IETA
INTERNATIONAL EMISSIONS TRADING ASSOCIATION

June 16, 2006

CDM Executive Board
UNFCCC Secretariat
Martin Luther King Strasse 8
P.O.Box 260124
D-53153
Germany

Attention: Mr. Jose Miguez, Chairman

Dear Mr. Miguez,

On behalf of the International Emission Trading Association, I would like to submit to you our input in relation to your call for input to AM0006 & AM0016 as per your call for input of the 19th of May 2006.

Call for Inputs on AM0006, AM0016, and the Proposed ACM

In its 23rd meeting, the CDM Executive Board requested the Methodology Panel to review AM0006, AM0016 as well as a proposed consolidated methodology (ACM) for manure management projects. The result of the request was the submission of a significant changed ACM and an ambiguous status of the existing Methodologies AM0006 and AM0016.

In our opinion, there are several key points in the proposed ACM regarding the scientific basis and appropriateness of certain values that are universally applied to baseline calculations. In this, the proposed ACM appears to mirror a proposed parallel consolidation of AM0013 and NM0038-REV. Though all of these projects deal with biogas generation from wastewater, there is a fundamental flaw in the application of default values derived from municipal sludge projects to manure management projects. The revisions and adjustments made in the name of consolidation are not supported by the vast body of scientific literature available on this subject. These revisions also represent a complete departure from the IPCC's default values for GHG emissions from agricultural wastewater treatment.

In regards to AM0006 and AM0016, the EB asked the Meth Panel to review the rigorousness of the flare monitoring protocols. As the ACM did not significantly address these issues, we focus our principal discussions on the problematic components of the ACM. This letter outlines the differences between the proposed ACM and the current, paying particular attention to the differences between sludge derived from municipal and industrial wastewater

20 Eglinton Ave. W., Suite 1305
P.O. Box 2017
Toronto, Canada M4R 1K8
Tel.: (416) 487-8591
Fax: (416) 481-2625
4, Chemin des Conches CH-1231
Conces-Geneva Switzerland
Tel.: (4122) 839-3154
Fax: (4122) 839-3181

(in the case of AM0013 and NM0038-REV) versus manure. Secondly, this letter discusses the inconsistencies between the determination of the Methane Conversion Factor (MCF) in the proposed ACM and the body of scientific literature available on the subject. To conclude, we discuss improvements for both AM0006 and AM0016 that would make the methodologies both more robust in accounting for methane captured and destroyed, while furthermore assuring conservativeness in calculating total emissions reductions.

1.) Assessing the differences between Municipal Wastewater and Manure-laden Wastewater

Municipal and Industrial Wastewater is typically dilute. In the case of the project in NM0038-REV, the wastewater has a low COD, less than 1000 mg/l. Its low organic matter concentrations allows for greater aeration of the wastewater in the event that it is stored in a lagoon. As a result, aerobic destruction of organic material is more prevalent in municipal wastewater streams. Manure-laden wastewater has a much higher organic matter concentration, as well as a higher concentration of fats and volatile solids. Oxygen is less available in manure-laden wastewater streams and consumed more rapidly. As oxygen diminishes in supply, facultative anaerobes begin to digest the organic matter in the wastewater. Once all available oxygen has been removed from the water column, anaerobic bacteria, degrade the organic matter in the water column producing methane. Anaerobic bacteria are those that thrive in anoxic environments due to their ability to use molecules other than oxygen as their terminal electron acceptor. This process occurs in sludge projects as well, but the two systems are different biologically and chemically and are not properly comparable despite certain similarities. Both municipal sludge and manure-based wastewater have important CDM potential and should be accorded characterization via approved methodologies. A singular baseline scenario is wholly inappropriate to account for these differing project types.

2.) The Methane Conversion Factor (MCF)

The MCF is a key determinant in the quantification of emissions from organic wastewater sources. A significant amount of research has been conducted in this area. The IPCC conducted a sweeping review of the agricultural industry and its GHG emissions and published default data on MCFs given climate, geography, and treatment method. The IPCC is therefore considered to be the most authoritative and comprehensive source on GHG emissions from manure management. Other entities have conducted research in this area and a body of peer-reviewed, scientific work preceded the IPCC's inception, so there are numerous scientific references that can be utilized for the determination of MCF.

AM0006 and AM0016 drew on IPCC default values, as is most often the case with Approved Methodologies. The MCF calculation in the proposed ACM, however, does not follow IPCC defaults but rather follows the MCF calculation established in NM0038-REV, the aforementioned municipal wastewater projects.

In the case of the Moldova project, there is no apparent scientific justification for the Anaerobic Degradation Factors (ADF) that has been applied when determining the baseline. Indeed, the EB itself made this point - writing in November of 2004, reviewers stated:

> "*For the ADF, the methodology acknowledges that there is no scientific basis or literature source for the proposed default ranges.*"

While the ADF factors may have been appropriate for that project in Moldova, there is no reason to generalize the MCF determination from this particular project for all anaerobic digestion. Further, the IPCC has provided scientifically determined MCF values and the use of these values lends more legitimacy to the emission reductions calculations than the use of arbitrary values.

The IPCC is the definitive reference for the CDM and these data are supported extensively elsewhere in the literature. According to the IPCC, the MCF of an anaerobic lagoon system is 0.9. This value is actually more conservative than the Australian Department of the Environment and Heritage, which lists the MCF of a "completely anaerobic system as 1.0 . In practice, it is of course unlikely that you will ever have a totally anaerobic system due to surface area oxidation where oxygen from the air is diffused into the surface of the water. Surface area oxidation, however, is minimal and can be considerable negligible for all practical purposes.

Considering another credible and rigorous source, the US EPA AgStar programme refers to Safley and Westerman (1990) who calculate the MCF for liquid manure management systems using the mean ambient temperature and the Van't Hoff-Arrhenius equation for chemical reactions. Safley's and Westerman's approach accounts for the affect of temperature fluctuations on MCF calculation. Using this approach, MCF decreases for months where the mean ambient temperature falls below 30ºC. There is a direct, logarithmic relationship between temperature and MCF using van't Hoff-Arrhenius.

Countering this, the proposed ACM introduces arbitrary factors, such as fd, and the 0.89 conservative correction, that impact the calculation of MCF in a manner that is illogical and not supported by the scientific literature. Further, in the proposed ACM, 10ºC would be the minimum threshold for methane production, but, in fact, Cullimore et al (1985) demonstrated methane production at temperatures below 10ºC. Safley's and Westerman's approach to calculating MCF would account for this low temperature value by producing a correspondingly low value for MCF; the proposed ACM would disqualify this entirely.

Assessing the MCF of every project to a high degree of accuracy would be prohibitively expensive for project developers and too time consuming to facilitate the expansion of CDM projects. The IPCC default values were developed in order to assess GHG emissions using a streamlined and efficient, but still scientifically based, method; these defaults should remain the standard of the CDM and not be replaced by arbitrary values.

3.) Improvements to AM0006 and AM0016

In its 24th meeting, the EB observed that there were some inconsistencies in the anaerobic digestion methodologies of the CDM both in terms of emissions reductions calculations and monitoring rigor. The EB was correct to point out these discrepancies, but the proposed ACM is not the best solution to rectifying these differences. The better option would be improving AM0006 and AM0016.

The MCF calculation procedure was proposed in the new ACM under the ostensible pretence of ensuring conservativeness in baseline calculations. However, there are other means to ensure conservativeness that do not involve the introduction of non-scientific values into the baseline calculation of an approved methodology. For instance, AM0022, another large-scale wastewater methodology, calculates a theoretical baseline value based on wastewater volume process and the organic matter content of that wastewater stream as measured in COD (Chemical Oxygen Demand.). In order to ensure conservativeness, the Meth Panel added an additional equation to AM0022 that required the comparison of the calculated methane baseline to the methane actually captured and destroyed by the project activity. If the captured and destroyed methane did not equal or exceed the theoretically calculated methane baseline, the difference of the two values has to be subtracted from the baseline. This "conservative clause" approach is an effective way not only to ensure the conservativeness of baselines, but also serves as an impetus for project developers to build more efficient digesters and maximize methane production.

The proposed ACM uses this conservative clause:

"*Further, in estimating emissions reduction for claiming certified emissions reductions, if the actual methane captured from an anerobic digester is lower than (BECH4,Y, - PEAD,Y), where BECH4,Y is estimated using equation (1a) and PEAD,Y is estimated using equation 7a, then (BECH4,Y, - PEAD,Y) in equation 10 is replaced by actual methane captured.*"

Although AM0016 is states that "in projects using anaerobic digesters, the biogas flow and the CO2 concentration in that flow are monitored to ensure proper functioning of the digester" it is currently not included in the equation as such it should perhaps be considered to include this in the equation. This would ensure that the methane allegedly produced in the baseline is measured during the project activity scenario.

The project activity scenario's monitoring would have to change as a result of this action. For instance, the methane content of the biogas would have to be measured or estimated, and each path of destruction for the biogas would have to be monitored. In doing so, the efficiency of that path of that destruction, whether it be flares, heaters, gen sets, etc. would have to be assessed on a periodic basis. This requirement would help overcome the EB's legitimate concerns that methane may be vented to the atmosphere, by quantifying the methane, if any, in the exhaust gas of the flare. This amendment would also encourage project developers to install high-efficiency flares (as most already are) in order to minimize CER losses due to incomplete combustion.

These suggested amendments to AM0006 and AM0016 would enable the EB to eliminate any loopholes the methodologies might contain in their current form without abandoning the credibility of scientifically accepted IPCC data. The amendments would also improve the consistency of the anaerobic digestion methodologies and raise the standards for monitoring in two of the CDM's most frequently used methodologies.

IETA trust that with the above comments the Board is able to proceed in a manner that will benefit the overall process of the CDM.

Andrei Marcu
President