Methane to Markets

Wastewater

Options for inclusion in the M2M Partnership

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Background

- At the January 2009 Methane to Markets Partnership Meeting in Monterrey, Mexico, the Steering Committee discussed potential inclusion of wastewater as a targeted sector of the Partnership.

- At the suggestion of several Partners, the Steering Committee directed the Administrative Support Group (ASG) to explore opportunities for the Partnership to engage in the wastewater sector.

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Background (con't)

- The ASG has prepared a report, "Municipal Wastewater Treatment: Options for Methane Mitigation" (MWWT 2009). The report outlines:
  - Global methane emissions from wastewater
  - Cost-effective mitigation opportunities
  - Organizations involved in the sector
  - Options for Partnership engagement

- This presentation provides a brief summary of the report's conclusions and suggested next steps for the Steering Committee's consideration.

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Wastewater: Overview

- Methane is emitted during the handling and treatment of municipal and industrial wastewater.
- The organic matter in wastewater produces methane when it decomposes anaerobically.
  - Centralized aerobic wastewater treatment systems (with or without anaerobic sludge digesters) emit small and incidental amounts of methane.
  - Anaerobic systems such as lagoons, open sewers, septic systems, and latrines yield considerable methane emissions.
  - Wastewater from industrial operations also generate methane emissions, with agriculture and pulp and paper operations the largest industrial sources.

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Wastewater: Overview (con't)

- Wastewater accounts for nine percent of the estimated global anthropogenic methane emissions—more than manure management (four percent) or even coal mining (six percent).
- China, India, the United States, Indonesia, and Brazil are the world's largest emitters in this sector, and Methane to Markets Partners alone account for nearly 70 percent of total global wastewater emissions.
- Total estimated methane emissions from wastewater are expected to increase by nearly 20 percent in the next 10 years.

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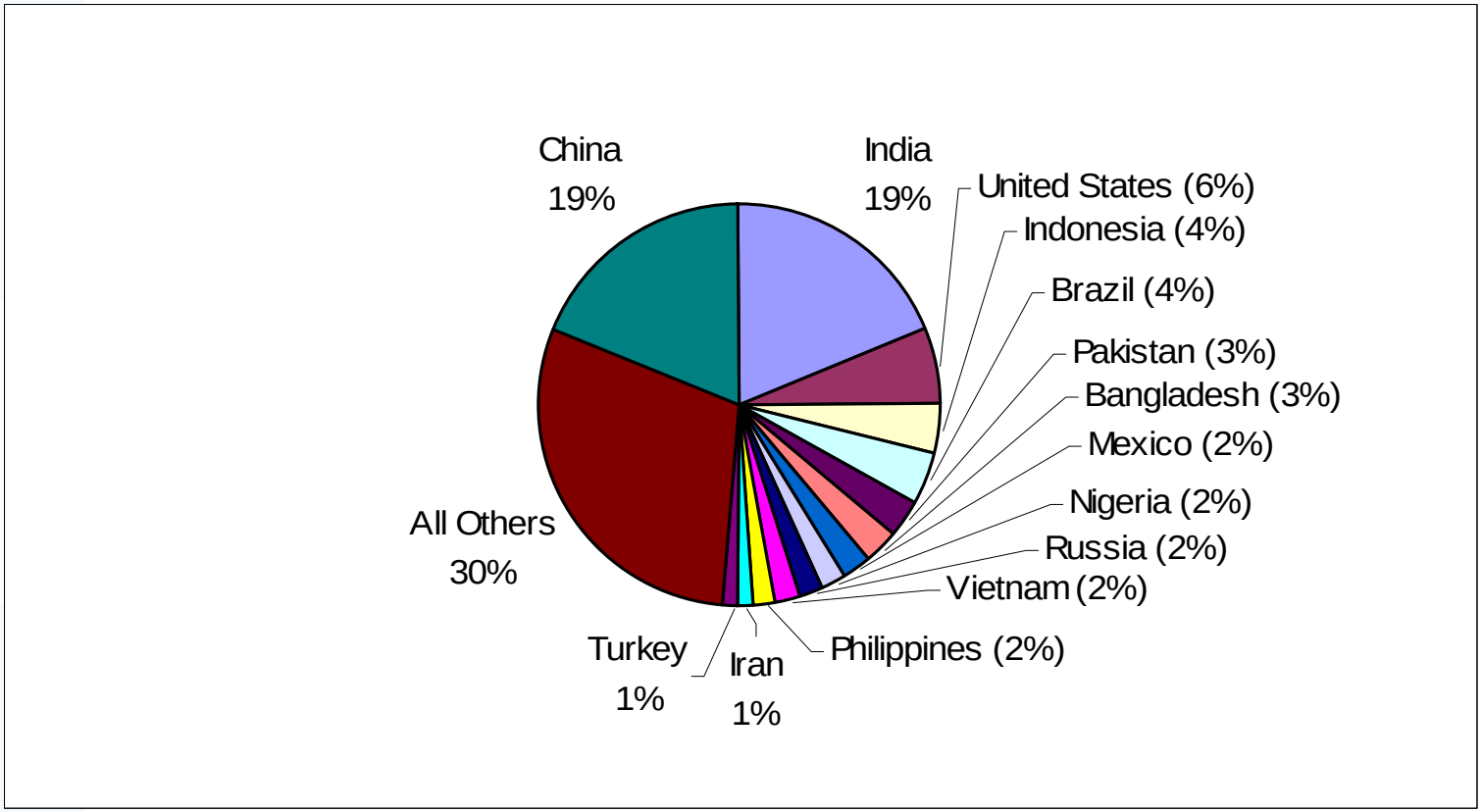
Worldwide Methane Emissions from Wastewater (EPA 2006)



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Clean Energy Benefits

- Cost-effective technologies that deliver clean energy from this source are widely available.
- Benefits of using wastewater digester gas include:
  - Energy cost savings from the utilization of wastewater treatment gas.
  - Stabilized energy costs and production (i.e., protection from the volatility of gas and electricity prices).
  - Progress toward national goals for use of renewable energy.
  - Enhanced energy security from reduced vulnerability to power grid interruptions.
  - Reduced GHG emissions from venting directly to the atmosphere and flaring.
  - Improved local air and water quality.

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Mitigation Options/Challenges

- Mitigation options include installation of:
  - Anaerobic sludge digestion (new construction or retrofit of existing aerobic treatment systems).
  - Biogas capture systems at existing open air anaerobic lagoons.
  - New centralized aerobic treatment facilities or covered lagoons.

- Despite options, there are still many challenges:
  - High initial capital costs
  - Lack of local capacity to design and maintain systems
  - Site-specific design characteristics
  - Utility policy barriers
  - Social taboos

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Possible M2M Activities to Include Wastewater

- Play a catalytic role in supporting the analysis and documentation of economical options for methane emissions reduction.
- Tackle questions such as:
  - How to cost-effectively cover existing anaerobic lagoons to minimize emissions and recover biogas
  - What are the most cost-effective and technology-appropriate options for anaerobic digestion of sludge, especially in developing countries.
- Provide key input to technical and economic discussions on wastewater management through desk studies, expert forums, pilot project development, and data collection and analysis.

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Possible M2M Activities to Include Wastewater (con't)

- Explore partnership opportunities with NGOs promoting methane emissions reductions in wastewater treatment.
  - Water Environment Federation (WEF)
  - International Water Association (IWA)
  - Global Water Partnership (GWP)
  - Water Supply and Sanitation Council
- Engage Carbon Finance Units and regional divisions of multilateral banks and other international donor organizations where large wastewater projects are designed.
  - World Bank
  - African, Asian, and Inter-American Development Banks

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Subcommittee Structure

- If the Steering Committee decides that Methane to Markets should engage in wastewater, the sector could be included in structure of the Partnership in a couple of ways, including:
  - Creation of a working group within the Agriculture Subcommittee.
  - Creation of a new Subcommittee.

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Subcommittee Structure (con't)

Possible Structures, Advantages and Disadvantages

Option	Pro	Con
Working Group within Agriculture Subcomm	•Low incremental increase in administrative costs. •Many of the technologies are similar between manure management, agro-industrial waste, and municipal wastewater.	•Scope of delegate expertise might make a meeting useful to all participants difficult. •Limited options for co-locating meeting with industry-related meetings useful to all delegates. •Size of committee might become unwieldy. •Partner country delegates and PN members engaged in manure management and wastewater are often different.
Separate Subcomm	•Allows discussion of targeted approach to municipal wastewater. •Easy to co-locate Subcommittee meeting with appropriate industry-related meetings (e.g., WEF, IWA).	•High incremental increase in administrative cost.

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Items for Consideration

- Continued Exploration of Wastewater: Does the Steering Committee wish to direct further work to identify how Methane to Markets might benefit from adding wastewater as a new target sector within the Partnership?
- Addition of Wastewater as a New Targeted Sector: Alternatively, does the Steering Committee find work completed to date justification for adding wastewater as a new target sector? If so, how should wastewater be incorporated into the current organizational structure (i.e., working group within Agriculture Subcommittee, separate Subcommittee)?