



METHANE TO MARKETS PARTNERSHIP AGRICULTURE SUBCOMMITTEE MEETING

3rd Session of the Agriculture Subcommittee
China World Hotel, Beijing, China
1 November 2007

Meeting Minutes

Summary

The third session of the Methane to Markets (M2M) Agriculture Subcommittee was conducted on 1 November 2007 in Beijing, China. The meeting was held in conjunction with the M2M Partnership Expo, hosted by China's National Development and Reform Commission (NDRC) and the U.S. Environmental Protection Agency (EPA).

The Subcommittee meeting was preceded by a two-day workshop. The proceedings from the workshop are posted online on the M2M Web site (<http://www.methanetomarkets.org/expo/agriculture.htm>).

The main objective of the meeting was to determine the future work of the Subcommittee based on the input of the meeting participants and the M2M Steering Committee. Other key topics included obtaining updates from Partner countries and discussing follow up items from the previous Subcommittee meeting.

Welcome and Introductions

Mr. Jorge Hilbert (Argentina) and Mr. Jeremy Eppel (U.K.), Agriculture Subcommittee Co-chairs, welcomed meeting attendees and adopted the agenda. Meeting attendees included M2M Partner country delegates, Project Network members, Administrative Support Group (ASG) personnel, a World Bank representative, a representative from the U.N. Food and Agriculture Organization (FAO), and other interested observers. A list of meeting participants is presented in Annex 1.

Actions Arising from Last Subcommittee Meeting

Mr. Hilbert reminded country representatives to submit or update their country's M2M agriculture profile as needed. Currently, the Partnership has agriculture profiles for Argentina, Australia, Brazil, Canada, China, India, Italy, Japan, Poland, United Kingdom, and the United States. The template for country profiles is available on the M2M Web site (http://www.methanetomarkets.org/resources/ag/docs/ag_profile_template.doc); country

representatives may fill out this template and submit it to the ASG (asg@methanetomarkets.org). In addition, Mr. Hilbert reminded country representatives to include anaerobic digestion (AD) research and technology contacts in the country profile.

Brief Statements and Updates from Country Representatives

Vietnam- Dr. Do Kim Tuyen

The Agriculture Subcommittee Co-chairs welcomed Vietnam to the Partnership; this was the first Agriculture Subcommittee Meeting attended by the Vietnam agriculture representatives. Dr. Do Kim Tuyen provided a brief overview of the AD activities in Vietnam; Dr. Tuyen's presentation is available on the M2M Web site (http://www.methanetomarkets.org/expo/docs/postexpo/ag_vietnam.pdf).

Dr. Tuyen explained that Vietnam has been a leading exporter of agricultural crops including rice, rubber, coffee, and black pepper since 1990. Recently, Vietnam has been shifting economic development in agriculture from crops to livestock production. This increased livestock production has increased the potential of environmental pollution from livestock waste.

AD technology was first introduced in Vietnam in the 1960s and early 1970s. Several large AD plants were built and operated for a short period of time, but the plants did not perform well and were shut down. AD technology was not successfully implemented until the 1980s. By 1990, about 2,000 small AD systems were operating in Vietnam. At this time, the government and international organizations began to promote the development of AD technologies. In 2003, Vietnam began a program in partnership with Netherlands to expand the utilization of biogas from livestock waste in some Vietnam provinces. There are currently 73,000 operating AD systems in Vietnam, and there is a goal to have 140,000 systems operating by 2010.

Dr. Tuyen stated that there are three main types of AD technologies currently used in Vietnam: floating gas unit, nylon bag, and fixed dome. Dr. Tuyen explained that the Vietnam Ministry of Agriculture and Rural Development issued a standard (Number 10 TCN 499-2002) for AD technologies that include information for construction, biogas distribution and use, monitoring and evaluation, operation and maintenance, and safety.

Dr. Tuyen said that Vietnam is looking forward to its cooperation with the M2M Partnership and the future expansion of AD technologies in Vietnam.

Argentina- Jorge Hilbert

Mr. Hilbert reviewed the recent activities in Argentina, as summarized in the updated Agriculture Subcommittee Action Plan (available on the M2M Web site at http://www.methanetomarkets.org/resources/ag/docs/action_plan_1007.pdf). The M2M agricultural activities in Argentina are presented below.

Action Plan Activity Category	Description of Activity
Awareness	There is a great increase of technical assistance requests regarding manure treatment. Most requests come from dairy farms, feedlots and pig farms. There is an increasing concern on air and water pollution and future restrictions implemented in the international markets. Many counties are beginning legal actions against polluting farm facilities near rural towns. Farmers are worried on the stable provision of common energy vectors diesel and propane butane gas.
Financial/ economic	Argentina needs public and private investments to reduce social and environmental problems. Farmers and researchers need financial and economic resources to develop anaerobic digestion pilot plants and research programs.
National capacity	Seven universities have activities to increase research, human resources, and national capacity for anaerobic digestion. INTA has reinforced activities related to anaerobic digestion in farms and agro-industrial sector (INTA supported two AD digesters this year); there is also research work on the mitigation and measurement of enteric emissions.
Policy	The Environmental National Secretary has an Argentinean Carbon Fund; this organization works to reduce greenhouse emission in different sectors (agricultural is one). The Secretary received nearly twenty projects that are under analysis. Other governmental agencies have plans to initiate funding on anaerobic production facilities
Project identification and development	Two demonstrative projects were developed and presented at the Expo, and three projects stay in the formulation stage. There are no available data regarding number of plants under operation. Most known plants belong to the agro-industrial sector. A national GIS program has been constructed placing all big dairy farms with potential use of AD technology. A complete national inventory of methane capture and treatment projects will be developed.
Technology	Discovered anaerobic lagoon is the principal treatment in animal production facilities. When methane capture is considered, there is need to implement closed heated tanks for appropriate waste treatment and biogas generation due to low winter temperatures. A small number of companies offer services and technical assistance on AD systems (three have been detected). There are large AD plants with German technology in operation on poultry farms. Investors are planning to build integrated systems including manure treatment using AD.

Australia- Robert Stafford

Mr. Robert Stafford of the Australian Department of Agriculture, Fisheries, and Forestry led a brief discussion on the status of AD in Australia as summarized in the Action Plan; this presentation is available on the M2M Web site (http://www.methanetomarkets.org/expo/docs/postexpo/ag_australia.pdf).

The Australian Government and industry research organizations have invested \$2.25 million towards the research and development of methane capture and use technology in the Australian intensive livestock industries. Under the program, a major research project is currently being implemented to identify the elements of a methane capture and use system suitable for operation in a carbon constrained economy. This program is to be completed in June 2008.

Mr. Michael Chesshire (U.K.) stated that some developed countries were investigating the use of biogas use as road fuel. Mr. Chesshire asked if this trend was apparent in Australia. Mr. Stafford replied that there was no interest in the use of biogas as road fuel at this time. Mr. Eppel inquired if agricultural methane would be a part of the Australian emission trading scheme; Mr. Stafford replied that agricultural methane emission reductions would be an important part of this scheme. Mr. Hilbert asked how the research program was being funded. Mr. Stafford replied that the Australian government has promised \$5 million to climate change research and programs, and this program was financed with a portion of that funding.

Canada- Tim Martin and Xiaomei Li

Mr. Tim Martin of Agriculture Canada stated that Canada has developed a national emission offset protocol team. In addition, Mr. Martin's colleague Ray Desjardins has been leading research on field measurements of agricultural methane emissions. These experiments include some farms that have AD systems in place. Mr. Desjardins' team has also developed software to estimate greenhouse gas (GHG) emissions from Canadian farms. Mr. Martin stated that there are currently fewer than a dozen farms in Canada with operating AD systems.

Dr. Dong Hongmin (China) asked if there were any assessments of enteric fermentation methane emissions in the field measurements that are taking place. Ms. Li replied that the team was not currently measuring enteric emissions, but are working towards this goal. Currently the quantification of emissions is focusing on the AD system, and not on upstream or downstream measurements.

Mr. Eppel commented that there is interesting work being done in Ontario and other provinces in Canada, and not just at the national level. Mr. Martin agreed that Ontario government has been taking lots of actions to reduce GHG emissions.

Dr. Hong Choi (Republic of Korea) stated that he would like more information about the operation of digesters in cold weather conditions. Mr. Martin said that he was aware of a number of technologies and he would share his information with Dr. Choi after the meeting.

China- Mr. Li Jingming

Mr. Li Jingming of the Chinese Ministry of Agriculture (MOA) stated that the previous two days had provided an overview of the situation in China. China has been increasing the implementation of AD, and has made considerable advances. All government agencies are interested in biogas utilization. There is currently much interest, research, and work in the AD industry involving universities, institutes, and the government. China has great potential for AD because of the large quantity of crop residues and the large livestock population. China has made

improvements in calculating biogas production and has made many advances in AD technology, including the construction materials used in AD systems.

Mr. Li stressed the importance of increasing awareness and providing training and education to the AD technology users and the policy makers. MOA has a program that trains 10,000 farmers a year for AD system utilization; this program will be increased in the future.

Mr. Eppel stated that he was very impressed by the activities in China and he found the workshop very informative and encouraging. Mr. Eppel acknowledged that there are many research organizations working with the government in China and stated that he was looking forward to continuing to work with China on the M2M Partnership.

Germany- Katrin Pietzsch

Ms. Katrin Pietzsch of the International Biogas and Bioenergie Kompetenzzentrum (IBBK) represented Germany at the meeting. Ms. Pietzsch explained that the German government supported the development of AD plants in the late 1990s, and there is currently a lot of awareness in Germany about AD technology. However, the cold climate produces some limitations to the implementation of AD; technologies are being developed to address this problem. Germany is currently looking for new ways to use biogas (e.g., development of energy self-sufficient communities).

India- Dr. VNN Kishore

Dr. Kishore of The Energy and Resources Institute (TERI) presented information about the current state of AD in India. Dr. Kishore's presentation is available on the M2M Web site (http://www.methanetomarkets.org/expo/docs/postexpo/ag_india.pdf).

Dr. Kishore stated that most of the current interest in agricultural GHG emissions is focused on rice cultivation and not on livestock. However, Dr. Kishore believes that the dairy industry in India has a great potential for GHG emission reductions. Dr. Kishore summarized a study that was conducted on 8 dairy farms to estimate GHG emissions using the Intergovernmental Panel on Climate Change (IPCC) methodology. The dairy farm that was using AD showed the greatest reduction in methane emissions.

Republic of Korea- Dr. Hong L. Choi

Dr. Choi of Seoul University spoke on behalf of the Republic of Korea in the meeting. Mr. Choi explained that the Korean government has signed the Partnership agreement but an Agriculture Representative has not yet been identified.

Dr. Choi stated that there had been large scale AD systems operating at sizeable swine operations in Korea, but they did not operate well and they stopped operating in 1998. There are some small scale digesters, and there is a need for more in order to reduce GHG emissions and provide treatment of waste prior to land application. There is limited available land in Korea, so the

farms are very close to the population and there is a need to combine waste treatment with AD technologies.

Dr. Jason Shih noted that the use of AD must be combined with the use of digestate as a fertilizer in order to be successful. Mr. Eppel asked if food waste was being used in AD systems in Korea. Dr. Choi replied that the available food waste was not a valuable feedstock for AD systems.

Mexico- Maria Teresa Tattersfield

Ms. Tattersfield attended the meeting to represent SEMARNAT (Secretaría de Medio Ambiente y Recursos Naturales). Ms. Tattersfield reviewed the Mexican activities that are summarized in the Action Plan, and presented below.

Action Plan Activity Category	Description of Activity
Awareness	Conducted workshop on bio-digester design, installation and operation in swine farms. The government wants to replicate this in the future. Conducted presentation at the Mexican National Swine Conference to promote and create awareness of M2M efforts to date.
Financial/ economic	Link credit and financial institutions, companies and agriculture producers in FIRCO's biodigester development plans.
National capacity	Working to conduct technical workshops aimed at swine producers and research/education institutions Develop national technical standards to design and install biodigesters. This also applies under Technology. Develop a certification system for biodigesters design and installation.
Policy	Develop a Voluntary Mexican Norm (NMX) that will provide incentives to swine farms to use manure management best practices, including the use of biodigesters in their wastewater treatment process.
Project identification and development	Identified 14 farms where methane capture and use projects could be developed; the farms will be exhibited at the "Methane to Markets Partnership Expo" in Beijing. Identify and develop a significant number of projects in the next 5 years; FIRCO plans to support the development of 50 biodigesters in 2008.
Technology	Assess two different types of technologies in Mexico: covered lagoons and modular covers.

Ms. Pietzsch inquired what the key issues were that allowed for the successful AD development in Mexico. Ms. Tattersfield replied that there several factors that ensured the success of the program:

- Farmers and communities were encouraged to participate in the development of the AD systems and to communicate their ideas and concerns with the government.
- The government worked with international partners to provide money, technical expertise, and capacity building.
- There were several demonstration AD projects which allowed for trial and error of AD technologies in order to produce systems that operated properly.

United Kingdom- Jeremy Eppel

Mr. Eppel stated that there are currently less than 20 AD systems in the U.K., but there is great potential to have more. The use of AD supports many of the key policy objectives in the U.K., including greater renewable energy use, GHG emissions reduction, landfill waste reduction, and water management to reduce pollutants. The government has been working with stakeholders and the private sector, and would like to expand their work with international partners.

The U.K. Department for Environment, Food and Rural Affairs (Defra) conducted a very successful workshop at Exeter University on 3-4 September 2007 entitled *Anaerobic Digestion in Agriculture: Workshop on Increasing the Uptake of Anaerobic Digestion*. More information about this meeting may be obtained at: <http://www.defra.gov.uk/farm/environment/climate-change/anaerobic-workshop/0907.htm>

Mr. Eppel stated that the U.K. government has in place a regime (the Renewables Obligation) that provides financial incentives for the implementation of renewable energy. AD would receive twice as much support as some other renewable energy sources. In addition, the U.K. government is currently developing standards for the land application of AD digestate.

Mr. Eppel invited Mr. Chesshire to provide some private sector input on the U.K. situation. Mr. Chesshire represented the U.K.'s Renewable Energy Association (REA), which exists to promote the development of renewable energy. Mr. Chesshire is the chair of the REA Biogas committee. REA is focusing on developing two types of AD: large commercial centralized digesters which include food waste, and on-farm digesters. The on-farm digesters need financial support in order to operate successfully.

Mr. Stafford asked how the AD of agricultural waste was given twice as much support as other renewable energy sources. Mr. Eppel explained that there is an obligation on all energy suppliers to produce or buy-in renewable energy. Energy from AD will qualify for twice as many credits as many other sources of renewable energy.

United States- Kurt Roos and Kelsi Bracmort

Mr. Roos explained that the U.S. EPA supports the AgSTAR Program. This program develops awareness of AD systems in the U.S. and provides technical support to the developers and operators of the systems.

Mr. Roos stated there are currently 120-130 systems operating in the United States, mostly at dairy operations. Mr. Roos estimates that 2 percent of the standing U.S. cow population exists at dairies with AD systems. The U.S. AD systems produce 200 million kilowatt hours of electricity per year.

Mr. Roos explained that the U.S. Farm Bill is the largest project financing system for AD systems. In 2007, there were 5 or 6 new AD systems funded. Internationally, the United States supports M2M grants in Colombia, India, Vietnam, and Mexico. In addition, the United States provides technical support to the World Bank and Mexico.

Open Discussion Including Project Network Members

FAO- Pierre Gerber

Mr. Pierre Gerber of the FAO stated his organization has been working to reduce GHG emissions from livestock production. Mr. Gerber explained that environmental policies must be in place for the successful promotion of AD projects.

Mr. Gerber outlined FAO's Livestock Waste Management in East Asia Program, developed to study and address the environmental problems associated with livestock waste management in East Asia (including Vietnam, Thailand and parts of China). Mr. Gerber described the regional work being done to support capacity building, decision tool development, training, and the evaluation of project activities and outcomes. The FAO regional offices will coordinate the activities taking place in each of the participating countries in order to replicate projects and share the lessons learned.

Mr. Gerber also briefly described his work on the FAO's document entitled *Livestock's Long Shadow*. This document had helped to bring attention to the environmental issues created by livestock. As a result of the document, the European Commission was now looking at the impact of livestock in the E.U.

Mr. Eppel stated that he was very pleased to establish the connection between M2M and FAO and he hoped the Agriculture Sub-Committee would build on this relationship in the future.

Mr. Hilbert asked about the FAO's work on bioenergy and whether AD was considered in that program. Mr. Gerber stated that there was an FAO group that worked with bioenergy, but this group was not currently working with the group striving to attain GHG emission reductions from livestock.

World Bank- Zarina Azizova

Ms. Zarina Azizova of the World Bank said she thought that both the workshop and Expo had been very successful. She praised the high quality of the presentations and she claimed there was much interaction between buyers and sellers of carbon credits.

Ms. Azizova continued that there are still some barriers to the further implementation of AD, but she believed that the implementation of the programmatic clean development mechanism (CDM) was a great milestone that would help to reduce the barriers to AD development. Programmatic CDM allows for multiple small projects to be registered for CDM as one project under one program of activities. Programmatic CDM was approved in the summer of 2007, but no projects have been implemented yet.

Ms. Pietzsch inquired if training and technical support was provided as part of Programmatic CDM. Ms. Azizova replied there was no requirement for training or technical support as long as emissions are reduced and verified.

Ms. Azizova stated there need to be more agencies and ministers involved in policy implementation to encourage AD. CDM should be used to advance the implementation of AD.

Mr. Eppel inquired about other World Bank activities in relation to agricultural AD, and who at the World Bank was working on these projects. Ms. Azizova agreed to determine what other activities are taking place and report back the M2M Agriculture Subcommittee.

Ms. Pietzsch inquired if training and technical support was provided as part of Programmatic CDM. Ms. Azizova replied there was no requirement for training or technical support as long as emissions are reduced and verified.

Discussion of Key AD Methodology Issues

Mr. Hilbert explained that Mr. Roos had developed two papers as a result of discussions at the last Agriculture Subcommittee Meeting. These documents were distributed at the Subcommittee meeting and are available on the M2M Web site (<http://www.methanetomarkets.org/resources/ag/index.htm>). The documents are:

- *Development of an Improved Methodology for Determining Leakage Rates from Anaerobic Digestion Systems*
- *Development of International Guidance for Characterizing the Environmental Performance of Anaerobic Digestion Systems*

Dr. John Martin provided a brief overview of the issues involved with the development of a methodology for determining leakage rate from AD systems; this presentation is available on the M2M Web site (http://www.methanetomarkets.org/expo/docs/postexpo/ag_martin2.pdf). Dr. Martin explained that there are currently no leakage rates taken into account for estimates of emission reductions from AD systems. The estimation of leakage rates will allow for a better assessment of AD system emissions. Dr. Martin stated that the leakage rate would vary depending on the system's baseline emissions, type, design specifications, construction materials, method of combustion, and age. Leakage rates may currently be estimated using best professional judgment, and eventually the leakage estimates may be verified through field measurements.

Dr. Kishore noted that there were exhibits in the Expo hall that showed how infrared cameras may be used to estimate emissions. Dr. Kishore suggested that this technology could be used to estimate leakage. Dr. Dong Hongmin stated that another factor to consider in the estimation of leakage would be the distance between the AD systems and the users. Dr. Martin acknowledged that the distance of the distribution system would be a factor to consider when estimating leakage. Mr. Roos noted that IPCC currently has guidelines for leakage that range from 0 to 100 percent.

Mr. Eppel proposed that the Subcommittee convene a group of experts to revise the draft guidance papers, and then submit the document to the Subcommittee. Mr. Hilbert noted that the Subcommittee would need someone to volunteer to take charge of this activity.

Ms. Azizova noted that defining leakage rates might have negative implications for CDM projects. The current emission reduction methodology allows for flexibility, but defined leakage rates might mean decreased emission reductions.

Dr. Hongmin inquired if the purpose of developing this paper would be to revise the IPCC guidelines or to better estimate emissions. Mr. Roos explained that the purpose of the paper would be to reduce the margin of error for a number of purposes, including possibly to improve the IPCC guidelines and to improve our emissions estimations. Mr. Gerber noted that while writing *Livestock's Long Shadow*, the FAO identified some revisions to the IPCC methodology which would better reflect improved farming practices and submitted them to the IPCC; the IPCC welcomed the input.

Mr. Chesshire observed that an alternative approach could be the development of Good Practice Guidelines to minimize leakage in AD systems. Mr. Roos commented the Subcommittee could develop such M2M AD guidelines in the future.

Mr. Hamilton Ida, of LOGICarbon, noted that the efficiency of digesters was variable depending on the technology used, the construction, operating and maintenance, and the farm operations. It might be possible to estimate emissions but the estimate would be very specific to an operation and not likely to be applicable at other operations. Emissions reductions are estimated based on baseline, so leakage does not matter.

Mr. Eppel stated that although estimates of leakage rates might make for a more stringent CDM, it was important that the estimates were realistic and appropriate. Better estimates would mean that the emissions reductions and benefits of CDM would be more accurate.

Dr. Kelsi Bracmore from the U.S. Department of Agriculture (USDA) stated that the Department's Natural Resources Conservation Service (NRCS) provides standards and guidance for the development of agricultural technologies. NRCS is currently working on guidance for AD systems and is working with Dr. John Martin on this project to address leakage issues.

Mr. Tim Martin said that he supported the development of guidance documents by the M2M Agriculture Subcommittee, explaining that these types of documents could help policy makers.

Mr. Hilbert proposed that a working group be established to investigate these issues further. Mr. Eppel added that interested countries could meet and develop more detailed drafts of the two papers, to be discussed at the next Subcommittee meeting. Mr. Eppel encouraged volunteers to identify themselves to the ASG, and he requested Mr. Roos take the lead in revising these documents.

Next Steps and New Activities

Ms. Erin Birgfeld of the ASG provided an update on the Steering Committee guidance to the Subcommittees, which included the following actions:

- Updating the current Subcommittee Action Plan.
- Supporting partner countries in developing country specific strategies for advancing project development.
- Collecting and sharing information and case studies to support country activities.
- Continuing outreach and recruitment of new Project Network members and helping the ASG to develop methods to encourage PN participation.
- Working with the ASG to keep the M2M Web site, newsletter, project tracking system, and other outreach activities up to date and publicized.

Mr. Chesshire suggested that a Web-based discussion forum might be useful. Dr. Kishore noted there are a number of AD discussion forums that already exist. Ms. Birgfeld noted this has been discussed before, but it would require a significant amount of time, effort, and resources and it might not be the best use of the ASG's limited resources. Mr. Eppel commented that perhaps this would be an option to develop if other international agencies provided support and funding. He invited Dr. Kishore to provide the Web addresses of the existing discussion forums to the ASG, to be posted on the M2M Web site. Ms. Birgfeld mentioned that the ASG has a grant program offering funds and she suggested it might be a good opportunity for a non profit agency to develop a proposal for a grant to create an online discussion forum.

Mr. Eppel then reported on the Agriculture Subcommittee's input to the Steering Committee the previous day. He had explained that the Subcommittee's work was moving into other aspects of methane reduction from agricultural waste management, beyond just livestock waste. He recommended that the Agriculture Subcommittee should investigate the scope of current international collaboration on enteric fermentation, rice cultivation, and biomass burning.

Mr. Eppel asked the meeting participants if they supported the proposed future direction of the Agriculture Subcommittee work. Dr. Hongmin and Ralph Leutton stated they support broadening the scope of the Subcommittee. Dr. Kishore expressed concern about broadening the scope of the Subcommittee, because not all methane emissions reductions have markets. Mr. Eppel noted there has been a focus on commercial markets, but there could also be future markets for carbon reductions. Mr. Roos acknowledged that in order to expand the scope of the Subcommittee, there would need to be a clear commercial application in a measurable way.

It was agreed that the Co-Chairs and the ASG would work together to identify how best to commission a scoping study on these wider sources of methane from agriculture.

Mr. Hilbert introduced the Action Plan Update as the next agenda item. Mr. Hilbert proposed that he and Mr. Eppel review the document and then distribute it to the Subcommittee. Mr. Eppel reminded country representatives to submit their updated country activities to the ASG if they had not already done so. Ms. Birgfeld noted country-specific strategies should also be developed and possibly included in the Action Plan in Annex 2.

The Subcommittee then discussed the location and timing of their next meeting. Ms. Tattersfield said that Mexico would be pleased to host the next Agriculture Subcommittee meeting. SEMARNAT is considering holding the meeting in April 2007 in a location close to many swine AD operations. Mr. Edgar del Villar Alvelais of SEMARNAT explained that the meeting would be preceded by a workshop and a visit to local swine AD systems. Mr. Eppel thanked Mexico for their kind offer and proposed that the Subcommittee meeting might precede rather than follow the proposed workshop.

Dr. Kishore also invited the Subcommittee to meet in India. Mr. Eppel thanked Dr. Kishore for this kind offer, and said that he would inform the Steering Committee of the offer because India might be a good location for the meeting in fall 2008 which would include all four sector Subcommittees as well as the Steering Committee.

Closing Remarks

Mr. Eppel asked if there were any other items participants wished to raise before the meeting was adjourned. Dr. Bracmort noted it was great to see so many participants from so many countries, but it would be even better to see more government representatives attend the meeting in the future. Mr. Hilbert announced the AgSTAR conference would be held in California in November 2007 and he hoped to see some of his M2M colleagues at the conference. In addition, Mr. Hilbert commented that he would at some point in the future like to see the Subcommittee develop a guidance manual on the use of AD in agriculture.

Closing the Subcommittee meeting, Mr. Eppel thanked the U.S. EPA and NDRC for hosting the M2M Expo and Subcommittee meeting and the ASG for organizing the event. Finally, Mr. Eppel thanked the meeting participants for a productive meeting.

Action Items

- Country representatives will update or create country agriculture profiles, including anaerobic digestion (AD) research and technology contacts.
- Ms. Azizova of the World Bank will determine other activities that are taking place in the World Bank related to agricultural AD, and report back the M2M Agriculture Subcommittee.
- Interested volunteers will help to develop more detailed drafts of the two documents discussed at this meeting (*Development of an Improved Methodology for Determining Leakage Rates from Anaerobic Digestion Systems* and *Development of International Guidance for Characterizing the Environmental Performance of Anaerobic Digestion Systems*). The revised drafts will be discussed at the next Agriculture Subcommittee meeting.
- Dr. Kishore will provide the Web addresses of the existing AD discussion forums to the ASG, to be posted on the M2M Web site.
- Mr. Hilbert and Mr. Eppel will review the revised Action Plan and then distribute it to the Subcommittee members for review.
- Country representatives will submit their updated country activities to the ASG for the Action Plan if they have not already done so.
- The ASG and SEMARNAT will work together to plan the spring Agriculture Subcommittee Meeting in Mexico.



Annex 1- Agriculture Subcommittee Meeting Participant List

BEIJING, CHINA
1 November 2007

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