CDM: Recommendation form for Small Scale Methodologies (Version 01.1)

(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)

Date of SSC WG meeting:	16−19 April 2013, SSC WG 40
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Clarification on methane correction factors for treated water used for irrigation under AMS-III.H ver. 16
Indicative methodology to which your submission relates *(refer the items of Appendix B of the Simplified Modalities and Procedures)*, **if applicable:**	AMS-III.H "Methane recovery in wastewater treatment"
Name of the authors of the query:	Sergi Cuadrat Institution: ClimaLoop sergi.cuadrat@climaloop.com

Summary of the query:

Please use the space below to summarize the query related to SSC methodologies/categories SSC Modalities and Procedures provide recommendation/analysis of the SSC WG.

Original text from Stakeholder:

The Soderal Biogas Project (hereinafter SBP) is a methane avoidance project activity which treats the vinasse produced by the distillery process at Soderal S.A. through an anaerobic reactor. The biogas produced by the project activity is sent to a boiler producing the necessary steam to operate the distillery, used mainly as a heat source in distillery towers and evaporators.

The objective of the Soderal Biogas Project is to replace the current open anaerobic lagoons used to treat the vinasse produced by the distillery process at Soderal S.A. through anaerobic digestion process with biogas recovery and combustion (Technology 1). The biogas produced and captured will be used to switch the actual fuel oil consumption in the boilers used in the distillery process (Technology 2). The SBP reduces methane emissions that would enhance climate change by the implementation of the project activity, which involves the implementation of the following two technologies:

1. •The Technology 1 (anaerobic digestion treatment of vinasse) to be employed in the project activity consist mainly in the installation of an anaerobic biodigestion system using a down-flow technology, replacing the actual open lagoons. This kind of treatment will reduce the Chemical Oxygen Demand (COD) in 75%. The following paragraphs summarize the technology:

   1.1. The process starts with the crude vinasse produced from the distillery process in Soderal, which enters first into a cooling tower to lower its temperature.

   1.2. The mixture is then sent to an equalizer tank, where the mixture is homogenized and the pH is controlled with NaOH until pH reaches values between 7 and 8. If necessary, additional macronutrients (such as N and P in form of Urea) are added to the vinasse mixture.

   1.3. Once the vinasse has reached the optimum conditions, it enters to an anaerobic reactor (capacity of 8,900 m3), containing plastic media. The vinasse enters through the top entrance of the reactor and flows through the biomass placed in the plastic media, where the bacteria consume the biodegradable COD, generating biogas rich in methane which is accumulated inside the dome of the reactor. During the operation, the treated vinasse recirculates again into the anaerobic reactor in order to improve the contact between the substrate and the biomass placed in the plastic media. The critical variables to operate the anaerobic reactor in optimal conditions are pH, Total Suspended Solids, Temperature and Hydraulic Retention Time. The anaerobic reactor will be installed with all the required safety valves, control valves, blowers and transmitters of temperature,

level and vinasse flowmeter to ensure proper operation in accordance with manufacturer instructions.

1.4. The treated vinasse leaves the reactors through the bottom exit and passes through an aerator to reduce the odour from the remaining sulphite compounds. The treated water will be initially discharged to the existing anaerobic lagoons (depth more than 2 meters) with the purpose of being stored before it is required for irrigation of the sugarcane fields. Once stored and based on the necessities of water of the sugarcane fields, the resulting vinasse will be mixed with clean water from a nearby river to be ultimately used for farming irrigation.

1.5. The biogas produced in the anaerobic reactor accumulates in the dome and is then treated in a dryer with chiller and a condensate knockout pot to reduce the humidity. Such measure ensures the gas to be in dry conditions to minimize the reaction with H_2S present in the biogas in order to avoid the possibility of corrosion into the gas pipeline.

2. The Technology 2 (biogas utilization for thermal uses) to be employed in the project activity consist mainly in the installation of a three phase pyro-tubular biogas steam boiler, replacing the actual fuel oil boiler.

2.1. - The biogas is sent to the biogas steam boiler which produces the necessary steam to operate the distillery, used mainly as a heat source in distillery towers and evaporators.

2.2. - As a control measure, an open flare and control panel will been installed to burn the excess biogas in case of boiler failure or there are maintenance works.

As explained in point 1.4 above, although the treated water will be initially discharged to the existing anaerobic lagoons (depth more than 2 meters). The purpose of such practice is the treated water being stored before it is required for irrigation of the sugarcane fields but not as a treatment option.

Considering that the vinasse will be ultimately used for farming irrigation once it is mixed with clean water from a nearby river, irrigation is considered its final discharge pathway. However, since irrigation is not explicitly indicated in Table III.H.1 of AMS-III.H as discharge pathway or system, the PP seeks clarification on whether the values $MCF_{ww,BL,discharge}$ and $MCF_{ww,PJ,discharge}$ can be chosen to be 0,1 considering that the final discharge of wastewater is irrigation and such final destination can be assimilated as the discharge to sea, river or lake as per Table III.H.1 of AMS-III.H.

Recommendation by the SSC WG:

Please use the space below to provide amendments / change (in your expert view, if necessary).

Please refer to paragraph 32 of the meeting report of the SSC WG 40 <http://cdm.unfccc.int/Panels/ssc_wg>.

Answer to authors of query by the SSC WG:

Please use the space below to provide answer to the authors of the above query.

The small-scale working group (SSC WG) of the CDM Executive Board would like to thank the author for the submission.

The SSC WG agreed to clarify that a methane correction factor (MCF) of 0.1 may be used for determining the project methane emissions from treated wastewater discharged for irrigation purposes, provided that the relevant national or international standard with respect to the use of water or treated wastewater in irrigation is followed.

This clarification will be incorporated in the next opportunity of recommending revisions to the methodology.

Signature of SSC WG Chair: Mr. Martin Cames

Date: 19/04/2013

Signature of SSC WG Vice-Chair: Mr. Washington Zhakata

Date: 19/04/2013

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History of the document

Version	Date	Nature of revision(s)
01.1	12 April 2012	Editorial changes to include new logo and other improvements.
01.0	2005	Initial publication.
Decision Class: Regulatory **Document Type**: Form **Business Function**: Methodology		