



Update on Activities and Opportunities for Future Efforts

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GMI Biogas Subcommittee Meeting

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Overview

- Past and Current Materials
 - Summary of existing materials for biogas, agriculture, municipal solid waste, municipal wastewater
- Future Biogas Activities
 - Discussion of future work areas
- GMI website and information

Existing Materials

The screenshot displays the Global Methane Initiative (GMI) website. At the top, the browser address bar shows the URL <http://www.globalmethane.org/>. The website header includes the GMI logo, social media icons for Twitter, YouTube, Facebook, LinkedIn, and RSS, and a language selection dropdown. A search bar with the placeholder text "Search by keyword" and a "Search" button is also present. The main navigation menu contains links for "About GMI", "Partner Countries", "Sectors & Committees", "Methane Sites & Activities", "Tools & Resources", "Project Network", "Events", "FAQs", and "Contact Us".

The main content area features a large banner with the text: "We work together to reduce global methane emissions and advance the use of methane as a clean energy source." To the right of this text is a globe image. Below the banner, a paragraph states: "The Global Methane Initiative (GMI) brings together governments, nongovernmental organizations and the private sector through technical support, policy development, and information sharing." At the bottom of this section are three circular icons with labels: "Learn more about GMI" (with an 'i' icon), "Find resources" (with a document icon), and "Contact us" (with a speech bubble icon).

On the right side, there is a "Tweets by @GlobalMethane" section. The top tweet is from GMI (@GlobalMethane) and reads: "Scientists use #methane to show effects of even short-lived #GHG on sea levels last centuries after emissions stop: [washingtonpost.com/news/energy-en...](http://www.washingtonpost.com/news/energy-en...)" The tweet includes a video thumbnail showing a city skyline with large waves crashing in the foreground. The tweet is dated "Jan 9, 2017".

Existing Materials: GMI Biogas Tools

- **Biogas Wastewater Assessment Technology Tool (BioWATT)**
 - Provides a quick and preliminary assessment of wastewater-to-energy projects.

- **Landfill Gas Modeling Tools**
 - Available for multiple countries

- **Philippines Swine Covered Lagoon Tool**
 - Estimates emissions reductions and costs

BioWATT (Biogas Wastewater Assessment Technology Tool) v1.0 (11 May 2016)			
Project:	(Name of WWTP)		
Date:	(Date)		
GENERAL DATA	Value	Unit	Comment
WASTEWATER ENTERING WWTP			
Average hydraulic load	40,000	m ³ /d	
Average inflow BOD ₅ concentration	120	mg/L	
Average TSS/ BOD ₅ concentration	1.00	---	Typical: 1.00 (0.8-1.2) [2,3,4,5]
Average inflow TSS concentration	120	mg/L	Typical: same value as for BOD ₅ concentration
Average VSS/TSS concentration	0.75	---	Typical: VSS/TSS = 0.75 (0.6-0.85) [2,3,4,5] In case of dominant number of septic tanks in the catchment it may go down to 0.2-0.3 [2]
Average inflow VSS concentration	90	mg/L	
Local capita-specific BOD ₅ production	50	gBOD ₅ /cap/d	Select appropriate value from drop-down menu, or utilize data from other sources [3,4,5]
Average pollution load (BOD ₅)	4,800	kg/d	
Average pollution load in population equivalents (PE _{eq})	80,000	PE _{eq}	(Note: 1 PE _{eq} = 60 g BOD ₅ /d)
Average pollution load in population equivalents (local)	96,000	cap	(Note: 1 cap = xx g BOD ₅ /d, according to project specific input data)
CAS + SLUDGE DIGESTER	Value	Unit	Comment
WASTEWATER TREATMENT			
• Primary Sedimentation Tank (PST)			
PST foreflow?	YES		Select "YES" or "NO" from drop-down menu "YES" (recommended when influent TSS > 80 mg/L) "NO" (recommended when influent TSS < 80 mg/L)
Volume PST	1,250	m ³	
Average retention time in PST	0.75	h	Typical: 0.75 (0.50-1.5) at average hydraulic load [3,5]
BOD ₅ removal efficiency of PST	30.0	%	Typical: 30 (20-35) [3,5]
TSS removal efficiency of PST	50.0	%	Typical: 50 (50-65) [3,5]
• Aeration Tank (AT)			
Average influent BOD ₅ load	3,360	kg/d	
Average influent TSS load	2,400	kg/d	
SLUDGE PRODUCTION			
• Primary sludge			
Daily FS production (DS)	2,400	kgDS/d	
DS of primary sludge after thickening	3.5	SDS	Gravity thickener: 2-6% [3,4] Mechanical thickener: 5-7% [3,4]
VSDS of primary sludge after thickening	75	SVIS	Typical: VSS/TSS = 0.75 (0.6-0.85) [2,3,5] In case of many septic tanks it may go down to 0.2-0.3 [2]
Daily FS production, thickened sludge (m ³)	68.6	m ³ /d	
• Secondary sludge			
Daily raw WAS production (DS)	0.75	gDS/gBOD ₅	Typical: 0.75 (0.5-1.2), dependent on influent TSS, sludge age, temperature [3,4,5]
	2,520	kgDS/d	
DS of WAS after thickening	6.0	SDS	Gravity thickener: 2-4% [3,4] Mechanical thickener: 5-7% [3,4]
VSDS of WAS after thickening	70	SVIS	(I) sludge age = 5-10 days: avg. TSS (65-75%) [2,3,5,9] (II) sludge age = 10-15 days: avg. dSds (60-70%) [2,3,5,9] (III) sludge age > 20 days: avg. dSds (60-70%) [2,3,5,9]
Daily WAS production, thickened sludge (m ³)	42.0	m ³ /d	
CO-DIGESTION OF ORGANIC WASTE			
Sludge treatment shall include co-digestion?	NO		Select "YES" or "NO" from drop-down menu

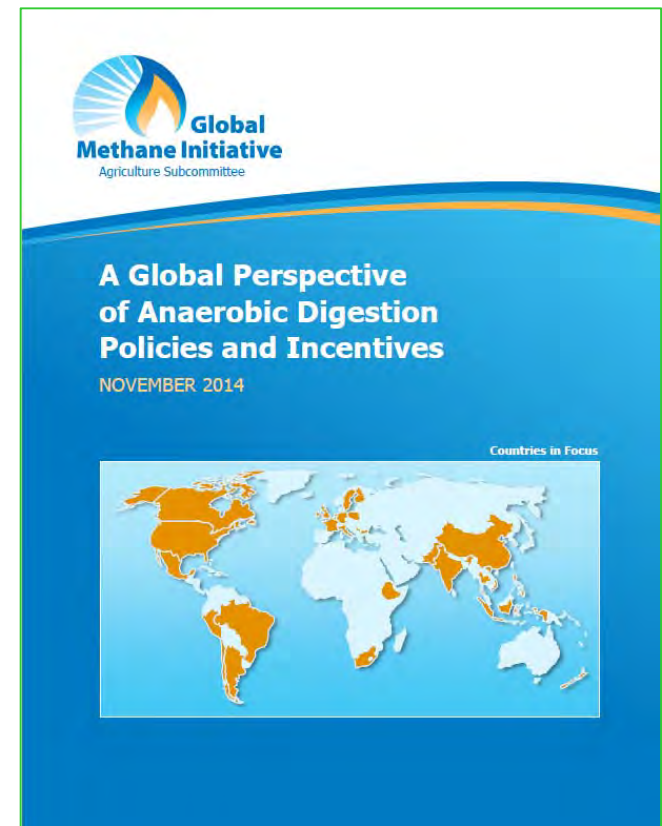
Existing Materials: GMI Biogas Guides and Manuals

- International Best Practice Guide for Landfill Gas Energy Projects
 - Overview of the development process of LFGE projects
- Industrial Use of Landfill Gas Resource Packet
 - Helps to identify opportunities for a successful direct use project



Existing Materials: GMI Biogas Guides and Manuals

- A Global Perspective of AD Policies and Incentives
 - Summarizes policies and incentives by country
- Successful Applications of AD from Across the World
 - Provides case studies of AD systems
- Resource Assessments
 - Identifies the agriculture sectors with the greatest potential to install AD systems, and the geographic locations of these opportunities



Existing Materials: Outreach

- Outlets:
 - Website
 - Twitter
 - Methane International
 - Conferences
- Type of Items:
 - Factsheets
 - Brochures
 - Presentations
 - Infographics
 - Videos



Existing Materials: Outreach



- <https://youtu.be/J8tKKmxJ088>



GMI Future Work

Where do we go from here?

- Should GMI develop new materials?
 - If so, what is needed?
- Should GMI better promote existing materials?
 - What items should we focus on?
- Potential Technical Focus Areas
 - Food Waste/Organics Diversion
 - Co-Digestion w/Wastewater and Ag AD
 - Renewable Natural Gas
 - Integrated Approach to AD

GMI Future Work

GMI Website

- The website and web content continue to play an important role for GMI
 - Document GMI work
 - Allow for information sharing
 - Keep stakeholders updated
- There is a wealth of existing content
 - However, some of the files are rarely viewed
 - This content could be promoted in outreach campaigns
- Repurpose existing materials
- Identify gaps
- Recognize differences in country access



EPA's Future Work

- EPA plans to develop outreach campaigns for
 - AD 101
 - Biogas 101
 - Biogasdoneright
 - RNG
 - Philippines projects
- These campaigns may include a combination of
 - Social media / blog posts
 - Case studies
 - Online “Explainers” (using Haiku, Fold, or Stacker)
 - Animations
 - Scrolling, multimedia longform reports



Thank you!

Questions?