Nationally Determined Contributions (NDC)?
- 5. Can you help us get in touch with the biogas experts in your country?



Thank You!

Global Methane Initiative

Leading methane action since 2004

- Save the date! The next Global Methane Forum will be on 18-20 March 2024 in Geneva, Switzerland.
- Connect with GMI on social media
 - Facebook: <u>www.facebook.com/globalmethane/</u>
 - Twitter: <u>twitter.com/globalmethane</u>
 - LinkedIn: <u>https://www.linkedin.com/company/global-</u> <u>methane-initiative-gmi-/</u>
- Send suggestions for events or resources as well as any questions or needs to the GMI Secretariat at <u>secretariat@globalmethane.org</u>

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