



**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

Title of the PoA	Top Third Ventures Stove Programme (CDM Ref: PoA 9265)
Version number of the PoA-DD	3.2
Completion date of the PoA-DD	19/06/2020
Coordinating/managing entity	BURN Manufacturing Co.
Host Parties	Kenya Democratic Republic of the Congo (DRC) Republic of Zambia
Applied methodologies and standardized baselines	AMS-II.G – Energy efficiency measures in thermal applications of non-renewable biomass (Version 1 1 ₁) <u>AMS-I.E – Switch from non-renewable biomass for thermal applications by the user (Version 10.1)</u>
Sectoral scopes	03 <u>(AMS-II.G)</u> and 01 <u>(AMS-I.E)</u>

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PART II. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

(a) Policy/measure or stated goal that the PoA seeks to promote:

The stated goal of the PoA is to achieve widespread distribution and effective use of efficient cooking technologies or the displacement of non-renewable biomass by introducing renewable energy technologies (clean cookstoves using carbonized or non-carbonized renewable pellets, briquettes, woodchips, agricultural residues) in low-income rural and urban households as well as institutions¹ and SMEs. Carbon revenues earned under the PoA will be used to:

- Subsidize the cost of efficient cookstoves or renewable energy technologies to the consumer²; and/or
- Invest in the research and development of new and improved renewable energy technologies; and/or
- Support the dissemination of efficient cookstoves renewable energy technologies in remote areas with poor infrastructure and/or
- Subsidize the cost of renewable fuel (carbonized or non-carbonized renewable pellets, briquettes, woodchips, agricultural residues)

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The measures listed above will contribute to the wide-spread use of efficient stoves renewable energy technologies within the boundary of the PoA.

The widespread use of efficient cooking renewable energy technologies will result in vastly reduced woody biomass consumption or displacement of non-renewable biomass. Reduced woody biomass consumption or displacement of non-renewable biomass will result in GHG emission reductions.

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(b) General operating and implementing framework of PoA:

The Top Third Ventures Stove Programme is an activity coordinated and managed by BURN Manufacturing Co. The PoA covers Scope 3 and Type II as under AMS-II.G, version 11, 1 and Scope 01 and Type I as under AMS-I.E, version 10.1. The PoA will facilitate the widespread use of efficient cooking renewable energy technologies in low-income households as well as institutions and SMEs.³ The efficient cooking technologies supported by the PoA will have a thermal efficiency value of at least 20 per cent. The PoA will contribute to the sustainable development of the host countries in the following ways:

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- Reduce demand for biomass for thermal energy production
- Contribute to the alleviation of the burden on forests within the boundary of the PoA
- Improve the quality of in-door air in households cooking with non-renewable biomass

¹ Institutions such as schools, prisons, hospitals etc. can be defined as any structure or mechanism of social order and cooperation governing the behaviour of a set of individuals within a given community..

² This means that the cookstove is either partially or fully subsidized.

³ In the following the PoA-DD does not always refer explicitly to institutions and SMEs. The term 'household' is used on behalf of institutions and SMEs as well.

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The Coordinating or Managing Entity (CME) will manage the PoA. The CME will coordinate with CPA Implementers to ensure collection of all data listed under the monitoring plan as well as ensuring the satisfactory performance of all technology types implemented under the PoA.

The Focal Point Authority(ies) as defined in the Modalities of Communication (MoC) will communicate directly with the Clean Development Mechanism Executive Board (CDM EB) on all matters related to the PoA. Certified Emission Reductions (CERs) from activities under the PoA will be for the benefit of either the CME or CPA implementer (depending on the agreement made between CME and CPA implementer) and will be specified in the CPA-DD. The agreements between the CME and each CPA Implementer will clearly state who has the rights to claim emission reductions from the use of the efficient/renewable product. Efficiency/Renewable products are distributed to the end-users by the CME and/or CPA Implementers.

The CME of the PoA confirms that any activities under the PoA are a voluntary action. There are no laws or regulations requiring the implementation or execution of the policy/measure or stated goal of the PoA.

A.2. Physical/geographical boundary of PoA

The physical/geographical boundary of the PoA is the geographical boundaries of the countries of Kenya, Democratic Republic of the Congo and Republic of Zambia. The boundaries of the PoA can be amended post-registration to include additional countries.

GPS coordinates KENYA: 0°10'36.73" N 37°54'29.98" E (Source: <https://latitude.to/map/ke/kenya>, accessed on 20/06/2019)

Map of Kenya:



GPS coordinates DEMOCRATIC REPUBLIC OF THE CONGO: -4°02'0.66" S 21°45'0.22" E
(Source: <https://latitude.to/map/cd/congo-democratic-republic>, accessed on 20/06/2019)

Map of Democratic Republic of the Congo:

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A.3. Technologies/measures

The technology employed by the SSC-CPA [using methodology AMS-II.G](#) is an efficient cooking stove, either using firewood or charcoal⁴. The technology will have a high thermal efficiency relative to the baseline technology: 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. The efficient cooking stove will have a thermal efficiency rating of at least 20 per cent. The thermal efficiency will be certified by an accredited local or international organization. Each CPA Implementer under the PoA is required to provide the CME with an efficiency certificate showing a thermal efficiency value equal or greater than 20 per cent prior to inclusion of each CPA.

The efficient cooking stove relies on two main design principles to achieve a high thermal efficiency, namely improved airflow and thermal insulation. Improved airflow design allows better fuel-air mixing and regulation of the fuel-air mixture, increasing the rate at which oxygen is delivered to fuel in the combustion chamber. The increased flow rate of oxygen allows the combustion to occur at a higher temperature. The thermal insulation of the efficient cooking stove ensures thermal energy is directed to the cooking surface and is does not become waste heat.

⁴ This may include efficient cookstoves using briquettes or pellets made out of woody biomass (firewood and/or charcoal).

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Combining these design principles allows users to prepare meals faster and with less fuel compared to conventional systems. In addition, combustion at high temperatures release less particulate and carbon monoxide emissions, which reduces the health hazard of cooking with non-renewable biomass.

The technology employed by the SSC-CPA using methodology AMS-I.E comprises of renewable energy technologies (clean cookstoves) that displace the use of non-renewable biomass. Examples of these technologies include but are not limited to cookstoves using carbonized or non-carbonized renewable pellets, briquettes, woodchips, agricultural residues.

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The PoA will ensure that all technologies employed will accommodate the culture and traditions of the end-user. In culturally diverse regions, such as the region covered by the PoA, many different product designs are required to address the needs of the many types of end-users. As such the design of the technology will vary across CPAs. Each CPA Implementer shall provide the certified thermal efficiency and product specifications of any technology employed under the CPA.

The CME will ensure sensitization is conducted to transfer technology know-how to the end-user. The CME will work with each CPA Implementer to transfer this knowledge. Where possible, the efficient cooking/renewable energy technologies will be manufactured domestically thereby transferring further know-how to the domestic industry of the host party.

A.4. Coordinating/managing entity

The CME of the PoA is BURN Manufacturing Co.⁵ BURN Manufacturing Co. is a leading developer, manufacturer and distributor of clean cookstoves in sub-Saharan Africa.

A.5. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Republic of Kenya (host Party)	BURN Manufacturing Co. (Coordinating/Managing Entity)	No
Democratic Republic of the Congo (DRC) (host Party)	BURN Manufacturing Co. (Coordinating/Managing Entity)	No
Republic of Zambia (host Party)	BURN Manufacturing Co. (Coordinating/Managing Entity)	No
Switzerland	Korea Carbon Management Ltd.	No
Australia	Thomas Winklehner / Korea Carbon Management Ltd.	No

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⁵ The CME status has been transferred from Top Third Ventures Limited to BURN Manufacturing Co. in the last year of the 1st PoA crediting period. A letter of authorization has been issued by NEMA, the Kenyan DNA on 20/05/2019 and had been submitted to the DOE validating the CME change.

A.6. Public funding of PoA

There is no public funding for the PoA which would result in diversion of ODA money.

SECTION B. Management system

The CME uses a management system to ensure all CPA Implementers under the PoA implement, operate, and monitor their respective CPAs in an effective and verifiable manner. The management system covers the following aspects of the CPAs under the PoA:

- a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;
- b) Records of arrangement for training and capacity development for personnel;
- c) Procedures for technical review of inclusion of CPAs;
- d) Procedures to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA);
- e) Records and documentation control process for each CPA under the PoA;
- f) Measures for continuous improvements of the PoA management system;

The Management System is described below:

- 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 CME will ensure that all parties involved in the operation of the CPA (manufacturers, distributors, CPA Implementers, and end users) are aware of and have agreed that their activity is being subscribed to the PoA. Awareness and agreement will be secured through informational material, community trainings, social media, and in contractual agreements. The CME will supply all contractual agreements and issue the Approval Letter for a CPA to be included and that it meets all eligibility criteria of the PoA. The CME is intimately familiar with the eligibility criteria of the PoA and the latest guidelines and standards of the CDM EB.

The CME's Lab and Quality Manager reviews the description of the technology to be employed under the CPA along with the certified efficiency⁶. If the description is adequate and the certified efficiency above the required threshold and deemed authentic, the Lab and Quality Manager will recommend the CPA for inclusion to the CME's Chief Executive Officer. The Lab and Quality Manager is well versed in administering the WBT and knowledgeable on a range of efficient stove/[renewable energy](#) technologies.

The CME's Market Research Manager will review the monitoring plan of the CPA. If adequate the Market Research Manager will recommend the CPA for inclusion to the CME's Chief Executive Officer. Each CPA implementer will collect and report in addition to the requirements above, the all required data to effectively monitor the emission reductions of each CPA in accordance with the monitoring plan detailed in section B.7.2 below. The sales/distribution information is automatically recorded into the electronic database management system operated by the CME and reviewed by the After Sales/distribution Manager.

⁶ Certified efficiency is relevant in case of CPAs applying the AMS-II.G methodology.

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During monitoring of a CPA, the CME's After Sales/distribution Manager will report the full-time equivalent appliances operating during the monitoring period to the CPA Implementer as drawn from the sales/distribution records in the electronic database management system.

For parameters to be sampled or surveys, the CME's After Sales/distribution Manager will provide the CPA Implementer with the USNs of the appliances to be surveyed or sampled along with the survey guidelines if applicable. The CPA Implementer is required to adhere to the directions of the CME to ensure effective and accurate monitoring of each CPA.

Each CPA Implementer verifies that they have read, understood, and agree to comply with the requirements and guidelines of the CME managements system prior to inclusion of each CPA into the PoA.

- b) Records of arrangement for training and capacity development for personnel;

Upon inclusion of a CPA implemented by a CPA Implementer who has not already implemented a CPA under the PoA and whose entity is not supported by BURN in the implementation of the CPA, there will be a formal training conducted by the CME for the CPA Implementer. The training will be documented in the form of a training report and cover the main aspects of the implementation of CPAs under the PoA, including but not limited to the following:

- CME Management System
- Technological Requirements
- Sampling Plan
- Monitoring Methodology

A letter from the CPA Implementer confirming they have been trained and are capable of implementing the CPA will show completion of the training.

- c) Procedures for technical review of inclusion of CPAs;

The CME will review the following documents to ensure the CPA Implementer has met all the eligibility criteria required for inclusion under the PoA:

- Efficiency Certificate showing a thermal efficiency of the CPA technology of at least 20 per cent (in case of CPAs applying AMS-II.G methodology)
- Proof that the CPA is located within the PoA boundary
- Evidence that the CPA meets the criteria to satisfy additionality,
- Adherence to the procedure to avoid double counting (i.e. use of a Unique Serial Number)
- Proof that the start date of the CPA is on or after the start date of the PoA
- Evidence that the CPA has a fixed crediting period
- Evidence that the CPA is not receiving funding dedicated as Official Development Assistance (ODA) and which would result in diversion of ODA money.
- Evidence that the CPA has applied baseline and monitoring methodology AMS-II.G Version 11.1, and specified values for the following parameters as per the guidance of the PoA:
 - $\eta_{old,i,j}$ (for CPAs applying AMS-II.G methodology)
 - $B_{old,HH}$ (for CPAs applying AMS-II.G methodology)
 - $BC_{BL,HH,y}$ or $BC_{BL,PP,y}$ (for CPAs applying AMS-I.E methodology)
 - $f_{NRB,y}$
- Confirmation that the CPA will adhere to the sampling requirements
- Evidence that the CPA satisfies any requirement surrounding Local Stakeholder Consultation and Environmental Impact Analysis

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Annual energy savings of each distributed unit (ICS) $\leq 1,800$ MWh thermal⁹

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The CME will review the CPA Design Document and all appendixes to ensure the criteria for inclusion are met before requesting inclusion of the CPA. The CME will show that to the best of its knowledge that all criteria for inclusion have been met by issuing the CPA Implementer with a CME Approval letter.

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

The efficient cooking/**renewable energy** technologies under each CPA of the PoA will avoid double accounting of emissions reductions through the Unique Serial Number (USN). Each **device** under the PoA is unquestionably assigned to a single PoA (in the instance there are other PoAs under the same methodology) and a single CPA under that PoA. The USN will be clearly visible on the efficient cooking/**renewable energy** technology throughout the life of the product as well as stored in the electronic data management system. If there is any doubt regarding the USN of a product it will be excluded from the PoA.

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Each CPA will send the CME a list of products, along with the product's USN, sold/distributed during or deemed active during the crediting period. The CME will check each USN against the electronic database to ensure that no product with an identical USN is listed under another CPA. If it is found that a product with an identical USN is listed under another CPA, the emission reductions for the product will not be claimed and the product will be removed from the database to ensure emissions are not double counted in future monitoring. After any double counted products have been removed from the database will the random sample for sampling specific parameters be drawn and sent to the CPA Implementer.

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

The CME will operate and manage an electronic data management system that will store information on and track all efficient cooking/**renewable energy** technologies under the PoA. The system will contain the following information for **device**:

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1. USN representing the unique stove number (a sample of the USN is shown below);
2. CPA under which the stove is operating;
3. Contact details of the end-user (e.g. Name, address, mobile number, or national ID number);
4. Technology Details (Model type, sale/distribution/**commissioning** date).

Linking the USN to the contact details of the end-user allows for the tracking and identification of each efficient cooking/**renewable energy** unit. As part of the agreement, the end-user agrees to participate in the monitoring plan of the programme in return for a receiving the product free or at a reduced price.

The USN has the following format comprising of 9 digits⁹:

1 st digit	2 nd digit	3 rd	4 th	5 th	6 th	7 th	8 th	9 th
Product ID	100000 th	10000 th	1000 th	100 th	10 th	Random	Random	1 st
ID	S1	S2	S3	S4	S5	R1	R2	S6

⁹ It is possible that the USN format may change in future.

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Each section on the USN will identify the product as follows:

- Product type: the first digit identifies the stove type (e.g. Kuniokoa)
- # Production number: S1 to S6 are digit slots for a sequential numbering ordered by time of production, allowing for 1 million unique serial numbers. For instance, the first stove off the line would have “000000” for its S1-S6 digits.
- Random digits: R1 and R2 are 2 random digits placed in slots 7 & 8 , to make the USN unpredictable to outside parties

Example for USN: 202728110

- “2” stands for Kuniokoa product ID
- “027280” for S1-S6, meaning it was the 27,281st Kuniokoa produced
- “11” for R1-R2, the random digits

The data for the system will be updated and modified as required to allow for optimal performance of each CPA implementation and monitoring. All data will be stored for at least two (2) years after the expiry of the crediting period (i.e. 12 years post start of the crediting period of the CPA).

f) Measures for continuous improvements of the PoA management system;

The CME will at least every two years submit a performance review to each CPA Implementer assessing the performance of their CPAs under the PoA, communication with the CME, and requesting feedback on methods for improving the PoA management system based on the experiences of the CPA Implementer. The CME will evaluate the feedback and expand/revise the management system if deemed appropriate.

SECTION C. Demonstration of additionality of PoA

There are no laws or regulations in the geographical/physical boundary of the PoA requiring the activities of the PoA. The activities under the PoA are a voluntary, coordinated action by the CME of the PoA.

The voluntary coordinated action coordinated and managed by the CME would not occur in absence of the PoA. The CME confirms as per paragraph 38 of the CDM Project Standard for PoAs, version 02.0 that none of the CPAs would occur in the absence of the PoA. The action is not financially viable without the support of revenues from the sale of CERs.

The Global Alliance for Clean Cookstoves summarizes key barriers as follows:

The lack of awareness among households in developing countries regarding the benefits of clean cookstoves and fuels is another key barrier. This affects the purchase rates of cleaner but often more costly products, and raises the bar for new entrants wishing to sell clean cookstoves in sufficient quantities in order to be profitable. Having fewer manufacturers in the market because of low demand may impact the ability to meet varied consumer needs,

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and can result in higher price which could put the more expensive, cleaner cookstoves further out of reach for customers.¹⁰

As such, financial support from the CDM is required in order to develop, disseminate, and ensure continued operation of the activity proposed under the PoA.

As per paragraph 39 of the CDM Project Standard for PoAs, version 02.0, CPAs under the PoA shall include eligibility criteria to demonstrate additionality of CPAs under the PoA.

Paragraph 11 of the TOOL21, 'Demonstration of additionality of small-scale project activities', version 13.0 refers in footnote 2 to an appendix which guides users to help navigate provisions for automatic additionality. This Appendix is applied to check on whether CPAs can be considered as automatic additional.

For CPAs being implemented in the LDCs DRC and Zambia, the CPAs can be deemed automatically additional. Since a CPA under this PoA consists solely of units of < 60 GWh thermal energy savings per year¹¹ in case of CPAs applying AMS-II.G methodology and rated output capacity of each distributed unit < 5 MW in case of CPAs applying AMS-I.E.

For CPAs being implemented in Kenya, additionality of the project activity is demonstrated by a barrier analysis that is in line with paragraph 10 of Tool 21, "Demonstration of additionality of small-scale project activities", version 13.0. CPAs implemented in Kenya demonstrate the existence of an investment barrier. Purchasing an improved/clean cookstove requires up-front capital, which is a barrier to end-users due to difficulties in accessing capital. As per the 'Kenya Household Cooking Sector Study' (2019)¹², end-users willingness to pay (WTP) decreases sharply moving from lower to higher prices (page 61). The WTP for a BURN stove at the market price was only 6% (page 62 of the study). The study (on page 62) further mentions that *'it may be inferred that with the current ownership rates of branded cookstoves being at 3%, pricing of these stoves or the revenue models needs reviewing if mass adoption is to be realized'*. Page 129 of the same study further mentions that *'with clear financing gaps along the cooking sector value chain, it is expected that facilitating access to finance will address a critical barrier to promoting improved and clean cooking solutions'*.

Carbon revenues generated under this PoA will alleviate this investment barrier by promoting ICS either partially or fully subsidized to end-users. Lower sales prices result in an increase of WTP amongst end-users and hence increased uptake of improved/clean cookstoves.

Eligibility criteria to check on the additionality of each CPA are established (see section K).

CPAs do not have to meet the aggregate small-scale threshold (180 GWh thermal energy savings per year for CPAs applying AMS-II.G methodology and 15 MW rated output capacity for CPAs applying AMS-I.E methodology). Since the generic CPA consists solely of units that qualify as 'microscale CDM units' as defined in the 'Methodological tool: Demonstration of additionality of microscale project activities', version 09.0 (see paragraph 124(m) of CDM Project Standard for PoAs, version 02.0 and TOOL19, 'Demonstration of additionality of microscale project activities',

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¹⁰ Global Alliance for Clean Cookstoves. Igniting Change: A Strategy for Universal Adoption of Clean Cookstoves and Fuels. November 2011. Accessed at http://www.cleancookstoves.org/resources/fact-sheets/Igniting_Change.pdf

¹¹ 20 GWh/y energy savings as referred to in Appendix of TOOL21, 'Demonstration of additionality of small-scale project activities' is equivalent to 60 GWh **thermal** energy savings per year.

¹² Ministry of Energy, Kenya Household Cooking Sector Study (08/2019), <https://www.eedadvisory.com/wp-content/uploads/2019/11/moe-2019-cooking-sector-study-.pdf> (accessed on 17/06/2020).

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version 09.0). Response to SSC_732¹⁵ clarification request mentions that ‘for registered PoAs and to PoAs under registration that have not indicated that they comprise solely of microscale CDM units, in accordance with the CDM project standard for PoAs, CMEs may request a Post Registration Change to either update the version of the methodology AMS-II.G or apply the respective paragraph of the CDM project standard for PoAs. This PoA-DD applies the most recent version of methodology AMS-II.G. and AMS-I.E. at the time of submission for renewal of crediting period for the PoA.

Since the generic CPA consists solely of units that qualify as ‘microscale CDM units’, a debundling check is not necessary (see paragraph 124(n) of CDM Project Standard for PoAs, version 02.0.

SECTION D. Start date and duration of PoA

D.1. Start date of PoA

The start date of the PoA is 14/12/2012. This is the start date of the first CPA.

The first PoA renewal period was from 27/12/2012 to 26/12/2019. This is the second PoA renewal period from 27/12/2019 to 26/12/2026.

D.2. Duration of PoA

The PoA has a length of 28 years.

SECTION E. Environmental impacts

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

Kenya: The environmental analysis is done at the PoA level to ensure that the impacts across all regions of the PoA are considered at the time of registration.

DRC: The environmental analysis is done at the CPA level.

Republic of Zambia: The environmental analysis is done at the CPA level.

E.2. Analysis of environmental impacts

Kenya: In accordance with the host Party laws/regulations an environmental impact assessment is not required for the activities under the PoA. A letter stating the exemption is shown in Appendix 8.

¹⁵

<https://cdm.unfccc.int/filestorage/E/D/Y/EDYQ65VGPABWS2LM4ORTUK0I3NFJZH/Final%20response.pdf?t=a0p8cHQYeHI4fDBdyl4jACEdAdXRNWnbtJzy>

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No negative boundary or transboundary impacts were identified and as a whole the activities under the PoA will benefit the environment and contribute to the sustainable development of the host country.

DRC: No negative boundary or transboundary impacts were identified and as a whole the activities under the PoA will benefit the environment and contribute to the sustainable development of the host country.

Nevertheless, an environmental analysis is done at the CPA level

Republic of Zambia: No negative boundary or transboundary impacts were identified and as a whole the activities under the PoA will benefit the environment and contribute to the sustainable development of the host country.

Nevertheless, an environmental analysis is done at the CPA level.

E.3. Environmental impact assessment

Kenya: An environmental impact assessment is not required for the activities under the PoA. A letter stating the exemption is shown in Appendix 8.

DRC: An analysis on whether an environmental impact assessment is necessary or not is done at the CPA level.

Republic of Zambia: An analysis on whether an environmental impact assessment is necessary or not is done at the CPA level.

SECTION F. Local stakeholder consultation

F.1. Level at which local stakeholder consultation is undertaken

Kenya: The local stakeholder consultation process was undertaken at the PoA level to ensure comments/concerns from all regions covered by the PoA are included at the time of registration.

DRC: The local stakeholder consultation process is undertaken at CPA level.

Republic of Zambia: The local stakeholder consultation process is undertaken at CPA level.

F.2. Modalities for local stakeholder consultation

Kenya:

The project activity organised a local stakeholders consultation meeting in order to give stakeholders an opportunity to provide comments and inputs about the programme. The meeting was held on 02/03/2012 at the YMCA central hostel, Nairobi.

Invitations for the meeting were extended through personal email invitations, hand delivered invitations (see a sample invitation letter in annex 1 and confirmation form signed by recipients of hand delivered invitations in annex 2) and a newspaper advertisement (see the newspaper announcement extract in annex 3), which was published in the Daily Nation newspaper on 22/02/2012.

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Comments from stakeholders unable to attend the meeting were also invited by email and telephone as per the newspaper announcement, email invitations and the hand delivered invitations.

A total of 48 people participated in the stakeholder consultation meeting. Participants included NGOs, community representatives, the private sector, the media, research institutions, representatives of other efficient cooking stove projects, and members of the general public.

During the meeting, two presentations were made. The first provided an overview and update of the project status including:

- The project and company description: the vision, mission and values of Top Third Ventures Limited¹⁶
- The business ecosystem: the main stakeholders involved in the programme
- The key targets of the programme
- The baseline situation in Kenya
- The project technology
- The production, distribution and sales model

The project presentation was followed by a detailed question and answer session with meeting participants.

The second presentation focused on the background and fundamentals of the Clean Development Mechanism and how the Top Third Ventures Stove Programme is expected to generate carbon credits. The presentation focused on the following key points:

- Climate change
- The Kyoto protocol and emission reduction targets
- The Clean Development Mechanism
- How the project will result in reduced greenhouse gas emissions by replacing firewood and charcoal stoves with energy efficient cookstoves
- How the project will develop and apply for carbon credits under the Clean Development Mechanism
- How the project may potentially benefit from carbon credits

A further round of questions and comments, both carbon credit-specific and more generally about the project followed the second presentation. These were answered, discussed and documented. Participants also provided their comments and inputs on the project in evaluation forms that were filled out at the end of the meeting.

DRC: The local stakeholder consultation process is undertaken at CPA level.

Republic of Zambia: The local stakeholder consultation process is undertaken at CPA level.

F.3. Summary of comments received

Kenya:

¹⁶ Top Third Ventures Limited was the previous CME of the PoA.

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- Stakeholders from the Kenya Industrial Research and Design Institute inquired about the involvement of local research institutions in the development of the project.
- Stakeholders from the Rumuruti Forest Association raised questions regarding the carbon credit revenue and how it is going to be used.
- Stakeholders from the general public raised concerns on whether the efficient cook stoves will have a negative effect on health.
- Stakeholders from the Kenya Forest Service also inquired whether baseline studies have been done for the project. More specifically studies on existing use of firewood for cooking.
- Stakeholders from the private sector inquired about when the project is expected to commence and its expected geographical reach.
- Stakeholders from the general public raised concerns about the estimated lifetime of the cook stoves and whether the cook stoves will have a warranty.

DRC: The local stakeholder consultation process is undertaken at CPA level.

Republic of Zambia: The local stakeholder consultation process is undertaken at CPA level.

F.4. Consideration of comments received

Kenya:

- a) Stakeholders inquired about the involvement of local research institutions in the development of the project.

Local research institutions will be used in the development stage of the project to test parameters such as efficiency of the efficient cook stoves. The project owners also plan to continually engage local research institutions with the aim of improving the quality of the product in future.

- b) Stakeholders raised questions regarding the carbon credit revenue and how it is going to be used.

Additional revenue from carbon credits will be used to subsidize the costs of the efficient cook stoves, support replacement of faulty stoves, allow for research and development for continual improvement of the cook stoves and enable more efficient cook stoves to be manufactured and distributed.

- c) Stakeholders raised concerns on whether the efficient cook stoves will have a negative effect on health.

The project cook stoves will have a higher burning temperature than conventional cook-stoves, therefore reducing particulates and gases such as carbon dioxide and carbon monoxide released in the air while the cook stove is burning. These particulates and gases usually affect respiratory health and their reduction will in fact improve health of end users. The efficient cook stoves will therefore reduce the negative health effect caused by conventional stoves.

- d) Stakeholders also inquired whether baseline studies have been done for the project. More specifically studies on existing use of firewood for cooking.

Before project implementation, a baseline study was carried out by the project implementer to assess the existing situation. It was found out that households use a large amount of firewood for

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cooking on three stone stoves and the project's efficient cook stoves were designed based on these findings to reduce the amount of firewood that the households use for cooking.

- e) Stakeholders inquired about when the project is expected to commence and its expected geographical reach.

The project is expected to commence in mid-2012. However the project is still undertaking additional research on the cookstove design, the baseline situation and is planning the distribution structure. The project will initially start in Laikipia district, Kenya and will eventually be rolled out in the rest of the country.

- f) Stakeholders raised concerns about the estimated lifetime of the cook stoves and whether the cook stoves will have a warranty.

The lifetime of the cook stoves is estimated to be over 5 years. A warranty scheme will be developed such that consumers will be able to have a faulty cookstove replaced during the implementation of the project.

DRC: The local stakeholder consultation process is undertaken at CPA level.

Republic of Zambia: The local stakeholder consultation process is undertaken at CPA level.

SECTION G. Approval and authorization

The PoA has received approval from the host DNAs:

The initial host country LoA Kenya is included as Appendix 9.

The authorization letter, with BURN Manufacturing Co. being the new CME, issued by the Kenyan DNA, NEMA, dated 20/05/2019, is included as Appendix 10.

The host country LoA, issued by the DNA of DRC, Ministry of Environment and Sustainable Development, dated 21/06/2019¹⁷, is included as Appendix 11.

The host country LoA, issued by the DNA of Republic of Zambia, Ministry of Lands and Natural Resources, dated 12/09/2019, is included as Appendix 12.

PART II. Generic component project activity (CPA) for a CPA applying AMS-ILG

SECTION H. Description of generic CPA

H.1. Title of generic CPA

Top Third Ventures Stove Programme CPA #####

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¹⁷ The host country LoA mentions the date in the American format (MM/DD/YYYY).

H.2. Reference number of generic CPA

Generic CPA

H.3. Purpose and general description of generic CPAOverview and purpose of the CPA

The CDM Programme Activity (CPA) Implementer will operate CPA under the Programme of Activities (PoA). The CPA Implementer will have a contractual agreement with the Coordinating/Managing Entity (CME) of the PoA describing the terms under which the efficient cooking technologies are sold/distributed, replaced/repared, and monitored. The purpose of the CPA is to achieve widespread distribution and effective use of efficient cooking technologies in low-income rural and/or urban households as well as institutions and/or SMEs. Carbon revenues earned under the CPA will be used to:

- Subsidize the cost of efficient cookstoves to the consumer¹⁸; and/or
- Invest in the research and development of new and improved efficient technologies; and/or
- Support the dissemination of efficient cookstoves in remote areas with poor infrastructure.

Consumers who agree to the terms of the PoA will cede all rights to any CERs resulting from the PoA. By using the ICS, the consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from its use to XXX¹⁹, and permanently waive any claim or right to such benefits. In addition, consumers are requested to participate in the monitoring surveys or water boiling tests if randomly sampled from the database. Contractual agreements will be in place between producer of clean cookstoves, distributor of renewable fuel and the entity claiming the carbon credits.

Consumers who do not agree to the terms of the PoA will not be included under the CPA or monitored throughout the crediting period of the CPA.

The proposed CPA is implemented by XXX (in the following mentioned as: XXX), a company based in XXX together with XXX. XXX has fully sponsored and owns this CPA. On behalf of XXX, BURN will work with local third-party partner companies to distribute the stoves to end users. XXX will provide all implementation costs for the CPA. XXX will also provide subsidy to make ICS affordable to beneficiaries, as well as for the operation & maintenance costs of ICS production and distribution cost, to operate the CPA in a financially sustainable condition.

Target Group and Location

The target group of the CPA are rural/urban households/SMEs/institutions using non-renewable biomass (firewood/charcoal) with 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, prior to receipt of an efficient cooking stove. The CPA will cover XXX, which is within the physical/geographical boundary of the PoA.

Technology

¹⁸ This means that the efficient cookstove is either partially or fully subsidized.

¹⁹ Only the entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented.

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The CPA deploys an efficient cooking stove known as XXX. The technology was designed and developed by XXX. The technology has a certified thermal efficiency of XXX% and is intended for use with firewood/charcoal. The XXX stove's design takes into account the local cooking culture in the project area to ensure that improvements in technology and improved standards of living do not come at the expense of cultural traditions. See the technical specifications in section A.3 of the CPA-DD.

Record Keeping System

The CPA Implementer will comply with the requirements of the CME. The CME will operate and manage an electronic data management system that will store information on and track all efficient cooking technologies under the PoA. The system will contain the following information for each efficient cooking stove:

1. Unique Serial Number (USN) representing the unique stove number;
2. CPA under which the stove is operating
3. Contact details of the end-user (e.g. Name, address, mobile number, or national ID number);
4. Technology Details (Model type, sale/distribution date).

The data for the system will be updated and modified as required to allow for optimal performance of CPA implementation and monitoring. All data will be stored for at least two (2) years after the expiry of the crediting period.

Baseline scenario

The baseline scenario is the use of fossil fuels for meeting similar thermal energy needs on predominantly inefficient cooking technologies to satisfy the energy needs of the target population.

Emission reductions

The estimated amount of annual average GHG emission reductions is XXX tCO₂e.

H.4. Technologies/measures

The CPA will deploy efficient firewood/charcoal cooking stove known as XXX, which has been designed and developed by XXX. Please see the technical specifications in the following table. The CPA implementers may opt to distribute other stove models in this CPA over time.

[cooking device IMAGE]

[cooking device – short description]

Table X: Technical specifications

Stove Manufacturer	XXX
Stove Model	XXX
Material(s)	XXX
Dimensions (measurements)	XXX
Weight	XXX
Thermal efficiency	XXX
Firepower	XXX
Boil time	XXX
Average lifespan based on manufacturer's specifications	XXX
Type of fuel	XXX
Mode of operation (portable/fixed)	XXX

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I.1. Reference to methodologies and standardized baselines

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AMS-II.G “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 11.1)

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AMS-II.G. calls for application of the:

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■ “Guideline: General guidelines for SSC CDM methodologies”,

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■ “TOOL21: Demonstration of additionality of small-scale project activities”, version 13.0, and

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■ “TOOL19: Demonstration of additionality of microscale project activities”, version 09.0

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The methodology also refers to the latest approved versions of the following approved standards, methodology(ies) and tool(s):

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(a) “AMS-III.BG.: Emission reduction through sustainable charcoal production and consumption”;

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(b) “TOOL30: Calculation of the fraction of non-renewable biomass”, version 02.0

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(c) “Standard: Sampling and surveys for CDM project activities and programme of activities”;

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version 08.0

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Standardized Baseline XXX is used/No standardized baseline is used.

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I.2. Applicability of methodologies and standardized baselines

Each CPA under the PoA utilizes methodology AMS-II.G Version 11.1. AMS-II.G, Version 11.1 is a Type II methodology, i.e. energy efficiency improvement project activities that reduce energy consumption, on the supply and/or demand side.

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CPAs do not have to meet the aggregate small-scale threshold (180 GWh thermal energy savings per year). Since the generic CPA consists solely of units that qualify as ‘microscale CDM units’ as defined in the ‘Methodological tool: Demonstration of additionality of microscale project activities’ (see paragraph 124(m) of CDM Project Standard for PoAs, version 02.0 and TOOL19, ‘Demonstration of additionality of microscale project activities’). Response to SSC_732²⁰ clarification request mentions that ‘for registered PoAs and to PoAs under registration that have not indicated that they comprise solely of microscale CDM units, in accordance with the CDM project standard for PoAs, CMEs may request a Post Registration Change to either update the version of the methodology AMS-II.G or apply the respective paragraph of the CDM project standard for PoAs’.

Demonstration of how the applicability conditions are met in accordance with the approved methodology of the PoA:

²⁰

<https://cdm.unfccc.int/filestorage/E/D/Y/EDYQ65VGPABWS2LM4ORTUK0I3NFJZH/Final%20response.pdf?t=a0p8cHQyeHI4fDBdyl4jACEdAdXRNWnbtJzy>

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AMS-II.G. applicability criteria	Applicability check or corresponding eligibility criteria for CPA inclusion (Section K of the PoA-DD)
This category comprises appliances involving efficiency improvements in thermal applications of non-renewable biomass. Examples of these technologies and measures include introduction of high efficiency biomass fired project devices (cookstoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvement in existing biomass fired cook stoves or ovens or dryers.	<u>CPAs will distribute high efficient cookstove technologies replacing existing devices.</u> Eligibility criterion 15 fulfilment
In the case of cookstoves, the methodology is applicable to introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent. <u>Refer to the requirements indicated in “Data / Parameter table 12” which details the options for testing and certification as well as supporting documentation (e.g. certificate issued by third party or test results) that needs to be presented to the validating DOE.</u>	Eligibility criterion 1 fulfilment
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.	This criterion is not applicable to any of the CPA-DDs under this PoA following paragraph <u>51</u> of the methodology. Since (as already mentioned above) the generic CPA consists solely of units that qualify as ‘microscale CDM units’ as defined in the ‘Methodological tool: Demonstration of additionality of microscale project activities’ (see paragraph 124(m) of CDM Project Standard for PoAs, version 02.0 and TOOL19, ‘Demonstration of additionality of microscale project activities’).
Project participants are able to show that non-renewable biomass has been used since December 1989, using survey methods or referring to published literature, official reports, or statistics.	Eligibility criterion 15 fulfilment
For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology.	Not applicable. Since even if biomass was sourced from renewable sources, no emission reductions would be claimed for from the switch from non-renewable biomass to renewable biomass. In case this would change in future, a PRC will be submitted adding the corresponding Type I methodology.
If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	In case that the project device fully depends on a specific fuel (e.g. briquettes, pellets, woodchips), the consumption of the fuel will be monitored during the crediting period.

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<p><u>The CDM-PoA-/DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).</u></p>	<p><u>Each CPA will use one or multiple of the following methods for distribution of appliances implemented under the CPA:</u></p> <ul style="list-style-type: none"> • <u>Direct sale/distribution to end-users</u> • <u>Bulk sales/distribution to distributors who sell/distribute on to the end user</u> • <u>Distribution to the end-user by an organization receiving the products/measures from the CME</u> <p><u>Eligibility criterion 12 fulfilment</u></p> <p><u>A unique numbering system for cooking devices will be applied by assigning a unique serial number to each cookstove. Linking a unique serial number to the contact details of the end-user allows for the tracking and identification of each device. All the devices including end-user details are recorded in a centralized database.</u></p> <p><u>Eligibility criterion 6 fulfilment</u></p>
<p><u>The CDM-PoA-/DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example if project stove manufacturers, wholesale providers or others were to claim credit for emission reductions from the project devices.</u></p>	<p><u>The end-consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from the use of the cookstoves to a specific entity. Only this entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented. Contractual agreements will be in place between producer of cookstoves, distributors and the entity claiming the carbon credits.</u></p> <p><u>Eligibility criterion 6 fulfilment</u></p>
<p>The use of this methodology in a project activity under a programme of activities is legitimate if the following leakages are estimated and accounted for, as required on a sample basis using a 90/30 precision for the selection of samples:</p> <p>(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</p>	<p>Option c) will be chosen for all CPAs to be included under this PoA-DD.</p> <p>In case of project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to efficient project device using processed biomass (briquette, pellets, and woodchips), leakage effects related to the charcoal or processed biomass production will</p>

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project activity that is then used as the baseline of other CDM project activities then $B_{old,i,j}$ is adjusted to account for the quantified leakage;	be taken into account, as requested as per paragraph 40 of the methodology.
(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 $B_{old,i,j}$ is adjusted to account for the quantified leakage;	
(c) As an alternative to subparagraphs (a) and (b) $B_{old,i,j}$ can be multiplied by a net to gross adjustment factor of 0.95 to account for both leakages, in which case surveys are not required.	

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I.3. Application of multiple methodologies

Not applicable

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

Indicate geographical boundary of the CPA

	Source	GHG	Included?	Justification/Explanation
Baseline	Emissions from combustion of non-renewable woody biomass in low-efficiency three-stones fires or traditional stoves	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and therefore excluded.
		N ₂ O	No	Minor source of emissions and therefore excluded.
Project	Emissions from combustion of non-renewable woody biomass in improved cook stoves distributed by the project activity	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and therefore excluded.
		N ₂ O	No	Minor source of emissions and therefore excluded.

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I.5. Establishment and description of baseline scenario

The baseline scenario is the use of fossil fuels for meeting similar thermal energy needs on predominantly inefficient cooking technologies to satisfy the energy needs of the target population.

A key parameter in the baseline scenario is the quantity of woody biomass consumed prior to the project activity. For each CPA, surveys and/or literature studies are cited to show the usage of

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biomass among the target population. From the studies and/or surveys the baseline use is determined, represented by parameter $B_{old,HH}$.

The baseline scenario covers not only biomass use but also the efficiency of the baseline technology. For each CPA, surveys and/or literature studies are cited to show the average efficiency of the baseline technology predominantly used by the target population. Where multiple technologies are used in the baseline, the parameter $\eta_{old,i,j}$ is the weighted average efficiency across the different baseline technologies.

Kenya: Kenya's national energy policy²¹ mentions as one of the prioritized actions in the energy sector the development and distribution of 4 million improved biomass stoves by 2022. Kenya's National Climate Change Action Plan 2018-2022²², provides some more details related to the development and distribution of those improved biomass cookstoves. As per the National Climate Change Action Plan it becomes clear that the distribution of 4 million improved biomass stoves is an objective and a proposed priority mitigation action, however the distribution and use of improved biomass cookstoves is not enforced by any government law, policy or regulation, hence there is no obligation for households to use improved cookstoves. Hence, though a government objective has been defined, it is not guaranteed whether this objective will be achieved in reality and if so, to what extent. The NDC of Kenya²³ does not mention any specific objectives in regard to improved cookstoves.

Democratic Republic of Congo (DRC): As per the UNDP report 'Sustainable Energy for all towards the 2030 horizon'²⁴, one of the objectives as part of the 'Program to improve energy efficiency through the diffusion of improved stoves' is the government's support for production and commercialization of improved cookstoves, sensitization of the population in DRC for the use of improved cookstoves and develop a favorable legal and tax framework for improved cookstoves. However, the distribution and use of improved biomass cookstoves is not enforced by any government law, policy or regulation, hence there is no obligation for households to use improved cookstoves. Hence, though a government objective has been defined to foster the use of improved cookstoves, it is not guaranteed whether this objective will be achieved in reality and if so, to what extent. The NDC of DRC²⁵ does not mention any specific objectives in regard to improved cookstoves.

Republic of Zambia: The NDC of Republic of Zambia²⁶ mentions the involvement of improved biomass devices as part of the Zambia's Programs Contribution to its National Mitigation Goal, however does not mention any specific objectives in regard to improved cookstoves. The National

²¹ Ministry of Energy of the Republic of Kenya, National Energy Policy, October 2018 (https://kplc.co.ke/img/full/BL4PdOqKtxFT_National%20Energy%20Policy%20October%20%202018.pdf)

²² Ministry of environment and Forestry, National Climate Change Action Plan 2018-2022, Volume 3 : Mitigation Technical Analysis Report, 2018, http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2018/10/8737_vol3.pdf (accessed on 30/08/2019)

²³ https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Kenya%20First/Kenya_NDC_20150723.pdf (accessed on 30/08/2019)

²⁴ UNDP, Rapport national 'Energie durable pour tous', Programme National et Strategie DRC, August 2013, https://www.cd.undp.org/content/dam/dem_rep_congo/docs/eenv/UNDP-CD-RAPPORT-ENERGIE-DURBALE-POUR-TOUS-HORIZON-2030.pdf (accessed on 30/08/2019)

²⁵ <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Democratic%20Republic%20of%20the%20Congo%20First/CPDN%20-%20R%C3%A9p%20D%C3%A9m%20du%20Congo.pdf> (accessed on 30/08/2019)

²⁶ <https://www4.unfccc.int/sites/ndcstaging/pages/Party.aspx?party=ZMB>

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Climate Change Response Strategy published by the Ministry of Tourism, Environment & Natural Resources²⁷ does not mention any national targets for the implementation of improved cookstoves either.

For a typical CPA under the PoA, the baseline scenario is determined as follows:

A typical CPA will use literature studies and/or surveys on the consumption of biomass for the target group within the CPA boundary to determine an average consumption per household per year. In the instance where the consumption varies across categories (i.e. urban and rural), the weighted average will be used:

$$\text{Average Use} = \text{Biomass Use} \times \text{Category 1 Proportion of Target Group (\%)} \\ + \text{Biomass Use} \times \text{Category 2 Proportion of Target Group (\%)}$$

If the target group is SMEs or institutions data for the consumption of each user may be available in which case an average is not required.

In addition to the fuel consumption, the average efficiency of the baseline appliance (η_{old}) replaced by the project appliance is determined as follows.

AMS-II.G Version 11.1 allows the efficiency of the baseline appliance ($\eta_{old,i,j}$) to be determined through 2 options:

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

A typical CPA applies Option 2, using a default value of 0.10 for unimproved stoves or three stone fires, and a default value of 0.20 for improved stoves. In the case where both improved and unimproved stoves are in use within the CPA boundary, a weighted average of the efficiency values will be used to determine $\eta_{old,i,j}$:

$$\eta_{old,i,j} = \text{Usage rate of unimproved stoves (\%)} \times 0.10 \\ + \text{Usage rate of Improved Stoves (\%)} \times 0.20$$

Description on how the baseline fuel consumption and baseline stove efficiency has been established is provided at CPA level.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

Following AMS-II.G Version 11.1, *Energy Efficiency in Thermal Application of Non-Renewable Biomass*, the following methodological choices are applied to SSC-CPAs under the PoA:

²⁷ Ministry of Tourism, Environment & Natural Resources, National Climate Change Response Strategy (NCCRS), December 2010, https://www.adaptation-undp.org/sites/default/files/downloads/zambia-climate_change_response_strategy.pdf (accessed on 04/11/2019).

Calculation of Emission Reductions

The emission reductions of the CPA are the sum of emission reductions achieved by each of the applied type of the cooking stoves:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y \quad \text{Equation (1)}$$

Where:

i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices

j = Indices for the situation where there is more than one batch of project device

ER_y = Emission reductions during year y in t CO₂e

$ER_{y,i,j}$ = Emission reductions by project device of type i and batch j during year y in t CO₂e

LE_y = Leakage emission in the year y

As per the applied methodology 'A batch is defined as the population of the device of the same type commissioned during a certain period of time (e.g. week or month) in a certain calendar year'. It should be noted that once batches are defined it would be necessary to calculate the emission reductions separately for each batch of project devices, as denoted by index j in equations of the methodology. For sample-based surveys, as long as the requirements in the methodology and sampling standard are met, whether or in what way the batches are considered is subject to the discretion of the project participant and survey design (e.g. it depends on the parameter, type of survey method chosen, frequency of survey, data collection method).

$ER_{y,i,j}$ is determined as follows:

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_{fossilfuel}} \quad \text{Equation (2)}$$

Where:

$B_{y,savings,i,j}$ = Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y

$f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fNRB)

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried')

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$EF_{projected_{fossilfuel}}$ = Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 73.2 tCO₂/TJ²⁹

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$N_{y,i,j}$ = Number of project devices of type i and batch j operating during year y

μ_y = Adjustment to account for any continued use of pre-project devices during the year y when applying equations 6 and 8 (fraction). Use 1.0 in other cases

Determination of $f_{NRB,y}$:

The value of f_{NRB} shall be calculated using either of the following two options:

a) Ex ante: the f_{NRB} value is determined once at the validation stage, thus no monitoring and recalculation of the f_{NRB} value during the crediting period is required;

(b) Ex post: the $f_{NRB,y}$ value is determined for the year “ y ” in the crediting period, requiring the f_{NRB} value to be updated annually, following a consistent calculation procedure throughout the crediting period.

Option (a) has been chosen.

According to “Tool for Calculation of the fraction of non-renewable biomass”, f_{NRB} will be calculated by the following formula:

$$f_{NRB} = NRB / (NRB + RB)$$

Where:

f_{NRB} = Fraction of non-renewable biomass in the country/region or project area (fraction or %)

NRB = Quantity of non-renewable biomass (t/yr) in the country/region or project area

RB = Quantity of renewable biomass (t/yr) in the country/region or project area

Quantity of woody biomass saved $B_{y,savings,i,j}$ (due to implementation of efficient thermal devices) is determined as per following option:

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Option 3: Water Boiling Test (WBT):

$$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}} \right) \quad \text{Equation (3)}$$

Where:

²⁹ This is the default regional value of the fossil fuel emission factor for Sub-Saharan Africa.

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$B_{old,i,j}$ = Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy

$\eta_{old,i,j}$ = Efficiency of the old devices being replaced by project devices of type i and batch j

$\eta_{new,i,j}$ = Efficiency of the project device i and batch j

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Determination of baseline consumption of woody biomass $B_{old,i,j}$:

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The calculations in the equations above to determine $B_{y,savings,i,j}$ assume that there is only one device per household/ institution/SME. Considering that baseline surveys or other methods may estimate the total consumption per household/ institution/SME, AMS II.G. requires that an adjusted formula as below shall be used in case more than one project device is used in the household/ institution/SME.

$B_{old,i,j}$ is determined as follows:

$$B_{old,i,j} = \frac{B_{old,HH}}{N_{d,HH}}$$

$$B_{old,HH} = B_{old,p} \times N_{p,HH}$$

Where:

$B_{old,HH}^{30}$ = Annual quantity of woody biomass that would have been used in the household/institution/SME in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices (tonnes/household/year)

$N_{d,HH}$ = Number of project devices (improved stoves) per household/institution/SME (number)

$B_{old,p}$ = Annual quantity of woody biomass that would have been used per person in the household/institution/SME in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices (tonnes/person/year)

$N_{p,HH}$ = Average number of persons per household/institution/SME (number)

Determination of baseline stove efficiency $\eta_{old,i,j}$:

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AMS-II.G Version 11.1 allows the efficiency of the baseline appliance (η_{old}) to be determined through 2 options:

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³⁰ The parameter title would be slightly adjusted for institutions and SMEs. So instead HH, the parameter title would mention e.g. IN (for institutions) and SME (for SMEs).

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

The baseline stove efficiency is determined or identified before CPA inclusion by conducting a baseline survey and/or based on a literature review.

A typical CPA applies Option 2, using a default value of 0.10 for unimproved stoves or three stone fires, and a default value of 0.20 for improved stoves. In the case where both improved and unimproved stoves are in use within the CPA boundary, a weighted average of the efficiency values will be used to determine $\eta_{old,i,j}$:

$$\eta_{old,i,j} = \text{Usage rate of unimproved stoves (\%)} \times 0.10 + \text{Usage rate of Improved Stoves (\%)} \times 0.20$$

Specific value will be determined and documented at CPA-level.

Number of project devices of type i and batch j operating during year y

Parameter $N_{y,i,j}$ represents the equivalent full-time appliances of type i and batch j operating during year y . This is derived from the sales/distribution record of total appliances sold/distributed up to the end of the monitoring period and the sales/distribution date of the appliance. Based on the database, the date of commissioning of a project device is determined. To establish the date of commissioning of a batch j , the latest date of commissioning of a device within the batch will be used as the date of commissioning for the entire batch. The operating fraction in year y of the appliances of a batch j will be determined. The sum of the operating fractions is the value of $N_{y,i,j}$. $N_{y,i,j}$ takes only account those appliances which are in operation.

Determination of project stove efficiency $\eta_{new,i,j}$:

As per AMS II.G., the loss in efficiency of the project devices i in each batch j due to aging shall be accounted during the monitoring period y . Since option 3 (WBT) has been chosen, the project participant may choose any option below to account for the loss in efficiency; the option should be identified and fixed ex-ante in the PDD at the time of registration.

- a) A default schedule of linear decrease in efficiency up to the terminal efficiency assumed as 20 per cent shall be applied through the life span of the project device³¹.

³¹ If the efficiency of the project devices falls below 20%, it is no longer eligible to be considered a project device.

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b) Manufacturer of project devices shall confirm with technical justification based on certification by a national standards body or an appropriate certifying agent recognized by that body that no decrease in efficiency of project device is envisaged during the crediting period; or

c) Determine³² the rate of efficiency drop for a representative sample of the first batch of project device i in year y and assume that same rate of loss in efficiency applies to all other batches. In other words, it may be assumed that the degradation of efficiency measured in a representative sample of the first batch of project devices i apply to all subsequent batches. The efficiency of the project devices in the first batch has to be monitored annually through representative samples and this rate of loss in efficiency may be applied correspondingly to all batches.

d) Determine the loss in efficiency annually from a representative sample of each batch and use the actual loss rate that is measured.

→ Option c is default option under this PoA as deemed most representative a priori. Other options may be chosen if justified.

Where charcoal is used as the fuel by baseline (old) or project (new) devices, the quantity of woody biomass shall be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis). Alternatively, credible local conversion factors determined from a field study or literature may be applied.

Calculation of Leakage Emissions (L_{total})

As per AMS-II.G Version 11, paragraph 39, leakage under the methodology should be considered as follows:

Leakage related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples). The potential source of leakage due to the use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources shall be considered. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass by the non-project households/users, that is attributable to the project activity, then $B_{old,,}$ is adjusted to account for the quantified leakage. Alternatively, $B_{y,savings,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

Further AMS-II.G Version 11, paragraph 48, details the requirements for a PoA implementing the methodology to account for leakage:

The use of this 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 90/30 precision for the selection of samples, and accounted for:

³² Example: For the representative sample of Batch 1, if the efficiency of a new project device is 30% and at the end of Year 1, the efficiency is monitored to be 29%; the loss rate is $(30\%-29\%)/1=1\%$. Then this 1% loss rate is to be assumed to be applicable for all the devices in the first batch and subsequent batches for first year of operation.

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- a) Use of non-renewable woody biomass saved under the project activity is 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.

→ Each CPA opts to multiply B_{old} by a net gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. Accounting for leakage with a net gross adjustment factor reduces the costs of monitoring and ensures a conservative calculation of emission reductions.

In case of project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to efficient project device using processed biomass (briquette, pellets, and woodchips), leakage effects related to the charcoal or processed biomass production will be taken into account, as requested as per paragraph 40, of the methodology.

Calculation of Fraction of Non-Renewable Biomass (fNRB)

As per paragraph 49, of AMS-II.G, version 11.1, 'To determine the value of the fraction of non-renewable biomass (fNRB) to be applied in a Component Project Activity (CPA) of a POA, use one of the two options as follows: (a) Conduct local studies to determine the local fNRB value (sub national values) as per the "TOOL30: Calculation of the fraction of non-renewable biomass"; or (b) Use default national values approved by the Board (see footnote 4). The choice of which option to use shall be made ex ante. However, a switch from a national value of fNRB (i.e. option (b)) to local values (i.e. option (a)) is permitted, under the condition that the selected approach is consistently applied to all CPAs.'

The CPA applies either option b) if a default national value approved by the Board exists or determines a national or sub-national fNRB as per option a) following TOOL30.

→ This CPA applies option a/b). The fNRB is determined at a CPA-level and is fixed ex-ante for the crediting period. Thus, no monitoring and recalculation of the fNRB value during the crediting period is required.

Details about the fNRB calculation are provided in the ER calculation excel spreadsheet and/or in Appendix 3 of the respective CPA-DD.

Project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to efficient project device using briquette shall take into account the leakage effects related to the charcoal or briquette production.

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→ In case that a CPA involves the switch from baseline device using firewood to efficient project device using charcoal or a switch from firewood to efficient project device using briquette, leakage effects related to the charcoal or briquette production would be taken into account.

I.6.2. Data and parameters fixed ex ante

Data / Parameter	$B_{old,p}$
Data unit	tonnes/person/year
Description	Annual quantity of woody biomass that would have been used per person in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices
Source of data	Literature/Survey/default value/SBL value (determined ex-ante at CPA level)
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	A default value of 0.5 tonnes/capita per year ³³ may be used. This option is limited to household project devices (not eligible for oven and dryers)
Purpose of data	Calculation of baseline emissions
Additional comments	XXX

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³³ Refer to "Annex 5 - Information note on the rationale for default factors used in AMS-I.E. and AMS-II.G." of the SSC WG 42 meeting report for the derivation of the default.

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Data / Parameter	$N_{p,HH}$
Data unit	Number
Description	Average number of persons served per household/institution/SME prior to project implementation
Source of data	Literature/Survey (determined ex-ante at CPA level)
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	XXX
Purpose of data	Calculation of baseline emissions
Additional comments	-

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Data / Parameter	$B_{old,HH}$
Data unit	tonnes/household/year
Description	Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices
Source of data	Literature/Survey (determined ex-ante at CPA level)
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	Use one of the following options: 1. $B_{old,p}$ times $N_{p,HH}$ or; 2. Based on the historical data or a sample survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities". If the monitoring period is shorter or longer than one year, the result may be extrapolated for the monitoring period
Purpose of data	Calculation of baseline emissions
Additional comments	XXX <u>The value may be derived, based on the historical data or a sample survey conducted as per the latest version of 'Sampling and surveys for CDM project activities and programme of activities'. Paragraph 23 of 'General guidelines for SSC CDM methodologies (version 22.1)' provides guidance on the use of data including historic data to derive parameter values. Values used in other schemes (e.g. registered Gold Standard carbon offset projects) from the same region are acceptable when it is demonstrated to be suitable for use as per the procedures indicated in the above general guidelines.</u>

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Data / Parameter	$B_{old,i,j}$
Data unit	tonnes/year
Description	Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j
Source of data	Calculated (determined ex-ante at CPA level)
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	$B_{old,HH}$ divided by $N_{d,HH}$
Purpose of data	Calculation of baseline emissions
Additional comments	<p>$B_{old,i,j}$ equals $B_{old,HH}$ when only one project device per household is distributed.</p> <p>For $N_{d,HH}$, please refer to section I.7.1</p>

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Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
Source of data	Default value or; FAO/IPCC/survey results/national or local statistics or other sources of information (following TOOL30: Calculation of the fraction of non-renewable biomass', version 02.0)
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	As per paragraph 49 of AMS-II.G
Purpose of data	Calculation of baseline emissions
Additional comments	Fixed ex-ante at CPA level.

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Data / Parameter	$\eta_{old,i,j}$
Data unit	%
Description	Efficiency of the pre-project device being replaced
Source of data	Establish prior to start of implementation based on survey
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	Survey Approach: A survey of end-users will be conducted before implementation of a CPA to calculate the average efficiency across end-user appliances. Each end-user appliance will be classified as three-stone fire or conventional device without a grate or a chimney using a default value of 0.1 or any other type of device using a default value of 0.2. The survey would be conducted in accordance with the CDM standard for sampling and survey version 8. In case of cross-sampling across CPAs, the value can be applied across all homogenous CPAs.
Purpose of data	Calculation of baseline emissions
Additional comments	Use weighted average values if more than one type of system is being replaced.

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Establish prior to start of implementation based on survey

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Deleted: Efficiency of pre-project device, which is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Use weighted average values (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced

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Data / Parameter	Leakage
Data unit	Fraction
Description	Net to gross adjustment factor to account for leakages
Source of data	AMS-II.G, paragraph 48(c)
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	In case this leakage adjustment factor is applied, it is not required to survey the use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources.
Purpose of data	Calculation of baseline emissions
Additional comments	$B_{old,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages. In this case surveys are not required.

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Data / Parameter	$EF_{projected_{fossilfuel}}$
Data unit	tCO ₂ /TJ
Description	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers
Source of data	AMS-II.G; vers. 11.1
Value(s) applied	73.2
Choice of data or Measurement methods and procedures	This is the default regional value for Sub-Saharan Africa as provided by AMS II.G (vers. 11.1), paragraph 25
Purpose of data	Calculation of baseline emissions
Additional comments	-

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Data / Parameter	$NCV_{biomass}$
Data unit	TJ/tonne
Description	Net calorific value of biomass displaced by the project activity
Source of data	The net calorific value of wood & charcoal is as given in 2006 IPCC Guidelines Reference: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Value(s) applied	Wood: 0.0156 Charcoal: 0.0295
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Used for calculation of baseline emissions
Additional comments	Fixed ex-ante at PoA level.

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Data / Parameter	Wood to charcoal conversion factor
Data unit	kg firewood / kg charcoal
Description	Conversion factor for transforming wood to charcoal
Source of data	XXX
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	Default wood to charcoal conversion factor of 6 kg of firewood per kg of charcoal or alternatively, credible local conversion factors determined from a field study or literature
Purpose of data	Used for calculation of baseline emissions
Additional comments	Fixed ex-ante at CPA level.

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1.6.3. Modalities for ex ante calculation of emission reductions

Provided that $B_{y,savings,i,j}$ methodological option 3 is applied by default, ex-ante emission reduction calculation is as follows:

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	Value	Unit	Source/Reference
$N_{y,i,j}$	XXX	n/a	Section B.5.1 of the CPA-DD
μ_y	XXX	Fraction	Section B.5.1 of the CPA-DD
$f_{NRB,y}$	XXX	Fraction	Section B.4.2 of the CPA-DD
$NCV_{biomass}$	XXX	TJ/tonne	IPCC Guidelines 2006
$EF_{projected_{fossilfuel}}$	XXX	tCO ₂ /TJ	IPCC Guidelines 2006
$B_{y,savings,i,j}$	XXX	tonnes/year	Section B.4.3 of the CPA-DD $B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}}\right) \times 0.95$
$B_{old,i,j}$	XXX	tonnes/year	Section B.4.3 of the CPA-DD $B_{old,i,j} = \frac{B_{old,HH}}{N_{d,HH}}$ (=B _{old,HH} when only one project device per household is distributed)
$B_{old,HH}$	XXX	tonnes/HH/ year	Section B.4.3 of the CPA-DD $B_{old,HH} = B_{old,p} \times N_{p,HH}$
$\eta_{old,i,j}$	XXX	%	Section B.4.2 of the CPA-DD: $\eta_{old,i,j} = 10\%$ to 20% or based on survey Weighted average value if multiple devices are replaced
$\eta_{new,i,j}$	XXX	%	Section B.5.1 of the CPA-DD
Baseline emissions	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD $ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_{fossilfuel}}$
Project emissions (PE _y)	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD
Leakage emissions (LE _y)	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD Adjustment factor (0.95) already applied at $B_{y,savings,i,j}$
Emission reductions	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD $ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$

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I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

Data/Parameter	$N_{y,i,j}$
Data unit	-
Description	Number of project devices of type i and batch j operating during year y
Source of data	Sales/distribution record in electronic data management system detailing serial numbers and date of sale/distribution for appliances.
Value(s) applied	XXX (To be specified in CPA-DD)
Measurement methods and procedures	<p>The CPA implementer keeps an electronic database of all stoves sold.</p> <p>As per AMS II.G monitoring shall consist of checking of all devices or a representative sample to determine if they are still operating. The latter option, taking a representative sample, is chosen for the CPA.</p> <p>Consequently, $N_{y,i,j}$ is determined by multiplying all devices sold (N) with the proportion of cooking stoves found to be operating in a representative sample, i.e. $Pop_{stoves,y}$</p>
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	<p>All data in the electronic data management system can be verified through sales/distribution records (either paper or electronic) detailing the serial number and the date of sale/<u>distribution</u>.</p> <p>In terms of sampling the stoves for checking the operating status, following the <u>CDM Standard for 'Sampling and surveys for CDM project activities and programmes of activities'</u>, version 08.0, paragraph <u>11 and 22</u>, a 95 per cent confidence and 10 per cent margin of error is required. Since CPAs are composed of microscale CDM units and sampling is conducted across CPAs in case that CPAs are homogenous. In the instance where the sample size fails to satisfy the confidence and margin of error requirements, either the lower bound of the 95 per cent confidence interval may be chosen³⁴ or the sample size will be increased until the necessary precision is achieved.</p>
Purpose of data	Calculation of baseline emissions
Additional comment	-

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³⁴ As per paragraph 18(c) of the Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

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Data/Parameter	μ_y
Data unit	Fraction
Description	Adjustment to account for any continued use of pre-project devices during the year y
Source of data	Since CPA applies equation 6 of AMS-II.G, it is a fraction based on monitoring results.
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	A monitoring campaign will be conducted since the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, since often the baseline device is the three-stone fire. The surveys will formulate questions and/or collect evidences to determine the frequency of usage of both the project devices and baseline devices. For example, if there were 3 pre-project devices per household and it was determined during the survey that use of one of them continues during the crediting period and meets one third of household's cooking needs, then a conservative adjustment factor of 0.66 is applied for the relevant monitoring period. Another example would be the case where there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	Following the CDM Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08 , paragraph 11 and 22, a 95 per cent confidence and 10 per cent margin of error are required. Since CPAs are composed of microscale CDM units and sampling is conducted across CPAs in case that CPAs are homogenous. In the instance where the sample size fails to satisfy the confidence and margin of error requirements, either the lower bound of the 95 per cent confidence interval may be chosen ³⁵ or the sample size will be increased until the necessary precision is achieved.
Purpose of data	Calculation of baseline emissions
Additional comment	-

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Data/Parameter	$\eta_{new,i,j}$
Data unit	Fraction
Description	Efficiency of the device of each type i and batch j implemented as part of the project activity

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³⁵ As per paragraph 18(c) of the [Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0](#), the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

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Source of data	Efficiency values from water boiling tests (WBTs) conducted on a representative sample of appliances
Value(s) applied	XXX (To be determined at CPA level)

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Measurement methods and procedures	<p>According to AMS-II.G. efficiency shall be measured/estimated as follows (the option should be identified and fixed ex ante in the CPA-DD at the time of inclusion):</p> <ol style="list-style-type: none"> 1. The efficiency of the project devices shall be based on certification by a national standards body or an appropriate certifying agent recognized by that body. 2. Alternatively, manufacturer specifications on efficiency based on water boiling test (WBT) may be used. The WBT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the WBT Protocol or ISO 19867-1 listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)). The sampling test of stoves by such certification bodies/agents or manufacturers shall be conducted following a 90/10 precision in accordance with the “Standard for sampling and surveys for CDM project activities and programme of activities” 3. However, the following simplified approach may be used, when the efficient cook stoves are produced by a manufacturer with a recognized management system in place (e.g. ISO certification) to ensure that the individual equipment produced do not vary beyond the range of acceptance limits (e.g. characteristics such as materials, critical dimensions): <ol style="list-style-type: none"> (i) Conduct a sample test on three cook stoves with three tests conducted for each stove. The test can be carried out by project proponents by themselves or stove manufacturers (ii) If the standard deviation of the nine test results indicated above is very small and 90/10 precision requirement is met (in this case, the value of the t-distribution for 90 per cent confidence shall be used instead of Z value), the efficiency determined is acceptable, otherwise more sample tests would be required until 90/10 precision is met. 4. For project activities that implement cookstoves with saucepan capacities both greater than 30 L as well as smaller than 30 L, the most conservative value among the results of efficiency tests conducted (i.e. the least efficiency determined) on cookstoves of sizes equal to or smaller than 30 L may be used for stoves that are larger than 30 L in lieu of actual testing of the efficiency of stoves that are above 30 L capacity. The simplified approach above may also be used to comply with eligibility requirements under paragraph 3 and can be used only if the following conditions are met: <ol style="list-style-type: none"> (i) Stoves that can hold saucepans that are larger than 30 L are from the same manufacturer and of similar design (e.g. with respect to construction materials including insulation material, placement of
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	grate, cooking vessels and if applicable chimney) as compared to the stoves that are smaller than 30 L; (ii) Project proponents should demonstrate that comparable repair and maintenance practices are undertaken on all project stoves, irrespective of the size
Monitoring frequency	(i) Recorded at the time of commissioning/distribution; (ii) Annual monitoring in case default option c or option d are chosen to adjust for efficiency losses as per paragraph 37 of AMS II.G.
QA/QC procedures	Experts trained in administering the test will carry out the WBT. Following the CDM Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0 , paragraph 11 and 22, a 95 per cent confidence and 10 per cent margin of error are required. Since CPAs are composed of microscale CDM units and sampling is conducted across CPAs in case that CPAs are homogenous. In the instance where the sample size fails to satisfy the confidence and margin of error requirements, either the lower bound of the 95 per cent confidence interval may be chosen ³⁶ or the sample size will be increased until the necessary precision is achieved.
Purpose of data	Calculation of baseline emissions
Additional comment	-

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Data/Parameter	NCV_{biomass}
Data unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass. If briquette is used as project fuel, NCV shall be measured annually.
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Deleted: If fuel used in the project device is charcoal, 0.029 TJ/tonne may be used.

³⁶ As per paragraph 18(c) of the Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

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Data/Parameter	<i>Life Span</i>
Data unit	Number of years
Description	The operating life time of the project device. The life span should be reported in cases where the CPA implementer opts to account the efficiency loss as per paragraph 37(a) of AMS-II.G..
Source of data	Manufacturer (certified by a national standards body or an appropriate certifying agent recognized by that body)
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	Only reported if option a) of paragraph 37 of AMS-II.G is chosen.

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Data/Parameter	<i>Date of commissioning of batch j</i>
Data unit	Date
Description	To establish the date of commissioning, the Project Participant may opt to group the devices in “batches” and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch.
Source of data	Internal records
Value(s) applied	To be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	To be reported in the monitoring report

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Data/Parameter	<i>Date of commissioning of project device of type i</i>
Data unit	Date
Description	Actual date of commissioning of the project device.
Source of data	Internal records
Value(s) applied	To be determined at CPA level
Measurement methods and procedures	Every time an ICS is sold/distributed, it is recorded. The information is entered in the CPA’s electronic database (either immediately at the time of recording or afterwards). Based on the database, the date of commissioning is determined.

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Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	N
Data unit	Number
Description	Number of project devices distributed/sold
Source of data	Internal records (Electronic database used for registering all ICS's sold/distributed)
Value(s) applied	To be determined ex-post at CPA level
Measurement methods and procedures	Every time an ICS is sold/distributed, it is recorded in an electronic database. Based on the information collected in this electronic database, the number of ICSs sold/distributed is determined.
Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	To be determined ex post.

Data/Parameter	$N_{d,HH}$
Data unit	Number
Description	Number of project devices distributed/sold per household/institution/SME
Source of data	Internal records (Database)
Value(s) applied	To be determined at CPA level
Measurement methods and procedures	The database will be checked whether households/institutions/SMEs use more than one project ICS. The proportion of households/institutions/SMEs using more than one project ICS will be conservatively taken into account when calculating $B_{old,i,j}$.
Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	Monitoring/Usage survey results from a representative number of households/institutions/SMEs are not the primary data source, but will be used to cross-check internal records.
Purpose of data	Calculation of baseline emissions
Additional comment	If it is found that more than one project ICS is being used per household/ institution/SME, the proportion of such additional ICS will be conservatively excluded when calculating $B_{old,i,j}$.

Data/Parameter	FC
Data unit	tonnes
Description	Consumption of briquettes, pellets, woodchips
Source of data	Internal records (database)

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Value(s) applied	To be determined at CPA level
Measurement methods and procedures	The parameter can be monitored either through a) direct measurement (e.g. use of scale) of the weight of briquettes, pellets, woodchips; or b) calculation of the total weight of briquettes, pellets, woodchips consumed; based on the total number of bags supplied and the average weight of fuel product per bag. The weight of fuel product per bag is determined on a sample basis in accordance with the sampling standard. Different sizes of bags may be used. In this case sampling will be conducted for each size of the bags.
Monitoring frequency	Continuously
QA/QC procedures	-
Purpose of data	For confirming consumption of briquettes, pellets, woodchips
Additional comment	Only applicable if project device fully depends on specific fuels like briquettes, pellets, woodchips.

I.7.2. Sampling plan

The monitoring plan will be conducted in accordance with the requirements of the following CDM documents:

- AMS-II.G Version 1 1.1 *Energy Efficiency in Thermal Application of Non-Renewable Biomass*
- Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 08.0*
- Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 04.0*

Parameters to be determined through sampling are:

- $\eta_{new,i,j}$ - Efficiency of the device of each type i and batch j implemented as part of the project activity
- $p_{opstoves,y}$ ³⁷ - Proportion of cooking stoves found to be operating during year y
- μ_y - Adjustment to account for any continued use of pre-project devices during the year y

The CPA Implementer provides monitoring information to the CME for the electronic data management system. The CME will operate and manage an electronic data management system that will store information on and track all efficient cooking technologies under the PoA. All data will be stored for at least two (2) years after the expiry of the crediting period (i.e. 12 years post start of the crediting period of the CPA). The system will contain the following information for each efficient cooking stove, which is collected and reported by the CME Implementer:

- Unique Serial Number (USN) representing the unique stove number;

³⁷ $N_{y,i,j}$ is not directly monitored. The parameter $p_{opstoves,y}$ is monitored in order to determine $N_{y,i,j}$.

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- 2. CPA under which the stove is operating
- 3. Contact details of the end-user (e.g. Name, address, mobile number, or national ID number);
- 4. Technology Details (Model type, sale/distribution/commissioning date)

Responsibilities

Under the monitoring plan the CME and the CPA Implementer have the following responsibilities, which are reiterated throughout the monitoring plan:

1. Selection of Random Sample (CME)

The CME is responsible for selecting the sample of appliances to be monitored randomly from the electronic data management system. The CME will provide the CPA Implementer with the appliances to be sampled during monitoring. Each appliance will be identified through the USN. The contact information of the end user for each appliance is provided to the CPA Implementer as well so the monitoring can be conducted.

2. Collection of Parameter Data (CPA Implementer)

The CPA Implementer is responsible for conducting the surveys with the randomly selected end users provided by the CME and the WBT on the randomly selected appliances provided by the CME starting at the top of the random sample list. The CPA Implementer will notify the CME of end-users that cannot be contacted or are not willing to participate. The CME will randomly select end-users further down in the random sample list until the sample size is achieved.

3. Analysis of Parameter Data and Monitoring Report (CME)

The CME will collect the sampled data from the CPA Implementer and analyse the data to determine the values of the sampled parameters during the monitoring period. The CME will prepare the monitoring report to be submitted to a Designated Operational Entity (DOE) for verification. The CME will communicate with the DOE and the CDM EB during the verification and issuance process.

The sample of the appliances to be monitored to estimate parameters $\eta_{new,ij}$, $P_{opstoves,y}$ and μ_y will be a simple random sample drawn from the electronic data management system. A single sampling covering a group of CPAs for the previously mentioned parameters is undertaken applying 95/10 confidence/precision for the sample size calculation.³⁸ Or alternatively, sampling is conducted separately for the CPA. This CPA makes part of a single sampling covering a group of CPAs/Sampling is conducted separately at CPA level. In case of a single sampling, the populations of all CPAs in the group are combined together, the sample size is determined and a single survey is undertaken to collect the data. A pre-condition for grouping CPAs is that they are homogenous, i.e. apply the same ICS model and fuel, and target the same end-users (e.g. households) within the Host Country.

³⁸ This is in line with paragraph 22 of the Standard ‘Sampling and surveys for CDM project activities and PoAs’, version 08.0

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Since CPAs are solely composed of ‘microscale CDM units’, a 95/10 confidence/precision is applied for sampling surveys in all cases, even when they are conducted at CPA level.³⁹

The minimum sample size for estimating the proportional parameters $\mathbf{p}_{\text{opstoves},y}$ and μ_y (or their reverse) will be calculated from the Equation 1 of the *Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities*.

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

With

n The minimum sample size required

N Total number of households (XXX)

p Expected proportion (XXX)

1.96 Represents the 95% confidence required

0.1 Represents the 10% relative precision

From the equation above, the sample size for 95/10 confidence/precision is XXX. This equation will be used to estimate the initial sample size. If the required level of accuracy (confidence/precision) is not achieved the sample size can be expanded or alternatively the appropriate lower bound of the 95% confidence will be used⁴⁰.

The minimum sample size for estimating the mean parameter $\eta_{\text{new},i,j}$ will be calculated from the equation 18 of the *Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities*, where the variance of the sample replaces the expected proportion, as the parameter to be estimated is not a proportion.

$$n \geq \frac{1.96^2 NV}{(N-1) \times 0.1^2 + 1.96^2 V}$$

With

n The minimum sample size required

N Total number of appliances (XXX)

$V = \left(\frac{SD}{mean}\right)^2$ Expected variance (XXX)

³⁹ This is in line with paragraph 22 of the Standard ‘Sampling and surveys for CDM project activities and PoAs’, version 08.0.

⁴⁰ As per paragraph 18(c) of the Standard for ‘Sampling and surveys for CDM project activities and programmes of activities’, version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

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1.96 Represents the 95% confidence required

0.1 Represents the 10% relative precision

From the equation above, the sample size for 95/10 confidence/precision is XXX. If as per the Sampling Standard for Sampling and surveys for CDM project activities and PoAs (paragraph 13), the sample size calculation for parameter $\eta_{new,i,j}$ returns a value of less than 30 samples, the Student's t-distribution shall be used. Following the approach explained in the Guideline 'Sampling and surveys for CDM project activities and PoAs', paragraphs 102 to 108, page 46 ff., the sample size for 95/10 confidence/precision resulted in XXX. If the required level of accuracy (confidence/precision) is not achieved the sample size can be expanded or alternatively the appropriate lower bound of the 95% confidence will be used⁴¹.

To estimate the parameter $\eta_{new,i,j}$, a WBT will be performed on every appliance selected in the random sample when determining by individuals trained in the administration of the test. The average value for the efficiency across the samples will be used to estimate parameter $\eta_{new,i,j}$ if the sample size satisfies the accuracy requirements. If the sample size is insufficient, the 95 per cent per cent lower bound will be applied⁴² as described above or the sample size expanded.

Sampling Plan for $\eta_{new,i,j}$

Sampling Design	Objective and reliability requirements	The objective is determining the mean thermal efficiency of the CPA technologies operational during the monitoring period, with a 95/10 confidence/precision.
	Target Population	The target population are all technologies deemed still in operation during the monitoring period.
	Sampling Method	Simple Random Sampling
	Sample Size	The estimated minimum sample size as calculated above is XXX. A single sampling covering a group of CPAs is undertaken

⁴¹ As per paragraph 18(c) of the Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

⁴² As per paragraph 18(c) of the Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

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		applying 95/10 confidence/precision for the sample size calculation. ⁴³ Or alternatively, sampling is conducted separately at CPA level.
	Sampling Frame	The sampling frame is the electronic sales/distribution database with a record of all appliances sold/distributed under the CPA/CPAs, disregarding appliances not in operation as determined when sampling Popstoves.y .
Data to be Collected	Field Measurements	<p>The field measurement conducted is a Water Boiling Test as developed by the Shell Foundation conducted annually.</p> <p>The test is administered after the technology is deemed in operation</p> <p>The equipment required for the test is the following:</p> <ul style="list-style-type: none"> • Electronic scale with a capacity of at least 6kg and an accuracy of +/- 1g • Digital thermometer having a resolution accuracy of 0.1 degrees with thermocouple probe suitable for immersion in liquids • Timer • Wood moisture meter (optional)
	Quality Assurance/Quality Control	<p>The test will be conducted by personal trained in the administration of the test.</p> <p>The results of the test will be recorded on a smartphone or</p>

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⁴³ This is in line with paragraph 22 of the Standard 'Sampling and surveys for CDM project activities and PoAs', version 08.0

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		computer and uploaded to a central database for analysis
		The equipment required for administering the test will be calibrated on an annual basis.
	Analysis	The mean value of the thermal efficiency values for all technologies in the sample is determined.
Implementation	Implementation Plan	<p>The sample of technologies selected for the WBT is drawn from the sales/distribution database during the monitoring period.</p> <p>The testing team then travels to each technology to perform the WBT in person or stoves are transported to the laboratory.</p> <p>The team undertaking the tests will have all tools necessary for performing the test (scale, moisture meter, etc.) and previous experience conducting the WBT and recording the results.</p>
	Seasonality	Not affected by seasonal influences

A survey will be conducted to estimate parameters $P_{\text{opstoves},y}$ and μ_y . The survey will consist of questions to a representative number of households to which appliances have been sold/distributed. The representative must be of legal age. The representative will state whether the project device is still operating and what proportion of the households cooking needs are being met by the appliance deployed. If the representative states that the stove is not present in the household, broken, or performing none of the households cooking needs, the appliance is considered as non-operating. If the representative states that all meals are prepared on the appliance deployed, the appliance is classified as operating and the value assigned for μ_y is 1. For an appliance whose representative reports that the appliance is used for half of all meals, a value for μ_y of 0.5 is applied. The average value for all sampled appliances is used to estimate $P_{\text{opstoves},y}$ and μ_y . If the sample size is

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insufficient, the 95 per cent lower bound will be applied as described above⁴⁴ or the sample size expanded.

As per AMS-II.G Version 1~~1~~¹, if the removal of the baseline technology cannot be assured, then continued use of the baseline technology using woody biomass must be accounted for. As removal of baseline technologies such as the three stone fire cannot be assured, parameter μ_y accounts for continued use of the baseline technology, i.e. a low value for μ_y indicates extensive continued use of the baseline technology using woody biomass.

Sampling Plan for $p_{opstoves,y}$ and μ_y

Sampling Design	Objective and reliability requirements	The objective is determining the average proportion of operational project devices $p_{opstoves,y}$ and continued use of pre-project devices μ_y during the monitoring period, with a 95/10 confidence/precision. The monitoring of $p_{opstoves,y}$ and μ_y is based on the same sample, which is the sample with the larger sample size of the two.
	Target Population	The target population are all end-users with project devices registered in the sales/distribution database during the monitoring period.
	Sampling Method	Simple Random Sampling
	Sample Size	The estimated minimum sample size as calculated above is XXX . A single sampling covering a group of CPAs is undertaken applying 95/10 confidence/precision for the sample size calculation. ⁴⁵ Or alternatively, sampling is conducted separately at CPA level.
	Sampling Frame	The sampling frame is the electronic sales/distribution database with the contact information of all users of technologies sold/distributed under the CPA (or CPAs in case that sampling is conducted across CPAs) .
Data to be Collected	Field Measurements	The field measurement conducted is a survey assessing the proportion of operability of the project devices and

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⁴⁴ As per paragraph 18(c) of the Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of crediting to the PoA.

⁴⁵ This is in line with paragraph 22 of the Standard 'Sampling and surveys for CDM project activities and PoAs', version 08.0

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		<p>cooking needs of the user met by the technology.</p> <p>There is no equipment required for sampling this parameter.</p>
	Quality Assurance/Quality Control	<p>The survey will be administered by personnel conversant in a common language within the CPA boundary and familiar with the local culture.</p> <p>The results of the survey will be recorded on a smartphone or computer and uploaded to a central database for analysis.</p> <p>The survey will be conducted in person or over the phone with the technology user or an immediate family member of the user who is above 15 years of age and the responsible person for cooking in the household.</p> <p>No equipment is required for sampling this parameter, so no calibration frequency is stated</p>
	Analysis	<p>The average value for all sampled appliances is used to estimate $\mu_{p_{\text{popstoves}},y}$ and μ_y.</p>
Implementation	Implementation Plan	<p>The sample of users selected for the survey is drawn from the sales/distribution database during the monitoring period.</p> <p>The testing team uses the contact information in the database to conduct the survey in person or over the phone with the user or an immediate family member who is above the age of 15 and the responsible person for cooking in the household.</p> <p>The results of the survey are electronically recorded and uploaded to a central database for analysis.</p> <p>The team administering the survey will be familiar with the purpose of the survey, the technology under the CPA, and the local culture.</p>
	Seasonality	<p>Unlikely to be affected by seasonal influences</p>

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Monitoring $N_{y,i,j}$

The equivalent full-time appliances of type i and batch j operating during year y are calculated from the sales/distribution records in the electronic data management system. The USN of the appliance is recorded along with the date of sale/distribution. Based on the database, the date of commissioning of a project device is determined.

To establish the date of commissioning of a batch j , the latest date of commissioning of a device within the batch will be used as the date of commissioning for the entire batch. The operating fraction in year y of the appliances of a batch j will be determined. The sum of the operating fractions is the Value of $N_{y,i,j}$. $N_{y,i,j}$ takes only account those appliances which are in operation.

1.7.3. Other elements of monitoring plan

The CME is responsible for overall monitoring organization. The sampling plan, data collection & consolidation and results analysis are implemented by an adequately trained monitoring team, well aware of CDM requirements and supervised by the CME. Well experienced third-party experts may assist the monitoring team in monitoring and analysis activities.

SECTION J. Crediting period type and duration

Fixed crediting period of 10 years

SECTION K. Eligibility criteria for inclusion of CPAs

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
1	Technology	Each CPA will employ efficient cooking technologies for use with non-renewable biomass with a minimum thermal efficiency of 20 per cent.	Efficiency certificate from a nationally accredited university, certified testing institution <u>or manufacturer's specifications</u> and <u>provide a table of key attributes of the cookstoves, containing as a minimum the following information:</u> <u>-stove manufacturer</u> <u>-stove model</u> <u>-material(s)</u> <u>-dimensions (measurements)</u> <u>-weight</u> <u>-WBT results : thermal efficiency, firepower, boil time</u> <u>-estimated lifetime based on manufacturer's specifications</u> <u>-type of fuel being used in the cookstove</u> <u>-mode of operation (portable/fixed)</u>

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 Expected lifetime⁴
 Construction materials⁴
 Other systems and equipment involved

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No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
2	Location	Each CPA will be located within the physical/geographical boundary of the PoA	Geographic reference showing the activity is within the physical/geographical boundary of the PoA
3	Additionality	<p>Each CPA will satisfy the criteria for demonstrating additionality of a small-scale project. The measurements and criteria ensuring eligibility are the following:</p> <p><u>For CPAs implemented in DRC/Zambia:</u></p> <ul style="list-style-type: none"> <u>The CPA is implemented in an LDC (DRC or Zambia)</u> <u>Annual energy savings of each unit ≤ 60 GWh_{thermal}</u> <p><u>For CPAs implemented in Kenya:</u></p> <ul style="list-style-type: none"> <u>CPA implementer confirms that ICS are partially or fully subsidized.</u> 	<p><u>For CPAs implemented in DRC/Zambia:</u></p> <ul style="list-style-type: none"> <u>Technology specification and the energy saving per each ICS unit in the CPA-DD</u> <u>Description of physical boundary in the CPA-DD</u> <p><u>For CPAs implemented in Kenya:</u> <u>Declaration of CPA implementer</u></p>
4	Aggregate small-scale threshold	Not applicable. Since CPA consists solely of units that qualify as 'microscale CDM units' (see eligibility criterion 'Additionality'). See paragraph 124(m) of CDM Project Standard for PoAs, version 02.0	Demonstration that the CPA consists solely of units that qualify as 'microscale CDM units'.
5	De-Bundling	Not applicable. Since CPA consists solely of units that qualify as 'microscale CDM units' (see eligibility criterion 'Additionality'). See paragraph 124(n) of CDM Project Standard for PoAs, version 02.0	Demonstration that the CPA consists solely of units that qualify as 'microscale CDM units'.

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No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
6	Double Counting of emission reductions	<p>Each CPA will implement a unique identification system for every efficient cooking unit to avoid double counting of emission reductions.</p> <p><u>The end-consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from the use of efficient cookstoves to a specific entity. Only this entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented. Contractual agreements will be in place between producer of improved cookstoves and the entity claiming the carbon credits.</u></p>	<p>Description of the unique identification system and adherence to the CME Management System</p> <p><u>Description of the transfer of carbon credit rights from end-users to entity to whom the rights are assigned to.</u></p> <p><u>Contractual agreements between producer of improved cookstoves and the entity claiming the carbon credits.</u></p>
7	Start Date	Each CPA will prove that the start date of the CPA is on or after the start date of the PoA by providing evidence of the start date of the CPA.	The start date of the activity will be evidenced by e.g. a manufacturing contract, delivery receipt, sales invoice, mobile sale/distribution registration form.
8	Crediting Period	Each CPA will have a fixed crediting period which shall not exceed the end date of the PoA	The type of crediting period and start date of crediting period
9	Public Funding	Each CPA will confirm that it is not receiving funding dedicated as Official Development Assistance (ODA)	A statement that the activity is not receiving public funding which would result in diversion of ODA money.
10	CME Approval	Each CPA will prove it has received the approval of the CME of the PoA	A letter showing the CME has approved the CPA

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No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
11	Methodology	Each CPA will apply the baseline and monitoring methodology AMS-II.G Version 11.1 and specify values for the following parameters as per the guidance of the PoA: <ul style="list-style-type: none"> $\eta_{old,i,j}$ $B_{old,HH}$ $f_{NRB,y}$ 	Application of methodology AMS-II.G Version 11.1 and appropriate values for: <ul style="list-style-type: none"> $\eta_{old,i,j}$ $B_{old,HH}$ $f_{NRB,y}$
12	Target Group and Distribution Method	Each CPA targets households and/or institutions and/or Small and Medium Enterprises (SMEs) in rural and/or urban areas Each CPA will use one or multiple of the following methods for distribution of appliances implemented under the CPA: <ul style="list-style-type: none"> Direct sale/distribution to end-users Bulk sales/distribution to distributors who sell/distribute on to the end user Distribution to the end-user by an organization receiving the products/measures from the CME 	Target groups are households and/or institutions and/or Small and Medium Enterprises (SMEs) in rural and/or urban areas <u>Description of the distribution method and sales/distribution database</u>
13	Sampling Requirements	Each CPA will adhere to the sampling requirements stipulated by the CME in section I.7.2. of the generic CPA-DD.	Adherence to the sampling requirements of the PoA

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No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
14	Stakeholder Consultation and Environmental Impact Analysis	Each CPA will satisfy requirements surrounding Local Stakeholder Consultation and Environmental Impact Analysis	<p>Kenya: Adherence to any requirements stipulated by the Stakeholder Consultation and Environmental Impact Analysis conducted at the PoA level.</p> <p>DRC: Adherence to any requirements stipulated by the Stakeholder Consultation and Environmental Impact Analysis conducted at the CPA level.</p> <p>Republic of Zambia: Adherence to any requirements stipulated by the Stakeholder Consultation and Environmental Impact Analysis conducted at the CPA level.</p>
15	Compliance with Applicability and Other Requirements of Methodology	<p>Each CPA will comply with the applicability and other requirements of methodology AMS-II.G Version 11.1;</p> <ul style="list-style-type: none"> The activity comprises appliances involving efficiency improvements in the thermal applications of non-renewable biomass Non-renewable biomass has been used since 31/12/1989 within the boundary of the activity. 	<p>Description of the CPA and the technology/measure implemented and proof that non-renewable biomass has been used since 31/12/1989 within the boundary of the activity.</p>
16	Double counting of project activities	Each CPA will confirm that it has neither registered as standalone CDM project activity, nor included in another registered PoA nor that the project activity has been deregistered.	<p>This condition will be checked through carbon standard registries (UNFCCC, GS and VCS websites). Further, it will be confirmed by a letter signed by the CPA implementer.</p>

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PART II. Generic component project activity (CPA) for a CPA applying AMS-I.E.

SECTION H. Description of generic CPA

H.1. Title of generic CPA

Top Third Ventures Stove Programme CPA #####

H.2. Reference number of generic CPA

Generic CPA

H.3. Purpose and general description of generic CPA

Overview and purpose of the CPA

The CDM Programme Activity (CPA) Implementer will operate CPA under the Programme of Activities (PoA). The CPA Implementer will have a contractual agreement with the Coordinating/Managing Entity (CME) of the PoA describing the terms under which the clean cooking technologies are sold/distributed, replaced/repared, and monitored. The purpose of the CPA is to achieve widespread distribution and effective use of clean cooking technologies using renewable fuel (carbonized or non-carbonized pellets, briquettes, woodchips, agricultural residues) in low-income rural and/or urban households as well as institutions and/or SMEs. Carbon revenues earned under the CPA will be used to:

- Subsidize the cost of clean cooking technologies to the consumer⁴⁶; and/or
- Invest in the research and development of new and clean cooking technologies; and/or
- Support the dissemination of clean cooking technologies in remote areas with poor infrastructure.
- Subsidize the cost of renewable fuel (pellets, briquettes, woodchips, agricultural residues)

Consumers who agree to the terms of the PoA will cede all rights to any CERs resulting from the PoA. By using the clean cooking technology, the consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from its use to XXX⁴⁷, and permanently waive any claim or right to such benefits. In addition, consumers are requested to participate in the monitoring surveys if randomly sampled from the database.

Consumers who do not agree to the terms of the PoA will not be included under the CPA or monitored throughout the crediting period of the CPA.

The proposed CPA is implemented by XXX (in the following mentioned as: XXX), a company based in XXX together with XXX. XXX has fully sponsored and owns this CPA. On behalf of XXX, BURN will work with local third-party partner companies to distribute the clean cooking technologies to end

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⁴⁶ This means that the efficient cookstove is either partially or fully subsidized.

⁴⁷ Only the entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented.

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users. XXX will provide all implementation costs for the CPA. XXX will also provide subsidy to make the clean cooking technology affordable to beneficiaries, as well as for the operation & maintenance costs of clean cookstove production and distribution cost, to operate the CPA in a financially sustainable condition.

Target Group and Location

The target group of the CPA are rural/urban households/SMEs/institutions using non-renewable biomass (firewood/charcoal) with 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, prior to receipt of a clean cooking device. The CPA will cover XXX, which is within the physical/geographical boundary of the PoA.

Technology

The CPA deploys clean cooking devices known as XXX. The technology was designed and developed by XXX. The technology is intended for use with renewable carbonized/non-carbonized pellets/briquettes/woodchips/agricultural residues. The XXX stove's design takes into account the local cooking culture in the project area to ensure that improvements in technology and improved standards of living do not come at the expense of cultural traditions. See the technical specifications in section A.3 of the CPA-DD.

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Record Keeping System

The CPA Implementer will comply with the requirements of the CME. The CME will operate and manage an electronic data management system that will store information on and track all clean cooking technologies under the PoA. The system will contain the following information for each clean cooking stove:

5. Unique Serial Number (USN) representing the unique stove number;
6. CPA under which the stove is operating
7. Contact details of the end-user (e.g. Name, address, mobile number, or national ID number);
8. Technology Details (Model type, sale/distribution/commissioning date).

The data for the system will be updated and modified as required to allow for optimal performance of CPA implementation and monitoring. All data will be stored for at least two (2) years after the expiry of the crediting period.

Baseline scenario

The baseline scenario is the use of fossil fuels for meeting similar thermal energy needs on predominantly inefficient cooking technologies using non-renewable biomass to satisfy the energy needs of the target population.

Emission reductions

The estimated amount of annual average GHG emission reductions is XXX tCO₂e.

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H.4. Technologies/measures

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The CPA will deploy clean cooking devices known as **XXX**, which has been designed and developed by **XXX**. Please see the technical specifications in the following table. The CPA implementers may opt to distribute other stove models in this CPA over time.

[cooking device IMAGE]

[cooking device – short description]

Table **X**: Technical specifications

Stove Manufacturer	XXX
Stove Model	XXX
Material(s)	XXX
Dimensions (measurements)	XXX
Weight	XXX
Thermal efficiency	XXX
Firepower	XXX
Boil time	XXX
Average lifespan based on manufacturer's specifications	XXX
Type of fuel	XXX
Mode of operation (portable/fixed)	XXX

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

AMS-I.E “Switch from non-renewable biomass for thermal applications by the user” (Version 10.1)

AMS-I.E. calls for application of the:

- “Guideline: General guidelines for SSC CDM methodologies”
- “TOOL21: Demonstration of additionality of small-scale project activities”, version 13.0, and
- “TOOL19: Demonstration of additionality of microscale project activities”, version 09.0

The methodology also refers to the latest approved versions of the following approved standards, methodologies and tool(s):

- (a) “AMS-I.I: Biogas/biomass thermal applications for households/small users”
- (b) “AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass”
- (c) “AMS-III.F: Avoidance of methane emissions through composting”
- (d) “AMS-III.G: Landfill methane recovery”
- (e) “AMS-III.H: Methane recovery in wastewater treatment”
- (f) “AMS-III.BG.: Emission reduction through sustainable charcoal production and consumption”;
- (g) “TOOL03: Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”, version 3
- (h) “TOOL05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation”, version 3.0

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 “AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass”
 “AMS-III.F: Avoidance of methane emissions through composting”
 “AMS-III.G: Landfill methane recovery”
 “AMS-III.H: Methane recovery in wastewater treatment”
 “AMS-III.BG.: Emission reduction through sustainable charcoal production and consumption”;

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- (i) “TOOL 12: Methodological tool: Project and leakage emissions from transportation of freight, version 1.1.0
- (j) “TOOL16: Project and leakage emissions from biomass”, version 4
- (k) “TOOL30: Calculation of the fraction of non-renewable biomass”, version 02.0
- (l) “Standard: Sampling and surveys for CDM project activities and programme of activities”, version 08.0

Standardized Baseline XXX is used/No standardized baseline is used.

I.2. Applicability of methodologies and standardized baselines

Each CPA under the PoA utilizes methodology AMS-I.E Version 10.1. AMS-I.E, Version 10.1 is a Type I methodology, i.e. renewable energy.

CPAs do not have to meet the aggregate small-scale threshold (15 MW rated output capacity). Since the generic CPA consists solely of units that qualify as ‘microscale CDM units’ as defined in the ‘Methodological tool: Demonstration of additionality of microscale project activities’ (see paragraph 124(m) of CDM Project Standard for PoAs, version 02.0 and TOOL19, ‘Demonstration of additionality of microscale project activities’).

Demonstration of how the applicability conditions are met in accordance with the approved methodology of the PoA:

<u>Applicability Condition of AMS-I.E</u>	<u>Applicability check or corresponding eligibility criteria for CPA inclusion (Section K of the PoA-DD)</u>
<u>1. This methodology comprises of activities to displace the use of non-renewable biomass by introducing renewable energy technologies. Examples of these technologies include, but are not limited to biogas stoves, bio- ethanol stoves, solar cookers, passive solar homes</u>	<u>CPAs will distribute clean cookstove technologies using renewable carbonised or non-carbonised briquettes, pellets, woodchips or agricultural residues. The clean cooking fuels introduced to replace non-renewable biomass will be produced from renewable resources.</u>
<u>2. 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</u>	<u>Fulfilment eligibility criterion 15</u>
<u>3. The methodology is applicable for technologies displacing use of non-renewable biomass by renewable energy</u>	<u>The technologies implemented under this CPA will be clean cookstoves using carbonized or non-carbonized briquettes, pellets, woodchips or agricultural residues. It will be ensured that those fuel types are renewable and will replace non-renewable biomass (firewood and/or charcoal) used by the baseline stoves.</u>
	<u>Fulfilment eligibility criterion 1</u>

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4. Project participants or coordinating and managing entities shall describe in the PDD/PoA-DD how the double counting of emission reductions has been addressed (e.g. between end users, distributors and producers of stoves)	<p>The end-consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from the use of clean cookstoves/fuels to a specific entity. Only this entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented. Contractual agreements will be in place between producer of clean cookstoves, distributor of renewable fuel and the entity claiming the carbon credits.</p> <p>Fulfilment eligibility criterion 6</p>
5. For project activities introducing bioethanol cookstoves project participants or coordinating and managing entities shall demonstrate that the bioethanol cookstoves are designed, constructed and operated to the requirements (e.g. with regard to safety) of a relevant national or local standard or comparable literature. Latest guidelines issued by a relevant national authority or an international organisation may also be used.	<p>Not applicable. Since CPAs do not involve the introduction of bioethanol cookstoves.</p>
6. The CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	<p>Each CPA will use one or multiple of the following methods for distribution of appliances implemented under the CPA:</p> <ul style="list-style-type: none"> • Direct sale/distribution to end-users • Bulk sales/distribution to distributors who sell/distribute on to the end user • Distribution to the end-user by an organization receiving the products/measures from the CME <p>Fulfilment eligibility criterion 12</p> <p>A unique numbering system for clean cooking devices will be applied by assigning a unique serial number to each cookstove. Linking a unique serial number to the contact details of the end-user allows for the tracking and identification of each renewable energy unit. All the devices including end-user details are recorded in a centralized database.</p> <p>Fulfilment eligibility criterion 6</p>
7. The CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for	<p>The end-consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from the use of clean</p>

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<p><u>example if project stove manufacturers, wholesale providers or others were to claim credit for emission reductions from the project devices.</u></p>	<p><u>cookstoves/fuels to a specific entity. Only this entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented. Contractual agreements will be in place between producer of clean cookstoves, distributor of renewable fuel and the entity claiming the carbon credits.</u></p> <p><u>Fulfilment eligibility criterion 6</u></p>
<p><u>8. The use of this methodology in a project activity under a programme of activities is legitimate if the following leakages are estimated and accounted for, as required on a sample basis using a 90/30 precision for the selection of samples:</u></p> <p><u>(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 $B_{old,i,j}$ is adjusted to account for the quantified leakage;</u></p> <p><u>(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 $B_{old,i,j}$ is adjusted to account for the quantified leakage;</u></p> <p><u>(c) As an alternative to subparagraphs (a) and (b) $B_{old,i,j}$ can be multiplied by a net to gross adjustment factor of 0.95 to account for both leakages, in which case surveys are not required.</u></p>	<p><u>Option c) will be chosen for all CPAs to be included under this PoA-DD.</u></p> <p><u>In case of project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to efficient project device using processed biomass (briquette, pellets, and woodchips), leakage effects related to the charcoal or processed biomass production will be taken into account, as requested as per paragraph 32 of the methodology.</u></p>

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I.3. Application of multiple methodologies

Not applicable

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

Indicate geographical boundary of the CPA

	Source	GHG	Included?	Justification/Explanation
Baseline	Emissions from combustion of non-renewable woody biomass for cooking	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and therefore excluded.
		N ₂ O	No	Minor source of emissions and therefore excluded.
Project activity	Emissions from combustion of non-renewable woody biomass in pre-project devices and/or clean cook stoves distributed by the project activity	CO ₂	Yes	Potential source of emissions, if some portion of biomass used in clean cookstoves is not renewable.
		CH ₄	No	Minor source of emissions and therefore excluded.
		N ₂ O	No	Minor source of emissions and therefore excluded.
	Emissions from cultivation, use, processing, transport of biomass	CO ₂	Yes	Could be a potential source of emissions
		CH ₄	No	Minor source of emissions and therefore excluded.
		N ₂ O	No	Minor source of emissions and therefore excluded.

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I.5. Establishment and description of baseline scenario

The baseline scenario is the use of fossil fuels for meeting similar thermal energy needs.

A key parameter in the baseline scenario is the quantity of non-renewable woody biomass consumed prior to the project activity. For each CPA, surveys and/or literature studies are cited to show the usage of biomass among the target population. From the studies and/or surveys the baseline use is determined.

Kenya: Kenya's national energy policy⁴⁸ mentions as one of the policies/strategies in the energy sector the promotion of use of biomass briquettes as an alternative to woodfuel. Kenya's National Climate Change Action Plan 2018-2022⁴⁹, further mentions as a required key technology amongst others briquette stove technology and briquette manufacturing technologies. However, no specific objectives are provided in either document nor is it enforced by any government law, policy or regulation, hence there is no obligation for households, institutions or SMEs to use renewable fuels, like e.g. briquettes. Though the promotion and use of renewable fuels like briquettes makes part of

⁴⁸ Ministry of Energy of the Republic of Kenya, National Energy Policy, October 2018 (https://kplc.co.ke/img/full/BL4PdOqKtxFT_National%20Energy%20Policy%20October%20%202018.pdf)

⁴⁹ Ministry of environment and Forestry, National Climate Change Action Plan 2018-2022, Volume 3 : Mitigation Technical Analysis Report, 2018, http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2018/10/8737_vol3.pdf (accessed on 30/08/2019)

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the National Policy, it is not guaranteed whether this Policy will be implemented and to what extent. The NDC of Kenya⁵⁰ does refer to ‘clean energy options’ however does not provide any details.

Democratic Republic of Congo (DRC): The UNDP report ‘Sustainable Energy for all towards the 2030 horizon’⁵¹, does not have any explicit mention in regard to the promotion of renewable fuels for cooking. The use of renewable fuels (like pellets, briquettes, woodchips) for cooking is not enforced by any government law, policy or regulation, hence there is no obligation for households, institutions or SMEs to use renewable fuels. The NDC of DRC⁵² does not mention any specific objectives in regard to the promotion or use of renewable fuels for cooking.

Republic of Zambia: The NDC of Republic of Zambia⁵³ mentions sustainable forest management as part of the Zambia’s Programs Contribution to its National Mitigation Goal, however, does not mention any specific objectives in regard to the promotion or use of renewable fuels ((like pellets, briquettes, woodchips). The National Climate Change Response Strategy published by the Ministry of Tourism, Environment & Natural Resources⁵⁴ does not mention any national targets for the use of renewable fuels either.

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For a typical CPA under the PoA, the baseline scenario is determined as follows:

A typical CPA will use literature studies and/or the results coming from surveys/KPT on the consumption of biomass for the target group within the CPA boundary to determine an average consumption per household per year. In the instance where the consumption varies across categories (i.e. urban and rural), the weighted average will be used:

$$\text{Average Use} = \text{Biomass Use} \times \text{Category 1 Proportion of Target Group (\%)} \\ + \text{Biomass Use} \times \text{Category 2 Proportion of Target Group (\%)}$$

If the target group is SMEs or institutions data for the consumption of each user may be available in which case an average is not required.

Description on how the baseline fuel consumption and baseline stove efficiency has been established is provided at CPA level.

⁵⁰ https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Kenya%20First/Kenya_NDC_20150723.pdf (accessed on 30/08/2019)

⁵¹ UNDP, Rapport national ‘Energie durable pour tous’, Programme National et Strategie DRC, August 2013, https://www.cd.undp.org/content/dam/dem_rep_congo/docs/eenv/UNDP-CD-RAPPORT-ENERGIE-DURBALE-POUR-TOUS-HORIZON-2030.pdf (accessed on 30/08/2019)

⁵² <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Democratic%20Republic%20of%20the%20Congo%20First/CPDN%20-%20Rép%20Dém%20du%20Congo.pdf> (accessed on 30/08/2019)

⁵³ <https://www4.unfccc.int/sites/ndcstaging/pages/Party.aspx?party=ZMB>

⁵⁴ Ministry of Tourism, Environment & Natural Resources, National Climate Change Response Strategy (NCCRS), December 2010, https://www.adaptation-undp.org/sites/default/files/downloads/zambia-climate_change_response_strategy.pdf (accessed on 04/11/2019).

I.6. Estimation of emission reductions**I.6.1. Explanation of methodological choices****Emission reductions**

Emission reductions are to be estimated based on the following equation.

$$ER_y = BE_y - PE_y - LE_y$$

As per the applied methodology 'A batch is defined as the population of the device of the same type commissioned during a certain period of time (e.g. week or month) in a certain calendar year'. It should be noted that once batches are defined it would be necessary to calculate the emission reductions separately for each batch of project devices. For sample-based surveys, as long as the requirements in the methodology and sampling standard are met, whether or in what way the batches are considered is subject to the discretion of the project participant and survey design (e.g. it depends on the parameter, type of survey method chosen, frequency of survey, data collection method).

Baseline emissions

Baseline emissions will be calculated using equation (1) provided in paragraph 23 of the applied methodology.

$$BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel}$$

Where:

BE_y = Baseline emissions during the year y in t CO₂e

B_y = Quantity of woody biomass that is substituted or displaced in tonnes

$f_{NRB,y}$ = Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass (fNRB)

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne)

$EF_{projected_fossil\ fuel}$ = Emission factor for the substitution of non-renewable woody biomass by similar consumers.

Determination of $f_{NRB,y}$:

The value of fNRB shall be calculated using either of the following two options:

a) Ex ante: the fNRB value is determined once at the validation stage, thus no monitoring and recalculation of the fNRB value during the crediting period is required;

(b) Ex post: the $f_{NRB,y}$ value is determined for the year " y " in the crediting period, requiring the fNRB value to be updated annually, following a consistent calculation procedure throughout the crediting period.

Option (a) has been chosen.

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According to “Tool for Calculation of the fraction of non-renewable biomass”, f_{NRB} will be calculated by the following formula:

$$f_{NRB} = \frac{NRB}{NRB + RB}$$

Where:

- f_{NRB} = Fraction of non-renewable biomass in the country/region or project area (fraction or %)
- NRB = Quantity of non-renewable biomass (t/yr) in the country/region or project area
- RB = Quantity of renewable biomass (t/yr) in the country/region or project area

By is determined by using one of the following options. The choice will be made at CPA level.

(a) Calculated as the product of the number of households multiplied by the estimate of average annual consumption of woody biomass per household that is displaced by the project activity (tonnes/household/year);

$$B_{\Delta} = N_{HH} \times (BC_{BLHH\Delta} - BC_{PLHH\Delta})$$

Where :

- N_{HH} = Number of households in the project activity, number
- $BC_{BLHH\Delta}$ = Average annual consumption of woody biomass per household before the start of the project activity, tonnes/household/year
- $BC_{PLHH\Delta}$ = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of non-renewable woody biomass per household in the pre-project devices during the project activity, tonnes/household/year

(b) Calculated as the product of the number of persons served per household multiplied by the number of households and the estimate of average annual consumption of woody biomass per person that is displaced by the project activity (tonnes/person/year);

$$B_{\Delta} = N_{HH} \times N_{PP\Delta} \times (BC_{BLPP\Delta} - BC_{PLPP\Delta})$$

Where :

- $N_{PP\Delta}$ = Average number of persons served per household, number
- $BC_{BLPP\Delta}$ = Average annual consumption of woody biomass per person before the start of the project activity, tonnes/person/year
- $BC_{PLPP\Delta}$ = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of non-renewable woody biomass per person in the pre-project devices during the project

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activity, tonnes/person/year

(c) Calculated as the product of the number of persons served per institution multiplied by the number of institutions and the estimate of average annual consumption of woody biomass per person that is displaced by the project activity (tonnes/person/year);

$$B_y = \sum_{i=1}^I N_{p,i,y} \times N_{i,i} \times (BC_{BL,PP,y} - BC_{BL,PP,y})$$

Where:

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

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

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

$$B_y = \sum_{i=1}^I HG_{p,y} \div (NCV_{biomass} \times \eta_{old,i})$$

Where:

$HG_{p,y}$ = Quantity of thermal energy generated by the new renewable energy technology in the project in year y (TJ)

$\eta_{old,i}$ = Efficiency of pre - project device per type of device i

Where charcoal is used as the fuel by baseline (old) or project (new) devices, the quantity of woody biomass shall be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis). Alternatively, credible local conversion factors determined from a field study or literature may be applied.

Project emissions

The project emissions (PE_y) from cultivation, use and processing of biomass shall be calculated using the latest version of "TOOL16: Project and leakage emissions from biomass". In doing so, the following sources of project emissions shall be considered as applicable, bearing in mind that some sources may be only relevant for specific fuels (e.g. production of bioethanol). The assessment of the different potential project emission sources will be done at CPA level.

(a) CO₂ emissions from on-site consumption of fossil fuels due to the project activity, calculated using the latest version of "TOOL03: Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion", including the consumption of fossil fuels for any processing of feedstock;

(b) CO₂ emissions from electricity consumption by the project activity using the

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latest version of “TOOL05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation”, including the consumption of electricity for any processing of feedstock;

- (c) Methane emission from solid waste disposal or waste water calculated as per provisions in AMS-III.G. (landfill); AMS-III.F. (composting) and AMS-III.H. (waste water treatment) in cases where the waste is disposed in anaerobic conditions;
- (d) Project emissions related to cultivation of feedstock are calculated using the latest version of the tool “TOOL16: Project and leakage emissions from biomass”;
- (e) Project emissions from transportation are estimated using the latest version of the tool “TOOL12: Project and leakage emissions from transportation of freight,” if the transportation distance is more than 200 km; otherwise they can be neglected.

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Leakage emissions

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Leakage emissions (LE_Y) shall be calculated using the latest version of “TOOL16: Project and leakage emissions from biomass”. The assessment of potential leakage emission sources will be done at CPA level.

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Leakage emissions (related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples). The following potential source of leakage shall be considered: The use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass used by the non-project households/users that is attributable to the project activity, then B_Y is adjusted to account for the quantified leakage. Alternatively, B_Y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

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Project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to processed biomass (briquette, pellets, and woodchips) shall take into account the leakage effects related to the charcoal or processed biomass production.

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A default value of 0.030 t CH₄/t charcoal may be used in accordance with “AMS-III.BG.: Emission reduction through sustainable charcoal production and consumption.”

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I.6.2. Data and parameters fixed ex ante

Data/Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
Source of data	Default value or: FAO/IPCC/survey results/national or local statistics or other sources of information (following TOOL30: Calculation of the fraction of non-renewable biomass', version 02.0.
Value(s) applied	XXX (determined at CPA level)
Choice of data or Measurement methods and procedures	As per paragraph 42 of AMS-I.E.
Purpose of data	Used for calculation of baseline emissions
Additional comment	Fixed ex-ante at CPA level.

Data/Parameter	$EF_{\text{projected fossil fuel}}$
Data unit	tCO ₂ / TJ
Description	Emission factor for the substitution of non-renewable woody biomass by similar consumers
Source of data	AMS-I.E. Version 10.1, equation (1)
Value(s) applied	73.2
Choice of data or Measurement methods and procedures	Default value as per applied methodology
Purpose of data	Used for calculation of baseline emissions
Additional comment	Fixed ex-ante at CPA level.

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<u>Data / Parameter</u>	<u>NCV_{biomass}</u>
<u>Unit</u>	TJ/tonne
<u>Description</u>	Net calorific value of biomass displaced by the project activity
<u>Source of data</u>	The net calorific value of wood & charcoal is as given in 2006 IPCC Guidelines Reference: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
<u>Value(s) applied</u>	Wood: 0.0156 Charcoal: 0.0295
<u>Choice of data or Measurement methods and procedures</u>	IPCC default value
<u>Purpose of data</u>	Used for calculation of baseline emissions
<u>Additional comments</u>	Fixed ex-ante at PoA level.

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<u>Data / Parameter</u>	<u><i>mpd_i</i></u>
<u>Unit</u>	fraction
<u>Description</u>	Efficiency of pre-project device per type of device i
<u>Source of data</u>	Establish prior to start of implementation based on survey
<u>Value(s) applied</u>	XXX (determined at CPA level)
<u>Choice of data or Measurement methods and procedures</u>	Survey Approach: A survey of end-users will be conducted before implementation of a CPA to calculate the average efficiency across end-user appliances. Each end-user appliance will be classified as three-stone fire or conventional device without a grate or a chimney using a default value of 0.1 or any other type of device using a default value of 0.2. The survey would be conducted in accordance with the CDM standard for sampling and survey version 8. In case of cross-sampling across CPAs, the value can be applied across all homogenous CPAs.
<u>Purpose of data</u>	Calculation of baseline emissions
<u>Additional comments</u>	Fixed ex-ante at CPA level. Only applicable if methodology option 27(d) for determination of B _y is chosen and in case that efficiency of pre-project device and efficiency of pre-project devices is determined through a survey prior to start of implementation.

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Data/Parameter	$BC_{BL,HH,y}$
Data unit	tonnes/household/year
Description	Average annual consumption of woody biomass per household before the start of the project activity
Source of data	XXX
Value(s) applied	XXX (determined at CPA level)
Choice of data or Measurement methods and procedures	Determined ex ante using one of the following options and remains fixed during the crediting period: (a) $N_{p,HH}$ times $BC_{BL,PP,y}$ (b) Historical data or a sample survey conducted as per the latest version of the "Standard: Sampling and surveys for CDM project activities and programme of activities » (c) Country or region specific values approved through the "procedure for development, revision, clarification and update of standardized baselines," which are available on the CDM website.
Purpose of data	Used for calculation of baseline emissions, more specifically By
Additional comment	Only relevant if option 27 (a) of the methodology will be chosen by the CPA.

Data/Parameter	$N_{p,HH}$
Data unit	number
Description	Average number of persons served per household prior to project implementation
Source of data	Established ex ante prior to project implementation based on records of households served by the project
Value(s) applied	XXX (determined at CPA level)
Choice of data or Measurement methods and procedures	=
Purpose of data	Used for calculation of baseline emissions, more specifically By
Additional comment	Only relevant if option 27 (b) of the methodology will be chosen by the CPA.

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Data/Parameter	$BC_{BL,PP,y}$
Data unit	tonnes/person/year
Description	Average annual consumption of woody biomass per person before the start of the project activity
Source of data	-
Value(s) applied	XXX (determined at CPA level)
Choice of data or Measurement methods and procedures	Determined ex ante using one of the following options and remains fixed during the crediting period: (a) A default value of 0.5 tonnes/person per year (b) Historical data or a sample survey conducted as per the latest version of the "Standard: Sampling and surveys for CDM project activities and programme of activities » (c) Country or region specific values approved through the "procedure for development, revision, clarification and update of standardized baselines," which are available on the CDM website.
Purpose of data	Used for calculation of baseline emissions, more specifically By
Additional comment	Only relevant if option 27 (b) of the methodology will be chosen by the CPA.

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Data/Parameter	N_{HH} (for institutions: $N_{I,i}$)
Data unit	Number
Description	Number of households in the project activity in year y (for institutions: number of institutions type i prior to project implementation, number)
Source of data	Established ex ante prior to project implementation based on records of households (or institutions) served by the project
Value(s) applied	XXX (determined at CPA level)
Choice of data or Measurement methods and procedures	Established ex-ante prior to start of the project activity
Purpose of data	Used for ex-ante calculation of baseline emissions
Additional comment	Only relevant if option 27 (a) or (b) of the methodology will be chosen by the CPA.

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Data/Parameter	EF_{EL,y}
Data unit	t CO ₂ /MWh
Description	Emission factor for electricity generation for source j in year y
Source of data	Option A.2 (a) of tool 5: Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0
Value(s) applied	1.3
Choice of data or Measurement methods and procedures	As per point (i) of Option A.2 of tool 5: Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0, the default value for Emission Factor can be applied to project and/or leakage electricity consumption sources but not to baseline electricity consumption sources.
Purpose of data	Calculation of Project Emissions
Additional comment	Fixed ex-ante at CPA level Only applicable in case that there are project emissions from electricity consumption

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Data/Parameter	EF_{CO₂i,y}									
Data unit	tCO ₂ /GJ									
Description	Weighted average CO ₂ emission coefficient of fuel type i in year y									
Source of data	The following data sources may be used if the relevant conditions apply:									
	<table border="1"> <thead> <tr> <th>Data source</th><th>Conditions for using the data source</th></tr> </thead> <tbody> <tr> <td>Values provided by the fuel supplier in invoices</td><td>This is the preferred source</td></tr> <tr> <td>Measurements by the project participants</td><td>If (a) is not available</td></tr> <tr> <td>Regional or national default values</td><td>If (a) is not available These sources can only be used for liquid fuels and should be based on well- documented, reliable sources (such as national energy balances)</td></tr> <tr> <td>IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</td><td>If (a) is not available</td></tr> </tbody> </table>	Data source	Conditions for using the data source	Values provided by the fuel supplier in invoices	This is the preferred source	Measurements by the project participants	If (a) is not available	Regional or national default values	If (a) is not available These sources can only be used for liquid fuels and should be based on well- documented, reliable sources (such as national energy balances)	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Data source	Conditions for using the data source									
Values provided by the fuel supplier in invoices	This is the preferred source									
Measurements by the project participants	If (a) is not available									
Regional or national default values	If (a) is not available These sources can only be used for liquid fuels and should be based on well- documented, reliable sources (such as national energy balances)									
IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories	If (a) is not available									
Option B of tool 3: Methodological tool: Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion, Version 03.0										
Value(s) applied	XXX (determined at CPA level)									
Choice of data or Measurement methods and procedures	For (a) and (b): Measurements should be undertaken in line with national or international fuel standards									
Purpose of data	Calculation of Project Emissions									
Additional comment	Fixed ex-ante at CPA level									
	Only applicable in case that there are project emissions from fossil fuel consumption. For (a): If the fuel supplier does provide the NCV value and the CO ₂ emission factor on the invoice and these two values are based on measurements for this specific fuel, this CO ₂ factor should be used. If another source for the CO ₂ emission factor is used or no CO ₂ emission factor is provided, Options (b), (c) or (d) should be used									

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Data/Parameter	NCV_{i,y}									
Data unit	GJ per mass or volume unit (e.g. GJ/m ³ , GJ/ton)									
Description	Weighted average net calorific value of fuel type i in year y									
Source of data	The following data sources may be used if the relevant conditions apply:									
	<table border="1"> <tr> <th>Data source</th><th>Conditions for using the data source</th></tr> <tr> <td>Values provided by the fuel supplier in invoices</td><td>This is the preferred source</td></tr> <tr> <td>Measurements by the project participants</td><td>If (a) is not available</td></tr> <tr> <td>Regional or national default values</td><td>If (a) is not available These sources can only be used for liquid fuels and should be based on well- documented, reliable sources (such as national energy balances)</td></tr> <tr> <td>IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</td><td>If (a) is not available</td></tr> </table>	Data source	Conditions for using the data source	Values provided by the fuel supplier in invoices	This is the preferred source	Measurements by the project participants	If (a) is not available	Regional or national default values	If (a) is not available These sources can only be used for liquid fuels and should be based on well- documented, reliable sources (such as national energy balances)	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Data source	Conditions for using the data source									
Values provided by the fuel supplier in invoices	This is the preferred source									
Measurements by the project participants	If (a) is not available									
Regional or national default values	If (a) is not available These sources can only be used for liquid fuels and should be based on well- documented, reliable sources (such as national energy balances)									
IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories	If (a) is not available									
Option B of tool 3: Methodological tool: Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion, Version 03.0										
Value(s) applied	XXX (determined at CPA level)									
Choice of data or Measurement methods and procedures	For (a) and (b): Measurements should be undertaken in line with national or international fuel standards									
Purpose of data	Calculation of Project Emissions									
Additional comment	Fixed ex-ante at CPA level									
	Only applicable in case that there are project emissions from fossil fuel consumption.									
Additional comment	Verify if the values under (a), (b) and (c) are within the uncertainty range of the IPCC default values as provided in Table 1.2, Vol. 2 of the 2006 IPCC Guidelines. If the values fall below this range collect additional information from the testing laboratory to justify the outcome or conduct additional measurements. The laboratories in (a), (b) or (c) should have ISO17025 accreditation or justify that they can comply with similar quality standards.									

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<u>Data/Parameter</u>	<u>TDL_{j,y}</u>
<u>Data unit</u>	%
<u>Description</u>	Average technical transmission and distribution losses for providing electricity to source j in year y
<u>Source of data</u>	Tool 5: Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0
<u>Value(s) applied</u>	20%
<u>Choice of data or Measurement methods and procedures</u>	The default value is applied in accordance with the provisions under Data/Parameter Table 3 of Tool 5: Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0. The default value for Emission Factor can be applied to project and/or leakage electricity consumption sources but not to baseline electricity consumption sources.
<u>Purpose of data</u>	Calculation of Project Emissions
<u>Additional comment</u>	Fixed ex-ante at CPA level Only applicable in case that there are project emissions from electricity consumption

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<u>Data/Parameter</u>	<u>EF_{CO₂f}</u>
<u>Data unit</u>	gCO ₂ /t km
<u>Description</u>	Default CO ₂ emission factor for freight transportation activity f
<u>Source of data</u>	Tool 12 "Methodological tool: Project and leakage emissions from transportation of freight"
<u>Value(s) applied</u>	Light Vehicle: 245 Heavy Vehicle: 145
<u>Choice of data or Measurement methods and procedures</u>	=
<u>Purpose of data</u>	Calculation of transportation emissions
<u>Additional comment</u>	Fixed ex-ante at CPA level Only applicable in case that there are project emissions from transport emissions

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<u>Data/Parameter</u>	<u>Pre-project land use</u>
<u>Data unit</u>	variable
<u>Description</u>	Service level of the pre-project land use
<u>Source of data</u>	Tool 16 “Methodological tool: Project and leakage emissions from biomass », version 04 Land management records, records of the relevant local authority, stakeholders’ interviews etc.
<u>Value(s) applied</u>	=
<u>Choice of data or Measurement methods and procedures</u>	=
<u>Purpose of data</u>	Calculation of leakage emissions
<u>Additional comment</u>	Only applicable if the project activity utilizes biomass cultivated in a dedicated plantation

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Data/Parameter	Biomass residues categories and quantities used in the project activity
Data unit	(a) Type (i.e. bagasse, rice husks, empty fruit bunches, etc.); (b) Source (e.g. produced on-site, obtained from an identified biomass residues producer, obtained from a biomass residues market, etc.); (c) Fate in the absence of the project activity (Scenario B); (d) Use in the project scenario
Description	Explain and document transparently in the CPA-DD, using a table similar to table 1 in appendix 2 which quantities of which biomass residues categories are used in which installation(s) under the project activity and what is their alternative scenario. The last column of table 1 in appendix 2 corresponds to the quantity of each category of biomass residues (tonnes on dry-basis). These quantities should be updated every year of the crediting period so as to reflect the actual use of biomass residues in the project scenario. These updated values should be used for leakage calculations, if the determined alternative fate indicates associated leakage emissions. Along the crediting period, new categories of biomass residues (i.e. new types, new sources, with different fate) can be used in the project activity. In this case, a new line should be added to the table. If those new categories are of the type B1, B2 or B3, the alternative scenario for those types of biomass residues should be assessed using the procedures outlined in the guidance provided in the procedure for the determination of the alternative scenario
Source of data	Tool 16 "Methodological tool: Project and leakage emissions from biomass », version 04 Literature, Project records, Interviews etc.
Value(s) applied	-
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of leakage emissions
Additional comment	Only applicable if the project activity utilizes biomass residues

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Data/Parameter	EF_{FT}
Data unit	tCO ₂ /tN
Description	Aggregate emission factor for N ₂ O and CO ₂ emissions resulting from production and application of nitrogen
Source of data	Tool 16 “Methodological tool: Project and leakage emissions from biomass”
Value(s) applied	13.3
Choice of data or Measurement methods and procedures	A default value of 13.3 tCO ₂ e/(t N) shall be used.
Purpose of data	Project emissions resulting from soil fertilisation and management
Additional comment	Fixed ex-ante at CPA level Only applicable in case that there are project emissions resulting from soil fertilization and management Only applicable if the project activity utilizes biomass cultivated in a dedicated plantation

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Data/Parameter	EF_{SAi}
Data unit	tCO ₂ /t
Description	Emission factor for CO ₂ emissions from application of soil amendment agent type i
Source of data	Tool 16 “Methodological tool: Project and leakage emissions from biomass”
Value(s) applied	0.12 (limestone), 0.13 (dolomite), 0.20 (urea)
Choice of data or Measurement methods and procedures	Default values of 0.12 (limestone), 0.13 (dolomite), 0.20 (urea) shall be used
Purpose of data	Project emissions resulting from soil amendment
Additional comment	Fixed ex-ante at CPA level Only applicable in case that there are project emissions resulting from soil amendment Only applicable if the project activity utilizes biomass cultivated in a dedicated plantation

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<u>Data / Parameter</u>	<u>Wood to charcoal conversion factor</u>
<u>Unit</u>	kg firewood / kg charcoal
<u>Description</u>	Conversion factor for transforming wood to charcoal
<u>Source of data</u>	XXX
<u>Value(s) applied</u>	XXX (determined at CPA level)
<u>Choice of data or Measurement methods and procedures</u>	Default wood to charcoal conversion factor of 6 kg of firewood per kg of charcoal or alternatively, credible local conversion factors determined from a field study or literature
<u>Purpose of data</u>	Used for calculation of baseline emissions
<u>Additional comments</u>	Fixed ex-ante at CPA level.

1.6.3. Modalities for ex ante calculation of emission reductions

The ex-ante emission reduction calculation is as per the following :

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	Value	Unit	Source/Reference
N_{HH}	XXX	Number of HHs	Section B.4.2 of the CPA-DD
$f_{NRB,y}$	XXX	Fraction	Section B.4.2 of the CPA-DD
$NCV_{biomass}$	XXX	TJ/tonne	Section B.5.1 of the CPA-DD
$EF_{projected\ fossil\ fuel}$	XXX	tCO ₂ /TJ	Section B.4.2 of the CPA-DD
B_y	XXX	tonnes/year	Section B.4.3 of the CPA-DD. Either of the following 4 options will be chosen to calculate B_y . Leakage is reflected by the factor of 0.95. $B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y}) \times 0.95$ $B_y = N_{HH} \times N_{p,HH} \times (BC_{BL,PP,y} - BC_{PJ,PP,y}) \times 0.95$ $B_y = \sum_i N_{p,i,y} \times N_{i,i} \times (BC_{BL,PP,y} - BC_{PJ,PP,y}) \times 0.95$ $B_y = \sum_i HG_{p,y} \div (NCV_{biomass} \times \eta_{adj,i}) \times 0.95$
Baseline emissions	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD $BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\ fossil\ fuel}$
Project emissions (PE _y)	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD
Leakage emissions (LE _y)	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD Adjustment factor (0.95) already applied at B_y
Emission reductions	XXX	tCO ₂ /y	Section B.4.3 of the CPA-DD $ER_y = BE_y - PE_y - LE_y$

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1.7. Monitoring plan

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1.7.1. Data and parameters to be monitored

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Data/Parameter	Date of commissioning of project device of type i
Data unit	Date
Description	Actual date of commissioning of the project device.
Source of data	Internal records
Value(s) applied	XXX (To be determined at CPA level)

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Measurement methods and procedures	Every time a clean cookstove is sold/distributed, it is recorded. The information is entered in the CPA's electronic database (either immediately at the time of recording or afterwards). Based on the database, the date of commissioning is determined.
Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	=
Purpose of data	Calculation of baseline emissions
Additional comment	=

Data/Parameter	<i>Date of commissioning of batch j</i>
Data unit	Date
Description	To establish the date of commissioning, the Project Participant may opt to group the devices in "batches" and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch.
Source of data	Internal records
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	=
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
QA/QC procedures	=
Purpose of data	Calculation of baseline emissions
Additional comment	To be reported in the monitoring report

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Data/Parameter	<i>N_{it}</i>
Data unit	Number
Description	Number of project devices distributed/sold to households/institutions/SMEs of type i, operating in year y
Source of data	Sample Survey
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	=
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	=
Purpose of data	Calculation of baseline emissions
Additional comment	To be reported in the monitoring report

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Data/Parameter	NCV_{biomass}
Data unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices.
Source of data	=
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass.
Monitoring frequency	Yearly
QA/QC procedures	=
Purpose of data	Calculation of baseline emissions
Additional comment	=

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Data/Parameter	BC_{PJ,HH,y}
Data unit	tonnes/household/year
Description	Average annual consumption of non-renewable woody biomass per household in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent
Source of data	Survey/KPT
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Monitoring shall consist of estimation of all project devices or a representative sample thereof, at least once every two years (biennial)
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	=
Purpose of data	Calculation of baseline emissions
Additional comment	Only applicable if methodology option 27(a) for determination of B _y is chosen. BC _{PJ,HH,y} would also include any potential consumption of non-renewable biomass on the clean cookstove.

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Data/Parameter	BC_{PJ,PP,y}
Data unit	tonnes/person/year
Description	Average annual consumption of non-renewable woody biomass per person in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent

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Source of data	Survey/KPT
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Monitoring shall consist of estimation of all project devices or a representative sample thereof, at least once every two years (biennial)
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	Only applicable if methodology option 27(b) for determination of B_y is chosen. $BC_{PJ,PP,y}$ would also include any potential consumption of non-renewable biomass on the clean cookstove.

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Data/Parameter	$N_{p,t,v,i}$
Data unit	Number
Description	Average number of persons served per institution
Source of data	-
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Average number of persons served per institution shall be based on survey undertaken as per "Standard: Sampling and surveys for CDM project activities and programme of activities". This parameter shall be monitored every year. If the monitoring period is shorter or longer than one year, the result may be extrapolated for the monitoring period
Monitoring frequency	Monitored annually ex-post
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	Only applicable if methodology option 27(c) for determination of B_y is chosen.

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Data/Parameter	$HG_{p,y}$
Data unit	TJ
Description	Quantity of thermal energy generated by the new renewable energy technology in the project in year y
Source of data	-
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	-
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	Only applicable if methodology option 27(d) for determination of B_y is chosen.

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Data/Parameter	FC_{i,j,y}
Data unit	Mass or volume unit per year (e.g. ton/yr or m3/yr)
Description	Quantity of fuel type i combusted in process j during the year y
Source of data	Onsite measurements
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	<ul style="list-style-type: none"> Use either mass or volume meters. In cases where fuel is supplied from small daily tanks, rulers can be used to determine mass or volume of the fuel consumed, with the following conditions: The ruler gauge must be part of the daily tank and calibrated at least once a year and have a book of control for recording the measurements (on a daily basis or per shift); Accessories such as transducers, sonar and piezoelectronic devices are accepted if they are properly calibrated with the ruler gauge and receiving a reasonable maintenance; In case of daily tanks with pre-heaters for heavy oil, the calibration will be made with the system at typical operational conditions
Monitoring frequency	Continuously
QA/QC procedures	<p>The consistency of metered fuel consumption quantities should be cross-checked by an annual energy balance that is based on purchased quantities and stock changes.</p> <p>Where the purchased fuel invoices can be identified specifically for the CDM project, the metered fuel consumption quantities should also be cross-checked with available purchase invoices from the financial records.</p>
Purpose of data	Calculation of project emissions

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Additional comment	Project activities or PoAs, where end users of the subsystems or measures are households/communities/small and medium enterprises (SMEs), faced with data gaps due to meter failure or other reasons unforeseen, may estimate the quantity of fuel, using one of the following options, provided the gap period does not exceed 30 consecutive days within six consecutive months:
	<ul style="list-style-type: none"> The purchased fuel/energy invoices/bills, where the purchased fuel can be identified specifically for the CDM project; The energy produced by the equipment, adjusted by efficiency. Efficiency of the equipment is determined using the 'Methodological tool: Determining the baseline efficiency of thermal or electric energy generation systems', and energy produced is measured directly or calculated based on operation hours; The highest value of the parameter for the same calendar period of the previous years; The fuel consumption of a representative sample of the first batch of project devices. It may be assumed that the fuel consumption measured in a representative sample of the first batch of project devices apply to all subsequent batches. <p>Only applicable in case that there are project emissions from fossil fuel consumption.</p>

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Data/Parameter	$D_{f,m}$
Data unit	Kilometre
Description	Return trip distance between the origin and destination of freight transportation activity f in monitoring period m
Source of data	Records of vehicle operator or records by project participants
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Determined once for each freight transportation activity f for a reference trip using the vehicle odometer or any other appropriate sources (e.g. on-line sources)
Monitoring frequency	To be updated whenever the distance changes
QA/QC procedures	-
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions from transport emissions

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Data/Parameter	$FR_{f,m}$
Data unit	Tonnes
Description	Total mass of freight transported in freight transportation activity f in monitoring period m
Source of data	Records by project participants or records by truck operators
Value(s) applied	XXX (To be determined at CPA level)

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Measurement methods and procedures	=
Monitoring frequency	Continuously
QA/QC procedures	=
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions from transport emissions

Data/Parameter	$EC_{PJ,y}$
Data unit	MWh/year
Description	Quantity of electricity consumed by the project electricity consumption source j in year y
Source of data	Direct measurement or calculated based on measurements from more than one electricity meters
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Use electricity meters installed at the electricity consumption sources.
Monitoring frequency	Continuous measurement and at least monthly recording
QA/QC procedures	The electricity meter will be subject to regular maintenance and testing as per the requirements set by the grid operators or national requirements. The calibration of meters, including the frequency of calibration, should be done in accordance with national standards or requirements set by the meter supplier or requirements set by the grid operators. The accuracy class of the meters should be in accordance with the stipulation of the meter supplier and/or as per the requirements set by the grid operators or national requirements.
Purpose of data	Calculation of project emissions

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Additional comment	<p>The project participants do not need to apply for post registration changes in the following situations and the change shall be described in the subsequent monitoring report and verification report:</p> <p>(a) Changing the type of meter during the monitoring period, for example from analogue to electrical or vice-versa as long as the meters comply with the accuracy class mentioned above.</p> <p>(b) Changing the accuracy class of meter from lower accuracy class to higher accuracy class.</p> <p>(c) Changing the calibration frequency of meter within the range stipulated in the national standards or requirements set by the meter supplier or requirements set by the grid operators.</p> <p>(d) Changing meter type from check meter to bi-directional meter.</p>
	<p>The project participants may choose not to monitor this parameter for a period of time if the emission factors associated to the electricity consumed are zero or close to zero. In doing so, the DOE shall validate that the total emissions (project and leakage) do not cross the materiality threshold stipulated by the CDM Executive Board for the applicable CDM project activity.</p>
	<p>In case of missing data due to meter failure or other reasons for a certain period of time, the following options to estimate electricity consumption may be applied:</p>
	<p>(a) A conservative value based on rated capacity and full operational hours (8760 hours); or</p> <p>(b) Estimation of electricity consumption as highest daily value among the daily monitored values multiplied by the number of days' data were missing. This is option is applicable for missing data of up to 7 consecutive days within three consecutive months; or</p> <p>(c) Highest value for the same calendar period of the previous years among recorded values; or</p> <p>(d) a value of a representative sample of the first batch⁷ of project devices. In other words, it may be assumed that the electricity consumption measured in a representative sample of the first batch of project devices apply to all subsequent batches.</p>
	<p>Options (c) and (d) are only applicable to project activities or PoAs, where end users of the subsystems or measures are households/communities/small and medium enterprises (SMEs), provided the gap period does not exceed 30 consecutive days within six consecutive months.</p> <p>Only applicable in case that there are project emissions from electricity consumption.</p>

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Data/Parameter	$g_{N,y}$
Data unit	t N/ha
Description	Rate of nitrogen applied, in year y

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Source of data	Default value (Methodological Tool 16, Project and leakage emissions from biomass)
Value(s) applied	0.20
Measurement methods and procedures	-
Monitoring frequency	N/A since default value is being applied
QA/QC procedures	Cross-check records of applied quantities with purchase receipts and inventory
Purpose of data	Calculation of project emissions
Additional comment	<p>Nitrogen applied through the following methods shall be added up to arrive at this value: (i) synthetic fertilisers; (ii) organic manure; (iii) return of the residues or cover crops</p> <p>Only applicable in case that there are project emissions resulting from soil fertilization and management in a dedicated plantation..</p>

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Data/Parameter	$\Delta_{FTM,y}$
Data unit	ha
Description	Area of land subjected to soil fertilization and management, in year y
Source of data	Measurement by project participants
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	GPS land area measurement
Monitoring frequency	Annual
QA/QC procedures	Check that standard land area measurement methods applicable in the host party are used
Purpose of data	Calculation of project emissions
Additional comment	<p>Areas receiving one or more of the following inputs shall be added up to arrive at this value: (i) synthetic fertilisers; (ii) organic manure; (iii) return of the residues or cover crops</p> <p>Only applicable in case that there are project emissions resulting from soil fertilization and management in a dedicated plantation..</p>

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Data/Parameter	$q_{SA,i,y}$
Data unit	t/ha
Description	Rate of application of soil amendment agent type i, in year y
Source of data	Land management records maintained by project participants
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	-
Monitoring frequency	Annual

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QA/QC procedures	Cross-check records of applied quantities with purchase receipts and inventory
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions resulting from soil amendment in a dedicated plantation.

Data/Parameter	<u>$\Delta SA_{i,y}$</u>
Data unit	ha
Description	Area of land in which soil amendment agent type i is applied, in year y
Source of data	GPS land area measurement
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	Check that standard land area measurement methods applicable in the host party are used
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions resulting from soil amendment in a dedicated plantation.

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Data/Parameter	<u>$\Delta FR_{i,y}$</u>
Data unit	ha
Description	Area of stratum i of land subjected to fire in year y
Source of data	GPS land area measurement
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	GPS land area measurement
Monitoring frequency	Annual
QA/QC procedures	Check that standard land area measurement methods applicable in the host party are used
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions resulting from fire in a dedicated plantation.

Data/Parameter	<u>b_i</u>
Data unit	t dry matter/ha
Description	Fuel biomass consumption per hectare in stratum i of land subjected to fire
Source of data	Measurement by project participants. Alternatively, the default 'average above-ground biomass content in forest' values from Table 3A.1.4 of the Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC-GPG-LULUCF 2003)

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Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Measurement may be carried out through sample plots
Monitoring frequency	Annual
QA/QC procedures	If sample plots are used, the estimated mean value should not have an uncertainty of greater than 10 per cent at 90 per cent confidence level
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions resulting from fire in a dedicated plantation.

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Data/Parameter	R_i
Data unit	Dimensionless
Description	Root-shoot ratio (i.e. ratio of below-ground biomass to above-ground biomass) for stratum i of land subjected to fire
Source of data	Measurement by project participants. Alternatively, the default values from Table 4.4 of the 2006 IPCC Guidelines for National GHG Inventories may be used
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Measurement may be carried out through sample plots
Monitoring frequency	Annual
QA/QC procedures	If sample plots are used, the estimated mean value should not have an uncertainty of greater than 10 per cent at 90 per cent confidence level
Purpose of data	Calculation of project emissions
Additional comment	Only applicable in case that there are project emissions resulting from fire in a dedicated plantation.

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Data/Parameter	Land use
Data unit	variable
Description	Service level of the project land use
Source of data	-
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Calculation of leakage emissions
Additional comment	Only applicable if the project activity utilizes biomass cultivated in a dedicated plantation.

Data/Parameter	BR_{PJ,n,y}
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Data unit	Tonnes on dry-basis
Description	Quantity of biomass residues of category n used in facilities which are located at the project site and included in the project boundary in year y
Source of data	On-site measurements
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Use weight meters. Adjust by the moisture content in order to determine the quantity of dry biomass
Monitoring frequency	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures	Cross-check the measurements with an annual energy balance that is based on purchased quantities and stock changes
Purpose of data	Calculation of leakage emissions
Additional comment	<p>The biomass residue quantities used should be monitored separately for (a) each type of biomass residue (e.g.) and each source (e.g. produced on-site, obtained from biomass residues suppliers, obtained from a biomass residues market, obtained from an identified biomass residues producer, etc.).</p> <p>In case of missing data of up to 30 consecutive days within six consecutive months one of the following options may be used to estimate the quantity of biomass:</p> <ol style="list-style-type: none"> 1. an annual mass balance that is based on purchased or collected quantities and stock changes; 2. calculated based on the carrying capacity of each truck delivering biomass (moisture content and density shall be known); 3. The highest value of the parameter for the same calendar period of the previous years. <p>These options are applicable for project activities or PoAs, where end users of the subsystems or measures are households/communities/small and medium enterprises (SMEs)</p> <p>Only applicable if the project activity utilizing biomass residues results in leakage emissions.</p>

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Data/Parameter	NCV _{n,y}
Data unit	GJ/tonnes on dry-basis
Description	Net calorific value of biomass residues of category n in year y
Source of data	On-site measurements
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	Measurements shall be carried out at reputed laboratories and according to relevant international standards. Measure the NCV on dry-basis

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Monitoring frequency	At least every six months, taking at least three samples for each measurement
QA/QC procedures	Check the consistency of the measurements by comparing the measurement results with measurements from previous years, relevant data sources (e.g. values in the literature, values used in the national GHG inventory) and default values by the IPCC. If the measurement results differ significantly from previous measurements or other relevant data sources, conduct additional measurements. Ensure that the NCV is determined on the basis of dry biomass.
Purpose of data	Calculation of leakage emissions
Additional comment	<p>The proposed sampling plan shall ensure that samples are randomly selected and are representative of the population. In case of missing data, the following can be used for project activities or PoAs, where end users of the subsystems or measures are households/communities/small and medium enterprises (SMEs):</p> <ul style="list-style-type: none"> IPCC default values at the upper limit of the uncertainty at a 95 per cent confidence interval as provided in table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories; or The highest value from the previous monitoring periods of the same biomass type <p>Only applicable if the project activity utilizing biomass residues results in leakage emissions.</p>

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Data/Parameter	Moisture content of the biomass residues
Data unit	% Water content in mass basis in wet biomass residues
Description	Moisture content of each biomass residues type n
Source of data	On-site measurements
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	=
Monitoring frequency	The moisture content should be monitored for each batch of biomass of homogeneous quality. The weighted average should be calculated for each monitoring period and used in the calculations.
QA/QC procedures	=
Purpose of data	Calculation of leakage emissions
Additional comment	Only applicable if the project activity utilizing biomass residues results in leakage emissions.

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Data/Parameter	EF _{CO₂,LE}
Data unit	T CO ₂ /GJ
Description	CO ₂ emission factor of the most carbon intensive fuel used in the country

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Source of data	Identify the most carbon intensive fuel type from the national communication, other literature sources (e.g. IEA). Possibly consult with the national agency responsible for the national communication/GHG inventory. If available, use national default values for the CO2 emission factor. Otherwise, IPCC default values may be used
Value(s) applied	XXX (To be determined at CPA level)
Measurement methods and procedures	-
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of leakage emissions
Additional comment	Only applicable if the project activity utilizing biomass residues results in leakage emissions.

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1.7.2. Sampling plan

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The monitoring plan will be conducted in accordance with the requirements of the following CDM documents:

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- AMS-I.E, Version 10.1 *Switch from non-renewable biomass for thermal applications by the user*
- Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 08.0
- Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 04.0

Parameters to be determined through sampling are:

N_{i,y} (Number of project devices distributed/sold to households/institutions/SMEs of type i, operating in year y)

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BC_{PJ,HH,y} (Average annual consumption of non-renewable woody biomass per household in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent). **BC_{PJ,HH,y}** would also include any potential consumption of non-renewable biomass on the clean cookstove.

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OR

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BC_{PJ,PP,y} (Average annual consumption of non-renewable woody biomass per person in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent). **BC_{PJ,PP,y}** would also include any potential consumption of non-renewable biomass on the clean cookstove.

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Either **BC_{PJ,HH,y}** or **BC_{PJ,PP,y}** is applicable. The parameter choice depends on which option has been chosen to determine B_y.

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And

$N_{p,i,j}$ (only applicable in case of institutions) (Average number of persons served per institution)

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The CPA Implementer provides monitoring information to the CME for the electronic data management system. The CME will operate and manage an electronic data management system that will store information on and track all clean cooking technologies under the PoA. All data will be stored for at least two (2) years after the expiry of the crediting period (i.e. 12 years post start of the clean cooking stove, which is collected and reported by the CME Implementer:

1. Unique Serial Number (USN) representing the unique stove number;
2. CPA under which the stove is operating
3. Contact details of the end-user (e.g. Name, address, mobile number, or national ID number);
4. Technology Details (Model type, sale/distribution/commissioning date)

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Responsibilities

Under the monitoring plan the CME and the CPA Implementer have the following responsibilities, which are reiterated throughout the monitoring plan:

1. Selection of Random Sample (CME)

The CME is responsible for selecting the sample of appliances to be monitored randomly from the electronic data management system. The CME will provide the CPA Implementer with the appliances to be sampled during monitoring. Each appliance will be identified through the USN. The contact information of the end user for each appliance is provided to the CPA Implementer as well so the monitoring can be conducted.

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2. Collection of Parameter Data (CPA Implementer)

The CPA Implementer is responsible for conducting the surveys with the randomly selected end users provided by the CME starting at the top of the random sample list. The CPA Implementer will notify the CME of end-users that cannot be contacted or are not willing to participate. The CME will randomly select end-users further down in the random sample list until the sample size is achieved.

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3. Analysis of Parameter Data and Monitoring Report (CME)

The CME will collect the sampled data from the CPA Implementer and analyze the data to determine the values of the sampled parameters during the monitoring period. The CME will prepare the monitoring report to be submitted to a Designated Operational Entity (DOE) for verification. The CME will communicate with the DOE and the CDM EB during the verification and issuance process.

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The sample of the appliances to be monitored to estimate the parameter $N_{i,y}$ and $BC_{PJ,HH,y}$ or $BC_{PJ,PP,y}$ (the parameter choice depends on which option has been chosen to determine B_y) and $N_{p,i,j}$ (only applicable in case of institutions) will be a simple random sample drawn from the electronic data management system.

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A single sampling covering a group of CPAs for the previously mentioned parameter is undertaken applying 95/10 confidence/precision for the sample size calculation.⁵⁵ Or alternatively, sampling is conducted separately for the CPA.

This CPA makes part of a single sampling covering a group of CPAs/Sampling is conducted separately at CPA level.

In case of a single sampling, the populations of all CPAs in the group are combined together, the sample size is determined and a single survey is undertaken to collect the data. A pre-condition for grouping CPAs is that they are homogenous, i.e. apply the same cookstove model and fuel, and target the same end-users (e.g. households) within the Host Country.

Since CPAs are solely composed of 'microscale CDM units', a 95/10 confidence/precision is applied for sampling surveys in all cases, even when they are conducted at CPA level.⁵⁶

The minimum sample size for estimating the proportional parameter $N_{i,y}$ (Number of project devices distributed/sold to households/institutions/SMEs of type i , operating in year y) will be calculated from the Equation 1 of the Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities.

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

With

n The minimum sample size required

N Total number of households (XXX)

p Expected proportion (XXX)

1.96 Represents the 95% confidence required

0.2 Represents the 10% relative precision

The minimum sample size for estimating the mean parameter $BC_{PJ,HH,y}$ (or $BC_{PJ,PP,y}$) and $N_{b,i,y,i}$ (only applicable in case of institutions) will be calculated from the equation 18 of the Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities, where the variance of the sample replaces the expected proportion, as the parameter to be estimated is not a proportion.

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$$n \geq \frac{1.96^2 NV}{(N-1) \times 0.1^2 + 1.96^2 V}$$

With

n The minimum sample size required

⁵⁵ This is in line with paragraph 22 of the Standard 'Sampling and surveys for CDM project activities and PoAs', version 08.0.

⁵⁶ This is in line with paragraph 22 of the Standard 'Sampling and surveys for CDM project activities and PoAs', version 08.0.

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N Total number of appliances (XXX)

$V = \left(\frac{SD}{mean} \right)^2$ Expected variance (XXX)

1.96 Represents the 95% confidence required

0.1 Represents the 10% relative precision

From the equation above, the sample size for 95/10 confidence/precision is XXX. If as per the Sampling Standard for Sampling and surveys for CDM project activities and PoAs (paragraph 13), the sample size calculation for parameter $BC_{PJ,HH,v}$ (or $BC_{PJ,PP,v}$) and $N_{p,L,v,i}$ (only applicable in case of institutions) returns a value of less than 30 samples, the Student's t-distribution shall be used. Following the approach explained in the Guideline 'Sampling and surveys for CDM project activities and PoAs', paragraphs 102 to 108, page 46 ff., the sample size for 95/10 confidence/precision resulted in XXX. If the required level of accuracy (confidence/precision) is not achieved the sample size can be expanded or alternatively the appropriate lower bound of the 95% confidence will be used⁵⁷.

Sampling plan for N.i.v

Sampling Design	Objective and reliability requirements	The objective is determining the total number of operational project devices distributed/sold to households/institutions/SMEs
	Target Population	The target population are all end-users with project devices registered in the sales/distribution database during the monitoring period.
	Sampling Method	Simple Random Sampling
	Sample Size	Sampling will be undertaken as per the representative sampling methods as per AMS-I.E methodology. Required statistical confidence of 95/10 confidence/precision

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⁵⁷ As per paragraph 18(c) of the Standard for 'Sampling and surveys for CDM project activities and programmes of activities', version 08.0, the option of taking the lower bound of the 95 per cent confidence interval is only permitted during the first two years of the crediting period of CPA and when the attained confidence/precision from the actual samples is equal to or better than 90/15. In case that sampling is undertaken at the PoA level, the two-year limit applies from the start date of the renewed crediting period to the PoA.

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		will be met for the sample size calculation. ⁵⁸
	<u>Sampling Frame</u>	The sampling frame is the electronic sales/distribution database with the contact information of all users of technologies sold/distributed under the CPA (or CPAs in case that sampling is conducted across CPAs).
<u>Data to be Collected</u>	<u>Field Measurements</u>	Surveys will be conducted to measure the proportion of stoves that are still in operation by type and vintage.
	<u>Quality Assurance/Quality Control</u>	<p>The survey will be administered by personnel conversant in a common language within the CPA boundary and familiar with the local culture.</p> <p>The results of the survey will be recorded on paper, smartphone or computer and uploaded to a central database for analysis.</p> <p>No equipment is required for sampling this parameter, so no calibration frequency is stated.</p>
	<u>Analysis</u>	The average value of the operational project devices will be determined.
<u>Implementation</u>	<u>Implementation Plan</u>	<p>The sample of end-users will be selected randomly from the sales/distribution database during the monitoring period.</p> <p>Data collectors will use the contact information in the database to conduct the surveys in person and/or through other methods of communication (like e.g. phone calls, SMS).</p>

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⁵⁸ This is in line with paragraph 22 of the Standard 'Sampling and surveys for CDM project activities and PoAs', version 08.0

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		<p><u>The results of the survey are electronically recorded and uploaded to a central database for analysis.</u></p> <p><u>The team administering the survey will be familiar with the purpose of the survey, the technology under the CPA, and the local culture.</u></p>
	<u>Seasonality</u>	<u>Unlikely to be affected by seasonal influences.</u>

Sampling plan for BC_{PJ,HH,v} (or BC_{PJ,PP,v}), N_{PJ,v,i} (only applicable in case of institutions)

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<u>Sampling Design</u>	<u>Objective and reliability requirements</u>	<p><u>The objective is determining the ‘Average annual consumption of non-renewable woody biomass per household (or per person) in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent’⁵⁹ (and in case of institutions the ‘Average number of persons served per institution’) during the monitoring period, with a 95/10 confidence/precision.</u></p>
	<u>Target Population</u>	<u>The target population are all end-users with project devices in use.</u>
	<u>Sampling Method</u>	<u>Simple Random Sampling</u>
	<u>Sample Size</u>	<p><u>The estimated minimum sample size as calculated above is XXX.</u></p> <p><u>A single sampling covering a group of CPAs is undertaken applying 95/10 confidence/precision for the sample size calculation.⁶⁰ Or</u></p>

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⁵⁹ This would also include any potential consumption of non-renewable biomass on the clean cookstove.

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⁶⁰ This is in line with paragraph 22 of the Standard ‘Sampling and surveys for CDM project activities and PoAs’, version 08.0

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<u>Data to be Collected</u>		<u>alternatively, sampling is conducted separately at CPA level.</u>
	<u>Sampling Frame</u>	<u>Sales/distribution database with sales/distribution date, appliance type, serial number and the contact information.</u>
	<u>Field Measurements</u>	<p><u>The field measurement conducted is a KPT including a survey measuring the 'Average annual consumption of non-renewable woody biomass per household (or per person) in the pre-project devices during the project activity'.⁶¹ In the case of No no KPT is relevant, but a survey only will be conducted.</u></p> <p><u>The KPT is conducted following the KPT protocol 4.0 published at the Clean Cooking Alliance website⁶².</u></p> <p><u>It will be ensured that any equipment (like weighing scales) used in the KPT is brand-new or will be properly calibrated.</u></p>
	<u>Quality Assurance/Quality Control</u>	<p><u>The KPT/survey will be conducted by personal trained in the administration of the KPT/survey.</u></p> <p><u>The results of the surveys/KPTs will be recorded on paper, smartphone or computer and uploaded to a central database for analysis.</u></p>
	<u>Analysis</u>	<u>The mean value of the 'Average annual consumption of non-renewable woody biomass per household (or per person) in the pre-project devices during the project</u>

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⁶¹ This would also include any potential consumption of non-renewable biomass on the clean cookstove.

⁶² <https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html>

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		activity' ⁶³ and in case of institutions the 'Average number of persons served per institution' will be determined.
<u>Implementation</u>	<u>Implementation Plan</u>	<p>The sample of end-users will be selected randomly from the sales/distribution database during the monitoring period.</p> <p>Data collectors will use the contact information in the database to conduct the surveys in person and/or through other methods of communication (like e.g. phone calls, SMS).</p> <p>The team undertaking the surveys/tests will have all tools necessary for performing the tests (weighing scale, moisture meter, etc.). In the case of N_{p.i.v.i} no instruments are necessary.</p>
	<u>Seasonality</u>	Unlikely to be affected by seasonal influences.

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1.7.3. Other elements of monitoring plan

The CME is responsible for overall monitoring organization. The sampling plan, data collection & consolidation and results analysis are implemented by an adequately trained monitoring team, well aware of CDM requirements and supervised by the CME. Well experienced third-party experts may assist the monitoring team in monitoring and analysis activities.

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SECTION J. Crediting period type and duration

Fixed crediting period of 10 years

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SECTION K. Eligibility criteria for inclusion of CPAs

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<u>No.</u>	<u>Eligibility criterion - Category</u>	<u>Eligibility criterion - Required condition</u>	<u>Supporting evidence for inclusion</u>
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⁶³ This would also include any potential consumption of non-renewable biomass on the clean cookstove.

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1	<u>Technology</u>	<p>Each CPA will employ clean cooking technologies displacing use of non-renewable biomass by renewable biomass.</p> <p>The fuel used in the CPA should be documented as coming from identified renewable origin in compliance with Annex 18 of CDM-EB 23 report.</p>	<p>Description of technical specifications of the clean cooking technology with a table of key attributes of the cookstoves, containing as a minimum the following information:</p> <ul style="list-style-type: none"> -stove manufacturer -stove model -material(s) -dimensions (measurements) -weight -Thermal efficiency, firepower, boil time -estimated lifetime based on manufacturer's specifications -type of fuel being used in the cookstove -mode of operation (portable/fixed) <p>Documentation/Justification showing that fuel is renewable.</p>
2	<u>Location</u>	Each CPA will be located within the physical/geographical boundary of the PoA	Geographic reference showing the activity is within the physical/geographical boundary of the PoA
3	<u>Additionality</u>	<p>Each CPA will satisfy the criteria for demonstrating additionality of a small-scale project. The measurements and criteria ensuring eligibility are the following:</p> <p>For CPAs implemented in DRC/Zambia:</p> <ul style="list-style-type: none"> • The CPA is implemented in an LDC (DRC or Zambia) • Rated output capacity of each unit < 5 MW <p>For CPAs implemented in Kenya: CPA implementer confirms that clean cooking technology are partially or fully subsidized.</p>	<p>For CPAs implemented in DRC/Zambia:</p> <ul style="list-style-type: none"> • Technology specification and the rated output capacity of each clean cooking unit in the CPA-DD. • Description of physical boundary in the CPA-DD <p>For CPAs implemented in Kenya: Declaration of CPA implementer</p>

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4	<u>Aggregate small-scale threshold</u>	<u>Not applicable. Since CPA consists solely of units that qualify as 'microscale CDM units' (see eligibility criterion 'Additionality'). See paragraph 124(m) of CDM Project Standard for PoAs, version 02.0</u>	<u>Demonstration that the CPA consists solely of units that qualify as 'microscale CDM units'.</u>
5	<u>De-Bundling</u>	<u>Not applicable. Since CPA consists solely of units that qualify as 'microscale CDM units' (see eligibility criterion 'Additionality'). See paragraph 124(n) of CDM Project Standard for PoAs, version 02.0</u>	<u>Demonstration that the CPA consists solely of units that qualify as 'microscale CDM units'.</u>
6	<u>Double Counting of emission reductions</u>	<p><u>Each CPA will implement a unique identification system for each clean cooking unit to avoid double counting of emission reductions.</u></p> <p><u>The end-consumers assign and transfer all right, title and interest to all benefits (including CERs) arising from the use of clean cookstoves/fuels to a specific entity. Only this entity to whom the end-users assign and transfer all the rights and benefits on the carbon credits (CERs) can claim such rights and benefits. Thus, double counting of emission reductions is being prevented. Contractual agreements will be in place between producer of clean cookstoves, distributor of renewable fuel and the entity claiming the carbon credits.</u></p>	<p><u>Description of the unique identification system and adherence to the CME Management System</u></p> <p><u>Description of the transfer of carbon credit rights from end-users to entity to whom the rights are assigned to.</u></p> <p><u>Contractual agreements between producer of clean cookstoves, distributor of renewable fuel and the entity claiming the carbon credits.</u></p>
7	<u>Start Date</u>	<u>Each CPA will prove that the start date of the CPA is on or after the start date of the PoA by providing evidence of the start date of the CPA.</u>	<u>The start date of the activity will be evidenced by e.g. a manufacturing contract, delivery receipt, sales invoice, mobile sale/distribution registration form.</u>

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8	<u>Crediting Period</u>	<u>Each CPA will have a fixed crediting period which shall not exceed the end date of the PoA</u>	<u>The type of crediting period and start date of crediting period</u>
9	<u>Public Funding</u>	<u>Each CPA will confirm that it is not receiving funding dedicated as Official Development Assistance (ODA)</u>	<u>A statement that the activity is not receiving public funding which would result in diversion of ODA money.</u>
10	<u>CME Approval</u>	<u>Each CPA will prove it has received the approval of the CME of the PoA</u>	<u>A letter showing the CME has approved the CPA</u>
11	<u>Methodology</u>	<u>Each CPA will apply the baseline and monitoring methodology AMS-I.E Version 10.1.</u>	<u>Application of baseline and monitoring methodology AMS-I.E, version 10.1.</u>
12	<u>Target Group and distribution method</u>	<u>Each CPA targets households and/or institutions and/or Small and Medium Enterprises (SMEs) in rural and/or urban areas</u> <u>Each CPA will use one or multiple of the following methods for distribution of appliances implemented under the CPA:</u> <ul style="list-style-type: none"> • <u>Direct sale/distribution to end-users</u> • <u>Bulk sales/distribution to distributors who sell/distribute on to the end user</u> • <u>Distribution to the end-user by an organization receiving the products/measures from the CME</u> 	<u>Target groups are households and/or institutions and/or Small and Medium Enterprises (SMEs) in rural and/or urban areas</u> <u>Description of the distribution method and sale/distribution database</u>
13	<u>Sampling Requirements</u>	<u>Each CPA will adhere to the sampling requirements stipulated by the CME in section I.7.2. of the generic CPA-DD.</u>	<u>Adherence to the sampling requirements of the PoA</u>

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14	<u>Stakeholder Consultation and Environmental Impact Analysis</u>	Each CPA will satisfy requirements surrounding <u>Local Stakeholder Consultation and Environmental Impact Analysis</u>	<p><u>Kenya: Adherence to any requirements stipulated by the Stakeholder Consultation and Environmental Impact Analysis conducted at the PoA level.</u></p> <p><u>DRC: Adherence to any requirements stipulated by the Stakeholder Consultation and Environmental Impact Analysis conducted at the CPA level.</u></p> <p><u>Republic of Zambia: Adherence to any requirements stipulated by the Stakeholder Consultation and Environmental Impact Analysis conducted at the CPA level.</u></p>
15	<u>Compliance with Applicability and Other Requirements of Methodology</u>	<p>Each CPA will comply with the applicability and other requirements of methodology AMS-IE Version 10.1:</p> <ul style="list-style-type: none"> <u>The CPA will comprise of technologies displacing use of non-renewable biomass by renewable biomass.</u> <u>Non-renewable biomass has been used since 31/12/1989 within the boundary of the activity.</u> 	<p><u>Description of the technology/measure implemented in the CPA and proof that non-renewable biomass has been used since 31/12/1989 within the boundary of the activity.</u></p>
16	<u>Double counting of project activities</u>	Each CPA will confirm that it has neither registered as <u>standalone CDM project activity</u> , nor included in <u>another registered PoA</u> nor that the project activity has been <u>deregistered</u> .	<p><u>This condition will be checked through carbon standard registries (UNFCCC, GS and VCS websites).</u></p> <p><u>Further, it will be confirmed by a letter signed by the CPA implementer.</u></p>

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

Coordinating/managing entity and/or project participants	<input checked="" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Project participant
Organization name	BURN Manufacturing Co.
Country	USA ⁶⁴
Address	Suite 220, 18850 103 rd Avenue SW, Vashon, WA 98070
Telephone	+254 718 125 639
Fax	
E-mail	peter.scott@burnmfg.com
Website	https://burnstoves.com
Contact person	Peter Scott (CEO BURN)

Coordinating/managing entity and/or project participants	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant
Organization name	Korea Carbon Management Ltd.
Country	Republic of Korea
Address	9F, N'deavor Tower, 45, Seocho-dearo 74-gil, Seocho-gu, Seoul, 06626, Republic of Korea
Telephone	+82 2 3487 6050
Fax	+82 2 3487 6051
E-mail	info@korea-carbon.com
Website	www.korea-carbon.com
Contact person	Mr. Thomas Winklehner

Appendix 2. Affirmation regarding public funding

Declaration from CPA implementer provided at CPA level

Appendix 3. Applicability of methodologies and standardized baselines

Not applicable

⁶⁴ BURN has a branch in Kenya.

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

Not applicable

Appendix 5. Further background information on monitoring plan

Not applicable

Appendix 6. Summary report of comments received from local stakeholders

Not applicable

Appendix 7. Summary of post-registration changes**Summary of post-registration changes in PoA-DD version 3.2, dated 19/06/2020:**

- Update to AMS-II.G, version 11.1
- Adding AMS-I.E, version 10.1 to the PoA-DD including a generic CPA-DD for AMS-I.E
- Corrections in the PoA-DD
- Permanent changes to the registered monitoring plan
- Changes to the programme design related to the inclusion of methodology AMS-I.E. and demonstration of additionality.
- The project participant Thomas Winklehner / Korea Carbon Management Ltd with Party Australia have been added in section A.5.

Summary of post-registration changes in PoA-DD version 1.4, dated 24/09/2019. The request for approval of changes was approved by UNFCCC on 17/11/2019:

- Republic of Zambia has been included as Host Party in the PoA, hence relevant sections of the PoA-DD have been updated, like amongst others sections Environmental Impacts, Stakeholder Consultation and eligibility criteria.
- Some amendments in the monitoring plan, providing more details and clarity.
- Some few corrections throughout the PoA-DD providing more clarity.

Summary of post-registration changes in PoA-DD version 1.3, dated 22/06/2019. The request for approval of changes was approved by UNFCCC on 11/09/2019:

- Change of CME from 'Top Third Ventures Limited' to 'Burn Manufacturing Co.'.
- Democratic Republic of the Congo has been included as Host Party in the PoA, hence relevant sections of the PoA-DD have been updated, like amongst others sections Environmental Impacts, Stakeholder Consultation and eligibility criteria.
- Update of the additionality section in the PoA-DD.
- Removal of the aggregated small-scale threshold.

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- Update of the methodology applicability section.
- Update of the ex-ante parameter section.
- Update of eligibility criteria.
- Permanent changes to the registered monitoring plan, amongst others introducing the option of a single sampling plan.
- Several corrections throughout the PoA-DD.

Appendix 8. Letter on EIA (Kenya)


nema
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Tel: (254-020) 6005522/3/6/7, 6001945, 6008767, 6008687
Mbl: 0724-253398, 0723-363010, 0735-013046, 0735-010237
Telkom Wireless: 020-2101370
Fax: 254-020-6008997
Hotline: 020-8077233, 020-6006041

P.O. Box 67839, 00200
P.O. Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
website: www.nema.go.ke

NEMA/5/23/VOL. V (18) **26th July, 2012**

Chief Executive Officer,
Top Third Ventures,
P.O. Box 51891 - 00100,
NAIROBI, KENYA

Attn: Lucas Belenky

RE: APPLICATION FOR A COMPLIANCE LETTER FOR THE DESIGN AND DISTRIBUTION OF EFFICIENT COOK STOVES.

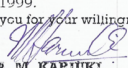
Reference is made to your letter dated 5th July, 2012 on the above mentioned subject.

Following a review of the proposed design and distribution of efficient Cook stoves, it is established that you are not required to carry out an Environmental Impact Assessment (EIA) given that the project will have minimum/insignificant environmental impacts.


However, you are required to:

1. Engage a Manufacturing Company with a valid EIA licence from NEMA and remain compliant with all environmental regulations enforced in Kenya;
2. Obtain requisite approvals from the relevant local Authorities, Ministry of Energy and any other relevant lead agency;
3. Comply with the existing laws and by-laws that govern a programme of this nature.
4. Undertake EIA for any component of the programme listed in the Second Schedule of Environmental Management and Coordination Act (EMCA), 1999.


Thank you for your willingness to comply.


ENG. A. M. KARIUKI
FOR: DIRECTOR GENERAL

Our Environment, Our Life, Our Responsibility



Appendix 9. Host Country Letter of Approval (Kenya)



nema
managing nature [kisa wetu] ngalio wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Tel: (254-020) 6005522/3/6/7, 6001945, 6008767, 6008687
Mbl: 0724-253398, 0723-363010, 0735-013046, 0735-010237
Telkom Wireless: 020-2101370
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Papo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
website: www.nema.go.ke

NEMA/10/3/VOL. XII **25th June 2012**

Mr. Lucas Gregory Belenky
Managing Director
Top Third Ventures Limited
P.O. BOX 29628-00100
NAIROBI, KENYA
Tel: +254739409434
Email: lucas@lowcarbondev.ocm

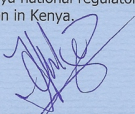
RE: LETTER OF APPROVAL – TOP THIRD VENTURES STOVE PROGRAMME

We wish to refer to your request for host country approval for the above referred Program of Activities (POA). We note that the POA has the goal of achieving widespread distribution and effective use of efficient cooking technologies in low-income rural and urban households as well as institutions.


As the Designated National Authority of Kenya for the Clean Development Mechanism, we wish to confirm that we have reviewed the above-referred POA-Design Document. We further wish to confirm that:-

- The Program is approved as a CDM POA for the purposes of Article 12 of the Kyoto Protocol
- The Government of Kenya is Party to the Kyoto Protocol and that participation in CDM project activities is voluntary
- The POA will contribute to Kenya's sustainable development
- Top Third Ventures Limited is the Coordinating/Managing Entity (CME) for this POA


We wish to note and confirm that this project, amongst other issues, will contribute to the overall realization of Kenya Vision 2030 through improvement in energy efficiency and reduction in Greenhouse Gas emissions. It is however to be noted that the project must comply with all the required Kenya national regulatory and /or planning requirements throughout all the phases of implementation in Kenya.


PROF. GEOFFREY WAHUNGU
DIRECTOR GENERAL

Our Environment, Our Life, Our Responsibility


ISO 9001:2008 Certified

Appendix 10. DNA Authorization letter (Kenya)



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Line: 0724-253398, 0723-363010, 0735-013046
Telkom Wireless: 020-2101370, 020-2183713
Incident Line: 0786 101100

P.O. Box 67839, 00200
Papo Road, Nairobi, Kenya
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website: www.nema.go.ke

NEMA/10/3/VOL. XII **20th May, 2019**

Lucas Belenky
Chief Executive Officer
Top Third Ventures Ltd.
P.O. BOX 51891 – 00100
NAIROBI, KENYA
Tel: 254-739-409434
Email: lucas.belenky@gmail.com

Peter Scott
Chief Executive Officer
BURN Manufacturing USA LLC
Go Down 10
New Horizons Industrial Park
P.O. Box 1921 - 00232
RUIRU, KENYA
www.burnmanufacturing.com

LETTER OF AUTHORIZATION TO BURN MANUFACTURING Co. AS THE NEW COORDINATING / MANAGING ENTITY FOR THE TOP THIRD VENTURES STOVE PROGRAMME (POA 9265)

Your letters dated on 24th April 2019 requesting for transfer of the Coordinating/Managing Entity (CME) for the above referred Programme of Activities herein refers.

As the Designated National Authority of Kenya for the Clean Development Mechanism (DNA for CDM), we wish to confirm that we have reviewed the request for transfer of CME from Top Third Ventures to BURN Manufacturing Co. We note that the transfer has been necessitated by the inability of Top Third Ventures to secure financing to implement the activities prescribed under the Programme of Activities (POA) due to the collapse of the carbon market in 2012. We further note that Burn Manufacturing Co. commits to develop and implement this POA with the same framework as described in the registered POA design document.

Appendix 11. Host Country Letter of Approval (DRC)

République Démocratique du Congo
Ministère de l'Environnement et Développement Durable



Secrétariat Général à l'Environnement et Développement Durable
Coordination Nationale du Fonds Vert pour le Climat
L'Autorité Nationale Désignée

To BURN Manufacturing Co.
Attention: Peter Scott
Chief Executive Officer
Suite 220
18850 103rd Avenue SW Vashon, WA 98070, US

06/21/2019

Subject: Approval Letter for the PoA 9265

Dear Mr. Scott,

We received your request of Approval Letter for the PoA 9265 "Top Third Ventures Stove Programme" that your company BURN Manufacturing Co. want to extend here in the Democratic Republic of Congo.

As authorized representative of the Designated National Authority (DNA) of DRC, I hereby confirm that:

- The Party Democratic Republic of the Congo is a Party to the Kyoto Protocol. DRC ratified the Kyoto protocol in March 2005.
- Democratic Republic of the Congo's participation in CDM programmes and projects is voluntary.
- The present PoA will contribute to the sustainable development of the host Party Democratic Republic of the Congo.

Further, as authorized representative of the DNA I authorize:

- The participation of BURN Manufacturing Co. in the PoA 'Top Third Ventures Stove Programme' (CDM Ref: PoA 9265) as project participant.
- BURN Manufacturing Co. to be the coordinating/managing entity of the PoA 'Top Third Ventures Stove Programme' (CDM Ref: PoA 9265).

With this letter, I approve on behalf of the Democratic Republic of the Congo the 'Top Third Ventures Stove Programme' as a Clean Development Programme of Activities for the purpose of Article 12 of the Kyoto Protocol.

Best regards,



Hans Andre L. Djamba
NDA and Country Director of the Green Climate Fund National Coordination


cc: Ministry of Environment and Sustainable Development, General Secretary of the Ministry, Sustainable Development Directorate.

Avenue Papa Héro (ex-des Cliniques) n°15 Kinshasa/Gombe : B.P 12.348 Kinshasa I : Site Internet fvc-rdc.org +243822541031/999923221

Appendix 12. Host Country Letter of Approval (Republic of Zambia)

MLNR/6/6/26

Telephone: 252288/252323/252320
 Fax: Lusaka 250120
 Telefax 40681 MIDLANDS ZA
 Telegrams: LANDS


REPUBLIC OF ZAMBIA
MINISTRY OF LANDS AND NATURAL RESOURCES

In reply please quote:
 No:

OFFICE OF THE PERMANENT SECRETARY
 P.O. BOX 50694
 15101 RIDGEWAY
 LUSAKA


12th September 2019

Peter Scott
 Chief Executive Officer
 Burn Manufacturing Co.
 Go Down 10
 New Horizons Industrial Park
 P.O Box 1921-00232
 RUIRU,
KENYA

**LETTER OF APPROVAL FOR INCLUSION OF ZAMBIA IN THE PROGRAMME OF
 ACTIVITY (PoA -9265) – TOP THIRD VENTURES STOVE PROGRAMME**

On behalf of the officially Designated National Authority (DNA) for purposes of the Clean Development Mechanism (CDM) under article 12 of the Kyoto Protocol, I am directed to advise that your request for Zambia to be included in the "Programme of Activities (PoA) 9265 – "Top Third Ventures Stove Programme" was considered by the DNA meeting held on 5th September, 2019 and was approved. The DNA confirms that:

1. The Government of Zambia ratified the Kyoto Protocol in July 2006;
2. This is approval of voluntary participation in the proposed CDM Programme of Activity (POA);
3. The project contributes to sustainable development in Zambia;
4. Any CERs generated and issued by CPA activities in the Republic of Zambia under the programme PoA 9265 will NOT be accounted for/captured under the Nationally Determined Contribution (NDC) of the Republic of Zambia;
5. The DNA authorises Burn Manufacturing Co. as the Coordinating/Managing Entity (CME) project participant to the Programme of Activity (PoA) 9265.


 Ephraim Mwepya Shitima
 Director
 Climate Change and Natural Resources Management Department
 UNFCCC National Focal Point/Secretary to the DNA
 For/Permanent Secretary
MINISTRY OF LANDS AND NATURAL RESOURCES

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
09.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN); • Make editorial improvements.
08.1	28 June 2017	Revision to: <ul style="list-style-type: none"> • Remove a duplicated instruction; • Make editorial improvement.
08.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Improve consistency with the “CDM project standard for programmes of activities” and with the PDD and CPA-DD forms; • Make editorial improvement.
07.0	25 May 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN) (version 01.0); • Incorporate the “Programme design document form for small-scale CDM programmes of activities” (CDM-SSC-PoA-DD-FORM); • Make editorial improvement.
06.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A10-STAN) (version 01.0).
05.0	9 March 2015	Revision to: <ul style="list-style-type: none"> • Include provisions related to choice of start date of PoA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Add exception for generic CPA where technology is under positive lists; • Make editorial improvement.
10.1	5 August 2014	Editorial revision to correct the document information table.

CDM-PoA-DD-FORM

<i>Version</i>	<i>Date</i>	<i>Description</i>
10.0	25 June 2014	Revision to: <ul style="list-style-type: none">• 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 10.0));• Include provisions related to standardized baselines;• Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the PoA in B.4 and Appendix 1;• Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Appendix 6;• Change the reference number from F-CDM-PoA-DD to CDM-PoA-DD-FORM;• Make editorial improvement.
03.0	3 December 2012	EB 70 Revision to reflect changes to the <i>Guideline: Completing the programme design document form for CDM programmes of activities</i> (EB 70, Annex 6).
02.0	13 March 2012	EB 66 Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, annex 12).
01.0	27 July 2007	EB 33, Annex 41 Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, project design document		

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Page 73: [3] Deleted	Johann Thaler	22/03/2020 12:02:00