CLEAN DEVELOPMENT MECHANISM

CDM-SSCWG49-A05

Draft Small-scale Methodology

AMS-I.E: Switch from non-renewable biomass for thermal applications by the user

Version 07.0 - Draft

Sectoral scope(s): 01

United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The methodology AMS-I.E covers project activities to displace the use of non-renewable biomass by introducing renewable energy technologies. Examples of these technologies include, but are not limited to biogas stoves, solar cookers, passive solar homes, renewable energy based drinking water treatment technologies (e.g. sand filters followed by solar water disinfection; water boiling using renewable biomass).

2. Purpose

2. The draft methodology proposed in this document aims to:

   (a) Include default values for baseline fuel wood consumption per person;

   (b) Introduce the monitoring table.

3. The purpose of the call for public input is to allow the SSC WG to take into account feedback/comments received on the revision of the methodologies.

3. Key issues and proposed solutions

4. The default value of 0.5 tonnes per person per year (household cookstove) was proposed by the SSC WG 42, both for application in AMS-II.G and AMS-I.E. However, revision of AMS-I.E was pending to include this default value and other issues (e.g. format changes to include monitoring tables).

4. Impacts

5. The proposed revision will facilitate the implementation of clean development mechanism (CDM) project activities and component project activities (CPAs) distributing renewable energy based technologies (e.g. cook stoves), which are very relevant for the least developed countries (LDCs) and other regions that are underrepresented in the CDM.

5. Subsequent work and timelines

6. The SSC WG, at its 49th meeting, agreed on the draft revised methodology. After receiving public inputs on the document, the SSC WG will continue working on the methodology, at its 50th meeting, for recommendation to the Board at a future meeting of the Board.

6. Recommendations to the Board

7. 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 project(s)	Generation of thermal energy by introducing renewable energy technologies for end users that displace the use of non-renewable biomass. Examples of these technologies include, but are not limited to biogas stoves, solar cookers or passive solar homes and safe drinking water applications
Type of GHG emissions mitigation action	Renewable energy: Displacement of more GHG-intensive, non-renewable biomass-fuelled applications by introducing renewable energy technologies

2. Scope, applicability, and entry into force

2.1. Scope

2. This methodology comprises of activities to displace the use of non-renewable biomass by introducing renewable energy technologies. Examples of these technologies include, but are not limited to biogas stoves, solar cookers, passive solar homes, renewable energy based drinking water treatment technologies (e.g. sand filters followed by solar water disinfection; water boiling using renewable biomass).

3. Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.

2.2. Applicability

4. The methodology is applicable for technologies displacing use of non-renewable biomass by renewable energy.

2.3. Entry into force

5. Not applicable (call for public input).

3. Normative references

6. Project participants shall apply the general guidelines to small-scale (SSC) clean development mechanism (CDM) methodologies and ~~Guidelines on the demonstrating~~ Tool for demonstration of additionality of SSC project activities ~~and general guidance on leakage in biomass project activities (attachment C to appendix B)~~ available at: <http://cdm.unfccc.int/Reference/Guidclarif/index.html#meth> mutatis mutandis.

7. This methodology also refers to the latest approved versions of the following approved tools and methodologies:

   (a) "AMS-I.I: Biogas/biomass thermal applications for households/small users";

(b) "Project and leakage emissions from biomass";

(c) "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion";

(d) "Tool to calculate baseline, project and/or leakage emissions from electricity consumption".

4. Definitions

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

5. Baseline methodology

5.1. Project boundary

9. The project boundary is the physical, geographical site of the use of biomass or the renewable energy.

5.2. Baseline emissions

10. It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs.

11. Baseline ~~E~~emissions ~~reductions~~ would be calculated as:

$$~~ERBE_y~~ = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\_fuel} ~~- PE_{BC,y}~~ \quad \text{Equation (1)}$$

Where:

$~~ERBE_y~~$	=	Baseline ~~E~~emissions ~~reductions~~ during the year *y* in t CO_2e
B_y	=	Quantity of woody biomass that is substituted or displaced in tonnes
$f_{NRB,y}$	=	Fraction of woody biomass used in the absence of the project activity in year *y* that can be established as non-renewable biomass using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (fNRB) values available on the CDM website[1]
$NCV_{biomass}$	=	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)

[1] Default values endorsed by designated national authorities and approved by the Board are available at <http://cdm.unfccc.int/DNA/fNRB/index.html>.

$EF_{projected\_fossil\ fuel}$ = Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 t CO_2/TJ[2]

~~$PE_{BC,y}$~~ = ~~Project emissions due to cultivation of biomass~~

12. B_y is determined by using one of the following options:

(a) Calculated as the product of the number of ~~appliances~~ households multiplied by the estimate of average annual consumption of woody biomass per household that is displaced by the project ~~per appliance~~ (tonnes/year); ~~This can be derived from historical data or estimated using survey methods~~.

$$B_y = N_{HH} \times BC_{HH,y}$$ Equation (2)

Where:

N_{HH} = Number of households in the project, number

$BC_{HH,y}$ = Average annual consumption of woody biomass displaced per household, tonnes/year

(b) Calculated as the product of the number of persons served per institution[3] multiplied by the number of institutions and the estimate of average annual baseline woody biomass consumption per person BP_y (tonnes/person/year).

$$B_y = \sum_{1}^{i} N_{p,I,y,i} \times N_{I,i} \times BP_y$$ Equation (3)

Where:

$N_{p,I,y,i}$ = Average number of persons served per institution in year y, number

$N_{I,i}$ = Number of institutions type *i* prior to project implementation, number

BP_y = Average annual baseline woody biomass consumption per person per year, tonnes/person/year

[2] This value represents the emission factor of the substitution fuels likely to be used by similar users, on a weighted average basis. It is assumed that the mix of present and future fuels used would consist of a solid fossil fuel (lowest in the ladder of fuel choices), a liquid fossil fuel (represents a progression over solid fuel in the ladder of fuel use choices) and a gaseous fuel (represents a progression over liquid fuel in the ladder of fuel use choices). Thus a 50 per cent weight is assigned to coal as the alternative solid fossil fuel (96 t CO_2/TJ) and a 25 per cent weight is assigned to both liquid and gaseous fuels (71.5 t CO_2/TJ for kerosene and 63.0 t CO_2/TJ for liquefied petroleum gas (LPG).

[3] Institutions such as schools, prisons and hospitals.

(c) Calculated as the product of the number of persons served per household multiplied by the number of households and the estimate of average annual baseline woody biomass consumption per person BP_y_ (tonnes/person/year).

$$B_y = N_{p,HH} \times BP_y \times N_{HH}$$ Equation (4)

Where:

$N_{p,HH}$ = Average number of persons served per household, number

N_{HH} = Number of households in the project, number

(d) Calculated from the thermal energy generated in the project activity as:

$$B_y = \sum_i^n HG_{p,y} \div \left(NCV_{biomass} \times \eta_{old,i}\right)$$ Equation (5)

~~$B_y = HG_{p,y} / (NCV_{biomass} * \eta_{old,j})$~~ ~~Equation (6)~~

Where:

$HG_{p,y}$ = Quantity of thermal energy generated by the new renewable energy technology in the project in year *y* (TJ)
~~For a biogas digester, it shall be monitored as per the requirements stipulated in the Table 2 of "AMS-I.I: Biogas/biomass thermal applications for households/small users". Alternatively project proponents may use a default biogas generation value of 0.13 $Nm^3.m^{-3}.day^{-1}$ (i.e. volume of biogas generated in normal conditions of temperature and pressure per unit useful volume of the digester per day) for regions/countries where annual average ambient temperature is higher than 20°C~~

$\eta_{old,i}$ = Efficiency of pre - project device per type of device i
~~1. Efficiency of the system being replaced, measured using representative sampling methods or based on referenced literature values (fraction), use weighted average values if more than one type of system is being replaced;~~
~~2. A default value of 0.10 may be optionally used if the replaced system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney; for other types of systems a default value of 0.2 may be optionally used~~

(e) In the specific case of renewable energy based water treatment technologies, B_y is calculated as the product of target population of the project multiplied by the volume of drinking water per person per day and the mass of woody biomass that would have been required to boil one litre of water as per the equation below(~~3~~).

$$B_y = N_{p,y} \times QDW_{p,y} \times WB_{BL} \times 365 \times 10^{-3}$$ Equation (7)

Where:

$N_{p,y}$ = Project population in year *y* (number). ~~For establishing the project population a baseline survey shall be conducted to demonstrate target population supplied with renewable energy based water treatment technology by the project would have used water boiling as the water purification method in the absence of the project activity~~

$QDW_{p,y}$ = Volume of drinking water in litres per person per day (litres). ~~The volume of drinking water in litres per person per day shall be established using survey methods, subject to a cap of 5.5 litres~~[4]

WB_{BL} = Mass of woody biomass that would have been required to boil one litre of water (kg/litre). ~~The quantity of mass of woody biomass that would have been required to boil one litre of water for five minutes determined through a water boiling test (World Health Organization (WHO) recommends a minimum duration of five minutes of water boiling)~~[5]

~~13. In case biomass is sourced from dedicated plantations, the procedures in the tool "Project and leakage emissions from biomass" shall be used to calculate $PE_{BC,y}$.~~

~~[4] Based on WHO recommendations (Domestic Water Quantity, Service Level and Health, Table 2: Volumes of water required for hydration, WHO 2003).~~

~~[5] WHO guidelines for emergency treatment of drinking water at point of the use - <http://www.searo.who.int/LinkFiles/List_of_Guidelines_for_Health_Emergency_Emergency_treatment_of_drinking_water.pdf>.~~

5.3. Differentiation between non-renewable and renewable woody biomass

14. Project participants shall determine the shares of renewable and non-renewable woody biomass in B_y (the quantity of woody biomass used in the absence of the project activity) the total biomass consumption using nationally approved methods (e.g. surveys or government data if available) and then determine $f_{NRB,y}$ as described below. The following principles shall be taken into account:

5.3.1. Demonstrably renewable woody biomass[6] (DRB)

15. Woody[7] biomass is "renewable" if one of the following two conditions is satisfied:

    (a) The woody biomass is originating from land areas that are forests[8] where:

        (i) The land area remains a forest;

        (ii) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks[9] on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and

        (iii) Any national or regional forestry and nature conservation regulations are complied with;

    (b) The biomass is woody biomass and originates from non-forest areas (e.g. croplands, grasslands) where:

        (i) The land area remains cropland and/or grasslands or is reverted to forest;

        (ii) Sustainable management practices are undertaken on these land areas to ensure in particular that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and

        (iii) Any national or regional forestry, agriculture and nature conservation regulations are complied with.

[6] This definition uses elements of EB 23, annex 18.

[7] In cases of charcoal produced from woody biomass, the demonstration of renewability shall be done for the areas where the woody biomass is sourced.

[8] The forest definitions as established by the country in accordance with the decisions 11/CP.7 and 19/CP.9 should apply.

[9] Carbon stocks may be estimated following the procedures described in the methodological tool "Project and leakage emissions from biomass".

5.3.2. Non-renewable biomass

16. *NRB* is the quantity of woody biomass used in the absence of the project activity (B_y) minus the *DRB* component, as long as at least two of the following supporting indicators are shown to exist:

    (a) A trend showing an increase in time spent or distance travelled for gathering fuel-wood, by users (or fuel-wood suppliers) or alternatively, a trend showing an increase in the distance the fuel-wood is transported to the project area;

    (b) Survey results, national or local statistics, studies, maps or other sources of information, such as remote-sensing data, that show that carbon stocks are depleting in the project area;

    (c) Increasing trends in fuel wood prices indicating a scarcity of fuel-wood;

    (d) Trends in the types of cooking fuel collected by users that indicate a scarcity of woody biomass.

17. Thus, the fraction of woody biomass saved by the project activity in year *y* that can be established as non-renewable, is:

$$f_{NRB,y} = \frac{NRB}{NRB + DRB}$$ Equation (8)

18. Project participants shall also provide evidence that the trends identified are not occurring due to the enforcement of local/national regulations.

5.4. Project emissions

19. The project emissions (PE_y) from cultivation of biomass shall be calculated using the latest version of the tool “Project and leakage emissions from biomass”.

5.5. Leakage emissions

20. Leakage emissions (LE_y) related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples). The following potential source of leakage shall be considered:

    (a) The use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass used by the non-project households/users that is attributable to the project activity then B_y is adjusted to account for the quantified leakage. Alternatively, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

21. General guidance on leakage in biomass project activities shall be followed to quantify leakages pertaining to the use of biomass residues.

5.6. Emission reductions

22. Emission reductions are to be estimated based on the equation below.

$$ER_y = BE_y - PE_y - LE_y$$ Equation (9)

Where:

ER_y = Emission reductions in year y, tonnes CO_2eq

5.7. Data and parameters not monitored

23. In addition to the parameters listed in the tables below, the provisions on data and parameters not monitored in the tools referred to in this methodology apply.

Data / Parameter table 1.

Data / Parameter:	$\mathbf{B_y}$
Data unit:	tonnes/year
Description:	Quantity of woody biomass that is substituted or displaced
Source of data:	-
Measurement procedures (if any):	Calculated using one of the following options: (a) Calculated as the product of the number of households multiplied by the estimate of average annual consumption of woody biomass displaced by the project per household (tonnes/year); (b) Calculated as the product of the number of persons served per institution multiplied by the number of institutions and the estimate of average annual woody biomass consumption per person per year ; (c) Calculated as the product of the number of persons served per household multiplied by the number of households and the estimate of average annual woody biomass consumption per person per year (d) Calculated from the thermal energy generated in the project activity; (e) In the specific case of renewable energy based water treatment technologies, is calculated as the product of target population of the project multiplied by the volume of drinking water per person per day and the mass of woody biomass that would have been required to boil one litre of water.
Monitoring frequency:	-
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 2.

Data / Parameter:	BP_y
Data unit:	tonnes/person/year
Description:	Average annual baseline woody biomass consumption per person per year
Source of data:	-
Measurement procedures (if any):	Determined ex-ante using one of the following options and remains fixed during the crediting period: (i) A default value of 0.5 tonnes/person per year; (ii) Historical data or a sample survey conducted as per the latest version of the standard for "sampling and surveys for CDM project activities and programme of activities".
Monitoring frequency:	Ex-ante
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 3.

Data / Parameter:	$f_{NRB,y}$
Data unit:	-
Description:	Fraction of woody biomass saved by the project activity during year *y* that can be established as non-renewable biomass
Source of data:	-
Measurement procedures (if any):	Using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (fNRB) values available on the CDM website.
Monitoring frequency:	Ex-ante
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 4.

Data / Parameter:	WB_{BL}
Data unit:	kg/litre
Description:	Mass of woody biomass that would have been required to boil one litre of water
Source of data:	-

Measurement procedures (if any):	The quantity of mass of woody biomass that would have been required to boil one litre of water for five minutes determined through a water boiling test (World Health Organization (WHO) recommends a minimum duration of five minutes of water boiling)[10].
Monitoring frequency:	Ex-ante
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 5.

Data / Parameter:	N_{HH}
Data unit:	number
Description:	Number of households in the project in year *y*
Source of data:	-
Measurement procedures (if any):	Established ex-ante prior to start of the project activity
Monitoring frequency:	Ex-ante
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 6.

Data / Parameter:	$BC_{HH,y}$
Data unit:	tonnes
Description:	Average annual consumption of woody biomass displaced per household per year y
Source of data:	-
Measurement procedures (if any):	Historical data or a sample survey conducted as per the latest version of the standard for "sampling and surveys for CDM project activities and programme of activities". This parameter should remain fixed during the crediting period.
Monitoring frequency:	Ex-ante
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 7.

Data / Parameter:	$N_{p,HH}$
Data unit:	number
Description:	Average number of persons served per household prior to project implementation

[10] WHO guidelines for emergency treatment of drinking water at point of the use - <http://www.searo.who.int/LinkFiles/List_of_Guidelines_for_Health_Emergency_Emergency_treatment_of_drinking_water.pdf>.

Source of data:	Established ex-ante prior to project implementation based on records of households served by the project
Measurement procedures (if any):	-
Monitoring frequency:	Ex-ante
QA/QC procedures:	-
Any comment:	-

6. Monitoring methodology

24. The project participants shall maintain a record for the date of commissioning of project devices of each type *i*.

25. Relevant parameters shall be monitored and recorded during the crediting period as indicated in section 6.1 below. The applicable requirements specified in the "General guidelines for SSC CDM methodologies" are also an integral part of the monitoring guidelines specified below and therefore shall be followed by the project participants.

~~26. Monitoring shall consist of checking of all appliances or a representative sample thereof, at least once every two years (biennial) to ensure that they are still operating or are replaced by an equivalent in service appliance.~~

27. In order to assess the leakages specified under paragraph 20, monitoring shall include data on the amount of woody biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources). Other data on non-renewable woody biomass use required for leakage assessment shall also be collected.

28. Monitoring should confirm the displacement or substitution of the non-renewable woody biomass at each location. In the case of appliances switching to renewable biomass the quantity of renewable biomass used shall be monitored. For this, project proponents may apply the "Standard for sampling and surveys for CDM project activities and programme of activities".

~~29. In case Option (b) in paragraph 12 is chosen for baseline calculations, monitoring shall include the amount of thermal energy generated by the new renewable energy technology in the project in year *y*, where applicable.~~

30. In the case of renewable energy based water treatment technologies, water quality shall be monitored to ensure that it conforms to drinking water quality specified in relevant national microbiological water quality guidelines/standards of the host country. In case a national standard/guideline is not available, the standards/guidelines by the WHO or United States Environmental Protection Agency (US-EPA) shall be applied.

6.1. Data and parameters monitored

Data / Parameter table 8.

Data / Parameter:	**Number of project devices of type I operating during year *y***
Data unit:	-
Description:	Number of project devices of type i operating during year *y*

Source of data:	-
Measurement procedures (if any):	Measured directly or based on a representative sample Standard for Sampling and surveys for CDM project activities and programme of activities shall be used for determining the sample size to achieve 90/10 confidence precision. A discount shall be applied based on the percentage of devices operational as determined by the sample survey e.g. if survey shows that 10% of the devices is non-operating, an adjustment factor of 0.9 shall be applied to number of project devices commissioned.
Monitoring frequency:	At least once every two years (biennial)
QA/QC procedures	-
Any comment:	-

Data / Parameter table 9.

Data / Parameter:	**$NCV_{biomass}$**
Data unit:	TJ/tonne
Description:	Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices.
Source of data:	-
Measurement procedures (if any):	IPCC default for wood fuel, 0.015 TJ/tonne, based on the gross weight of the wood that is 'air-dried' can be used if fuel used in project device is also woody biomass. If briquette or charcoal is used as project fuel NCV shall be measured annually.
Monitoring frequency:	Yearly
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 10.

Data / Parameter:	**$f_{NRB,y}$**
Data unit:	-
Description:	Fraction of woody biomass saved by the project activity during year *y* that can be established as non-renewable biomass.
Source of data:	-
Measurement procedures (if any):	using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (fNRB) values available on the CDM website.
Monitoring frequency:	Yearly, if project proponents opt for annual monitoring instead of fixing the value ex-ante at the beginning of each crediting period.
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 11.

Data / Parameter:	**$HG_{p,y}$**
Data unit:	TJ

Description:	Quantity of thermal energy generated by the new renewable energy technology in the project in year *y*
Source of data:	-
Measurement procedures (if any):	For a biogas digester, it shall be monitored as per the requirements stipulated in the Table 2 of "AMS-I.I: Biogas/biomass thermal applications for households/small users". Alternatively project proponents may use a default biogas generation value of 0.13 Nm3.m-3.day-1 (i.e. volume of biogas generated in normal conditions of temperature and pressure per unit useful volume of the digester per day) for regions/countries where annual average ambient temperature is higher than 20°C.
Monitoring frequency:	Yearly
QA/QC procedures:	-
Any comment:	In case Option (c) in paragraph 12 is chosen for baseline calculations

Data / Parameter table 12.

Data / Parameter:	$\eta_{old,i}$
Data unit:	(I) Default 0.1 or 0.2 (please see details below) (II) Establish prior to start of implementation based on survey
Description:	Efficiency of pre-project device
Source of data:	-
Measurement procedures (if any):	Efficiency of pre - project device, which is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Use weighted average values (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced.
Monitoring frequency:	Fixed for each individual household when included in the project activity database.
QA/QC procedures:	-
Any comment:	In case Option (c) in paragraph 12 is chosen for baseline calculations

Data / Parameter table 13.

Data / Parameter:	$N_{p,y}$
Data unit:	Number
Description:	Project population in year *y*
Source of data:	-
Measurement procedures (if any):	For establishing the project population, a baseline survey shall be conducted to demonstrate target population supplied with renewable energy based water treatment technology by the project would have used water boiling as the water purification method in the absence of the project activity.
Monitoring frequency:	Yearly
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 14.

Data / Parameter:	$QDW_{p,y}$
Data unit:	Litres
Description:	Volume of drinking water in litres per person per day.
Source of data:	-
Measurement procedures (if any):	The volume of drinking water in litres per person per day shall be established using survey methods, subject to a cap of 5.5 litres[11]
Monitoring frequency:	Yearly
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 15.

Data / Parameter:	**Date of commissioning of project device i**
Data unit:	Date
Description:	Actual date of commissioning of the project device.
Source of data:	Internal records
Measurement procedures (if any):	-
Monitoring frequency:	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures:	-
Any comment:	-

Data / Parameter table 16.

Data / Parameter:	$N_{p,I,y,i}$
Data unit:	number
Description:	Average number of persons served per institution
Source of data:	-
Measurement procedures (if any):	Average number of persons served per institution shall be based on survey undertaken as per Standard for Sampling and surveys for CDM project activities and programme of activities. This parameter shall be monitored every year. If the monitoring period is shorter or longer than one year, the result may be extrapolated for the monitoring period.
Monitoring frequency:	Monitored annually ex-post
QA/QC procedures:	-
Any comment:	-

[11] Based on WHO recommendations (Domestic Water Quantity, Service Level and Health, Table 2: Volumes of water required for hydration, WHO 2003).

6.2. Representative sampling methods

31. A statistically valid sample of the locations where the systems are deployed, with consideration, in the sampling design, of occupancy and demographics differences can be used to determine parameter values used to determine emission reductions, 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 a 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 a 10 per cent margin of error requirement shall be achieved for the sampled parameters. In cases where survey results indicate that 90/10 precision or 95/10 precision is not achieved, the lower bound of a 90 per cent or 95 per cent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.

7. Project activity under a programme of activities

32. The use of this methodology in a project activity under a programme of activities (PoA) is legitimate if the following leakages are estimated and accounted for, if required, on a sample basis using a 90/30 precision for the selection of samples, and accounted for:

    (a) Use of non-renewable woody biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment quantifies a portion of non-renewable woody biomass saved under the project activity that is then used as the baseline of other CDM project activities then B_y is adjusted to account for the quantified leakage;

    (b) Increase in the use of non-renewable woody biomass outside the project boundary to create non-renewable woody biomass baselines can also be a potential source of leakage. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass outside the project boundary, then B_y is adjusted to account for the quantified leakage;

    (c) As an alternative to subparagraphs (a) and (b), B_y can be multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

33. The following further conditions apply for the value of fraction of non-renewable (fNRB) applied in a component project activity (CPA) of a PoA. The choice between (a) conduct own studies to determine the local fNRB value and then apply those values in the CPAs; and (b) use default national values approved by the Board; shall be made ex ante. A switch from national value i.e. choice (b) to sub-national values i.e. choice (a) is permitted, under the condition that the selected approach is consistently applied to all CPAs.

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Document information

Version	*Date*	*Description*
Draft 07.0	19 October 2015	SSCWG 49, Annex 05 A call for public input will be issued on this draft revised methodology. Revision to include the default values for baseline fuel wood consumption per person and monitoring table.
06.0	28 November 2014	EB 81, Annex 25 The revision: • Introduces the methodological tool "Project and leakage emissions from biomass", streamlines biomass cultivation procedures across small and large scale methodologies; • Removes restrictions for application in a PoA.
05.0	20 July 2012	EB 68, Annex 22 Includes: • A reference to the available country specific default values for fNRB; • A default biogas generation rate for regions/countries where annual average ambient temperature is higher than 20°C; and Specifies: • The requirements of using national or local fNRB values for CPAs under a PoA.
04.0	15 April 2011	EB 60, Annex 20 Requirements for leakage estimation simplified, default net gross adjustment factor is included as an option to account for any leakages, emission factor for the projected fossil fuel revised, more options for sampling and survey included.
03.0	17 September 2010	EB 56, Annex 17 To expand the applicability to renewable energy water treatment technologies.
02.0	26 March 2010	EB 53, Annex 18 To include the changes below which are consistent with the changes to AMS-II.G approved by the Board at its fifty-first meeting: • Further clarification on the eligible technology/measures; • Default efficiency factors for baseline cook stoves; • Procedures for sampling; • Revised procedures for quantity of woody biomass that can be considered as non-renewable; and • Clarifications as to which leakage requirements are appropriate for projects versus PoAs.

Version	*Date*	*Description*
01.0	1 February 2008	EB 37, Annex 6 Initial adoption.

Decision Class: Regulatory
Document Type: Standard
Business Function: Methodology
Keywords: biomass, simplified methodologies, thermal energy production, type (i) projects