

CDM-SSCWG45-A16

Draft Small-scale Methodology

AMS-III.R: Methane recovery in agricultural activities at household/small farm level

Version 04.0 - Draft

Sectoral scope(s): 15

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United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) in decision 3/CMP.9, paragraph 11, has reiterated its encouragement to the Executive Board (hereinafter referred as the Board) of the clean development mechanism (CDM), as contained in decision 5/CMP.8, to continue its work on the simplification and streamlining of methodologies, with the aim of reducing transaction costs for all project activities and programmes of activities, especially those in regions underrepresented in the clean development mechanism (CDM).
2. The Board, at its seventy-eighth meeting, considered a concept note on further work on methodologies, tools and standards and agreed on the methodological products for further work in 2014.¹
3. Table 1 of annex 8 of seventy-eighth meeting of the Board covers the issues related to top-down development of standardized eligibility criteria to reduce uncertainties for PoA developers, increase efficiency and reduce costs, minimize repetition/redundancy of information, ensure objectivity of information, which is included under MAP project 223 for 2014.

2. Purpose

4. The purpose of the proposed revision is to provide standardised eligibility criteria and possible means for demonstrating CPA's compliance for PoAs involving installation of biogas digesters in households.

3. Key issues and proposed solutions

5. The draft revision takes into account requirements of different standards regarding PoA development, e.g. the requirement and/or exemption for conducting de-bundling check, conditions for automatic additionality, as well as methodological requirements in respective methodologies.

4. Impacts

6. The proposed eligibility criteria will further streamline the development/consideration of PoAs, i.e., to reduce uncertainties for PoA developers, increase efficiency and reduce costs, minimize repetition/redundancy of information.

5. Subsequent work and timelines

7. Taking into account any feedback from the call for public input, revised version of the methodology will be prepared and presented to Small-scale Working Group (SSC WG) for recommendation to the Board.

¹ See annex 8 of the EB 78 meeting report.

6. Recommendations to the Board

8. Not applicable (call for public input).

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1. Introduction

1. The following table describes the key elements of the methodology:

Table 1. Methodology key elements

Typical projects	Installation of biogas digester for biogas recovery and combustion
Type of GHG emissions mitigation action	Methane recovery and destruction

2. Scope, applicability, and entry into force

2.1. Scope

2. This methodology comprises of recovery and destruction of methane from manure and wastes from agricultural activities that would be decaying anaerobically emitting methane to the atmosphere in the absence of the project activity. Methane emissions are prevented by:
- Installing methane recovery and combustion system to an existing source of methane emissions; or
 - Changing the management practice of a biogenic waste or raw material in order to achieve the controlled anaerobic digestion equipped with methane recovery and combustion system.

2.2. Applicability

3. The methodology is limited to measures in individual households or small farms (e.g. installation of a domestic biogas digester). Methane recovery systems that achieve an annual emission reduction of less than or equal to five tonnes of CO₂e per system are eligible under this methodology. Systems with annual emission reduction higher than five tonnes of CO₂e are eligible under “AMS-III.D: Methane recovery in animal manure management systems”.
4. This methodology is only applicable in combination with “AMS-I.C: Thermal energy production with or without electricity” and/or “AMS-I.I: Biogas/biomass thermal applications for households/small users” and/or “AMS-I.E: Switch from non-renewable biomass for thermal applications by the user”.
5. The project activity shall satisfy the following conditions:
- The sludge must be handled aerobically. In case of soil application of the final sludge the proper conditions and procedures that ensure that there are no methane emissions must be ensured;
 - Measures shall be used (e.g. combusted or burnt in a biogas burner for cooking needs) to ensure that all the methane collected by the recovery system is destroyed.

6. Aggregated annual emission reductions of all systems included shall be less than or equal to 60 kt CO₂ equivalent.

2.3. Entry into force

7. Not applicable (call for public input).

3. Normative references

8. Project participants shall apply the “General guidelines for SSC CDM methodologies”, “General guidance on leakage in biomass project activities” and the “Guidelines on the demonstration of additionality of small-scale project activities” provided at <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html> mutatis mutandis.
9. This methodology also refers to the latest approved versions of the following tools and methodologies:
 - (a) “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”;
 - (b) “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” shall be followed;
 - (c) “AMS-I.C: Thermal energy production with or without electricity”;
 - (d) “AMS-I.I: Biogas/biomass thermal applications for households/small users”;
 - (e) “AMS-I.E: Switch from non-renewable biomass for thermal applications by the user”.

4. Definitions

10. The definitions contained in the Glossary of CDM terms shall apply.

5. Baseline methodology

5.1. Project boundary

11. The project boundary is the physical, geographical site of the methane recovery and combustion systems.

5.2. Project activity emissions

12. Project emissions due to physical leakage of biogas digester is estimated using one of the two options using the method indicated in paragraph 13 19 of “AMS-III.D: Methane recovery in animal manure management systems”.
13. Project emissions consist of CO₂ emissions from use of fossil fuels or electricity for the operation of the system and the physical leakages of methane from the recovery system. The relevant methodological tools “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” and “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” shall be followed.

5.3. Baseline emissions

14. The baseline scenario is the situation where, in the absence of the project activity, biomass and other organic matter are left to decay anaerobically within the project boundary and methane is emitted to the atmosphere. Baseline emissions (BE_y) are calculated ex ante, using one of the following methods:
- (a) A simplified method with the most recent IPCC Tier 1 approach (please refer to the chapter 'Emissions from Livestock and Manure Management' under the volume 'Agriculture, Forestry and other Land use' of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories) that only requires livestock population data by animal species/category and climate region or temperature; or
 - (b) The most recent IPCC Tier 2 approach (please refer to the chapter 'Emissions from Livestock and Manure Management' under the volume 'Agriculture, Forestry and other Land use' of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories) to calculate the amount of the waste or raw material that would decay anaerobically in the absence of the project activity. Country/regional-specific values shall be used if available. The option in paragraph 9(a) and relevant formulae shown in paragraph 10 of "AMS-III.D: Methane recovery in animal manure management systems" shall be used to calculate baseline emissions.
15. The amount of waste or raw materials that would decay anaerobically in the absence of the project activity is determined by survey of a sample group of households/small farms with a 90 per cent confidence interval and 10 per cent precision. The survey should determine the baseline animal manure management practices applied. If the livestock is raised in shared centralized farms,² the project proponent shall be able to show the baseline animal manure management practices at each farm, either individually or through sampling. This small-scale methodology is only applicable to the portion of the manure, which would decay anaerobically in the absence of the project activity as established by the survey.

5.4. Leakage

16. If the methane recovery and combustion equipment is transferred from another activity leakage is to be considered.

6. Monitoring methodology

17. Monitoring shall consist of:
- (a) Inspection of the project systems. At the time of installation all project activity systems shall be inspected and undergo acceptance testing (commissioning) for proper operation in compliance with specifications. The installation date of each system shall be recorded;

² In shared centralized farms systems, multiple households raise their animals in a centralized farm, e.g. in separate barns. In the project activity each family collects the manure of animals raised by it at the centralized farm and uses the collected manures as feedstock for the biodigester situated at the household.

- (b) Recording annually the number of systems operating using survey methods. Emission reductions can only be applied to systems that are demonstrated to be operational and in compliance with manufacturer required maintenance procedures, at least once every two years (biennial) during the crediting period. After the inspection and acceptance testing at year of installation, the inspections can be done in years 3, 5, 7, etc. and the results of such inspections can be applied to crediting years 3 and 4, 5 and 6, 7 and 8 etc. On-going rental/lease payments or a recurring maintenance fee by users can be a substitute to actual site visits. A statistically valid sample of the residences where the systems are installed, with consideration, in the sampling design, of occupancy and demographic differences can be used to determine the percentage of systems operating, as per the relevant requirements for sampling in the “Standard for sampling and surveys for CDM project activities and programme of activities”. When biennial inspection is chosen, a 95 per cent confidence interval and 10 per cent margin of error requirement shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90 per cent confidence interval and 10 per cent margin of error requirement shall be achieved for the sampling parameter;
- (c) Survey methods are used to determine the annual average animal population (NLT), the amount of waste/animal manure generated on the farm and the amount of waste/animal manure fed into the system e.g. biogas digester (It shall be verified if the manure fed to the digester is consistent with the animal population and with the capacity of the system). If the livestock is raised in the shared centralized farms, the project proponent shall also determine the number of families/households sharing the farm and the annual average animal population (NLT) belonging to each household;
- (d) The proper soil application (not resulting in methane emissions) of the final sludge verified on a sampling basis. Requirements in the “Standard for sampling and surveys for CDM project activities and programme of activities” shall be followed.

18. The emission reduction achieved by the project activity are calculated by:

$$ER_y = BE_y - PE_y - Leakage \quad \text{Equation (1)}$$

Where:

ER_y = Emission reductions achieved by the project activity for year y (t CO₂e)

BE_y = Baseline emissions for year y (t CO₂e)

PE_y = Project emissions for year y (t CO₂e)

6.1. Project activity under a Programme of Activities

19. The methodology is applicable to a programme of activities, no additional leakage estimations are necessary other than that indicated under leakage section above.

20. The eligibility criteria attached in the appendix may be used by the coordinating and managing entity (CME) for the development of PoAs.

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Appendix. Eligibility criteria for PoA development

1. Eligibility criteria and possible means for demonstrating CPA's compliance applicable to PoAs installing domestic biogas digesters at individual households or small farms are provided below. The CME may propose additional eligibility criteria and/or other means for demonstrating compliance if deemed necessary.

Table 1. Eligibility criteria for PoAs installing domestic biogas digesters

No.	Requirements in PoA standard ³	Eligibility criteria	Evidence used by CPA for demonstrating compliance	Section/Page number of CPA-DD where detailed information is provided, if applicable
1	Geographical boundary	All biogas digesters in each CPA are located within the geographical boundaries of	<input type="checkbox"/> GPS coordinates <input type="checkbox"/> Map or address	
2	Start date	CPA start date shall not before start data of PoA	The start date of the CPA is , the date at which the real action started: <input type="checkbox"/> It is the date at which the first biogas digester is constructed;	
3	Life time	CPA crediting period shall be within the life time of PoA	CPA start data is , with <input type="checkbox"/> Fixed crediting period <input type="checkbox"/> Renewable crediting period	
4	ODA	For all CPAs, funding from Annex I Parties, if any, does not result in a diversion of official development assistance (ODA);	<input type="checkbox"/> ODA not involved <input type="checkbox"/> ODA involved but not leading to diversion	
5	De-bundling	Debundling will not occur for any CPA	<input type="checkbox"/> Each biogas digester generates , less than 1% of SSC threshold (i.e., 600tCO ₂ per year) ⁴	
6	Double accounting	The CPAs of PoA shall not result in double counting of emission reductions	For CPA no. , all the following are fulfilled: <input type="checkbox"/> Contractual agreements between CME and CPA implementer on CER transferring <input type="checkbox"/> Households details (i.e. name, address) inserted to a database And, individual biogas digester is identifiable by <input type="checkbox"/> its location recorded in the database <input type="checkbox"/> Using mobile phone networks (e.g., pay-as-you-go and GSM)	

³ Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities

⁴ As per EB 54, annex 13.

No .	Requirements in PoA standard ³	Eligibility criteria	Evidence used by CPA for demonstrating compliance	Section/Page number of CPA-DD where detailed information is provided, if applicable
7	Local stakeholder consultations and environmental impact	The PoA or CPA shall undergo local stakeholder consultations and environmental impact assessment (EIA), where required.	Local stakeholder consultation is undertaken at <input type="checkbox"/> PoA level <input type="checkbox"/> CPA level The EIA is required by the host country? <input type="checkbox"/> Yes <input type="checkbox"/> No If EIA is required by the host country, the EIA is undertaken at <input type="checkbox"/> PoA level <input type="checkbox"/> CPA level	
8	Additionality	CPA shall be additional	<input type="checkbox"/> End users are households, or small farmers Annual emission reductions per system are estimated to be no larger than 5% of the small-scale threshold (3kt CO2 per year)	
9	Technology	CPA will install biogas digester at individual households or small farms.	<input type="checkbox"/> Biogas digester , with a volume of ; <input type="checkbox"/> Annual emission reductions per system are estimated to be , less than 5tCO2 per year.	
10	Sampling	Sampling design and calculation shall meet the requirement in the sampling standard ⁵	<input type="checkbox"/> is determined through sampling at level: <input type="checkbox"/> For , sampling is designed; <input type="checkbox"/> For , sampling size is , which gives a result of ;	
11	SSC threshold	The SSC threshold shall be met, i.e., 60ktCO2 per year. Equivalent to maximum biogas digester	<input type="checkbox"/> CPA distributes project biogas digester	

⁵ Methodological tool “Sampling and surveys for CDM project activities and programme of activities”.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
Draft 04.0	5 September 2014	SSC WG 45, Annex 16 A call for public input will be issued on this draft revised methodology. Revision to provide standardised eligibility criteria and possible means for demonstrating CPA's compliance for PoAs involving installation of biogas digesters in households.
03.0	13 September 2012	EB 69, Annex 23 <ul style="list-style-type: none"> To introduce the IPCC Tier 1 approach as an alternative method for calculation of baseline emissions.
02	EB 59, Annex 4 18 February 2011	<ul style="list-style-type: none"> To allow the combination of this category with AMS-I.I and/or AMS-I.E; To revise the guidance on calculation of project emissions from physical leakage and baseline emissions; To revise sampling requirements; To remove the conditions for PoA.
01	EB 35, Annex 27 19 October 2007	Initial adoption.

Decision Class: Regulatory
 Document Type: Standard
 Business Function: Methodology
 Keywords: animal manure management systems, biogas recovery, simplified methodologies, type (iii) projects

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