Methane to Markets

Agriculture Subcommittee Report to Steering Committee

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Overview

- Background of the Subcommittee
- Activities since the 2009 Monterrey Meeting
  - Recent Subcommittee meeting
  - Selected Subcommittee Achievements
  - Example Activities by Country
- Next Steps

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Background

- Sources of methane in the agriculture sector include:
  - ***Livestock manure management***
  - Livestock enteric fermentation
  - Rice cultivation
  - Agricultural waste burning
- The Agriculture Subcommittee has focused on methane from livestock manure management and utilization of anaerobic digesters.
  - Livestock manure management offers the most viable, short-term opportunities for methane recovery and utilization.
  - These opportunities can be realized using currently available technology and offer benefits in terms of improved environmental quality.
- The Agriculture Subcommittee last year included AD projects utilizing agri-food waste

Subcommittee Activities Since January 2009

- **Subcommittee Meeting in conjunction with the International Conference on Water Pollution Reduction and Climate Change – 3-4 September 2009, Guangzhou, China**
  - Approximately 30 attendees at the Subcommittee Meeting
  - Countries represented at the Subcommittee Meeting: Argentina, Canada, P.R. China, Philippines, Thailand, United Kingdom, United States, Vietnam
  - Subcommittee meeting participants provided input on the next steps for the Subcommittee
  - Approximately 150 attendees at the conference
  - Conference attendees shared information and participated in site visits to swine farms with anaerobic digestion systems
  - The conference was jointly hosted by:
    - World Bank
    - United Nations Food and Agriculture Organization (FAO)
    - Chinese Ministry of Agriculture (MOA)
    - Global Environment Facility (GEF)
    - Methane to Markets
    - Thailand's Ministry of Agriculture and Cooperatives (MOAC)
    - Vietnam's Ministry of Natural Resources and the Environment (MONRE)
    - Asian Development Bank
    - People's Republic of Guangdong Province in the People's Republic of China

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Subcommittee Activities Since January 2009 (continued)

- Country representatives have updated or developed country strategic plans which include information on:
  - International cooperation
  - Country strategy for promoting AD
  - Government Structures
  - Country Contacts
  - Conclusions an observations
  - References and Source
- The Steering Committee discussed the possibility of including wastewater in the Agriculture Subcommittee. The Subcommittee discussed this and decided that it would create too much burden on the Subcommittee to include wastewater.

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Subcommittee Activities Since January 2009 (continued)

- The ASG and the Subcommittee have investigated the possibility of including methane emission mitigation options associated with enteric fermentation and rice cultivation into the work of the Subcommittee
  - The ASG drafted white papers to summarize the possible work areas and organization of the Subcommittee if the sources were included.
  - The Subcommittee discussed the sources at the Guangzhou meeting and decided that more research and information on the work of other organizations was needed before enteric fermentation or rice cultivation could be included in the Partnership but considered that rice cultivation might be a more likely candidate for inclusion.
  - There will be a technical session devoted to enteric fermentation and rice cultivation at the Expo.

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Subcommittee Activities since January 2009 (continued)

- The U.S. EPA developed an international protocol for evaluating the performance of anaerobic digestion systems
  - The protocol provides a consistent and standard method for the international community to review and assess technologies and provides project developers and potential users with credible and comparable information
  - An international team of researchers and specialists reviewed the protocol and made suggestions and corrections.
  - The Subcommittee reviewed the draft protocol in Guangzhou and provided input and suggestions
  - The protocol was revised and translated and is now available in English, Chinese, and Spanish
  - The protocol will be presented to the public at the Expo

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Example Activities by Country

- **Argentina**
  - AD projects are being conducted at the Instituto Nacional de Tecnología Agropecuaria (INTA) Research Center.
  - INTA has also created a new bioenergy program, under which AD will be supported as a bioenergy source.
  - U.S. EPA has collaborated with INTA to develop a country assessment.
  - Several new projects were set up in the agricultural and agroindustrial sector
  - There is a development of a M2M Argentina partnership organizing different institutions and private sector.

- **Australia**
  - The Australian Government has pledged to use 20 percent renewable energy by the year 2020 and is in the process of establishing a mandatory GHG trading scheme.
  - The Australian government and industry research organizations have invested approximately $2 million towards the research and development of methane capture and use technology in the Australian intensive livestock industries.

- **Canada**
  - Canada currently has approximately 40 operating or soon to be operating AD systems.
  - Several provinces have adopted policies to increase the use of renewable energy and decrease GHG emissions.
  - Canadian scientists have conducted research on field measurements of agricultural methane emissions using infrared technology. These experiments include some farms that have AD systems in place.

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Example Activities by Country (continued)

- **China**
  - In 2009, the federal government granted $8 billion RMB for biogas development.
  - Chinese Ministry of Agriculture is partnering with EPA on a number of initiatives to expand improved village- scale digesters and technical training in rural areas.
  - A market assessment of methane recovery and use opportunities in the livestock and agro-industrial waste sector was completed and shows that the most potential for projects and methane reduction is in the southeastern region particularly in medium to large farms in Hunan.
  - The World Bank has provided funding to develop affordable pollution control methods for livestock waste management. This now includes a demonstration projects in Guangzhou ($7M) and Shanghai ($5M).

- **Colombia**
  - Country resource assessment under way.
  - U.S. EPA providing funding for a pre-feasibility study for a slaughterhouse facility and processing plant.

- **India**
  - Currently, 4 million household AD systems utilize the biogas produced from cattle manure.
  - There are also approximately 2,000 larger scale biogas systems in operation at large farms. Some of these plants use commingled waste streams including manure and food waste or slaughterhouse waste.
  - Indian authorities are working with the United States to expand the Indian AgSTAR program from the dairy sector to distillery and winery sectors.

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Example Activities by Country (continued)

- **Mexico**
  - There are currently 449 AD systems in Mexico that include 89 AD projects registered under the Kyoto Protocol's Clean Development Mechanism (CDM).
  - SEMARNAT has corroborated with the U.S. to develop a series of commercial-scale demonstration farms at various swine farms to raise awareness and technical capability within Mexico.
  - USEPA is assisting SEMARNAT to implement the next phase to advance the capability of the Mexican anaerobic digester industry.
- **Philippines**
  - US EPA is collaborating to develop a country assessment.
- **Thailand**
  - The swine sector has the greatest potential for AD development because cattle farms are small and generally pasture based.
  - At large and medium scale swine farms, there is the potential to produce 2.2 million tons of CO2 equivalents of methane each year in Thailand.
  - Currently 600,000 tons of CO2 equivalents of methane are captured from swine waste; the goal is to capture 2 million tons by the year 2012.
  - In 2008, Thailand began working with M2M to reduce methane from swine farms in three provinces located near Bangkok.

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Example Activities by Country

- **United Kingdom**
  - U.K. Government along with stakeholders has developed an AD Implementation Plan for publication in March 2010.
  - Financial incentives for renewable energy including biogas include:
    - Renewable Obligation Certificates (ROCs) for large scale electricity
    - A feed-in tariff for electricity up to 5MW – April 2010
    - A renewable heat incentive – April 2011
  - Standard for digestate BSI PAS110 and industry certification scheme to be launched soon
  - Financial support for AD projects and research is available through U.K. grant programmes, including:
    - Bio-energy Capital Grants Scheme,
    - Rural Development Programme for England, and
    - WRAP's Organics Capital Grant Programme.
  - U.K. government funding a 10 million pound demonstration programme to show the different benefits of the innovative use of AD.
  - AD advice portal launched in September 2009
    - http://www.biogas-info.co.uk/

- **United States**
  - The AgSTAR Program develops awareness of AD systems in the U.S. and provides technical support to system developers and operators. EPA has been supporting the domestic biogas use programs through its AgSTAR program for the past 15 years.

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Example Activities by Country

- **United States (continued)**
  - There are approximately 135 AD systems operating in the United States, mostly at dairy operations. These AD systems produce the equivalent of about 300 million kilowatt hours of electricity per year. Another 20 AD projects are planned.
  - The U.S. Farm Bill is the largest project financing system for AD systems, with $2 million available for AD systems.
  - Research is also being conducted by the U.S. Department of Agriculture (USDA) into nutrient removal from waste streams through digestion, co-digestion of various waste streams, and energy use from AD systems.
  - Internationally, EPA has provided grant money for projects related to M2M. Multiple grants were awarded in the agriculture sector, totaling $? million.

- **Vietnam**
  - The World Bank has provided funding to develop affordable pollution control methods for livestock waste management, while EPA has provided technical assistance necessary to implement these projects.
  - Through the deployment of AD technologies, the program mitigates water pollution from confined swine production and promotes institutional capacity building and policy development and implementation. In addition, the program includes support for pollution reduction quantification.

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Next Steps

- Next Subcommittee Meeting
  - Fall 2010
  - Location to be determined
- Next Steps
  - Further consideration of including enteric fermentation and rice cultivation into the work of the Subcommittee
  - Dissemination and implementation of the international protocol for evaluating the performance of AD systems
  - Boosting participation from new and existing partners
  - Reaching out to international and national level initiatives that promote AD
  - Response to other steering committee charges