



**Programme design document form for
small-scale CDM programmes of activities**

(Version 03.0)

Complete this form in accordance with the Attachment "Instructions for filling out the programme design document form for small-scale CDM programmes of activities" at the end of this form.

PROGRAMME DESIGN DOCUMENT (PoA-DD)

Title of the PoA	Domestic Cooking Stoves substitution programme in Mozambique
Version number of the PoA-DD	Version 05
Completion date of the PoA-DD	10/10/2014
Coordinating/ managing entity	Fondazione AVSI
Host Party(ies)	The Republic of Mozambique
Sectoral scope(s) and selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope 03: Energy Demand AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 05.0)

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

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Domestic Cooking Stoves substitution programme in Mozambique

Version 05

10/10/2014

A.2. Purpose and general description of the PoA

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1. General operating and implementing framework of PoA

The aim of the PoA Domestic Cooking Stoves substitution programme in Mozambique is to improve energy efficiency by substituting inefficient traditional cooking stoves with more effective ones improving the conditions of the local population living in Mozambique and reducing the greenhouse gas emissions.

The PoA and the CPAs under it are implemented and monitored in accordance with the requirements specified by AMS-II.G Version 05.0, and as further described in this PoA Design Document (PoA-DD) and the relevant CDM Programme Activity Design Documents (CPA-DD).

Details concerning stove performance, distribution, and assembly will be provided at the CPA level. For each CPA under the proposed PoA stoves will have a unique serial number. Data collected during distribution and monitoring of each CPA will be stored in an electronic data management system, or monitoring database, for a minimum of two years past the crediting period. From this data, the emissions reductions of each CPA in the PoA will be determined. This system will be available for review by the Designated Operational Entity (DOE) during verification of each CPA.

A stakeholder engagement process will be undertaken for each of the CPAs under the proposed PoA, ensuring that potential stove recipients understands the installation agreement, are trained in the usage of the stove, and are able to give adequate feedback on their usage.

2. Confirmation that the PoA is a voluntary action by the CME

Fondazione AVSI as the coordinating/managing entity hereby confirms that the PoA is a voluntary action. There are currently no laws, policies or mandatory requirement stipulating the use of fuel-efficient cook stoves in Mozambique. It follows that the PoA is a voluntary action.

3. Contribution to sustainable development

The PoA contributes to the sustainable development in a number of ways:

- i. Environmental
 - The efficient stoves reduce the consumption of charcoal or other biomass based fuel for cooking and thus reduce CO₂ emissions.
 - The potential decrease in charcoal production will also reduce greenhouse gas emissions as charcoal production is responsible for example for the emission of methane (one of the most dangerous GHGs).
 - The project activity will lead to a decrease in the use of woody biomass discouraging the deforestation with consequent decrease of biodiversity loss.
- ii. Social
 - Especially women and children's overall health will be improved as the amount of indoor air pollutants from the burning of biomass in the family home will be reduced.

Less carbon dioxide, carbon monoxide and particulate matter will be emitted. Thus there is a potentiality of reducing the number of deaths from poisoning as well as the respiratory tract infection.

- Considerably less time will be needed for cooking which has implications on livelihoods and on social relations.

iii. Economic

- Costs for fuel purchase will be reduced through increased thermal efficiency, the saved money can be used for other basic needs and therefore reduce poverty.
- The project activity will also give the opportunity to increase employment. There will be some local people hired for the distribution of the new stoves and the removal of the inefficient traditional stoves.

A.3. CMEs and participants of PoA

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The coordinating and managing entity (CME) of the proposed PoA is Fondazione AVSI. CarbonSinkGroup S.r.l. and Cloros S.r.l are also project participants to the PoA.

As per paragraph 232 of the Project Standard “The operators of individual CPAs are not required to be project participants. CDM project participation is only recorded at the PoA level.”¹ Thus, the operators of individual CPAs are not required to be project participants and CDM programme participation is only recorded at the PoA level.

A.4. Party(ies)

Name of Party involved (host) indicates host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
The Republic of Mozambique (host)	Fondazione AVSI (Private entity)	No
Italy	CarbonSinkGroup S.r.l. (Private entity)	No
Italy	Cloros S.r.l.(Private entity)	No

A.5. Physical/ Geographical boundary of the PoA

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The geographical boundary for the proposed PoA is the Republic of Mozambique². All CPAs included in the PoA will be implemented in Mozambique.

¹ CDM-EB65-A05-STAN. Clean Development Mechanism Project Standard (Version 07.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 29/09/2014)

² Mozambique_KML



Imagine A-1. Map of Africa



Imagine A-2. Mozambique

A.6. Technologies/measures

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The CPAs included in the PoA will be a Type II projects³. Each CPA will reduce the consumption of energy by substituting inefficient traditional cooking stoves with more effective ones. The stove design may vary by CPA as different locations, climates and traditions demand. One example of the used stove model is CH-2200 Charcoal Cooking stove (Imagine A-3). This stove model is one of the world's most fuel-efficient charcoal cooking stove models performing at 42.3 per cent thermal efficiency, thereby it can lead to a charcoal usage reduction of up to 50% compared to traditional stoves. The CH-2200 Charcoal Cooking stove has been tested in accordance with the "Emissions and Performance Test Protocol", with emissions measurements based on the stove testing protocol developed by Colorado State University. A testing certificate is attached in Appendix 4.



Imagine A-3. CH-2200 Charcoal Cooking Stove (source: Envirofit)

For CPAs using an alternative stove model, a stove testing report similar to that shown in Appendix 4 will be provided for the alternative design. All stove designs eligible under the PoA must have a thermal efficiency greater than 20 per cent required by the applied AMS-II.G methodology as well as to fulfil the other requirements described in the eligibility criteria nro 3 in section B.2 of this PoA.

³ CDM-EB65-A05-STAN. Clean Development Mechanism Project Standard (Version 07.0), paragraph 89. Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 29/09/2014)

A.7 Public funding of PoA

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The PoA does not receive public funding from the Annex 1 Parties. It is expected in general also that no public funding will be used in the CPAs under the PoA.

If Public Funding is accessed for any CPAs under this PoA, affirmation that this funding does not result in a diversion of official development assistance, obtained from Annex 1 Party/Parties providing public funding, will be included in the CPA-DD in accordance with applicable provisions related to official development assistance in the Project standard⁴.

SECTION B. Demonstration of additionality and development of eligibility criteria

B.1. Demonstration of additionality for PoA

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According to the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0)⁵ additionality shall be demonstrated by establishing that in the absence of CDM PoA, none of the implemented CPAs would occur.

In accordance with the Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0)⁶ the demonstration can be done by providing an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

- (a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions;
- (b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;
- (c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;
- (d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

Anyhow, the documentation of barriers is not required for the positive list of technologies and project activity types that are defined as automatically additional. In accordance to the paragraph 2 point (c) of the above mentioned guidelines, the documentation of barriers is not required for "Project activities solely composed of isolated units where the users of the technology/ measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds".

⁴ CDM-EB65-A05-STAN. Clean Development Mechanism Project Standard (Version 07.0), paragraph 40. Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 29/09/2014)

⁵ EB 74 Annex 5. Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

⁶ EB 68, Annex 27. Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0). http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf (site visited 09/01/2014)

The proposed PoA distributes efficient cooking stoves for the households or communities or Small and Medium Enterprises (SMEs) and the size of each unit is no larger than 5 % of the small-scale CDM threshold. Therefore the project activity can be considered automatically additional and the documentation of barriers is not required.

B.2. Eligibility criteria for inclusion of a CPA in the PoA

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The following eligibility criteria are developed in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0)⁷. These criteria must be met by each CPA to ensure its eligibility under the PoA.

Table B-1. The eligibility criteria needed to be fulfilled by each CPA to be included in the PoA

Eligibility criteria
1. The geographical boundary of the CPA is within the geographic boundaries of Mozambique.
2. The CPA ensures that double counting of emission reductions is avoided, through the identification of each stove with a unique identification number.
3. The CPA involves the distribution/installation of new efficient cook stoves with following characteristics: <ul style="list-style-type: none"> • specified efficiency of at least 20% tested in compliance with WBT, CCT or KPT⁸ • biomass fired (for example charcoal or firewood) • stove technology based on combustion or gasification • single pot or multi pot • portable or fixed • unit size (height x width x depth) between 10 x 15 x 15 cm and 100 x 100 x 100 cm
4. The start date of the CPA is not be prior of the start date of the PoA, 22nd of January 2014. The start date will be proofed by documentary evidence like the receipts of the selling the stoves in project area.
5. The CPA uses the version 05.0 of the small scale approved methodology AMS.II.G: Energy Efficiency Measures in Thermal Applications of Non-renewable Biomass. The fulfilling of applicability conditions of the methodology is demonstrated.
6. The CPA demonstrates its additionality by demonstrating that its "Project activities area solely composed of isolated units where the users of the technology/ measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds" in accordance with EB 68, Annex 27 ⁹ .
7. The CPA includes a description and documentation about local stakeholder consultation made in accordance with Clean development mechanism project standard (Version 07.0) ¹⁰ , and environmental impact analysis in the case required by the host country.
8. The CPA includes affirmation if public funding is or is not involved in the project finance. In case public funding is included, the Annex 1 country affirms that it doesn't result in a diversion of Official Development Assistance.
9. The target group of the CPA are the households or communities or Small and Medium Enterprises (SMEs) cooking with traditional stoves.
10. The CPA follows the sampling requirements specified Standard for sampling and surveys for

⁷ EB 74 Annex 5. Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

⁸ Water Boiling Test, Controlled Cooking Test or Kitchen Performance Test.

⁹ EB 68, Annex 27. Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0). http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf

¹⁰ CDM-EB65-A05-STAN. Clean development mechanism project standard (Version 07.0). available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 29/09/2014)

CDM project activities and programme of activities (Version 04.1) ¹¹ .
11. The CPA adheres to the small-scale threshold criteria and remains within that threshold throughout the crediting period.
12. The CPA is not a de-bundled component of another CDM activity or PoA. The requirements for a debundling check as outlined in the version 03 of the “Guidelines on assessment of debundling for SSC project activities” ¹² are met.
13. End users receiving efficient stoves under the CPA contractually cede their rights to claim and own emission reductions.

B.3. Application of technologies/measures and methodologies

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The approved small-scale baseline and monitoring methodology applied to the CPAs included in the PoA is AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 05.0), Sectoral Scope 03: Energy Demand¹³. This methodology has been selected as the technologies to be implemented in the proposed PoA include the introduction of energy efficient cook stoves with efficiency improvements in the thermal applications of non-renewable biomass.

The description of the sampling plan and demonstration on how it meets applicable provisions in the “Standard for sampling and surveys for CDM project activities and programmes of activities (Version 04.1)¹⁴” will be included in each CPA-DD. In accordance with that standard the sampling plan of each CPA shall include a description of the sampling approach, important assumptions, and justification for the selection of the chosen approach. Moreover, according to the “Guidelines for sampling and surveys for CDM project activities and programme of activities (Version 03.0)”¹⁵ the sampling plan should contain information relating to (A) sampling design; (B) data to be collected; and (C) implementation plan.

B.4. Date of completion of application of methodology and standardized baseline and contact information of responsible person(s)/ entity(ies)

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10/10/2014.

Contact information of the responsible persons, Andrea Maggiani/CarbonSinkGroup S.r.l. and Riccardo Caliarì/Cloros S.r.l., are presented in Appendix 1.

¹¹ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

¹² EB 54, Annex 13. Guidelines on Assessment of Debundling for SCC Project Activities (Version 03). http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid17.pdf (site visited 09/01/2014)

¹³ AMS-II.G (Version 05.0). <http://cdm.unfccc.int/methodologies> (site visited 09/01/2014)

¹⁴ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

¹⁵ CDM-EB67-A06-GUID (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Guidclarif/index.html#pdd> (site visited 09/01/2014)

SECTION C. Management system

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In accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0)¹⁶ the management system includes following points:

a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies

The programme is managed by Fondazione AVSI as the Coordinating and Managing Entity (CME) together with the other named PoA project Participants. The implementation of the PoA is made by later named CPA Implementers through small scale CDM programme activities (CPAs). CarbonSinkGroup S.r.l., Fondazione AVSI and Cloros S.r.l. are the joint focal points for the Executive Board of the CDM in all aspects relating to validation, verification, registration and issuance of carbon credits generated by the programme.

Fondazione AVSI and Cloros S.r.l. are responsible to review and include CPAs in the PoA. Based on previous CDM experience and staff training, the Fondazione AVSI and Cloros S.r.l. have the competencies to review and include CPAs in the PoA ensuring that each CPA meets the eligibility criteria presented in the section B.2 of the PoA. Moreover, CarbonSinkGroup s.r.l. will support Fondazione AVSI and Cloros S.r.l. in this task bringing available its competencies. Below in the table C-1 are described the roles and responsibilities of personnel involved in the whole process of inclusion of CPAs.

Table C-1. Roles and responsibilities

Personnel	Roles and responsibilities
Fondazione AVSI (CME) and Cloros S.r.l.	<ul style="list-style-type: none"> - Responsible for identifying and managing all SSC-CPAs to be included in the proposed PoA - To sign a contract with the CPA implementer
CarbonSinkGroup S.r.l.	<ul style="list-style-type: none"> - To submit the CPA-DD to the DOE for validation and inclusion in the PoA - Supports Fondazione AVSI and Cloros S.r.l. as well as the CPA implementers
CPA implementer	<ul style="list-style-type: none"> - To apply for inclusion in the PoA by submitting CPA-DD to the CME
DOE	<ul style="list-style-type: none"> - To validate that the CPA-DDs are compliant with the baseline and monitoring methodology AMS-II.G, the sampling standard and project standard identified in the PoA-DD - To validate the CPA-DDs fulfil the eligibility criteria contained within the PoA-DD - To validate that at the time of validation CME has received LoA from the Host Country

b) Records of arrangements for training and capacity development for personnel

As part of the inclusion of a SSC-CPA under the PoA, an agreement will be signed by the Project implementer and the project managing entity (Fondazione AVSI)¹⁷. The agreement will include specific provisions and declarations that confirm the SSC-CPA project implementers agree that

¹⁶ EB 74 Annex 5. Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

¹⁷ This is in the case the CPA implementer is not Fondazione AVSI

their activity is being subscribed under the PoA. Suitable training will be conducted for project implementers proposing new SSC-CPAs to make them aware of the rules of the CDM and SSC-PoA. Training will include:

- Data recoding procedures
- Efficient cooking stove distribution procedures
- Monitoring procedures

The CPA implementer will be in charge for the training of the field staff.

c) A Procedure for technical review of inclusion of CPAs

The CME shall ensure that all CPAs included under the PoA meets the eligibility criteria outlined in section B.2 of this PoA-DD and that the records of the technical review process are maintained. All documentation will be kept in an organised and easy to access manner, such as sorting by either date or serial number with a clear division between the CPAs.

d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA)

All the new SSC-CPA which will be included to the PoA needs to fulfill all the eligibility criteria for inclusion in to the PoA like outlined in section B.2 of this PoA-DD. The eligibility criteria number 2 ("The CPA ensures that double counting of emission reductions is avoided, through the identification of each stove with a unique identification number.

Double counting is avoided by registering the serial number of each distributed efficient cooking stove in the database together with the contact details of the user. The database will restrict entry of repeat serial numbers and/or contact details. The serial number together with the contact details of the user constitutes the unique identification of the system. In addition, each CPA will be cross-checked with other CPAs of this PoA and with any other CDM project activity/ voluntary carbon activity operating in the same geographic area to ensure that the CPA is not included in any other PoA, CDM project activity or voluntary carbon activity. Moreover, individual CPA operators shall provide details of the date of sale/distribution of efficient cooking stoves as well to attest that the efficient cooking stoves are not included in any other CDM project activity or in CPAs of other PoAs.

e) Records and documentation control process for each CPA under the PoA

CarbonSinkGroup will maintain general database which will allow the Project Participants to have an quick overview of each CPA. This electronic database includes following information about each CPA included in the PoA:

- name of the CPA operator;
- name of the CPA;
- date of inclusion of the CPA to the registered PoA;
- start date of the CPA;
- CERs realized in the CPA;
- Host Party;
- total number of efficient cooking stoves distributed in the CPA.

Moreover, there will be separate electronic project databases for each CPA. The purpose of these databases is to provide enough information to enable full monitoring of each CPA. The databases will include for example information about stove distribution as well as the monitoring results. Each project databases will be operated and maintained by the project implementer in supervision of CarbonSinkGroup. A back-up of the database is made regularly and stored in a hard-copy form like CDs. All data monitored and required for verification and issuance will be kept for two years after

the end of the crediting period or the last issuance of CERs for the project activity, whichever is later.

f) Measures for continuous improvements of the PoA management system

Project participants of the PoA in close collaboration with the CPA implementers, will undertake an annual review of the overall PoA management system, including identifying any problems with stove distribution, stove use in the homes, monitoring of the stove use and overall database maintenance. This review will ensure that the best practices are maintained through the lifetime of the PoA. If the methodology and standards are updated, the PoA management system might be improved too.

SECTION D. Duration of PoA

D.1. Start date of PoA

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The start date of the PoA is 22/01/2014 which is the date when the PoA-DD was published for global stakeholder consultation.

D.2. Duration of the PoA

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The length of the PoA is 28 years.

SECTION E. Environmental impacts

E.1. Level at which environmental analysis is undertaken

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Due to its small scale nature, together with its positive social and environmental benefit and absence of negative impact, and acknowledging that the impact of the improved cooking stoves in Mozambique is best assessed from a macro perspective, as per the requirements of the CDM modalities and procedures, environmental analysis should be performed at the PoA level. On the other hand, the Designated National Authority for the Clean Development Mechanism (DNA) in Mozambique has confirmed that, according to the legislation in Mozambique, an Environmental Impact Assessment is not required for this project activity.

E.2. Analysis of the environmental impacts

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N/A

SECTION F. Local stakeholder comments

F.1. Solicitation of comments from local stakeholders

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The local stakeholder consultation process is performed at the CPA level. This is because the whole PoA project area is wide and includes several CPA project sites. In addition, with the aim of ensuring that potential stove recipients understand the installation agreement, are trained in the usage of the stove, and able to give adequate feedback on their usage, accurate stakeholder engagement process will be undertaken for each of the CPAs under the proposed PoA.

F.2. Summary of comments received

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N/A

F.3. Report on consideration of comments received

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N/A

SECTION G. Approval and authorization

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The managing entity has obtained the Letter of Approval (LoA) and authorization¹⁸ from the Host Party Designated National Authority (DNA). The other project participants of the PoA are authorized by the DNA of Italy¹⁹.

PART II. Generic component project activity (CPA)**SECTION A. General description of a generic CPA****A.1. Purpose and general description of generic CPAs**

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The aim of each CPA is to improve energy efficiency by substituting inefficient traditional cooking stoves with more effective ones and at the same improving the conditions of the local population living in project area of the each CPA. Each CPA implemented in the proposed PoA shall be implemented within the project boundary of the PoA as stated in this PoA-DD.

All the CPA activities are Type II: Energy efficiency improvement project activities that reduce energy consumption, on the supply and/or demand side, with a maximum output of 60 GWh per year (or an appropriate equivalent) in any year of the crediting period.²⁰ The amount of efficient stoves in each CPA is limited to an annual thermal energy savings of 180 GWh²¹. The maximum number of stoves limitation is dependent on the project baseline and will vary by CPA. The baseline as described in AMS-II.G Version 05.0 will be determined separately for each CPA.

Stove recipients will submit to the monitoring requirements as specified by AMS-II.G Version 05.0, and further described in this PoA Design Document (PoA-DD) and the relevant CDM Programme Activity Design Document (CPA-DD).

Details concerning stove performance, distribution, and assembly will be provided at the CPA level. For each CPA under the proposed PoA stoves will have a unique serial number. Data collected during distribution and monitoring of each CPA will be stored in an electronic data management system for a minimum of two years past the crediting period. From this data, the emissions reductions of each CPA in the PoA will be determined. This system will be available for review by the Designated Operational Entity (DOE) during the verification of the PoA and each CPA.

A stakeholder engagement process will be undertaken for each of the CPAs under the proposed PoA, ensuring that potential stove recipients understands the installation agreement, are trained in the usage of the stove, and is able to give adequate feedback on their usage.

¹⁸ DNA Mozambique, 2014. Letter of Approval (LoA)

¹⁹ DNA Italy, 2014. Letter of Approval (LoA) for CarbonSinkGroup S.r.l. and Letter of Approval (LoA) for Cloros S.r.l.

²⁰ CDM-EB65-A05-STAN. Clean Development Mechanism Project Standard (Version 07.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 29/09/2014)

²¹ AMS-II.G (Version 05.0). <http://cdm.unfccc.int/methodologies> (site visited 09/01/2014)

SECTION B. Application of a baseline and monitoring methodology and standardized baseline

B.1. Reference of methodology(ies) and standardized baseline(s)

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AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass (Version 05.0)²². This methodology is approved for application to CPAs under PoAs by the CDM Executive Board.

All the required guidelines, tools and standards of the above methodology will be also used:

- General guidelines for SSC CDM methodologies (Version 20.0)²³
- Guidelines on the demonstration of additionality of small-scale project activities (Version 09.0)²⁴
- Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0)²⁵
- General guidance on leakage in biomass project activities (attachment C to appendix B) (Version 03)²⁶
- Standard for sampling and surveys for CDM project activities and programmes of activities (Version 04.1)²⁷
- Guidelines for sampling and surveys for CDM project activities and programme of activities (Version 03.0)²⁸
- Guidelines on assessment of debundling for SSC project activities (version 03)²⁹

B.2. Applicability of methodology(ies) and standardized baseline(s)

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Justification of the choice of the selected methodology

Justification of the choice of the selected methodology is done by showing that each CPA meets all the applicability conditions as described in table II.B-1.

Table II.B-1. Applicability conditions of the Methodology AMS-II.G and the PoA

Applicability condition	Each generic CPA
Type II Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass:	Each CPA involves distribution of improved energy efficiency biomass fired stoves to the households or communities or Small and Medium Enterprises (SMEs) within the

²² AMS-II.G (Version 05.0). <http://cdm.unfccc.int/methodologies> (site visited 09/01/2014)

²³ CDM-EB66-A23-GUID (Version 20.0). Available at <http://cdm.unfccc.int/Reference/index.html> (site visited 09/01/2014)

²⁴ EB 68, Annex 27. (Version 09.0). http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf

²⁵ EB 74 Annex 5. (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

²⁶ EB 47, Annex 28. (Version 03). http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf

²⁷ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

²⁸ CDM-EB67-A06-GUID (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Guidclarif/index.html#pdd> (site visited 09/01/2014)

²⁹ EB 54, Annex 13. (Version 03). Available at http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid17.pdf (site visited 10/02/2014)

<p>This category comprises appliances involving the efficiency improvements in the thermal applications of non-renewable biomass. Examples of these technologies and measures include the introduction of high efficiency³⁰ biomass fired cook stoves³¹ or ovens or dryers and/or improvement of energy efficiency of existing biomass fired cook stoves or ovens or dryers.</p>	<p>boundaries of PoA. Each CPA will contribute in reduction of non-renewable biomass consumption which would have been otherwise consumed by the less efficient cooking stoves. The cooking stoves being distributed have high thermal efficiency as shown in the test results which will be added as annex of each CPA-DD.</p>
<p>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.</p>	<p>The Forest Resource Assessment 2010 of the Food and Agriculture Organization (FAO)³² shows a significant decline in total forest area and carbon stock in forest land generally in Mozambique. Between 1990 and 2010 total forest area of Mozambique decreased 4,356,000 hectares and the carbon stock in living forest biomass decreased 186 million tonnes. Continuing deforestation trend in Mozambique clearly indicates that forest resource consumption has been non-renewable.</p>
<p>The aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input.</p>	<p>The maximum thermal energy savings achieved by each CPA is limited to an annual thermal energy savings of 180 GWh_{th}. Each CPA-DD includes detailed calculation of the thermal energy savings and how the savings would not exceed the above mentioned limit (i.e. the number of efficient cooking stoves under the CPA will be presented).</p>

General description of the sampling plan

The description of the sampling plan and demonstration on how it meets applicable provisions in the "Standard for sampling and surveys for CDM project activities and programme of activities (Version 04.1)"³³ will be included in each CPA-DDs. The sampling plan of each CPA shall include a description of the sampling approach, important assumptions, and justification for the selection of the chosen approach as stated in above mentioned standard. Moreover, according to the "Guidelines for sampling and surveys for CDM project activities and programme of activities (Version 03.0)"³⁴ the sampling plan should contain information relating to (A) sampling design; (B) data to be collected; and (C) implementation plan.

³⁰ The efficiency of the project systems as certified by a national standards body or an appropriate certifying agent recognized by it. Alternatively manufacturers' specifications may be used.

³¹ Single pot or multi pot portable or *in situ* cook stoves with specified efficiency of at least 20%.

³² FAO, 2010. Global Forest Resources Assessment 2010, Country Report Mozambique.
<http://www.fao.org/docrep/013/al575E/al575e.pdf> (site visited 14/01/2014)

³³ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

³⁴ CDM-EB67-A06-GUID (Version 03.0). Available at
<http://cdm.unfccc.int/Reference/Guidclarif/index.html#pdd> (site visited 09/01/2014)

B.3. Sources and GHGs

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The sources listed in table II.B-2 are included in the project boundary of each CPA. The combustion of fuel used for cooking in both the baseline scenario and project activity will release significant amounts of CO₂. Each CPA is implemented within the geographical boundary of the registered PoA.

Table II.B-2. Emissions sources and GHGs included in or excluded from the CPA boundary

	Sources	Gas	Included?	Justification/Explanation
Baseline	Combustion of non-renewable biomass for cooking	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
		N ₂ O	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
Project activity	Combustion of non-renewable biomass for cooking	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and limited data available.
		N ₂ O	No	Minor source of emissions and limited data available.

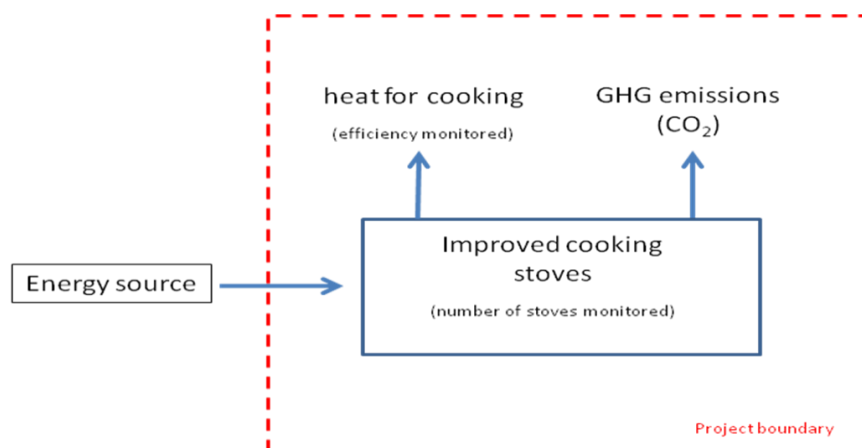


Image II.B-1. Project boundary of typical CPA

B.4. Description of baseline scenario

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For each CPA, the baseline is defined as per paragraph 10 of AMS-II.G Version 05.0 which states that it is assumed that in the absence of the project activity, the baseline scenario is the use of fossil fuels for meeting similar thermal energy needs.

Each CPA will include the identification and description of the baseline including the description of baseline stove technology used in the project area before the project activity.

B.5. Demonstration of eligibility for a generic CPA

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Each CPA shall meet all the eligibility criteria for inclusion in to the PoA like outlined in section B.2 of part I of this PoA-DD.

Table II.B-4. Eligibility criteria

Eligibility criteria	Justification
1. The geographical boundary of the CPA is within the geographic boundaries of Mozambique.	The boundary of each CPA is uniquely defined by GPS coordinates and maps to demonstrate that the boundary is within the geographic boundaries of the PoA.
2. The CPA ensures that double counting of emission reductions is avoided, through the identification of each stove with a unique identification number.	The each energy efficient stove has a unique identification number, recorded in the project database, to demonstrate that the stove is a part of the project activity.
3. The CPA involves the distribution/installation of new efficient cook stoves with following characteristics: <ul style="list-style-type: none"> • specified efficiency of at least 20% • biomass fired (for example charcoal or firewood) • stove technology based on combustion or gasification • single pot or multi pot • portable or fixed • unit size (height x width x depth) between 10 x 15 x 15 cm and 100 x 100 x 100 cm 	Each CPA involves distribution/installation of new efficient biomass fired cook stoves, based on combustion or gasification technology with specified efficiency of at least 20%. The stove models can be single pot or multi pot, portable or fixed. The specifications of the stove model and technology will be included with each CPA-DD. The efficiency of the project stoves are certified by a national standards body or an appropriate certifying agency recognized by it. Alternatively manufacturers' specifications may be used.
4. The start date of the CPA is not be prior of the start date of the PoA, 22 nd of January 2014. The start date will be proofed by documentary evidence like the receipts of the selling the stoves in project area.	The start date of any CPA will not before the start date of the PoA. This will be shown with a document evidences like the receipts of the selling the stoves in project area.
5. The CPA uses the version 05.0 of the small scale approved methodology AMS.II.G: Energy Efficiency Measures in Thermal Applications of Non-renewable Biomass. The fulfilling of applicability conditions of the methodology is demonstrated.	Each CPA uses the version 05.0 of the methodology AMS-II.G ³⁵ like described in each CPA-DD. The fulfilling of applicability conditions is demonstrated in the CPA-DD.
6. The CPA demonstrates additionality by demonstrating that its "Project activities area solely composed of isolated units where the users of the technology/ measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM	The demonstration of additionality is made by proofing that CPA is solely composed of isolated units where the users of the technology/ measure are households or communities or Small and Medium Enterprises (SMEs) and that the size of each unit is no larger than 5% of the small-scale CDM thresholds in accordance with EB 68,

³⁵ AMS-II.G. Available at <http://cdm.unfccc.int/methodologies>

thresholds” in accordance with EB 68, Annex 27 ³⁶ .	Annex 27 ³⁷ .
7. The CPA includes a description and documentation about local stakeholder consultation made in accordance with Clean development mechanism project standard (Version 07.0) ³⁸ , and environmental impact analysis in the case required by host country.	The description and documentation about local stakeholder consultation and environmental impact analysis is included in each CPA-DD.
8. The CPA includes affirmation if public funding is or is not involved in the project finance. In case public funding is included, the Annex 1 country affirms that it doesn't result in a diversion of Official Development Assistance.	Each CPA implementer clarifies if public funding is or is not involved in the project finance. In case public funding is included, the Annex 1 country affirms that it doesn't result in a diversion of Official Development Assistance.
9. The target group of the CPA are the households or communities or Small and Medium Enterprises (SMEs) cooking with traditional stoves.	Each CPA involves distribution of energy efficient stoves to households or communities or Small and Medium Enterprises (SMEs) in the area where the traditional unimproved stoves are currently used. The specifications of the target group will be included within each CPA-DD.
10. The CPA follows the sampling requirements specified in the Standard for sampling and surveys for CDM project activities and programmes of activities (Version 04.1) ³⁹ .	Each CPA follows the sampling requirements specified in the Standard for sampling and surveys for CDM project activities and programmes of activities (Version 04.1) ⁴⁰ . The sampling plan is described in each CPA-DD.
11. The CPA adheres to the small-scale threshold criteria and remains within that threshold throughout the crediting period.	Each CPA provides a detailed calculation of the thermal energy savings and shows that the savings don't exceed the 180 GWh _{th} which is the limit for small scale Type II projects.
12. The CPA is not a de-bundled component of another CDM activity or PoA. The requirements for a debundling check as outlined in the version 03 of the “Guidelines on assessment of debundling for SSC project activities” ⁴¹ are met.	The demonstration that the CPA is not a de-bundling component of another CDM activity or PoA is provided in each CPA-DD.
13. End users receiving efficient stoves under the CPA contractually cede their rights to claim and own emission reductions.	End users will enter into an agreement transferring rights to the CERs generated by CPA in return for the subsidized improved stove and its on-going maintenance over a lifetime of the each CPA.

³⁶ EB 68, Annex 27. Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0). http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf

³⁷ EB 68, Annex 27. Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0). http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf

³⁸ CDM-EB65-A05-STAN. Clean Development Mechanism Project Standard (Version 07.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 29/09/20)

³⁹ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

⁴⁰ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

⁴¹ EB 54, Annex 13. Guidelines on Assessment of Debundling for SCC Project Activities (Version 03). http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid17.pdf (site visited 09/01/2014)

B.6. Estimation of emission reductions of a generic CPA

B.6.1. Explanation of methodological choices

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All the CPAs under this PoA will use the baseline and monitoring methodology AMS-II.G, version 05.0. The below sections describes how the emission reduction calculations will be performed applying the relevant equations of the methodology.

Emission reductions

Emission reductions created by each type of project devices implemented under the project activity are calculated with the equation 1 of the applied methodology:

$$ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * N_{y,i}$$

Where:

ER_y	Emission reductions during the year y in tCO ₂ e
$B_{y,savings}$	Quantity of woody biomass that is saved in tonnes per device
$f_{NRB,y}$	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass using survey methods or government data or default country specific fraction of non-renewable woody biomass (f_{NRB}) values available on the CDM website ⁴²
$NCV_{biomass}$	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, wet basis)
$EF_{projected_fossilfuel}$	Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO ₂ /TJ ⁴³
$N_{y,i}$	Number of project devices of type i operating in year y

Determination of $B_{y,savings}$

$B_{y,savings}$ is estimated using one the following methods presented in paragraph 12 of the used methodology:

○ Option 1: $B_{y,savings} = B_{old} - B_{y,new,KPT}$

○ Option 2: $B_{y,savings} = B_{old} \cdot \left(1 - \frac{\eta_{old}}{\eta_{new,y}}\right)$

$$B_{y,savings} = B_{y,new,survey} \cdot \left(\frac{\eta_{new,y}}{\eta_{old}} - 1\right)$$

⁴² Default values endorsed by designated national authorities and approved by the Board are available at <<http://cdm.unfccc.int/DNA/fNRB/index.html>>.

⁴³ 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% weight is assigned to coal as the alternative solid fossil fuel (96 t CO₂/TJ) and a 25% weight is assigned to both liquid and gaseous fuels (71.5 t CO₂/TJ for kerosene and 63.0 t CO₂/TJ for liquefied petroleum gas (LPG)).

○ Option 3: $B_{y,savings} = B_{old} * (1 - \frac{SC_{new,y}}{SC_{old}})$

Where:

$B_{y,savings}$	Quantity of woody biomass that is saved in tonnes per device
B_{old}	Quantity of woody biomass used in the absence of the project activity in tonnes per device
B_{y,new_KPT}	Annual quantity of woody biomass used in year y in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol.
η_{old}	Efficiency of the system being replaced (fraction)
$\eta_{new,y}$	Efficiency of the device being deployed as part of the project activity (fraction)
$B_{y,new,survey}$	Annual quantity of woody biomass used during the project activity in tonnes per device
$SC_{new,y}$	Specific fuel consumption or the fuel consumption rate in year y of the devices deployed as part of the project
SC_{old}	Specific fuel consumption or fuel consumption rate of the baseline devices

The option chosen to calculate $B_{y,savings}$ will be determined at the CPA level.

Determination of B_{old}

B_{old} is determined by using one of the following two options presented in paragraph 13 of the used methodology:

- Option (a): Calculated as the product of the number of systems multiplied by the estimated average annual consumption of woody biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage.
- Option (b): Calculated from the thermal energy generated in the project activity.

$$B_{old} = \frac{HG_{p,y}}{NCV_{biomass} * \eta_{old}}$$

Where:

$HG_{p,y}$	Amount of thermal energy generated by the project devices in year y (TJ), if the thermal output of the devices can be directly measured
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The option chosen to calculate B_{old} will be determined at the CPA level. It is, anyhow, foreseen that the option (a) will be used for the most of the CPAs of this PoA.

Leakage Emissions

According to paragraph 29 of the used methodology, in a project activity under a programme of activities 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:

- 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_{old} is adjusted to account for the quantified leakage;
- 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_{old} is adjusted to account for the quantified leakage;

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

To account for leakage a net to gross adjustment factor of 0.95 (option c above) will be applied for each CPA to be included in this PoA and thereafter surveys on leakage are not required.

The leakage caused by “devices currently being utilised outside the project boundary transferred to the project activity” described in paragraph 21 of the applied methodology can be neglected as the project stoves of each CPA will be new stoves that has not being used before.

Fraction of non-renewable ($f_{NRB,y}$)

In accordance to the applied methodology (paragraph 30) to determine the value of the fraction of non-renewable ($f_{NRB,y}$) to be applied in a CPA of a POA, one of the following options needs to be chosen *ex ante*: (a) Conduct local own studies to determine the local f_{NRB} value (sub national values); or (b) Use default national values approved by the Board⁴⁴. However, a switch from a national value of f_{NRB} (i.e. option (b)) to sub-national values (i.e. option (a)) is permitted, under the condition that the selected approach is consistently applied to all CPAs.

As all the CPAs under the PoA will be implemented inside the borders of the Republic of Mozambique, here is chosen to use for all the CPAs the default country specific fraction of non-renewable woody biomass available on the CDM website⁴⁵. This *ex ante* made decision is in accordance with the above described option b) of the paragraph 30 of the applied methodology.

B.6.2. Data and parameters fixed ex-ante

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Data / Parameter:	NCV _{biomass}
Data unit:	TJ/t
Description:	Net calorific value of the non-renewable woody biomass that is substituted
Source of data:	IPCC default value for wood fuel
Value(s) applied:	0.015
Choice of data or Measurement methods and procedures:	According to the applied methodology (AMS-II.G, paragraph 11) IPCC default for wood fuel, 0.015 TJ/tonne can be used for net calorific value of the non-renewable woody biomass that is substituted (NCV _{biomass}).
Purpose of data	Calculation of baseline emissions
Additional comment:	This parameter is fixed at PoA level. This parameter is fixed for entire crediting period of the CPA.

⁴⁴ <http://cdm.unfccc.int/DNA/fNRB/index.html> (site visited 09/01/2014)

⁴⁵ Default values endorsed by designated national authorities and approved by the Board are available at website: <http://cdm.unfccc.int/DNA/fNRB/index.html> (site visited 09/01/2014)

Data / Parameter:	EF _{projected_fossilfuel}
Data unit:	tCO ₂ /TJ
Description:	Emission factor for the substitution of non-renewable woody biomass by similar consumers
Source of data:	AMS-II.G default value
Value(s) applied:	81.6
Choice of data or Measurement methods and procedures:	According the applied methodology (AMS-II.G, paragraph 11) the value of 81.6 tCO ₂ /TJ is to be used as emission factor for the substitution of non-renewable woody biomass by similar consumers (EF _{projected_fossilfuel}).
Purpose of data:	Calculation of baseline emissions
Additional comment:	This parameter is fixed at PoA level. This parameter is fixed for entire crediting period of the CPA.

Data / Parameter	B _{old}
Data unit:	t/device/year
Description:	Quantity of woody biomass used in the absence of the project activity in tonnes per device
Source of data:	Historical data, survey on local usage or calculated from the thermal energy generated in the project activity.
Value(s) applied:	N/A
Choice of data or Measurement methods and procedures:	<p>According to the applied methodology (AMS-II.G, paragraph 13) B_{old} can be determined with one of the following options:</p> <p>Option (a): Calculated as the product of the number of systems multiplied by the estimated average annual consumption of woody biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage.</p> <p>Option (b): Calculated from the thermal energy generated in the project activity.</p> <p>Accordance to paragraph 14 of the methodology, where charcoal is used as the fuel, the quantity of woody biomass (B_{old}) may be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis).⁴⁶ Alternatively, credible local conversion factors determined from a field study or literature may be applied.</p>
Purpose of data:	Calculation of baseline emissions
Additional comment:	<p>This parameter is fixed at CPA level.</p> <p>This parameter is fixed for entire crediting period of the CPA.</p> <p>B_{old} will be multiplied by a net to gross adjustment factor (LAF) to account for leakages.</p>

⁴⁶ <http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf>

Data / Parameter	η_{old}
Data unit:	Fraction
Description:	Efficiency of the device being replaced
Source of data:	Measured, literature or AMS-II.G Default Value
Value(s) applied:	N/A
Choice of data or Measurement methods and procedures:	According to the applied methodology (AMS-II.G, paragraph 12) η_{old} is measured using representative sampling methods or based on the references literature values. Optionally a default value of 0.10 may be used if the replaced device is a three stone fire, or a conventional device with no improved combustion air supply or fuel gas ventilation, that is without a grates or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Weighted average values are used if more than one type of device is being replaced.
Purpose of data:	Calculation of baseline emissions
Additional comment:	This parameter is only applicable to CPAs where Option 2 of paragraph 12 of the applied methodology is chosen. This parameter is fixed at CPA level. This parameter is fixed for entire crediting period of the CPA.

Data / Parameter	SC_{old}
Data unit:	t fuel/unit output or t fuel/hour
Description:	Specific fuel consumption or fuel consumption rate of the baseline devices i.e. fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Use weighted average values if more than one type of device is being replaced
Source of data:	Controlled cooking test (CCT)
Value(s) applied:	N/A
Choice of data or Measurement methods and procedures:	According to the applied methodology (AMS-II.G, paragraph 12) specific fuel consumption or fuel consumption rate are to be determined using the controlled cooking test (CCT) protocol carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the CCT procedures specified by the Partnership for Clean Indoor Air (PCIA) < http://www.pciaonline.org/node/1050 >).
Purpose of data:	Calculation of baseline emissions
Additional comment:	This parameter is only applicable to CPAs where Option 3 of paragraph 12 of the applied methodology is chosen. This parameter is fixed at CPA level. This parameter is fixed for entire crediting period of the CPA.

Data / Parameter	LAF
Data unit:	Fraction
Description:	Leakage adjustment factor to account for leakages
Source of data:	AMS-II.G default value
Value(s) applied:	0.95
Choice of data or Measurement methods and procedures:	To account for leakage a net to gross adjustment factor of 0.95 (option c of the paragraph 29 of the AMS-II.G methodology) will be applied: B_{old} will be multiplied by a net to gross adjustment factor to account for leakages. In this case surveys are not required.
Purpose of data:	Calculation of leakage
Additional comment:	This parameter is fixed at PoA level. This parameter is fixed for entire crediting period of each CPA.

B.6.3. Ex-ante calculations of emission reductions

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All the CPAs under this PoA will use the baseline and monitoring methodology AMS-II.G Version 05.0 as described in the section B.6.1 above. The methodological choices not fixed at PoA level (estimating of $B_{y,savings}$ and B_{old}) will be described in detailed way and the real values of each parameter will be presented in CPA level.

Here below is demonstrated how the *ex ante* emissions reductions can be calculated at CPA level using CPA-01 “Domestic Cooking Stoves in Maputo (Mozambique)” as an example. This example involves the distribution of 10,000 CH-2200 charcoal stoves to households in Maputo, Mozambique.

Step 1. Determination of $B_{y,savings}$

For the CPA-01 $B_{y,savings}$ is determined ex ante using the equation 3 of the Option 2 (paragraph 12) of the applied methodology and, therefore, the equation to calculate emission reductions (ER_y) can be written as follows:

$$ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * N_{y,i}$$

$$ER_y = \left((B_{old} * LAF) * \left(1 - \frac{\eta_{old}}{\eta_{new,y}} \right) \right) * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * N_{y,i}$$

Where:

ER_y	Emission reductions during the year y in tCO ₂ e
$B_{y,savings}$	Quantity of woody biomass that is saved in tonnes per device
B_{old}	Quantity of woody biomass used in the absence of the project activity in tonnes per device
η_{old}	Efficiency of the device being replaced (fraction)
$\eta_{new,y}$	Efficiency of the device being deployed as part of the project activity (fraction)
LAF	Leakage adjustment factor to account for leakages
$f_{NRB,y}$	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
$NCV_{biomass}$	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, wet basis)
$EF_{projected_fossilfuel}$	Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO ₂ /TJ.
$N_{y,i}$	Number of project devices of type i operating in year y

The a consequence of the above described choice (the equation 3 of the Option 2), the η_{old} and $\eta_{new,y}$ needs to be determined.

Step 1.a. Determination of η_{old}

Option 2 described in the paragraph 12 of the applied methodology provides two approaches to determine the efficiency of the baseline systems being replaced (η_{old}). For the CPA-01 is chosen to apply the approach (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.”

For the CPA-01 the baseline stoves are unimproved charcoal stove models without an improved combustion air supply or flue gas ventilation system. Stoves that lack these types of design

characteristics can be assumed to have a low efficiency and thus in accordance to the applied methodology a default value of 0.10 may be used. Therefore, for the CPA-01:

$$\eta_{old} = 0.10$$

Step 1.b. Determination of $\eta_{new,i}$

In accordance to the applied methodology (AMS-II.G, paragraph 12, Option 2) efficiency of the systems being deployed ($\eta_{new,i}$) can be determined based on the manufacturer's specification for the *ex ante* estimations: the manufacturer specifications state the efficiency of the CH-2200 Charcoal Cooking Stove to be 42.3 %⁴⁷ and therefore, for the CPA-01:

$$\eta_{new} = 0.423$$

Step 1.c. Determination of B_{old}

For the CPA-01 B_{old} is determined using the Option (a) of paragraph 13 of the applied methodology and the average annual consumption is estimated based on a survey of local usage i.e. based on the Baseline Survey. As described detailed in CPA-DD, the average annual consumption in case of CPA-01 is estimated to be equal to 4.7638t/device/year and therefore, for the CPA-01:

$$B_{old} = 4.7638\text{t/device/year}$$

Step 1.d. Determination of LAF

As described before in section B.6.2, to account for leakage a net to gross adjustment factor (LAF) of 0.95 will be applied for each CPA to be included in this PoA. Therefore:

$$\text{LAF} = 0.95$$

Step 2. Determination of $f_{NRB,y}$

As described before in section B.6.1, for all the CPAs, $f_{NRB,y}$ is estimated using the default country specific fraction of non-renewable woody biomass available on the CDM website⁴⁸. Therefore the country specific fraction 91 % for Mozambique is used for the CPA-01:

$$f_{NRB,y} = 0.91$$

Step 3. Determination $NCV_{biomass}$

As described before in section B.6.1, IPCC default for wood fuel, 0.015 TJ/tonne is used for net calorific value of the non-renewable woody biomass that is substituted ($NCV_{biomass}$) for all the CPA to be included in this PoA. Therefore:

$$NCV_{biomass} = 0.015$$

Step 4. Determination $EF_{projected_fossilfuel}$

As described before in section B.6.2, the value of 81.6 tCO₂/TJ is to be used as emission factor for the substitution of non-renewable woody biomass by similar consumers ($EF_{projected_fossilfuel}$) for all the CPA to be included in this PoA. Therefore:

$$EF_{projected_fossilfuel} = 81.6$$

Step 5. Determination $N_{y,i}$

Number of project devices of type *i* operating in year *y* is estimated *ex ante* based on the distribution plan described in each CPA. For the CPA-01 10,000 new efficient stoves are foreseen to be distributed to 6,250 households. Each project stove distributed will be included in the CPA-01

⁴⁷ Colorado State University, 2013. Emissions and Performance Report CH2200.

⁴⁸ Default values endorsed by designated national authorities and approved by the Board are available at website: <http://cdm.unfccc.int/DNA/fNRB/index.html> (site visited 09/01/2014)

not before than from the beginning of the next month in which the stove was delivered to the household. Moreover, for this example it is estimated conservatively that only 80% of the devices distributed under the project activity would be operational.

$$N_{y,i} = 0.8 * 10,000 = 8000$$

Step 6. *Ex ante* calculation of emission reductions

The *ex ante* calculations of emission reductions will be provided for each CPA with a separate electronic spreadsheet. The complete *ex ante* calculations of the CPA-01 “Domestic Cooking Stoves in Maputo (Mozambique)” are available for the DOE for validation.

Here below is presented, however, as an example, the *ex ante* calculations for the project year 2021 of the CPA-01:

After adding the values described above in steps 1-5, the equation for calculating ER_y can be written as follows:

$$ER_y = \left((B_{old} * LAF) * \left(1 - \frac{\eta_{old}}{\eta_{new,y}} \right) \right) * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * N_{y,i}$$

$$ER_y = \left((4.7638 * 0.95) * \left(1 - \frac{0.1}{0.423} \right) \right) * 0.91 * 0.015 * 81.6 * 8000$$

$$ER_y = 30793$$

B.7. Application of the monitoring methodology and description of the monitoring plan

B.7.1. Data and parameters to be monitored by each generic CPA

Data / Parameter:	$f_{NRB,y}$
Data unit:	Fraction
Description:	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
Source of data:	A default country specific fraction of non-renewable woody biomass (f_{NRB}) value available on the CDM website ⁴⁹ .
Value(s) applied	0.91 or an updated value
Measurement methods and procedures:	The possible updates on the default country specific fraction of non-renewable woody biomass (f_{NRB}) value available on the CDM website ⁵⁰ will be controlled annually.
Monitoring frequency:	Annually
QA/QC procedures:	N/A
Purpose of data	Calculation of baseline emissions
Additional comment:	N/A

⁴⁹ <http://cdm.unfccc.int/DNA/fNRB/index.html>

⁵⁰ <http://cdm.unfccc.int/DNA/fNRB/index.html>

Data / Parameter:	$B_{y,new,KPT}$
Data unit:	t/device/year
Description:	Annual quantity of woody biomass used during the project activity in tonnes per device, determined through a survey
Source of data:	Kitchen performance test (KPT)
Value(s) applied	N/A
Measurement methods and procedures:	<p>As per paragraph 12 and 23(a) of AMS-II.G Version 05.0: The KPT should be carried out for all operating devices or a representative sample thereof in accordance with national standards (if available) or international standards or guidelines (e.g. the KPT procedures specified by the Partnership for Clean Indoor Air (PCIA)).</p> <p>In accordance to paragraph 14 of the used methodology, where charcoal is used as the fuel, the quantity of woody biomass ($B_{y,new,KPT}$) may be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis).⁵¹ Alternatively, credible local conversion factors determined from a field study or literature may be applied.</p>
Monitoring frequency:	Yearly (or biennially)
QA/QC procedures:	Calculation of baseline emissions
Purpose of data	This parameter is only applicable to CPAs where Option 1 of paragraph 12 of the applied methodology is chosen.

⁵¹ <http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf>

Data / Parameter:	$\eta_{\text{new},y}$
Data unit:	Fraction
Description:	Efficiency of the device being deployed as part of the project activity in year y
Source of data:	Water Boiling Test (WBT)
Value(s) applied	N/A
Measurement methods and procedures:	<p>As per paragraph 12 and 23 (b) of AMS-II.G Version 05.0:</p> <p>For project activities using the Water Boiling Test protocol (i.e. paragraph 12, Option 2), monitoring shall consist of determining the efficiency of all operating devices or a representative sample thereof. For the purpose of calculating emissions reductions, the <i>ex post</i> monitored value of the efficiency of the operating devices shall be used. For the <i>ex ante</i> estimations: the efficiency of the project systems as certified by a national standards body or an appropriate certifying agent recognized by that body. Alternatively, manufacturers' specifications may be used.</p> <p>Water-Boiling-Test (WBT) protocol will be carried out in accordance with national standards (if available) or international standards or guidelines⁵². Weighted average values will be used if more than one type of system is being introduced by the project activity.</p>
Monitoring frequency:	Annually (or biennially)
QA/QC procedures:	<ul style="list-style-type: none"> • The sample size will be chosen for a 95/10 precision (95% confidence interval and 10 % margin of error). In cases where the results indicate that 95/10 precision is not achieved, the lower bound of a 95 % confidence interval of the parameter value will be chosen as an alternative in repeating the survey efforts to achieve the 95/5 precision. • Results from the test will be compared to the value adopted for baseline emission calculations (specifications from the manufacturer) and the conservative value will be considered for <i>ex post</i> emission reductions calculation. Testing is also used also to ensure that the stoves are still operating above the minimum 20% efficiency required by the AMS-II.G (version 05.0) methodology. • The results will be stored for the crediting period of the project activity and an additional two years or until the last issuance of CERs for the project activity, whichever is later. • The Water-Boiling-Test is conducted with trained monitoring personal.
Purpose of data	Calculation of baseline emissions
Additional comment:	<p>This parameter is only applicable to CPAs where equation 3 of Option 2 of paragraph 12 of the applied methodology is chosen.</p> <p>The values derived from efficiency tests conducted <i>ex post</i> shall be used to calculate <i>ex post</i> emission reductions. For the <i>ex ante</i> estimations $\eta_{\text{new},y}$ is determined based on the efficiency of the project systems as certified by a national standards body or an appropriate certifying agent recognized by that body. Alternatively, manufacturers' specifications may be used.</p>

⁵² In all cases the testing protocol shall be the same for both the device being replaced and the device being deployed.

Data / Parameter:	$B_{y,new,survey}$
Data unit:	t/device/year
Description:	Annual quantity of woody biomass used during the project activity in tonnes per device
Source of data:	Survey
Value(s) applied	N/A
Measurement methods and procedures:	As per paragraph 12 of AMS-II.G Version 05.0 In accordance to paragraph 14 of AMS-II.G Version 05.0, where charcoal is used as the fuel, the quantity of woody biomass ($B_{y,new,survey}$) may be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis). ⁵³ Alternatively, credible local conversion factors determined from a field study or literature may be applied.
Monitoring frequency:	Yearly (or biennially)
QA/QC procedures:	The results will be stored for the crediting period of the project activity and an additional two years or until the last issuance of CERs for the project activity, whichever is later.
Purpose of data	Calculation of baseline emissions
Additional comment:	This parameter is only applicable to CPAs where equation 4 of Option 2 of paragraph 12 of the applied methodology is chosen.

Data / Parameter:	$SC_{new,y}$
Data unit:	t fuel/unit output or t fuel/hour
Description:	Specific fuel consumption or fuel consumption rate in year y of the device(s) deployed as part of the project that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour respectively
Source of data:	Controlled Cooking Test (CCT)
Value(s) applied	N/A
Measurement methods and procedures:	As per paragraph 12 and 23 (c) of AMS-II.G Version 05.0: For project activities using the Controlled Cooking Test protocol (i.e. paragraph 12, Option 3), monitoring shall consist of determining the specific fuel consumption of all operating devices or a representative sample thereof. Weighted average values will be used if more than one type of system is being introduced by the project activity.
Monitoring frequency:	Yearly (or biennially)
QA/QC procedures:	The results will be stored for the crediting period of the project activity and an additional two years or until the last issuance of CERs for the project activity, whichever is later.
Purpose of data	Calculation of baseline emissions
Additional comment:	This parameter is only applicable to CPAs where Option 3 of paragraph 12 of the applied methodology is chosen.

⁵³ <http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf>

Data / Parameter:	$HG_{p,y}$
Data unit:	TJ/year
Description:	Amount of thermal energy generated by the project devices in year y (TJ), if the thermal output of the devices can be directly measured
Source of data:	Direct measurements of the thermal output of project devices
Value(s) applied	N/A
Measurement methods and procedures:	As per paragraph 13 and 24 of AMS-II.G Version 5.0.
Monitoring frequency:	Annual
QA/QC procedures:	<p>This parameter will only be used where the thermal output of the devices can be directly measured.</p> <p>The results will be stored for the crediting period of the project activity and an additional two years or until the last issuance of CERs for the project activity, whichever is later.</p>
Purpose of data	Calculation of baseline emissions
Additional comment:	This parameter is only applicable to CPAs where Option (b) of paragraph 13 of the applied methodology is chosen.

Data / Parameter:	$N_{y,i}$
Data unit:	Number
Description:	Number of project devices of type i operating in year y
Source of data:	Project database records and usage survey on a representative sample
Value(s) applied	N/A
Measurement methods and procedures:	<p>According to the applied methodology (AMS-II.G, paragraph 22) monitoring shall consist of checking of all devices or a representative sample thereof, at least once every two years (biennial) to determine if they are still operating (i. e. usage survey); those devices that have been replaced by an equivalent in-service device can be counted as operating. The usage survey will, in other words, confirm the share of the devices still operating. The details of the survey will be further described in the monitoring plan of each CPA.</p>
Monitoring frequency:	At least biennially
QA/QC procedures:	<ul style="list-style-type: none"> • The unique reference number of each stove is transferred to the project database. The date of distribution is utilized to determine the number of stoves in operation. • The database entries of the distributed fuel efficient stoves are made on a monthly basis based on the Carbon Transfer forms signed by the stove users. Part of the data-base entries will be re-checked. In case of inconsistencies, the appropriate corrective actions will be taken. • Usage survey on a representative sample to confirm the share of the devices still operating the efficient stoves will be made by trained monitoring team. • The data will be stored for the crediting period of the project activity and an additional two years or until the last issuance of CERs for the project activity, whichever is later.
Purpose of data	Calculation of baseline emissions
Additional comment:	The number of efficient stoves shall remain within the limit of 180 GWh _{th} for type II CDM project activities.

B.7.2. Description of the monitoring plan for a generic CPA

According to AMS-II.G (paragraph 22) monitoring shall consist of checking all devices or a representative sample thereof, at least ones every two years (biennial) to determine if they are still operating; those devices that have been replaced by an equivalent in-service device can be counted as operating.

Monitoring consist of checking a representative sample biennially to determine if the improved project stoves are still operating and annual checking of the stove efficiency of a representative sample of the efficient stoves under the project activity. Where appliances are found to be operational but with a changed efficiency the actual efficiency determined in monitoring will be applied to calculate emission reductions. Where appliances are found not operational they are excluded from the emission reductions calculations.

According to paragraph 23 of the applied methodology monitoring shall also consist of checking the efficiency of all devices or a representative sample thereof annually⁵⁴.

- (a) For project activities using the Kitchen Performance Test Protocol to determine the quantity of fuel saved (i.e. paragraph 12, Option 1), monitoring shall determine the fuel consumption per operating device ($B_{y,new,KPT}$) of all operating devices or a representative sample thereof.
- (b) For project activities using the Water Boiling Test protocol (i.e. paragraph 12, Option 2), monitoring shall consist of determining the efficiency of all operating devices or a representative sample thereof. For the purpose of calculating emissions reductions, the *ex post* monitored value of the efficiency of the operating devices ($\eta_{new,y}$) shall be used;
- (c) For project activities using the Controlled Cooking Test (CCT) protocol (i.e. paragraph 12, Option 3), monitoring shall consist of determining the specific fuel consumption of all operating devices or a representative sample thereof.

According to paragraph 24 of the applied methodology: If Option (b) in paragraph 13 is chosen for determining B_{old} , monitoring shall include the amount of thermal energy generated by the project technology t in year y .

According to paragraph 25 of the applied methodology: In order to assess the leakage, 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.

Like described in section B.6.1 (Part II) of this PoA-DD to account for leakage a net to gross adjustment factor of 0.95 (option c of paragraph 29 of the applied methodology) will be applied. In this case monitoring of leakage is not required.

Moreover, according to paragraph 26 of the applied methodology monitoring shall ensure that:

- (a) *The replaced low efficiency devices are disposed of and not used within the boundary or within the region; or*
- (b) *If baseline stoves continue to be used, monitoring shall ensure that the fuel-wood consumption of those stoves is excluded from B_{old} .*

⁵⁴ Biennial monitoring (i.e. monitoring once every two years) may be chosen, if the project proponents are able to demonstrate that the efficiency of the cook stove does not drop significantly as compared to the initial efficiency of the new device, over a time period of two years of typical usage.

When each new efficient stove is sold the users sign a Carbon Transfer Form where they agree to be included in the monitoring programme. It is encouraged that the old low efficiency stoves will not be more used, for example, by informing the local communities about the benefits of the efficient stoves or/and by offering a discount for the buyers giving in exchange their old inefficient stove.

In cases if the further use of the inefficient baseline stoves is found out by the monitoring survey made on a representative sample, the consumption of those stoves is excluded from B_{old} . There might be some cases where the users have migrated out of the project area, in such case the new user can be provided with a new stove so that the total number of stoves could be kept the same.

Data archiving

The purpose of data archiving is to provide enough information to enable full monitoring for each monitoring period. The electronic project databases of each CPA will include, for example, the information from the signed Carbon Transfer Forms, the possible receipts of the selling of the stoves to the iron recycling companies as well as the data obtained during the usage and efficiency surveys. Each project database will be operated by the CPA implementer. A back-up of the database is made regularly and stored in a hard-copy form like CDs. All data monitored and required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of CERs for the project activity, whichever is later.

Sampling plan

According to "Standard for sampling and surveys for CDM project activities and programme of activities (Version 04.1)"⁵⁵ the sampling plan should include a description of the sampling approach, important assumptions, and justification for the selection of the chosen approach. Moreover, according to the "Guidelines for sampling and surveys for CDM project activities and programme of activities (Version 03.0)"⁵⁶ the sampling plan should contain information relating to (A) sampling design; (B) data to be collected; and (C) implementation plan.

A. Sampling design

A.1 Objectives and reliability requirements

The objective of the sampling is to determine and monitor variable parameters described in B.7.1 (Part II of the PoA-DD), including the proportion of the efficient stoves annually operating under the CPA activity ($N_{y,i}$) and checking the efficiency of the stoves during the monitoring period. The desired precision for all parameters is 95/10 (95 % confidence interval and 10 % margin of error) when monitored biennially. In case of annual surveys, a 90% confidence interval and a 10% margin of error shall be achieved for the sampled parameters. In cases where the survey results indicate that 95/10 precision or 90/10 precision are not achieved, the lower bound of 95% or 90% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve 95/10 or 90/10 precision.

A.2 Target population

Target population is all the efficient cooking stoves included in the CPA project activity.

⁵⁵ CDM-EB50-A30-STAN (Version 04.1). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

⁵⁶ CDM-EB67-A06-GUID (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Guidclarif/index.html#pdd> (site visited 09/01/2014)

A.3 Sampling method

Sampling methods of “Simple random sample on whole population” and “Simple random sampling on vintage-wise populations” are foreseen to be used.

The simple random sampling is an appropriate method for estimating, for example the proportion of the stoves operating, as it is assumed that the population living in the project area is homogenous i.e. having similar socioeconomic circumstances and similar baseline cooking habits.

In case the monitoring will cover stoves distributed in different years (i.e. different vintages), the target population is not considered homogeneous regarding the stove efficiency as the efficiency is assumed to drop over the years⁵⁷. Therefore, an approach of “Simple random sampling on vintage-wise populations” will be adapted for estimating the stove efficiency. Vintage-wise populations are determined as cooking stoves installed in the same year (i.e. population 1 = cooking stoves installed in year 1; population 2 = cooking stoves installed in year 2; etc.). For each of these populations, a random sampling will be carried out separately. In case the monitoring does not include different vintages, a simple random sampling on the whole population will be chosen also for the stove efficiency estimation.

A.4 Sample size

As there is more than one parameter to be estimated in each CPA project activity, the sample size calculation will be done for each of them and separate surveys will be made when necessary. It is assumed that most of the CPAs will include two parameters to be monitored through a survey on a representative sample, $N_{y,i}$ and $\eta_{new,y}$, in which case the sample size is calculated separately for both of the parameters. Alternatively to parameter $\eta_{new,y}$, or in addition to it, also the monitoring of parameters $B_{y,new,KPT}$, $B_{y,new,survey}$, $SC_{new,y}$ and $HG_{p,y}$ might be required. The required parameters to be monitored and the needed sample sizes are specified at CPA level.

In accordance to Appendix 1, section 2.1.1 of the “Guidelines for sampling and surveys for CDM project activities and programme of activities”⁵⁸ the equation to calculate the required sample size for biannual determining of $N_{y,i}$ (or another parameter monitored biannually) can be written as follows in case of simple random sample on the whole population:

$$n \geq \frac{1.96^2 N * p(1-p)}{(N-1) * 0.1^2 * p^2 + 1.96^2 p(1-p)}$$

Where:

n	Sample size
N	Total number of devices
p	Expected proportion
1.96	Represents the 95% confidence required
0.1	Represents the 10% relative precision

The equation to calculate the required sample size for annual determining of for example $\eta_{new,y}$ (or other parameter monitored annually) can be written as follows in case of simple random sample on the whole population:

⁵⁷ In line with the Clarification on thermal efficiency monitoring requirements under AMS-II.G (versions 3.0, 4.0 and 5.0) SSC_695. Available at <http://cdm.unfccc.int/methodologies> (site visited 10/10/2014)

⁵⁸ CDM-EB67-A06-GUID (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Guidclarif/index.html#pdd> (site visited 09/01/2014)

$$n \geq \frac{1.645^2 N * p(1-p)}{(N-1) * 0.1^2 * p^2 + 1.645^2 p(1-p)}$$

Where:

- n Sample size
- N Total number of devices
- p Expected proportion
- 1.645 Represents the 90% confidence required
- 0.1 Represents the 10% relative precision

In case the parameter $\eta_{\text{new},y}$ (or another parameter) is estimated based on vintage-wise populations, N (total number of devices) refers to the vintage-wise population in the above presented equations.

A.5 Sampling frame

The sampling frame for all monitored parameters is the list of all the devices under the CPA project activity i.e. all the efficient cooking stoves listed in the project database of the CPA. The lists are available for check controls during verification. The sample is drawn at random from the sampling frame using a computerized randomizer. All random selections will be stored in the electronic database and therefore, traceability of the selection is provided.

B. Data to be collected

B.1 Field measurements

The method of collecting data will be field surveys on the required sample size of the stoves. Data will be collected from the field surveys, entered in the database and included in the monitoring report.

Identification of all variables to be measured

The variables to be measured are $N_{y,i}$ and $\eta_{\text{new},y}$ for most of the CPAs. Alternatively to parameter $\eta_{\text{new},y}$, or in addition to it, also the monitoring of parameters $B_{y,\text{new,KPT}}$, $B_{y,\text{new,survey}}$, $SC_{\text{new},y}$ and $HG_{p,y}$ might be required. The required parameters to be monitored are specified in each CPA-DD in accordance with the methodological choices.

Determination of appropriate timing

The sampling is foreseen to occur at the end of each monitoring period and all the measurements will be conducted at the latest 6 months after the end of the specific monitoring period. The maximum length of one monitoring period will be two years (duration, not calendar years). Therefore the measurement will be conducted at the latest 24 + 6 months after the start of the specific monitoring period.

Frequency of measurements

All measurements will be one time measurements, i.e. for the determined number of samples the measurement will only be conducted once per sample.

Seasonal fluctuations

When the measurements are conducted only during limited time periods and are to be scaled up to the whole year, it needs to demonstrate that the parameter of interest is not subject to seasonal fluctuations or the time period selected is conservative or the necessary corrections are applied. This demonstration will be made at CPA-level during the verification.

Description of measurement methods

Methods of measurement for each variable are described in section B.7.1 (Part II of the PoA-DD). Measuring methods are to ensure that the field data collection is performed properly and that any potential intentional errors or unintentional errors are minimized and documented.

B.2 Quality assurance/Quality control*Procedures for conducting the data collection and/or field measurements*

Measuring methods for data collection and field measurements described in B.7.1 (Part II of the PoA-DD) are to ensure that the data collection is performed properly and that any potential intentional errors or unintentional errors are minimized and documented.

Data collected during the monitoring as well the data entered to the project database will be checked regularly and in case of inconsistencies appropriate corrective actions will be taken. All the monitoring data will be stored for the crediting period for two years after the end of the crediting period or the last issuance of CERs for the project activity, whichever is later. Appropriate record keeping procedures will be implemented to ensure that each monitoring period data set can be transparently attributed to the proper CPA, preventing any occurrences of double counting.

All personnel involved in the monitoring will be trained before performing any monitoring activities. The training includes the provisions for maximizing response rates, documenting out-of-population cases, refusals and other sources of non-response and the documentation of above mentioned cases. Each CPA implementer will ensure that personnel taking part in the monitoring undertakes an appropriate monitoring assignment according to the monitoring plan. Only trained persons are qualified to be involved in the monitoring.

Provisions for maximizing response rates

The sample size is to be chosen for a 95/10 precision (95 % confidence interval and 10 % margin of error) when monitored biennially. In case of annual surveys, a 90% confidence interval and a 10% margin of error shall be achieved for the sampled parameters. In cases where the survey results indicate that 95/10 precision or 90/10 precision are not achieved, the lower bound of 95% or 90% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve 95/10 or 90/10 precision. To be conservative it is expected the response rate from the sampled households or communities or Small and Medium Enterprises is to be only 80% (in case better estimate is not available) and thus the sample size is scaled up accordingly.

Procedure for refusals and non-respondents

Refusals and non-respondents (i.e. households or communities or Small and Medium Enterprises where the contact could not be established) will be recorded by the monitoring team as well as the reason for the refusal. If the refusal is due to a likely non-use of the efficient cooking stove, the stove/stoves of this user will be counted as Drop-Out. If the reason is e.g. a time constraint which cannot be solved by repeating the survey effort at this household or community or Small and Medium Enterprise at another date, the end-user will be replaced by another one chosen at random. Where appliances are found not operational they are excluded from the emission reductions calculations.

Procedure for defining outliers

Outliers will be defined as those data points with values greater than three standard deviations from the mean of the sample. Data/measurements data points identified as outliers will be examined further to correct for possible transcription and data entry errors, but will be omitted from the analysis if no such administrative errors exist.

B.3 Analysis

CarbonSinkGroup will coordinate the assessment of the monitoring data and is responsible for preparing the monitoring report which will present the data used for calculating the emission reductions during the specific monitoring period of each CPA. Monitoring reports will be provided for the DOE for verification.

C. Implementation plan

C.1 Schedule for implementing the sampling effort

As mentioned above, the schedule for implementing the sampling effort shall be done so that within 6 months after the end of the specific monitoring period the effort can be finalized.

C.2 Skills and resources required for data collection and the analyses

CPA implementer will be responsible for managing data collection and data entries into the project database in the supervision of CarbonSinkGroup. The data analyses will be coordinated by CarbonSinkGroup and CarbonSinkGroup will be responsible for preparing the Monitoring reports. People participating in the monitoring will receive training organized by CPA implementer to ensure that all personnel have the skills required for his/hers particular monitoring task. The personnel participating in the monitoring should not have any conflicts of interest. If there is conflict of interest, the personnel will not be allowed to participate in data collection and analysis. Any people participating in the on-site monitoring will be required to speak the local language, or will be accompanied by interpreters, allowing for full understanding of any responses given by users, and any questions therein.

Appendix 1. Contact information of coordinating/managing entity and responsible person(s)/ entity(ies)

CME and/or responsible person/ entity	<input checked="" type="checkbox"/> CME <input type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	Fondazione AVSI
Street/P.O. Box	Via Legnone
Building	4
City	Milano
State/Region	
Postcode	20158
Country	Italy
Telephone	+39 02 6749881
Fax	+39 02 6749 0056
E-mail	info@avsi.org
Website	www.avsi.org
Contact person	Giorgio Capitanio
Title	Country Representative
Salutation	Mr.
Last name	Capitanio
Middle name	
First name	Giorgio
Department	
Mobile	+39 347 4263726
Direct fax	+39 02 6749881
Direct tel.	
Personal e-mail	giorgio.capitanio@avsi.org

CME and/or responsible person/ entity	<input type="checkbox"/> CME <input checked="" type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	CarbonSinkGroup S.r.l.
Street/P.O. Box	Piazza Beverini
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Country	Italy
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Mobile	+39 340 7109826
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Personal e-mail	andrea@carbonsink.it

CME and/or responsible person/ entity	<input type="checkbox"/> CME <input checked="" type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	Cloros S.r.l
Street/P.O. Box	Piazza Villafranchetta
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Country	Italy
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E-mail	info@cloros.it
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Appendix 2. Affirmation regarding public funding

N/A

Appendix 3. Applicability of methodology(ies) and standardized baseline(s)

N/A

Appendix 4. Further background information on ex ante calculation of emission reductions

1. A separate PDF-document "Colorado State university, 2013. Emission and Performance Report CH2200"
2. A separate electronic spreadsheet "CPA1_ex ante_ER_calculations"

Appendix 5. Further background information on the monitoring plan

N/A

Appendix 6. Summary of post registration changes

N/A

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	25 June 2014	<p>Revisions to:</p> <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the programme design document form for small-scale CDM programme of activities (these instructions supersede the "Guideline: Completing the programme design document form for small-scale CDM programme of activities" (Version 03.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the PoA in B.4 and Appendix 1; • Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Error! Reference source not found.; • Change the reference number from <i>F-CDM-SSC-PoA-DD</i> to <i>CDM-SSC-PoA-DD-FORM</i>; • Editorial improvement.
02.0	13 March 2012	<p>EB 66, Annex 13</p> <p>Revision required to ensure consistency with the "Guidelines for completing the programme design document form for small-scale CDM programmes of activities".</p>
01.0	27 July 2007	<p>EB33, Annex43</p> <p>Initial adoption.</p>
<p>Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, project design document, SSC project activities</p>		