



**Programme of activities design document form  
(Version 09.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title of the PoA</b>	Domestic Cooking Stoves substitution programme in Mozambique
<b>Version number of the PoA-DD</b>	Version 09
<b>Completion date of the PoA-DD</b>	22/09/2020
<b>Coordinating/managing entity</b>	Fondazione AVSI
<b>Host Parties</b>	The Republic of Mozambique
<b>Applied methodologies and standardized baselines</b>	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 05.0)
<b>Sectoral scopes</b>	Sectoral Scope 03: Energy Demand

## **PART I. Programme of activities (PoA)**

### **SECTION A. Description of PoA**

#### **A.1. Purpose and general description of PoA**

##### **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 Component Project Activity Design Documents (CPA-DD).

Details concerning stove performance, distribution, and assembly will be provided at the CPA level. For each CPA under this 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 included under this 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 CO<sub>2</sub> 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.2. Physical/geographical boundary of PoA**

The geographical boundary for the PoA is the Republic of Mozambique<sup>1</sup>. All CPAs included in the PoA will be implemented in Mozambique.



Imagine A-1. Map of Africa



Imagine A-2. Mozambique

**A.3. Technologies/measures**

The CPAs included in the PoA will be a Type II projects<sup>2</sup>. 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.

<sup>1</sup> Mozambique\_KML

<sup>2</sup> 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)



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 n° 3 in section K of this PoA. i.e. to fulfil the following requirements:

- have specified efficiency of at least 20% tested in compliance with WBT, CCT or KPT
- to be biomass fired (for example charcoal or firewood)
- to have stove technology based on combustion or gasification
- to be single pot or multi pot
- to be portable or fixed unit size (height x width x depth) between 10 x 15 x 15 cm and 100 x 100 x 100 cm.

For each CPA a specific stakeholder consultation and engagement processes are designed. The target is ensuring the feedback from the local stakeholders for the selection of the efficient cookstove model to be distributed as well as to transfer know-how on the correct usage of the technology. The details on how the technologies and know-how for their use are transferred will be described more in detail in each CPA-DD.

#### A.4. Coordinating/managing entity

The coordinating and managing entity (CME) of the PoA is Fondazione AVSI. CarbonSinkGroup S.r.l., Nordic Environment Finance Corporation 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.”<sup>3</sup> 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.5. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
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<sup>3</sup> 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)

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
The Republic of Mozambique (host party)	Fondazione AVSI (Private entity)	No
Italy	CarbonSinkGroup S.r.l. (Private entity)	No
Italy	Cloros S.r.l. (Private entity)	No
Sweden	Nordic Environment Finance Corporation (Private entity)	No

#### A.6. Public funding of PoA

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 standard<sup>4</sup>.

### SECTION B. Management system

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)<sup>5</sup> 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 component project activities (CPAs). Fondazione AVSI and Nordic Environment Finance Corporation 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 CarbonSinkGroup 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 CarbonSinkGroup 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 K of the PoA. Below in the table B-1 are described the roles and responsibilities of personnel involved in the whole process of inclusion of CPAs.

Table B-1. Roles and responsibilities

Personnel	Roles and responsibilities
Fondazione AVSI (CME) and	- Responsible for identifying and managing all SSC-CPAs to

<sup>4</sup> 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)

<sup>5</sup> 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)

CarbonSinkGroup S.r.l.	be included in the PoA - To sign a contract with the CPA implementer
CarbonSinkGroup S.r.l.	- To submit the CPA-DD to the DOE for validation and inclusion in the PoA - Supports the CPA implementers
CPA implementer	- To apply for inclusion in the PoA by submitting CPA-DD to the CME

### **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)<sup>6</sup>. The agreement will include specific provisions and declarations that confirm the SSC-CPA project implementers agree that 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 K 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 included as a CPA of another registered CDM 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 K 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**

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<sup>6</sup> This is in the case the CPA implementer is not Fondazione AVSI

CarbonSinkGroup will maintain general database which will allow the Project Participants to have a 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.

#### **g) Any other relevant elements**

No other relevant elements of management system are applicable for the implementation of the PoA.

### **SECTION C. Demonstration of additionality of PoA**

According to the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0)<sup>7</sup> additionality shall be demonstrated by establishing that in the absence of CDM PoA, none of the implemented CPAs would occur.

In accordance with the Methodological tool 19: Demonstration of additionality of microscale project activities (Version 09.0)<sup>8</sup>, energy efficiency project activities (units<sup>9</sup>) that aim to achieve energy

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<sup>7</sup> 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)

<sup>8</sup> Methodological tool 19: Demonstration of additionality of microscale project activities (Version 09.0). <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-19-v9.pdf> (site visited 11/02/2019)

<sup>9</sup> In line with the para 15 of the applied Tool 19: Demonstration of additionality of microscale project activities (Version 09.0).

savings at a scale of no more than 20 GWh per year are additional if one of the conditions below is satisfied:

- a) The geographic location of the project activity is in an LDC/SIDS or SUZ of the host country;
- b) The project activity consists of one or more of the following technology/measures related to energy efficiency where end users of the technology/measure are households, communities or SMEs:
  - i. High efficiency biomass fired devices (e.g. energy efficient cookstoves);
  - ii. Micro-irrigation systems;
  - iii. Energy efficient pump-set for agriculture.

As units i.e. cooking stoves distributed under this PoA aim to achieve energy savings at a scale of no more than 20 GWh per year and as the geographical boundary of this PoA is Mozambique (which is a Least Developed Country), the condition a) of the Paragraph 12 of the above-named tool is satisfied and the project activities under this PoA can be deemed additional.

## **SECTION D. Start date and duration of PoA**

### **D.1. Start date of PoA**

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 PoA**

The length of the PoA is 28 years 00 months.

## **SECTION E. Environmental impacts**

### **E.1. Level at which environmental impacts analysis is undertaken**

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 environmental impacts**

Not applicable. As described in section E.1, analysis of environmental impacts is not required to be carried out.

### **E.3. Environmental impact assessment**

Not applicable. As described in section E.1, analysis of environmental impacts is not required to be carried out.

**SECTION F. Local stakeholder consultation****F.1. Level at which local stakeholder consultation is undertaken**

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 PoA.

**F.2. Modalities for local stakeholder consultation**

Not applicable

**F.3. Summary of comments received**

Not applicable

**F.4. Consideration of comments received**

Not applicable

**SECTION G. Approval and authorization**

The managing entity has obtained the Letter of Approval (LoA) and authorization<sup>10</sup> from the Host Party Designated National Authority (DNA). The other project participants of the PoA are authorized by the DNA of Italy and DNA of Sweden<sup>11</sup>.

**PART II. Generic component project activity (CPA)****SECTION H. Description of generic CPA****H.1. Title of generic CPA**

Domestic Cooking Stoves substitution programme in Mozambique (PoA 9981) – Generic CPA 01

**H.2. Reference number of generic CPA**

Generic CPA 01

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<sup>10</sup> DNA Mozambique, 2014 and 2015. Letter of Approval (LoA) and Authorization

<sup>11</sup> DNA Italy, 2014. Letter of Approval (LoA) and authorization for CarbonSinkGroup S.r.l. and for Cloros S.r.l.; DNA Sweden, 2016. Letter of Approval (LoA) and authorization for Nordic Environment Finance Corporation

### H.3. Purpose and general description of generic CPA

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 this 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. The aim of the CPAs 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 stove design may vary by CPA as different locations, climates, and traditions demand. However, the cookstove design needs to fulfil the specifications described in the eligibility criteria nº 3 indicated in Section K of PoA-DD. One example of the used stove model is the portable 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.

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 Component Project Activity Design Document (CPA-DD).

Details concerning stove performance, distribution, and assembly will be provided at the CPA level. For each CPA under this 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 this 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.

### H.4. Technologies/measures

#### Technologies/measures to be employed and/or implemented by the corresponding CPA

The stove design may vary by CPA as different locations, climates and traditions demand but all of the project stoves are high efficiency biomass fired devices which fulfil the following specifications (i.e the specifications described in the eligibility criteria nro 3 indicated in Section K of PoA-DD):

- have specified efficiency of at least 20% tested in compliance with WBT, CCT or KPT
- to be biomass fired (for example charcoal or firewood)
- to have stove technology based on combustion or gasification
- to be single pot or multi pot
- to be portable or fixed unit size (height x width x depth) between 10 x 15 x 15 cm and 100 x 100 x 100 cm.

Moreover, all the distributed efficient cookstoves will be new units, and thus no arrangements of facilities, systems or equipment will be included. The distributed efficient cook stoves are foreseen not to have integrated monitoring equipment.

**Types and levels of services by the facilities, systems and equipment that will be modified and/or installed under the corresponding CPAs and their relation, if any, to other facilities, systems and equipment outside the project boundary**

The project activities of each CPA include the distribution of high efficiency biomass fired devices for the households or communities or SMEs that are located in Mozambique. Each CPA will thus reduce the consumption of energy by substituting inefficient traditional cooking stoves with more effective ones.

Each CPA consists solely of units that qualify as “microscale CDM units” as defined in the “Methodological tool: Demonstration of additionality of microscale project activities”. Each single unit (i.e. cook stove) aim to achieve energy savings at a scale of no more than 20 GWh per year which will be demonstrated within the ER calculation spreadsheet.

**For the facilities, systems and equipment that will be modified and/or installed under the corresponding CPAs, provide information on:**

- a) The range of the age and average lifetime of the equipment based on the manufacturer’s specifications and industry standards;

Each CPA will specify the range of age and average lifetime of the distributed cook stoves based on the manufacture’s specifications. For example, the stove model CH-2200 which might, for example, be used for CPAs is highly durable, with an estimated lifetime up seven years in case used and maintained properly<sup>12</sup>.

- b) The range of the existing and forecast installed capacities, load factors and efficiencies;

Each CPA will specify the thermal efficiency of the distributed cook stove model/models. The thermal efficiency needs to be at least 20% tested in compliance with WBT, CCT or KPT.

- c) The energy and mass flows and balances of the facilities, systems, and equipment, if necessary.

N/A.

**Provide a short summary of facilities, systems and equipment in the baseline scenario as established in section I.5 below.**

The distributed cook stoves will replace the use of inefficient cook stoves like traditional inefficient charcoal stoves. 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.

## **SECTION I. Application of methodologies and standardized baselines**

### **I.1. References to methodologies and standardized baselines**

AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass (Version 05.0)<sup>13</sup>, Sectoral Scope 03: Energy Demand<sup>14</sup>. This methodology is approved for application to CPAs under PoAs by the CDM Executive Board.

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<sup>12</sup> Envirofit, 2014.

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

<sup>14</sup> AMS-II.G (Version 05.0). <http://cdm.unfccc.int/methodologies> (site visited 09/01/2014)

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

- ☐ General guidelines for SSC CDM methodologies (Version 20.0)<sup>15</sup>
- ☐ Methodological tool 19: Demonstration of additionality of microscale project activities (Version 09.0)<sup>16</sup>.
- ☐ Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (Version 03.0)<sup>17</sup>
- ☐ General guidance on leakage in biomass project activities (attachment C to appendix B) (Version 03)<sup>18</sup>
- ☐ Standard for sampling and surveys for CDM project activities and programmes of activities (Version 08.0)<sup>19</sup>
- ☐ Guidelines for sampling and surveys for CDM project activities and programme of activities (Version 04.0)<sup>20</sup>
- ☐ Guidelines on assessment of debundling for SSC project activities (version 03)<sup>21</sup>

## I.2. Applicability of methodologies and standardized baselines

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 Demand<sup>22</sup>. 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.

### 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 I-1.

Table I-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

<sup>15</sup> CDM-EB66-A23-GUID (Version 20.0). Available at <http://cdm.unfccc.int/Reference/index.html> (site visited 09/01/2014)

<sup>16</sup> Methodological tool 19: Demonstration of additionality of microscale project activities (Version 09.0). Available at <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-19-v9.pdf> (site visited 11/02/2019)

<sup>17</sup> EB 74 Annex 5. (Version 03.0). Available at <http://cdm.unfccc.int/Reference/Standards/index.html> (site visited 09/01/2014)

<sup>18</sup> EB 47, Annex 28. (Version 03). [http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC\\_guid04.pdf](http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf)

<sup>19</sup> CDM-EB50-A30-STAN (Version 08.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (site visited 06/08/2020)

<sup>20</sup> CDM-EB67-A06-GUID (Version 04.0). Available at <https://cdm.unfccc.int/Reference/Guidclarif/index.html> (site visited 06/08/2020)

<sup>21</sup> EB 54, Annex 13. (Version 03). Available at [http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC\\_guid17.pdf](http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid17.pdf) (site visited 10/02/2014)

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

<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 efficiency<sup>23</sup> biomass fired cook stoves<sup>24</sup> 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>Moreover, each cooking stove (i.e. unit) aim to achieve energy savings at a scale of no more than 20 GWh per year which will be demonstrated within the ER calculation spreadsheet</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)<sup>25</sup> 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>Not applicable as the CPAs under this PoA are applying microscale thresholds at the unit level rather than at the aggregate level of the CPA.<sup>26</sup></p> <p>For each CPA it will be demonstrated that it consists solely units that qualify as “microscale CDM units” as defined in the “Methodological tool: Demonstration of additionality of microscale project activities” and thus, in line with the Project Standard for PoAs Para 124 (m)<sup>27</sup>, the conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs are not required. Moreover, each cooking stove (i.e. unit) aim to</p>

<sup>23</sup> 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.

<sup>24</sup> Single pot or multi pot portable or *in situ* cook stoves with specified efficiency of at least 20%.

<sup>25</sup> FAO, 2010. Global Forest Resources Assessment 2010, Country Report Mozambique. <http://www.fao.org/docrep/013/al575E/al575e.pdf> (site visited 14/01/2014)

<sup>26</sup> “If each of the units contained in the CPA satisfies the condition to qualify as a ‘microscale CDM unit’, then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA”

<sup>27</sup> CDM Project Standard for Programmes of Activities (Version 02.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (Site visited 11/02/2019)

	achieve energy savings at a scale of no more than 20 GWh per year which will be demonstrated within the ER calculation spreadsheet.
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### 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 08.0)<sup>28</sup>” will be included in each CPA-DDs in line with the Section I.7.2 of this PoA-DD.

### Demonstration of eligibility for a generic CPA

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

### I.3. Application of multiple methodologies

Not applicable

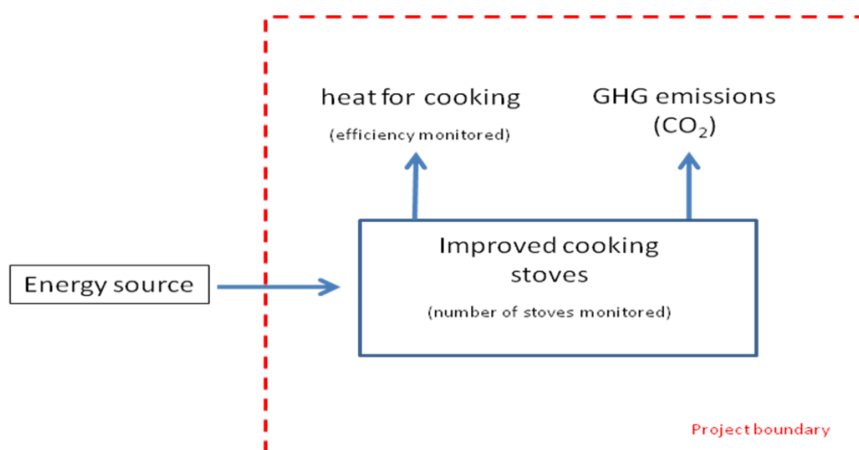
### I.4. Project boundary, sources and greenhouse gases (GHGs)

The sources listed in table I-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 CO<sub>2</sub>. Eventual leakage emissions are accounted with a net to gross adjustment factor applied for project scenario. Each CPA is implemented within the geographical boundary of the registered PoA.

	Source	GHG	Included?	Justification/Explanation
Baseline	Combustion of non-renewable biomass for cooking	CO <sub>2</sub>	Yes	Major source of emissions
		CH <sub>4</sub>	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
		N <sub>2</sub> O	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
	Leakage emissions	CO <sub>2</sub>	No	Not applicable
		CH <sub>4</sub>	No	Not applicable
		N <sub>2</sub> O	No	Not applicable
Project activity	Combustion of non-renewable biomass for cooking	CO <sub>2</sub>	Yes	Major source of emissions
		CH <sub>4</sub>	No	Minor source of emissions and limited data available.
		N <sub>2</sub> O	No	Minor source of emissions and limited data available.
	Leakage emissions	CO <sub>2</sub>	Yes	Major source of emissions

<sup>28</sup> CDM-EB50-A30-STAN (Version 08.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (site visited 06/08/2020)

Source	GHG	Included?	Justification/Explanation
	CH <sub>4</sub>	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
	N <sub>2</sub> O	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.



Imagine I-1. Project boundary of typical CPA

## I.5. Establishment and description of baseline scenario

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.

## I.6. Estimation of emission reductions

### I.6.1. Explanation of methodological choices

All the CPAs under this PoA will use the baseline and monitoring methodology AMS-II.G, version 05.0. The below sections describe 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 <sub>2</sub> 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 <sup>29</sup>
$NCV_{biomass}$	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 <sub>2</sub> /TJ <sup>30</sup>
$N_{y,i}$	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:

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

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

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

o 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.
$\eta_{old}$	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.

<sup>29</sup> Default values endorsed by designated national authorities and approved by the Board are available at <<http://cdm.unfccc.int/DNA/fNRB/index.html>>.

<sup>30</sup> 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 CO<sub>2</sub>/TJ) and a 25% weight is assigned to both liquid and gaseous fuels (71.5 t CO<sub>2</sub>/TJ for kerosene and 63.0 t CO<sub>2</sub>/TJ for liquefied petroleum gas (LPG)).

**Determination of  $B_{old}$** 

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

- o 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.
- o 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

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:

- (a) Use of non-renewable woody biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment quantifies a portion of non-renewable woody biomass saved under the project activity that is then used as the baseline of other CDM project activities then  $B_{old}$  is adjusted to account for the quantified leakage;
- (b) Increase in the use of non-renewable woody biomass outside the project boundary to create non-renewable woody biomass baselines can also be a potential source of leakage. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass outside the project boundary then  $B_{old}$  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 Board<sup>31</sup>. 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.

<sup>31</sup> <http://cdm.unfccc.int/DNA/fNRB/index.html> (site visited 09/01/2014)

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 country specific fraction of non-renewable woody biomass calculated using requirements in “TOOL30: Methodological tool: Calculation of the fraction of non-renewable biomass”, version 02.0. This decision is in accordance with the above described option a) of the paragraph 30 of the applied methodology.

## I.6.2. Data and parameters fixed ex ante

Data/Parameter	NCV <sub>biomas</sub>
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 <sub>biomas</sub> ).
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	EF <sub>projected_fossilfuel</sub>
Data unit	tCO <sub>2</sub> /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 <sub>2</sub> /TJ is to be used as emission factor for the substitution of non-renewable woody biomass by similar consumers (EF <sub>projected_fossilfuel</sub> ).
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 <sub>old</sub>
Data unit	t/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<sub>old</sub> 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<sub>old</sub>) 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).<sup>32</sup> 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<sub>old</sub> will be multiplied by a net to gross adjustment factor (LAF) to account for leakages.</p>

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

	To determine $B_{old}$ per device, the approach of dividing $B_{old, hh}$ in two may be applied for the cases where the households are having two project stoves.
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Data/Parameter	$\eta_{old}$
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) $\eta_{old}$ 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) < <a href="http://www.pciaonline.org/node/1050">http://www.pciaonline.org/node/1050</a> >).
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>Data/Parameter</b>	<b>f<sub>NRB,y</sub></b>
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 country specific fraction of non-renewable woody biomass (f <sub>NRB</sub> ) value calculated using requirements in "TOOL30: Methodological tool: Calculation of the fraction of non-renewable biomass", version 02.0.
Value(s) applied	0.91
Measurement methods and procedures	TOOL30: Methodological tool: Calculation of the fraction of non-renewable biomass", version 02.0.
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 each CPA.

### I.6.3. Modalities for ex ante calculation of emission reductions

All the CPAs under this PoA will use the baseline and monitoring methodology AMS-II.G Version 05.0 as described in the section I.6.1 above. The methodological choices not fixed at PoA level (estimating of B<sub>y,savings</sub> and B<sub>old</sub>) 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)"<sup>33</sup> 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<sub>y,savings</sub>

For the CPA-01 B<sub>y,savings</sub> is determined ex ante using the equation 3 of the Option 2 (paragraph 12) of the applied methodology<sup>34</sup> and, therefore, the equation to calculate emission reductions (ER<sub>y</sub>) 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 <sub>y</sub>	Emission reductions during the year y in tCO <sub>2</sub> e
B <sub>y,savings</sub>	Quantity of woody biomass that is saved in tonnes per device
B <sub>old</sub>	Quantity of woody biomass used in the absence of the project activity in tonnes per device
η <sub>old</sub>	Efficiency of the device being replaced (fraction)

<sup>33</sup> Here referred to CPA-DD version 05, dated 10/10/2014

<sup>34</sup> Please note that this calculation method is used for the CPA-01 only at validation stage. In order to determine ex post B<sub>y,savings</sub>, equation 2 of Option 1 of the paragraph 12 of the applied methodology as specified in the latest validated version of the 9981-CPA 01 (version 09 dated 24/09/2018).

$\eta_{\text{new},y}$	Efficiency of the device being deployed as part of the project activity (fraction)
LAF	Leakage adjustment factor to account for leakages
$f_{\text{NRB},y}$	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
$\text{NCV}_{\text{biomass}}$	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, wet basis)
$\text{EF}_{\text{projected\_fossilfuel}}$	Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO <sub>2</sub> /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  $\eta_{\text{old}}$  and  $\eta_{\text{new},y}$  needs to be determined.

### Step 1.a. Determination of $\eta_{\text{old}}$

Option 2 described in the paragraph 12 of the applied methodology provides two approaches to determine the efficiency of the baseline systems being replaced ( $\eta_{\text{old}}$ ). 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:

$$\eta_{\text{old}} = 0.10$$

### Step.1.b. Determination of $\eta_{\text{new},y}$

In accordance to the applied methodology (footnote 1 of the AMS II.G) efficiency of the systems being deployed ( $\eta_{\text{new},y}$ ) can be determined based on the manufacturer's specification : the manufacturer specifications state the efficiency of the CH-2200 Charcoal Cooking Stove to be 42.3 %<sup>35</sup> and therefore, for the CPA-01 ex-ante ER estimations:

$$\eta_{\text{new}} = 0.423$$

### Step 1.c. Determination of $B_{\text{old}}$

For the CPA-01  $B_{\text{old}}$  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 4.7638 t/year and therefore, for the CPA-01:

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

### Step 1.d. Determination of LAF

As described before in section I.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:

$$\text{LAF} = 0.95$$

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<sup>35</sup> Colorado State University, 2013. Emissions and Performance Report CH2200.

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

As described before in section I.6.1, for all the CPAs,  $f_{NRB,y}$  is estimated calculating the country specific fraction of non-renewable woody biomass using requirements in “TOOL30: Methodological tool: Calculation of the fraction of non-renewable biomass”, version 02.0. 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 I.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 I.6.2, the value of 81.6 tCO<sub>2</sub>/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 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.

$$N_{y,i} = 0.8 * 10,000 = 8,000$$

**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:

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

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

$$ER_y = 30793$$

## I.7. Monitoring plan

## I.7.1. Data and parameters to be monitored

Data/Parameter	$B_{y,new,KPT}$
Data unit	t/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 (<math>B_{y,new,KPT}</math>) 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).<sup>36</sup> Alternatively, credible local conversion factors determined from a field study or literature may be applied.</p> <p>To determine <math>B_{y,new,KPT}</math> per device, the approach of dividing <math>B_{y,new,KPT}</math> in two is applied for the cases where the households are having two project stoves.</p>
Monitoring frequency	Yearly (or biennially) <sup>37</sup>
QA/QC procedures	When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.
Purpose of data	Calculation of baseline emissions.
Additional comment	This parameter is only applicable to CPAs where Option 1 of paragraph 12 of the applied methodology is chosen.

Data/Parameter	$\eta_{new,y}$
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	As per paragraph 12 and 23 (b) of AMS-II.G Version 05.0:

<sup>36</sup> <http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf>

<sup>37</sup> According the applied methodology, Footnote 12: 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

	<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 guidelines<sup>38</sup>. 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"> <li><input type="checkbox"/> When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> The Water-Boiling-Test is conducted with trained monitoring personal.</li> </ul>
Purpose of data	Calculation of baseline emissions
Additional comment	<p>This parameter is only applicable to CPAs when 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 <math>\eta_{new,y}</math> 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>

<sup>38</sup> In all cases the testing protocol shall be the same for both the device being replaced and the device being deployed.

<b>Data/Parameter</b>	<b>B<sub>y,new,survey</sub></b>
Data unit	t/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	<p>As per paragraph 12 of AMS-II.G Version 05.0</p> <p>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<sub>y,new,survey</sub>) 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).<sup>39</sup> Alternatively, credible local conversion factors determined from a field study or literature may be applied.</p>
Monitoring frequency	Yearly (or biennially)
QA/QC procedures	<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> <p>When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.</p>
Purpose of data	Calculation of baseline emissions
Additional comment	<p>This parameter is only applicable to CPAs where equation 4 of Option 2 of paragraph 12 of the applied methodology is chosen.</p> <p>To determine B<sub>new,survey</sub> per device, the approach of dividing B<sub>new,survey, hh</sub> in two may be applied for the cases where the households are having two project stoves.</p>

Data/Parameter	SC <sub>new,y</sub>
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	<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> <p>When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.</p>
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.

Data/Parameter	HG <sub>p,y</sub>
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> <p>90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision is not achieved, the lower bound of the 90% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10.</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	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.
Monitoring frequency	At least biennially
QA/QC procedures	<ul style="list-style-type: none"> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.</li> </ul>
Purpose of data	Calculation of baseline emissions
Additional comment	N/A

### 1.7.2. Sampling plan

According to “Standard for sampling and surveys for CDM project activities and programme of activities (Version 08.0)”<sup>40</sup> 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 04.0)”<sup>41</sup> the sampling plan should contain information relating to (A) sampling design; (B) data to be collected; and (C) implementation plan.

<sup>40</sup> CDM-EB50-A30-STAN (Version 08.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (site visited 06/08/2020)

<sup>41</sup> CDM-EB67-A06-GUID (Version 04.0). Available at <https://cdm.unfccc.int/Reference/Guidclarif/index.html> (site visited 06/08/2020)

## A. Sampling design

### A.1 Objectives and reliability requirements

The objective of the sampling is to determine and monitor variable parameters described in I.7.1 , including the proportion of the efficient stoves annually operating under the CPA activity ( $N_{y,i}$ ) and checking the efficiency 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.

### A.3 Sampling method

Sampling methods of “Simple random sample on whole population” and/or “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, when 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 years<sup>42</sup>. Therefore, an approach of “Simple random sampling on vintage-wise populations” will be applied for estimating the stove efficiency. Similarly, “simple random sampling on vintage-wise populations” may be used also for estimating the proportion of the stoves operating as the usage rate of the stoves is estimated to drop over the years. 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. Alternatively, in addition or instead of the simple random sampling also other sampling approaches like stratified sampling, in line with CDM guidelines, may be used.

#### 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  $B_{y,new,KPT}$ , in which case the sample size is calculated separately for both of the parameters. Alternatively, also the monitoring of parameters  $\eta_{new,y}$ ,  $B_{y,new,survey}$ ,  $SC_{new,y}$  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 2.1.6 of the “Guidelines for sampling and surveys for CDM project activities and programme of activities”<sup>43</sup> the equation to calculate the required sample size for biennial determining of  $N_{y,i}$  (or another proportion parameter monitored biennially) 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  $B_{y,new,KPT}$  (or other mean value parameter monitored annually) can be written as follows in case of simple random sample on the whole population:

$$n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V}$$

Where:

- $n$  Sample size
- $N$  Total number of devices
- 1.645 Represents the 90% confidence required
- 0.1 Represents the 10% relative precision
- $V$   $(SD/Mean)^2$
- $SD$  Expected standard deviation
- $Mean$  Expected mean

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<sup>43</sup> CDM-EB67-A06-GUID (Version 04.0). Available at <https://cdm.unfccc.int/Reference/Guidclarif/index.html> (site visited 06/08/2020)

In case the parameter  $B_{y,new,KPT}$  (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. Moreover, if the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 shall be chosen when the parameter of interest is a proportion. If the parameter of interest is a numeric mean value (i.e. not a proportion or percentage) the Student's t-distribution shall be used if the resulting sample size is less than 30<sup>44</sup>.

#### 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  $B_{y,new,KPT}$  for most of the CPAs. Alternatively to, also the monitoring of parameters  $\eta_{new,y}$ ,  $B_{y,new,survey}$ ,  $SC_{new,y}$  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. The gap between consecutive annual or biennial surveys (i.e. the gap between the start date of the survey and the start date of the consecutive survey) shall not be more than 12 months or 24 months, respectively<sup>45</sup>.

##### *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 I.7.1 . 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.

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<sup>44</sup> This approach is in line with the para 14 of the "Standard: Sampling and surveys for CDM project activities and programmes of activities Version 08.0"

<sup>45</sup> In line with the clarification SSC\_743

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 I.7.1 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 reports 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 the gap between consecutive annual or biennial surveys (i.e. the gap between the start date of the survey and the start date of the consecutive survey) shall not be more than 12 months or 24 months, respectively.

#### 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.

### **I.7.3. Other elements of monitoring plan**

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 at least biennially to determine if the improved project stoves are still operating and annual (or biennial) 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 annually (or biennially)<sup>46</sup>.

- (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

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<sup>46</sup> 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.

representative sample thereof. For the purpose of calculating emissions reductions, the *ex post* monitored value of the efficiency of the operating devices ( $\eta_{\text{new},y}$ ) 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  $B_{\text{old}}$ , 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 I.6.1 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  $B_{\text{old}}$ .*

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  $B_{\text{old}}$ . 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 or other appropriate ways. 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.

## SECTION J. Crediting period type and duration

### Type of crediting period

The crediting period type is Renewable Crediting period for each CPA.

### Length of crediting period

The length of the crediting period is 7 years and 00 months for each CPA. The crediting period can be renewed at most twice, for a maximum total length of 21 years and 00 months. However, the duration of a CPA cannot exceed the maximum extent of the Crediting Period for the PoA (i.e. the date 21/01/2042).

## SECTION K. Eligibility criteria for inclusion of CPAs

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)<sup>47</sup>. These criteria must be met by each CPA to ensure its eligibility under the PoA.

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

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
1	The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA	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	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations	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 specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	<p>The CPA involves the distribution/installation of new efficient cook stoves with following characteristics:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> specified efficiency of at least 20% tested in compliance with WBT, CCT or KPT<sup>48</sup></li> <li><input type="checkbox"/> biomass fired (for example charcoal or firewood)</li> <li><input type="checkbox"/> stove technology based on combustion or gasification</li> <li><input type="checkbox"/> single pot or multi pot</li> <li><input type="checkbox"/> portable or fixed</li> </ul> <p>unit size (height x width x depth) between 10 x 15 x 15 cm and 100 x 100 x 100 cm</p>	<p>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.</p> <p>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.</p>
4	Conditions to check the start date of the CPA through	The start date of the CPA is not be prior of the start date of the	The start date of any CPA will not before the start date of the

<sup>47</sup> 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)

<sup>48</sup> Water Boiling Test, Controlled Cooking Test or Kitchen Performance Test.

	documentary evidence	PoA, 22 <sup>nd</sup> of January 2014. The start date will be proofed by documentary evidence like the receipts of the selling the stoves in project area.	PoA. This will be shown with a document evidences like the receipts of the selling the stoves in project area.
5	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs	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 <sup>49</sup> like described in each CPA-DD. The fulfilling of applicability conditions is demonstrated in the CPA-DD. Moreover, each CPA fulfil the Para 124 (m) of the CDM Project Standard for Programmes of Activities (Version 02.0).
6	The conditions that ensure that the CPA meets the requirements pertaining to the demonstration of additionality	The CPA demonstrates additionality by proofing the applicability of the "Methodological tool 19: Demonstration of additionality of microscale project activities (Version 09.0)" and its paragraph 12.	Each single unit (i.e. cook stove) under the CPA aim to achieve energy savings at a scale of no more than 20 GWh per year and thus the Methodological Tool: Demonstration of additionality of microscale project activities (Version 09.0) is applicable. The CPA demonstrates its additionality by proofing the requirements of the Para 12 of the Methodological Tool: Demonstration of additionality of microscale project activities (Version 09.0).
7	The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	The CPA includes a description and documentation about local stakeholder consultation made in accordance with Clean development mechanism project standard (Version 07.0) <sup>50</sup> , and environmental impact analysis in the case required by the host country.	The description and documentation about local stakeholder consultation and environmental impact analysis is included in each CPA-DD.
8	Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance	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	Target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation)	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

<sup>49</sup> AMS-II.G. Available at <http://cdm.unfccc.int/methodologies>

<sup>50</sup> 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)

			specifications of the target group will be included within each CPA-DD.
10	The conditions related to sampling requirements for the PoA	The CPA follows the sampling requirements specified Standard for sampling and surveys for CDM project activities and programme of activities (Version 08.0) <sup>51</sup> .	Each CPA follows the sampling requirements specified in the Standard for sampling and surveys for CDM project activities and programmes of activities (Version 08.0) <sup>52</sup> . The sampling plan is described in each CPA-DD.
11	Where applicable, the conditions that ensure that every CPA (in aggregate if it comprises of independent sub units) meets the small-scale or microscale threshold and remains within those thresholds throughout the crediting period of the CPA	Each CPA consists solely of units that qualify as “microscale CDM units” as defined in the “Methodological tool: Demonstration of additionality of microscale project activities”. Therefore, in line with the Para 124 (m) <sup>53</sup> , the conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs are not required. For energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year a	Each CPA consists solely of units that qualify as “microscale CDM units” as defined in the “Methodological tool: Demonstration of additionality of microscale project activities” will be described in each CPA-DD.
12	The requirements for the debundling check, in case the CPA belongs to small-scale or microscale project categories.	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” <sup>54</sup> 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	Rights to claim and own emission reductions	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.

<sup>51</sup> CDM-EB50-A30-STAN (Version 08.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (site visited 06/08/2020)

<sup>52</sup> CDM-EB50-A30-STAN (Version 08.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (site visited 06/08/2020)

<sup>53</sup> CDM Project Standard for Programmes of Activities (Version 02.0). Available at <https://cdm.unfccc.int/Reference/Standards/index.html> (Site visited 11/02/2019)

<sup>54</sup> EB 54, Annex 13. Guidelines on Assessment of Debundling for SCC Project Activities (Version 03). [http://cdm.unfccc.int/Reference/Guidclari/ssc/methSSC\\_guid17.pdf](http://cdm.unfccc.int/Reference/Guidclari/ssc/methSSC_guid17.pdf) (site visited 09/01/2014)

## Appendix 1. Contact information of coordinating/managing entity and project participants

<b>Coordinating/managing entity and/or project participants</b>	<input checked="" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Project participant
<b>Organization name</b>	Fondazione AVSI
<b>Country</b>	Italy
<b>Address</b>	Via Legnone 4, 20158 Milano
<b>Telephone</b>	+39 02 6749881
<b>Fax</b>	+39 02 6749 0056
<b>E-mail</b>	areaprogetti@avsi.org, giorgio.capitano@avsi.org
<b>Website</b>	www.avsi.org
<b>Contact person</b>	Giorgio Capitanio

<b>Coordinating/managing entity and/or project participants</b>	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant
<b>Organization name</b>	CarbonSinkGroup S.r.l.
<b>Country</b>	Italy
<b>Address</b>	Piazza Beverini 4, 19121 La Spezia
<b>Telephone</b>	+39 055 4574675
<b>Fax</b>	N/A
<b>E-mail</b>	info@carbonsink.it, andrea.maggiani@carbonsink.it
<b>Website</b>	www.carbonsink.it
<b>Contact person</b>	Andrea Maggiani

<b>Coordinating/managing entity and/or project participants</b>	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant
<b>Organization name</b>	Cloros S.r.l
<b>Country</b>	Italy
<b>Address</b>	Piazza Villafranchetta 3, Villafranca di Verona
<b>Telephone</b>	N/A
<b>Fax</b>	N/A
<b>E-mail</b>	N/A
<b>Website</b>	N/A
<b>Contact person</b>	Riccardo Caliarì

<b>Coordinating/managing entity and/or project participants</b>	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant
<b>Organization name</b>	Nordic Environment Finance Corporation
<b>Country</b>	Finland
<b>Address</b>	Fabianinkatu 34, P.O. Box 241, 001717 Helsinki
<b>Telephone</b>	N/A
<b>Fax</b>	N/A
<b>E-mail</b>	N/A
<b>Website</b>	www.nefco.org
<b>Contact person</b>	Helle Lindegaard

**Appendix 2. Affirmation regarding public funding**

N/A

**Appendix 3. Applicability of methodologies and standardized baselines**

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 monitoring plan**

N/A

**Appendix 6. Summary report of comments received from local stakeholders**

N/A

**Appendix 7. Summary of post-registration changes****1<sup>st</sup> PRC**

The original validated version (Version 05) of the PoA-DD was updated to Version 7.0 as follows:

Original validated version of the PoA-DD (Version 05)	Summary of the made modifications
Additionality demonstration made following "Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0)"	<p>Additionality demonstration has been updated to be made following Tool 19 "Methodological tool: Demonstration of additionality of microscale project activities (Version 09.0)".</p> <p>All the relevant sections of the PoA-DD (Section C, Section I.1 and I.2 and Section K) that referred to the previous guidelines have been updated accordingly with the new applied tool (TOOL19). For example, the eligibility criteria nro 6 has been updated consequently in Table K-1.</p>

<p>The aggregate energy savings of a single project activity shall not exceed the equivalent of 180 GWh thermal per year in fuel input.</p>	<p>The PoA-DD has been updated, in line with Clarification SSC_732<sup>55</sup>, to apply the para 124 (m) of the CDM Project Standard for Programmes of Activities (Version 02.0). All the relevant sections and tables of the PoA-DD have been updated and, consequently, the references to the requirement of 180 GWh<sub>th</sub> threshold have been deleted (Section C, Section H.3, Section I.2, Section I.7.1 and Section K). For example, the eligibility criteria nro 11 and the justification method of the eligibility criteria nro 5 have been updated consequently in table K-1.</p>
<p>Project Partners: Fondazione AVSI, CarbonSinkGroup and S.r.l., Cloros S.r.l.</p> <p>Focal points: CarbonSinkGroup S.r.l., Fondazione AVSI and Cloros S.r.l.</p>	<p>After the PoA registration a new Project Partner, Nordic Environment Finance Corporation, has been approved on 07/07/2016 and the focal points updated on 08/07/2016. In consequence, the Project Partners and Focal points have been updated as follows in the PoA-DD:</p> <ul style="list-style-type: none"> <li>- <b>Project Partners:</b> Fondazione AVSI, CarbonSinkGroup S.r.l., Cloros S.r.l and Nordic Environment Finance Corporation</li> <li>- <b>Focal points:</b> Fondazione AVSI and Nordic Environment Finance Corporation</li> </ul> <p>The consequent changes have been made also in Sections A.4 and A.5, Section B ("Management System"), Section G ("Approval and Authorization") and in Appendix 1. Also, the footnotes 11 and 12 have been updated accordingly.</p>
<p>PoA-DD template Version 03.0</p>	<p>The PoA-DD template has been updated for the latest version (Version 08.1). Consequently, also the numbering of the figures and tables have been updated to respect the order within the current PoA-DD template and thus also referring to the sections and tables have updated within the text.</p> <p>Also, in consequence of the use of the new PoA-DD template the form in the table K-1 is now including the categories for each of the eligibility criteria (these were not required by the previous PoA-DD form) and the section H.1 and H.2 specifying the title and reference number of the generic CPA (these were not required by the previous PoA-DD form).</p> <p>Moreover, section A.3 (including now also the indications regarding the know-how transfer), section B (including now updated subheadings) and section H.3 (including new subheadings and paragraphs) have been updated to be in line with the filling guidelines of the currently applied PoA-DD template.</p>
<p>No specifications were given</p>	<p>Sections I.6.2 and I.7 have been updated with the following</p>

<sup>55</sup>

<https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/78386>

regarding project scenario in which household has two project stoves.	<p>specifications:</p> <p>To determine <math>B_{old}</math> per device, the approach of dividing <math>B_{old, hh}</math> in two may be applied for the cases where the households are having two project stoves.</p> <p>To determine <math>B_{y, new, KPT}</math> per device, the approach of dividing <math>B_{y, new, KPT}</math> in two is applied for the cases where the households are having two project stoves.</p> <p>To determine <math>B_{new, survey}</math> per device, the approach of dividing <math>B_{new, survey, hh}</math> in two may be applied for the cases where the households are having two project stoves.</p>
The data unit for $B_{old}$ , $B_{y, new, KPT}$ , $B_{y, new, survey}$ indicated as t/device/year.	The data unit for $B_{old}$ , $B_{y, new, KPT}$ , $B_{y, new, survey}$ has been corrected to be in line with the applied AMS-II.G methodology i.e. t/year throughout the PoA-DD.
PoA-DD (version 05) uses CPA-01 "Domestic Cooking Stoves in Maputo (Mozambique)" as an example how the emission reduction calculations can be made at CPA level. However, it is not specified the CPA-01 DD version referred in the calculation example and either not described clearly the two different approached used for this specific CPA for determining $B_{y, savings}$ in ex ante and in ex post ER calculations.	<p>PoA-DD section I.6.3 has been updated by adding the following new footnotes:</p> <p>"Here referred to CPA-DD version 05, dated 10/10/2014."</p> <p>"Please note that this calculation method is used for the CPA-01 only at validation stage. In order to determine ex post <math>B_{y, savings}</math> equation 2 of Option 1 of the paragraph 12 of the applied methodology as specified in the latest validated version of the 9981-CPA 01 (version 09 dated 24/09/2018)."</p>
PoA-DD indicates for some parameters the possibility to make the monitoring either annually or biennially. However, it is not very clearly indicated when the biennial monitoring may be chosen and what is its impact on the sampling.	<p>Section I.7.1 added the following specifications:</p> <p>"According the applied methodology, Footnote 12: 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"</p> <p>"When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision."</p>
No exact date given for the PoA crediting period end day.	<p>In section J added the following specification:</p> <p>However, the duration of a CPA cannot exceed the maximum extent of the Crediting Period for the PoA (i.e. the date 21/01/2042).</p>

Contact information in Appendix 1	In Appendix 1 of Nordic Environment Finance Corporation has been added and email addresses of Fondazione AVSI and CarbonSinkGroup S.r.l. have been updated.
Typo corrections	<p>In Sections A.1, B and H.3 CPA abbreviation has been corrected to refer to “Component Project Activity” instead to “Programme Activity”</p> <p>In Section I.6.1 the word “describes” has been corrected to be “describe”.</p> <p>In Section I.7.2. the word “biannual” has been corrected to be “biennial”.</p> <p>Moreover, throughout the document the wording “the proposed PoA” has been replaced with “the PoA” or “this PoA”.</p>

## 2<sup>nd</sup> PRC

The registered version 07 of the PoA-DD has been updated as follows:

<b>Version 07 of the PoA-DD</b>	<b>Summary of the made modifications</b>
The PoA-DD template version 08.1	The PoA-DD template has been updated for the latest version (Version 09.0).
Fraction of non-renewable (fNRB,y) determined based on the default country specific value endorsed by designated national authority and approved by the CDM Board.	Fraction of non-renewable (fNRB,y) calculated using requirements in “TOOL30: Methodological tool: Calculation of the fraction of non-renewable biomass”, version 02.0 and fixed ex-ante.
Fraction of non-renewable (fNRB,y) monitored annually.	Fraction of non-renewable (fNRB,y) fixed ex-ante.

Sampling methods of “Simple random sample on whole population” for determining $N_{y,i}$ and “Simple random sampling on vintage-wise populations” $B_{y,new,KPT}$ presented as only options of the sampling methods.	<p>Added the following specifications:</p> <p>“Sampling methods of “Simple random sample on whole population” and “Simple random sampling on vintage-wise populations” are foreseen to be used. <b>Alternatively, also other sampling approaches in line with CDM guidelines may be used.</b>”</p> <p>“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 years<sup>56</sup>. Therefore, an approach of “Simple random sampling on vintage-wise populations” will be applied for estimating the stove efficiency. <b>Similarly, “simple random sampling on vintage-wise populations” may be used also for estimating the proportion of the stoves operating.</b>”</p>
The equation to calculate the required sample size for annual determining of for example $B_{y,new,KPT}$ (or other mean value parameter monitored annually) was indicated erroneously.	The equation for determining sample size for mean value parameters is corrected to be in line with the CDM guideline “Sampling and surveys for CDM project activities and programmes of activities”.
No specifications regarding the minimum sample size.	<p>Added the following specification:</p> <p>“If the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 shall be chosen when the parameter of interest is a proportion. If the parameter of interest is a numeric mean value (i.e. not a proportion or percentage) the Student's t-distribution shall be used if the resulting sample size is less than 30.”</p>
“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.”	The schedule for implementing the sampling effort shall be done so that the gap between consecutive annual or biennial surveys (i.e. the gap between the start date of the survey and the start date of the consecutive survey) shall not be more than 12 months or 24 months, respectively.
<p>The following versions of standard and guidelines of sampling and surveys were applied:</p> <ul style="list-style-type: none"> <li>- Standard for sampling and surveys for CDM project activities and programmes of activities (Version 04.1)</li> </ul>	<p>The following versions of standard and guidelines of sampling and surveys are applied:</p> <ul style="list-style-type: none"> <li>- Standard for sampling and surveys for CDM project activities and programmes of activities (Version 08.0)</li> <li>- Guidelines for sampling and surveys for</li> </ul>

<p>- Guidelines for sampling and surveys for CDM project activities and programme of activities (Version 03.0)</p>	<p>CDM project activities and programme of activities (Version 04.0)</p>
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## Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
09.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN);</li> <li>• Make editorial improvements.</li> </ul>
08.1	28 June 2017	Revision to: <ul style="list-style-type: none"> <li>• Remove a duplicated instruction;</li> <li>• Make editorial improvement.</li> </ul>
08.0	7 June 2017	Revision to: <ul style="list-style-type: none"> <li>• Improve consistency with the “CDM project standard for programmes of activities” and with the PDD and CPA-DD forms;</li> <li>• Make editorial improvement.</li> </ul>
07.0	25 May 2017	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN) (version 01.0);</li> <li>• Incorporate the “Programme design document form for small-scale CDM programmes of activities” (CDM-SSC-PoA-DD-FORM);</li> <li>• Make editorial improvement.</li> </ul>
06.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A04-STAN) (version 01.0).
05.0	9 March 2015	Revision to: <ul style="list-style-type: none"> <li>• Include provisions related to choice of start date of PoA;</li> <li>• Include provisions related to delayed submission of a monitoring plan;</li> <li>• Provisions related to local stakeholder consultation;</li> <li>• Add exception for generic CPA where technology is under positive lists;</li> <li>• Make editorial improvement.</li> </ul>
04.1	5 August 2014	Editorial revision to correct the document information table.

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	25 June 2014	<p>Revision to:</p> <ul style="list-style-type: none"> <li>• Include the Attachment: Instructions for filling out the project design document form for CDM programme of activities (these instructions supersede the Guideline: Completing the programme design document form for CDM programme of activities (Version 04.0));</li> <li>• Include provisions related to standardized baselines;</li> <li>• 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;</li> <li>• Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Appendix 6;</li> <li>• Change the reference number from F-CDM-PoA-DD to CDM-PoA-DD-FORM;</li> <li>• Make editorial improvement.</li> </ul>
03.0	3 December 2012	<p>EB 70</p> <p>Revision to reflect changes to the <i>Guideline: Completing the programme design document form for CDM programmes of activities</i> (EB 70, Annex 6).</p>
02.0	13 March 2012	<p>EB 66</p> <p>Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, annex 12).</p>
01.0	27 July 2007	<p>EB 33, Annex 41</p> <p>Initial publication.</p>
<p>Decision Class: Regulatory  Document Type: Form  Business Function: Registration  Keywords: programme of activities, project design document</p>		