

Global Methane Initiative
18th Meeting of the Municipal Solid Waste Subcommittee
Methane Expo 2013 in Vancouver, Canada
13 March 2013

Final Minutes

Overview

The Global Methane Initiative (GMI) Municipal Solid Waste (MSW) Subcommittee conducted its 18th meeting on 13 March 2013, associated with Methane Expo 2013 in Vancouver, Canada. Meeting topics included results of the survey distributed to Partner Country delegates to obtain feedback for focus of future initiatives, update on the MSW initiative for Climate and Clean Air Coalition (CCAC), presentation of the Central-Eastern European landfill gas (LFG) generation model, and a discussion about waste sector Nationally Appropriate Mitigation Actions (NAMAs). Below is a summary of the topics discussed, as well as a list of meeting action items. The meeting agenda is included in [Appendix 1](#).

Forty-three participants—including attendees from Partner Countries Argentina, Brazil, Bulgaria, Canada, Colombia, Dominican Republic, Ethiopia, Finland, Germany, Indonesia, Japan, Mexico, Norway, Pakistan, Philippines, Poland, Serbia, Ukraine, and the United States—participated in the MSW Subcommittee meeting, along with multiple Project Network (PN) members. A meeting participants list is included in [Appendix 2](#).

Welcome and Introductions

MSW Subcommittee Co-chairs Tom Frankiewicz from the United States Environmental Protection Agency (U.S. EPA) and Diana Rodriguez Velosa from the Colombia Ministry of Environment and Sustainable Development began by introducing themselves and then invited each attendee to briefly introduce themselves. After attendee introductions, Ms. Rodriguez welcomed all the attendees and thanked them for participating.

Review of Minutes from 19 November 2012 Subcommittee Meeting

Ms. Rodriguez reviewed [highlights from the previous subcommittee meeting](#) held via the Internet on 19 November 2012. She summarized the primary topics discussed:

- Preparation for Methane Expo 2013, including topics and speakers, project poster ideas, Partner Country booths.
- Survey distributed to garner feedback on subcommittee focus and future activities.
- Partner Country updates for their methane action plans (MAPs).

Ms. Rodriguez commented that creation and distribution of the survey was prompted by the subcommittee name change in 2012 from Landfill Subcommittee to MSW Subcommittee.

Review of Meeting Goals

Ms. Rodriguez briefly reviewed the agenda items, as shown in [Appendix 1](#). She emphasized the importance of understanding each country's perspective for the NAMAs roundtable.

Subcommittee Business

Survey Results

Mr. Frankiewicz presented a [summary of the results of the survey](#) distributed to Partner Country delegates to obtain feedback for focus of future initiatives. He reminded participants the idea for this survey originated during the subcommittee meeting in Singapore, based on strong support to include methane abatement as an alternative to landfilling but also the need to determine the amount and extent of implementation.

Mr. Frankiewicz pointed out the following highlights:

- Delegates generally agree focus areas should include both LFG and methane abatement as an alternative to landfilling; but there are mixed responses for primary focus area and the level of effort for LFG versus methane abatement.
- Majority of delegates agree both focus areas should provide a forum for exchange of technical information and produce and share tools and resources; but should not direct activities, such as conducting assessments or training.
- Delegates generally agree to support anaerobic digestion (AD) and composting as methane abatement activities.
- Delegates were split on whether waste-to-energy should be supported as a methane abatement activity; input is needed from subcommittee members to determine how to proceed for this technology.

Mr. Frankiewicz explained the survey results could be used to develop a revised mission statement but this is not required. He requested delegates provide feedback on these results to further determine future undertakings for the MSW Subcommittee. He stated the U.S. EPA Landfill Methane Outreach Program (LMOP) supports GMI's waste sector activities and facilitates methane reductions from landfills and LFG, but LMOP does not have expertise for methane abatement technologies. Mr. Frankiewicz added that U.S. EPA is open to assisting with the development of methane abatement tools and resources but the agency is not suited to produce these materials as was done with GMI's *International Best Practices Guide (IBPG) for LFG Energy Projects*.

Alain David, with Environment Canada, stated that Canada recently released a technical document about MSW organics processing that could be used for future MSW Subcommittee efforts. He offered to provide a link to the document on Environment Canada's website so it could be added to the GMI website.

Jukka Salmela, with the Helsinki Region Environmental Services Authority, noted MSW landfills are declining in Finland while AD and composting are rising. He added waste-to-energy is a sensitive technology that opens new questions, so there is a need to specify what technologies should be included.

Sergio Gasca Alvarez, with the Mexico Secretariat for Environment and Natural Resources (SEMARNAT), introduced a related topic regarding the challenge of relating information about MSW conversion technologies to other sectors, such as business, education, legal frameworks, and policy development. He stated policy makers must provoke clear actions to promote future development of methane abatement projects. He cited workshops sponsored by GMI as invoking these types of necessary actions. Mr. Frankiewicz agreed this type of assistance is needed. He added policy issues tend to be the first barriers, so it is important to have tools that bring technological information to a level policy makers can utilize to support projects. For example, Bulgaria recently took a new MSW advancement policy and directly utilized it to develop regulations.

Paul Liddy, with Cedar Road Bioenergy Inc. in Canada, commented a new vision is needed for how waste is perceived. He explained waste should be treated as a resource; and thus, utilized as a renewable resource. Mr. Liddy added this must be done in a manner that is sustainable for each individual country's needs.

Piotr Klimek, with the Oil and Gas Institute in Poland, noted every country should have strong regulations and government support for LFG energy and other methane abatement projects; otherwise, these types of projects will not move forward. Mr. Klimek added that Poland began with only a few megawatts (MW) from LFG electricity facilities and now they are up to a total of approximately 60 MW due to new regulations.

Goran Vujic, with University of Novi Sad in Serbia, stated the European Union promotes the 3Rs—reuse, reduce, recycle. However, the first goal in a developing country should be to ensure proper waste collection first and then properly dispose waste in sanitary landfills. Grigor Stoyanov, with Bulgaria's Ministry of Environment and Water, agreed with Mr. Vujic that developing countries are more concerned with meeting minimum health and safety requirements. Mr. Stoyanov added these countries must consider financial aspects as well.

Basharat Bashir, with the Alternative Energy Development Board in Pakistan, disagreed that the focus for developing countries should be proper landfilling only. Mr. Bashir stated Pakistan needs energy and MSW provides a resource to generate this energy as a replacement for coal-based electricity and in industries which use coal (e.g., the cement industry). He mentioned organic waste can be used to produce compost and biogas through anaerobic processes, which could then be used as an energy source and inorganic combustible waste can be converted into refuse derived fuel (RDF) and utilized in cement plants. Cement plants in Pakistan have started replacing coal with RDF. All recyclable material can be removed from the waste before converting it into RDF hence only a fraction of the waste (hazardous) will be disposed off at a contained site at a landfill. Nonilo Peña, with the Philippine Council for Industry, Energy, and Emerging Technology Research and Development, agreed that he does not promote landfilling as the proper disposal method. Mr. Peña suggested seeing it from a business viewpoint and encouraged the practice of financial feasibility and inviting investors as active participants.

Mr. Frankiewicz commented that U.S. EPA's perspective reflects the waste hierarchy with a primary goal of handling waste in an environmentally sound manner. He added this principle should be used as a basis for additional methane-reducing waste management activities.

Climate and Clean Air Coalition MSW Initiative

Ms. Rodriguez described the Climate and Clean Air Coalition (CCAC) MSW Initiative as focusing on short-lived climate pollutants (SLCPs), which include methane and black carbon from fires and open burning for the waste sector. She explained this initiative is based on plans for individual cities, each with different characteristics, which support methane abatement and black carbon emission reductions.

Swarupa Ganguli from the U.S. EPA presented an update on the CCAC MSW Initiative. She explained this initiative is one of seven initiatives under CCAC, and is the furthest along in the process with a significant amount of momentum. She added that CCAC encompasses 51 countries to date, including Ethiopia as the newest addition. Ms. Ganguli stated the CCAC MSW Initiative is meant to complement GMI's current and future activities, but CCAC differs from GMI as follows:

- City focused to assist areas with significant air pollution.
- Includes black carbon emissions, which is lacking in data compared to methane.
- Aggressively promotes integrated waste management, which follows a prescribed hierarchy that includes AD, organics recycling, composting, and waste diversion.

Ms. Ganguli provided a list of the seven pilot cities selected:

1. Rio de Janeiro, Brazil
2. Cali, Colombia
3. Penang, Malaysia
4. Ho Chi Minh City, Vietnam
5. Dhaka, Bangladesh
6. Viña del Mar, Chile
7. Accra, Ghana

Ms. Ganguli explained that scoping missions to meet with stakeholders will occur in each of these pilot cities. Initial scoping missions have been completed so next steps will include finalizing results of initial assessments and then implementation of suggested actions. She added that GMI will serve as a technical liaison for CCAC and existing GMI partnerships will assist CCAC's mission.

Central-Eastern European Landfill Gas Generation Model

Alex Stege, with SCS Engineers, presented about GMI's new [Central-Eastern European LFG generation model](#). He explained the purpose of this regional model, provided a history and benefits of GMI's country-specific LFG models, described the basic elements of a regional LFG model, and summarized the features and unique aspects for the Central-Eastern European model. Mr. Stege emphasized the importance of modeling as a tool for LFG energy feasibility, but warned that improper modeling can be problematic.

Mr. Frankiewicz noted that EPA will likely not develop new country-specific LFG models for GMI but will rather use new site-specific data for regional modeling tools instead, similar to this Central-Eastern European model. He indicated additional methane abatement tools could be useful, too. Jose Henrique Penido Monteiro, with the Rio de Janeiro City Solid Waste Company (COMLURB) in Brazil, suggested the implementation of AD models that provide biogas levels for waste streams could be utilized in feasibility assessments for AD. Mr. Penido explained a default factor of 100 cubic meters per ton of waste was cited during the Expo site tour the previous day. However, Mr. Penido hasn't witnessed this rate of biogas production. A simple AD model could be used to estimate the amount of biogas generated based on the quality and quantity of the waste material. Mr. Alvarez commented modeling is a useful tool, but there is a need for less technical tools at the national level for decision makers. He emphasized different tools are needed for different levels of government.

Mr. Klimek explained Poland has developed a very simple software tool that is used to model and assess the economic feasibility of LFG energy projects. This tool has a user-friendly question-and-answer format that requires minimal input of technical data. Mr. Klimek stated he will present this model during Poland's country update. Mr. Peña responded this model would be useful for the Philippine national government. Mr. Stege added the Inter-governmental Panel on Climate Change (IPCC) model is set up similarly for country-level emission inventories.

Mr. Frankiewicz recommended the MSW Subcommittee explore the possibility of researching AD models that are currently available. He mentioned U.S. EPA's AgSTAR program promotes the use of anaerobic digesters for livestock waste management operations and may have insight on AD models for the MSW sector. He requested Partner Countries send or inform the co-chairs of existing AD models or related information about estimating biogas levels from MSW anaerobic digesters. Mr. Frankiewicz added models for other types of methane abatement could be useful as well.

Country Updates

Each Partner Country delegate was invited to provide an MSW sector country update and comment on the status of their MAP and any NAMA work.

Mexico

Mr. Alvarez shared a [presentation](#) that summarized the status of MSW in Mexico. He described current and future implementation of a National Program of Prevention and Comprehensive Waste Management. There are seven landfills with LFG energy projects and additional projects at other landfills are forthcoming after feasibility assessments are completed. In addition, Mexico has 16 new composting facilities. Mr. Alvarez emphasized assistance is needed to encourage Mexican companies to invest in future facilities and to provoke decision makers to develop and implement economic, financial, or tax instruments to support these facilities. He chose to delay the discussion of NAMAs in Mexico until the NAMAs roundtable portion of the meeting.

Bulgaria

Mr. Stoyanov gave a [presentation](#) that provided an update for Bulgaria. He emphasized their National Waste Management Plan for 2009-2013 includes: closing and reclaiming all illegal landfills; building a system of 55 regional waste treatment (recycling) systems; optimizing the current separate collection systems; increasing quantities of re-used, recycled, and recovered waste; and significantly decreasing landfilled waste aiming to become a zero waste society. Bulgaria's waste sector MAP will be an integrated part of their National Waste Management Plan for 2014-2020. Mr. Stoyanov presented information about their bio-waste management project for their NAMA.

Serbia

Mr. Vujic provided a [presentation](#) that briefly summarized Serbia's MSW status. He reviewed waste and landfill demographics for Serbia and described the challenges that must be overcome to move forward up the waste hierarchy. Mr. Vujic stated GMI conducted feasibility studies for LFG energy development in Serbia's two largest cities, Belgrade and Novi Sad.

Poland

Mr. Klimek conducted a demonstration of the LFG modeling and economic analysis tool he discussed earlier in the meeting. He then gave a [presentation](#) about Polish LFG energy projects and a regulatory update. Poland's Renewable Energy Sources Law Act is expected to go into effect during the second half of 2013, and should strongly influence the LFG energy market in Poland by allowing small scale projects to become financially feasible. At the end of 2012, there were a total of 94 LFG energy projects generating a total of approximately 58 MW.

Finland

Mr. Salmela shared a [presentation](#) about Finland's MSW status. He announced a target of 50 percent recycling rate for MSW by 2016, and new landfill legislation to be enforced by 2013 that will ban biodegradable waste with total organic content over 10 percent. There is continued support from the Finland's government for renewable energy, with an emphasis on combined heat and power (CHP) and vehicle fuel production. Mr. Salmela stated new AD facilities have been invested by municipalities for source-separated kitchen and green waste.

Colombia

Ms. Rodriguez gave a [presentation](#) with an MSW update for Colombia. A new regulatory action to establish how collection, transport, and disposal of MSW is provided (does not include recycling) but undergoing a comments period. There is an order from Colombia's highest judicial tribunal for the formalization of the informal recycling sector. The initial phase of the Colombian Low Carbon Development Strategy is almost complete, including marginal abatement cost curves and an initial list of mitigation actions prioritized by sector stakeholders. A sector action plan must be established by the end of 2013. Ms. Rodriguez indicated Colombia's MAP is not yet finished, as they are awaiting final results of the Low Carbon Development Strategy to be officially published.

Canada

Mr. David provided an MSW update [presentation](#) for Canada. He described Canada's increased emphasis on organics diversion, as shown by their new 18-chapter technical document on MSW organics processing. Canada has provincial regulations for LFG recovery, and is starting to implement organics bans at landfills. Canada currently has 68 landfills with LFG recovery, and the number of composting and AD facilities is increasing. In support of NAMAs, Canada is providing financial support (\$2.55 million) to help Partner Countries Chile, Colombia, Mexico, and the Dominican Republic identify opportunities for mitigating emissions in the waste sector.

Philippines

Mr. Peña gave a [presentation](#) summarizing Philippine's MSW status. The Philippines current has three LFG power plants with a total capacity of approximately 14 MW and a number of composting facilities, such as bioreactors and vermi-composting. Anaerobic digestion is undergoing assessment and pre-feasibility. Philippine's NAMA plan is currently being formulated.

Germany

Marlene Sieck, with Germany's Federal Environment Agency, provided a [presentation](#) for Germany's MSW update. Germany is on track to achieve a closed-loop waste management system, with the goal of becoming a carbon neutral society in 2050. The German waste prevention program takes the entire produce lifecycle into account and considers a variety of techniques, such as promotion of research and development and awareness-raising campaigns.

Pakistan

Mr. Bashir shared a [presentation](#) about Pakistan's MSW status. A new renewable energy policy, which includes waste-to-energy and bioenergy, was approved in 2013 and the renewable sector is attracting the more investments than any other sectors in Pakistan. Project updates include the following: composting plant constructed in Lahore, three operational refuse-derived fuel plants, four waste-to-energy plants being planned, and one LFG energy project under construction.

Argentina

Marcelo Eduardo Rosso, with the Ecological Coordination Society of State Metropolitan Area (CEAMSE) in Argentina, gave a [presentation](#) to provide MSW updates for Argentina. An update of the national plan for the management of solid waste is currently taking place. Argentina has 11 operational LFG energy plants, two of which generate a total of 5 MW of electricity. For Argentina's MAP, economic resources are needed to develop future projects and the country also must overcome the barrier of resource availability related to importing equipment.

Brazil

Mr. Penido explained there is a timeline established for closing all open dumps in Brazil, originally by 2014. He stated the sale of LFG no longer covers the cost of LFG energy projects due to low energy prices. Carlos Silva Filho, with ABRELPE in Brazil, announced the recent release of a report that documents Brazil's greenhouse gas (GHG) emissions specific to final disposal sites for MSW. This report also estimates energy potential from these emissions. Mr. Filho invited everyone to attend the presentation he will be giving during the MSW technical sessions.

Waste Sector NAMAs Discussion

Summary and Status of NAMAs in Solid Waste Sector

Mr. Frankiewicz began the NAMAs discussion by sharing a [presentation summarizing the status of NAMAs](#) in the waste sector. He explained 12 countries have waste sector NAMAs under development for a variety of waste management strategies, most are in the early stages. There are three primary types of NAMAs—strategy, policy, and project (or “hybrids”). The levels of funding and organizational support include unilateral, supported, and credited. There is no formal guidance for NAMAs and the existing NAMA tools and resources are not specific to the waste sector.

Mr. Frankiewicz reviewed the waste hierarchy chart. He identified gaps for NAMAs in the waste sector, such as: limited tools to quantify baseline and mitigation benefits for innovative NAMA types; no centralized location for existing tools for established NAMA types; no templates for waste sector NAMA implementation plan development; limited reference information regarding the full range of waste sector NAMA types; and poor documentation of measurement, reporting, and verification (MRV) methodology that is not specific to waste NAMAs. Mr. Frankiewicz presented recommendations for successful development of waste sector NAMAs, including identification of key elements required, development of waste-specific MRV framework, and development and promotion of Best Practices.

NAMAs Roundtable

Ms. Rodriguez began the NAMAs roundtable discussion by agreeing with Mr. Frankiewicz about the importance of identifying and resolving gaps for waste sector NAMAs. She emphasized the importance of social, economic, and employment co-benefits resulting from methane mitigation activities. Ms. Rodriguez added each country must formulate and prioritize their individual plans.

Ms. Rodriguez continued the [Colombian update presentation](#) by discussing the slides about NAMAs. She stated Colombia's NAMA was financed by the Canadian government and technical support was provided by the Center for Clean Air Policy (CCAP). She explained their first step in developing a NAMA was to establish a committee to oversee the development process. Ms. Rodriguez added a NAMA can be a policy, a specific project, or both.

Mr. Vujic asked for clarification about the definition of a NAMA. Edward Helme, President of CCAP, responded Germany and the United Kingdom have launched a NAMA facility to support developing countries with NAMA development. Mr. Helme explained NAMAs should include an overarching analysis of options for waste management transformation that results in GHG reductions with co-benefits. Ms. Rodriguez added NAMAs are still a relatively new concept and many stakeholders are asking questions to better understand what needs to be done.

Mr. Alvarez stated Mexico is having trouble understanding what a NAMA encompasses as well. He shared a [presentation about Mexico's Waste Prevention and Management Program](#). Mr. Alvarez explained countries must choose whether they need additional support, possibly from other countries. He outlined the strategies Mexico needed to achieve their target, which were specific for each state or region within Mexico. Some of these areas have little to no waste infrastructure. He agreed with Ms. Rodriguez a NAMA may represent just one particular project, perhaps a showcase project that could be scaled up at the national level. Ms. Rodriguez added a few pilot projects could be selected from pre-feasibility studies.

Ms. Sieck encouraged countries to use a more integrated, holistic approach for NAMAs development. She continued by saying initial NAMAs developed and accepted will be trendsetters and guide the way for others because NAMAs are still in the early stages. Mr. Helme stated this occurred with the Clean Development Mechanism and Joint Implementation, where the first efforts shaped and defined the process and results. He challenged each country to shape their NAMA as a trendsetter, thus providing good examples for other countries. He further prompted countries to view NAMAs as an opportunity instead of a problem that needs to be solved.

Mr. Stoyanov asked if a NAMA is just an idea or if it is associated with a particular organization's guidelines. Mr. Helm responded NAMAs grew out of the Bali Action Plan in 2007 and must meet certain requirements to obtain financing but financing is not required. Yuri Matveev, with Ukraine's Renewable Energy Agency, added—and Mr. Helm agreed—financial support is available only to developing countries. Janya Sang-Arun, with the Institute for Global Environmental Strategies in Japan, stated the developing country stipulation relates to UNFCCC's definition as it applies to GHG inventories. She offered to share a link to an online brochure that specifies this nuance. Mr. Frankiewicz requested Ms. Sang-Arun provide him this website link so he could distribute to Subcommittee members.

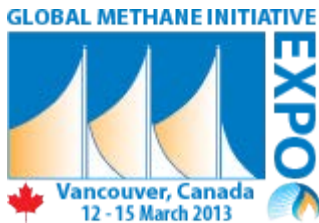
Closing

Mr. Frankiewicz reminded the MSW Subcommittee that MRV framework is a topic that requires further discussion. He added this future MRV discussion should include what information already exists, as well as what still needs to be developed that would be most helpful for Partner Countries (e.g., possibly MRV templates). Mr. Frankiewicz suggested the next Subcommittee Internet meeting focus on this MRV discussion. He also distributed discs containing an electronic copy of GMI's new *IBPG for LFG Energy Projects*.

The co-chairs thanked all the attendees for their participation and adjourned the meeting.

Summary of Action Items

- Environment Canada is requested to share new technical document on MSW organics processing with MSW Subcommittee. The co-chairs will subsequently add a link to this document on the GMI website.
- Delegates and Project Network members are encouraged to provide or inform the co-chairs of existing AD models or similar tools.
- The co-chairs will compile information received about AD models or similar tools and share with the subcommittee.
- Based on the amount and type of information received from Delegates and Project Network members, the co-chairs will research additional AD models or similar tools, as needed.
- Janya Sang-Arun, with the Institute for Global Environmental Strategies in Japan, is requested to share a website link to an online brochure about the developing country stipulation relating to UNFCCC's definition as it applies to GHG inventories. The co-chairs will subsequently distribute this link to the subcommittee.



Appendix 1: MSW Subcommittee Agenda

Wednesday, 13 March 2013

13:30 – 18:00 Municipal Solid Waste Subcommittee Meeting

13:30 – 13:45

Welcome and Introductions

Tom Frankiewicz and Diana Milena Rodríguez, Subcommittee Co-Chairs

- Brief introduction of meeting participants
- Review minutes from November 19 subcommittee meeting
- Review of meeting goals

13:45 – 14:30

Subcommittee Business

Tom Frankiewicz, Subcommittee Co-Chair

- Discussion of subcommittee goals/next steps
 - Survey results
 - Climate and Clean Air Coalition (CCAC) MSW initiative
 - Central-Eastern European landfill gas generation model

14:30 – 15:30

County Updates

Partner County delegates

- Brief updates on methane action plans and other sector-specific activities within each country

15:30 – 16:00

Break

16:00 – 16:30

County Updates (Continued)

16:30 – 17:45

Waste Sector NAMAs Discussion

- Summary and Status of NAMAs in Solid Waste Sector – *Tom Frankiewicz, Subcommittee Co-Chair*
- NAMAs Roundtable

17:45 – 18:00

Summary of Action Items Discussed at this Meeting

Tom Frankiewicz and Diana Milena Rodríguez, Subcommittee Co-Chairs

- Meeting action items
- Specific tasks meeting participants agree to accomplish and report on by next meeting
- Possible agenda topics for the next subcommittee meeting

18:00

Adjournment

Appendix 2: MSW Subcommittee Meeting Participants

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