Indicative simplified baseline and monitoring methodologies
for selected small-scale CDM project activity categories

TYPE III - OTHER PROJECT ACTIVITIES

Project participants shall apply the general guidelines to the SSC CDM methodologies, information on additionality, abbreviations and general guidance on leakage in biomass project activities provided at: <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html> *mutatis mutandis.*

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

Technology/measure

1. This project category comprises 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:

(a) Installing methane recovery and combustion system to an existing source of methane emissions; or

(b) 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. The category is limited to measures at 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 CO_2e per system are included in this category. Systems with annual emission reduction higher than five tonnes of CO_2e are eligible under AMS-III.D.

3. This project category is only applicable in combination with AMS-I.C, AMS-I.I and/or AMS-I.E.

4. The project activity shall satisfy the following conditions:

(a) 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;

(b) 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.

5. Aggregated annual emission reductions of all systems included shall be less than or equal to 60 kt CO_2 equivalent.

Boundary

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

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III.R. Methane recovery in agricultural activities on household/small farm level (cont)

Project Activity Emissions

7. Project emissions consist of CO_2 emissions from use of fossil fuels or electricity for the operation of the system and the physical leakages of methane from the recovery system.

~~For the specific case of domestic biogas digesters, project emissions are calculated as follows:~~

~~$PE_y = LF_{AD} [GWP_{CH4} * D_{CH4} * B_o * VS_{m,y}]/1000$ (1)~~

~~Where:~~

~~PE_y Project emissions from physical leakages in the biogas digesters in year *y*, ($t CO_2e$).~~

~~LF_{AD} Methane leakages from anaerobic digesters; a default value of 0.10 can be taken according to table 10A-8 of 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, and Chapter 10.~~

~~GWP_{CH4} Global Warming Potential of CH_4.~~

~~D_{CH4} Conversion factor of m^3 CH_4 to kilogram CH_4 (as per 2006 IPCC guidelines, see Volume 4, Chapter 10, Page 10.42).~~

~~B_o Maximum methane producing potential of the manure type treated in the biogas digesters as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, and Chapter 10 (m^3 CH_4 per kg of dm by animal type)~~

~~VS Annual amount of volatile solids treated in the biogas digesters on dry matter weight basis as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, and Chapter 10 (kg of dm per year)~~

8. Project emissions due to physical leakage of biogas digester is estimated using one of the two options using the method indicated in paragraph 13 of AMS-III.D "Methane recovery in animal manure management systems".

Baseline

9. 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 the amount of the waste or raw material that would decay anaerobically in the absence of the project activity, with 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). 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.

10. 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

~~confidence level of 95%~~90% confidence interval and 10% margin of error. The survey should determine the baseline animal manure management practices applied. This small-scale methodology is only applicable to the portion of the manure, which would decay anaerobically in the absence of the project activity established by the survey.

Leakage

11. If the methane recovery and combustion equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

Monitoring

12. Monitoring shall consist of:

(a) Recording annually the number of systems operating using survey methods;

(b) Estimating the average annual hours of operation of a system using survey methods;

(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 capacity of the system);

(d) The proper soil application (not resulting in methane emissions) of the final sludge verified on a sampling basis.

13. The DOE shall randomly verify parameters of the systems monitored above.

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

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

Where:

ER_y Emission reductions achieved by the project activity for year y (tCO_2e)

BE_y Baseline emissions for year y (tCO_2e)

PE_y Project emissions for year y (tCO_2e)

Project activity under a programme of activities

~~The following conditions apply for use of this methodology in a project activity under a programme of activities:~~

15. This methodology is applicable for a project activity under a programme of activities. ~~In case the project activity involves the replacement of equipment, and the leakage effect of the use of the replaced equipment in another activity is neglected, because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented.~~

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III.R. Methane recovery in agricultural activities on household/small farm level (cont)

~~The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other. For this purpose scrapped equipment should be stored until such correspondence has been checked. The scrapping of replaced equipment should be documented and independently verified.~~

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History of the document

Version	Date	Nature of revision
02	EB 59, Annex # 18 February 2011	• 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.
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