



**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	Clean Cook Stoves in Sub-Saharan Africa by ClimateCare Limited
Version number of the PoA-DD	02
Completion date of the PoA-DD	05/11/2019
Coordinating/managing entity	ClimateCare Limited
Host Parties	Ghana, Kenya
Applied methodologies and standardized baselines	AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass - Version 10.0
Sectoral scopes	Sectoral Scope 3: Energy Demand

PART I. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

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a) The policy/measure or stated goal that the PoA seeks to achieve

This SSC-PoA has the goal of introducing wide-scale adoption of efficient charcoal cookstoves to kitchens in Ghana and Kenya through the design or adoption of a design, manufacture, distribution, sale and after-sale support of efficient charcoal stoves over the next 28 years. This will constitute a market transformation, reducing both global greenhouse gas emissions and pressure on forests and woody biomass resources. Initially, the PoA will cover Ghana and Kenya, with the possibility of including other Sub-Saharan African countries during its lifetime.

Each CPA within the PoA will develop/adopt cookstove designs, which address the product-specific factors such as safety, indoor smoke, usage cost and stove prices, which have been largely disregarded but are significant, in determining the uptake of improved cook stoves at the household level together with a significant public education component. Raising awareness through information provided with products, as well as targeted media campaigns will further promote the benefits of efficient charcoal stoves (ECS) in Sub-Saharan African countries. The messaging will promote behavioural change, encourage further energy savings while reducing deforestation and indoor air pollution.

b) Framework for the implementation of the PoA

The predominant cooking fuel for families in urban areas of Sub-Saharan African countries is charcoal¹ made from predominantly non-renewable wood using inefficient production and usage methods². The greenhouse gas emissions associated with the production and combustion of the charcoal are significant, in areas where the wood source is non-renewing, which is commonly the case in Sub-Saharan African countries.³ This is not only the existing scenario but also the energy baseline scenario.⁴

The purpose of this Programme of Activities (PoA) is to reduce the greenhouse gas emissions from cooking, by promoting the design, manufacture, distribution and use of efficient charcoal stoves (ECS) which provide the same service with significantly less fuel than traditional charcoal stoves in common use. The adoption and usage of the efficient cook-stoves by domestic users, therefore, constitutes the project scenario.

The Programme promotes the design or adoption of a design, manufacture, promotion and awareness creation, distribution and use of various types of efficient charcoal stoves developed to match market interest in Sub-Saharan countries. The principal designs include features that improve charcoal stoves' efficiency and market acceptance, such as a pot skirt with a conical grate or a heat retention liner.

Each small scale CDM programme activity (SSC-CPA) will be implemented in selected Sub-Saharan countries, starting with Ghana and Kenya. The CPAs in this PoA will not be limited by the small-scale threshold of AMS II.G (ver. 10.0) as they will include only stove units that qualify as "microscale

¹ Cooking accounts for substantial use of energy: wood or charcoal provides about 80% of the energy consumed in Sub-Saharan Africa (<http://www.sustainergyweb.eu/practicalinfo/issue-improved-cookstoves-advantages-and-challenges-spread-improved-cook-stoves/>)

² http://www.compete-bioafrica.net/improved_land/Annex2-2-2-COMPETE-032448-2ndReport-D2-2-D2-3-Final-Final.pdf

³ http://www.sei-international.org/mediamanager/documents/Projects/Climate/household_energy_pb_090603_fxj.pdf

⁴ <http://www.sustainergyweb.eu/practicalinfo/designing-improved-domestic-cookstove-charcoal-basis-sub-saharan-africa/>

CDM units” as defined in the “Methodological tool 19: Demonstration of additionality of microscale project activities”.

During the life of the SSC-PoA, the number of CPAs implemented will increase and be monitored according to the monitoring plan as described below. Different CPAs may be installed in the same areas but can always be distinguished through a sales record keeping system with a unique serial number for every ECS sold, which will ensure that each ECS can be traced to one specific CPA to avoid double counting.

The PoA and each CPA will be implemented and managed by the Coordinating/Managing Entity (CME), in collaboration with Programme Activity Implementers (PAIs).

The CME for the PoA is ClimateCare Limited (ClimateCare), who will act as the focal point for the Executive Board of the CDM in all aspects relating to validation, verification, registration and issuance of carbon credits generated by the programme. Based on previous CDM experience and staff training, the CME and the assigned staff have the competencies to check the features of potential CPAs and ensure that each CPA meets the eligibility criteria before inclusion in the registered PoA.

The CME will verify the Sales Database and prepare monitoring reports. The CME will facilitate the validation and verification processes while advising the PAI on the carbon asset development activities.

Implementation of the CPAs is the responsibility of the PAIs. The PAIs will each prepare and manage a single/multiple CDM programme activity (CPA). Each PAI will be responsible for the manufacture or sourcing, awareness creation⁵, marketing and distribution of stoves for their respective CPAs. The PAIs will also be responsible for collecting and storing stoves sales data in the Stove Sales Database, which they will also maintain as described below while providing the after sales service to the users. Each PAI will act individually, running the project in accordance with the demands of the local market.

Procedures to assert legal rights of the carbon credits generated and to avoid double counting have been set up for the PoA and appropriate records and documentation control process, for each CPA under the PoA, have been set up as described in Section B.

Accordingly, the PAIs will use the CER proceeds to reduce costs of ECS to users, provide maintenance and to recoup associated costs for the dissemination of stoves, such as training of supply chain personnel, marketing activities and building new manufacturing units.

Measures for continual improvements of the PoA management have been established and are implemented with each CPA.

c) A confirmation that the PoA is a voluntary action by the coordinating/managing entity

The CME confirms that the PoA, and all action taken as part of it, are voluntary and coordinated. Each CPA shall confirm that in each of the countries where the CPA is implemented, there are no mandatory laws, policies or requirements mandating the use of efficient charcoal cookstoves.

d) Contribution of the proposed PoA towards sustainable development

The project activity contributes to sustainable development in the following ways:

⁵ The UN and Hedon identify awareness creation as a key factor in stove acceptance and use;
<http://www.hedon.info/article2617>

Environmental benefits:

- i. **Air quality:** Children and mothers will be exposed to fewer air pollutants through reduced emission of not only carbon dioxide (CO₂), but also carbon monoxide (CO) and particulate matter. Air pollution from cooking with solid fuel is a key risk factor for childhood pneumonia as well as many other respiratory diseases and cancer⁶.
- ii. **Biodiversity:** This will be improved as the programme reduces pressure on remaining forest reserves in countries covered by the PoA.

Social and Economic benefits:

- i. **Employment:** The programme will create employment opportunities for new supply chain and office staff and other related jobs in the participating countries.
- ii. **Livelihood of the poor:** The circumstances of poor families will be improved since the stoves reduce fuel cost. Reduction in wood consumption implies relief from drudgery and more opportunity for productive activity, arising from less time spent collecting fuel⁷.
- iii. **Access to energy services:** The ECSs require less fuel, which in many areas, is a scarce resource or very expensive to buy. Users would find ECSs more convenient, shortening the cooking time.
- iv. **Human and institutional capacity:** This would be achieved through the business development component of the project. The programme, as part of its large-scale promotion and advertising, will facilitate capacity development among the employed staff through training and workshops in Ghana and Kenya, and later, in the Sub-Saharan Africa.
- v. **Technological self-reliance:** The introduction of a locally manufactured technology with optimised energy efficiency helps to build technological self-reliance.

A.2. Physical/geographical boundary of PoA

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The PoA covers the physical and geographical boundary of the Sub-Saharan African countries. Currently CPAs are implemented in Ghana and Kenya and other countries will be specified as CPAs are included.

Figure 1: Map of Africa: The physical boundary of the PoA (Sub-Sahara African Countries)

⁶ World Health Organization, 2005 - <http://www.who.int/mediacentre/factsheets/fs292/en/index.html>

⁷ <http://www.lifelinefund.org/why-stoves.php>



A.3. Technologies/measures

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The Programme promotes wide-spread manufacture and use of various types of efficient charcoal stoves developed to match market interest in various regions of Sub-Saharan Africa. The stove designs will vary significantly provided they save charcoal relative to the respective baseline stoves and meet the other PoA joining criteria specified in the PoA-DD. The principal stove design will feature technologies that improve the efficiency of charcoal stoves and their demand, depending on the locally available skills and resources. The stoves will be constructed by locally trained technicians working in either centralised manufacturing workshops operated and managed by the PAIs or decentralised production units coordinated by the PAIs. The main focus of the PoA will be the design or adoption of an appropriate design, manufacture, promotion and awareness creation, distribution and sale of the ECSs. The stoves are mostly made of metal and clay liners and can be produced in a range of sizes depending on the needs of the target users.

The ECSs are more efficient than traditional charcoal stoves as they reduce the heat loss with significant fuel and cash savings compared to the baseline traditional charcoal stove. Water boiling tests carried out on existing program stoves show that the stoves can achieve thermal efficiency higher than 40%⁸.

During the life of the project, research and development work may result in more efficient ECS designs, which shall be absorbed by this PoA, subject to the appropriate tests proving real and measurable quantity of charcoal saved.

The PAIs are encouraged to invest in research and development for the improvement of the current ECS being disseminated. It is also encouraged that know-how as to the design and construction of improved stoves proven in other countries be transferred to Ghana, Kenya and the Sub-Saharan

⁸ See Water Boiling Test Results for CookMate carried out by the Institute of Industrial Research (IIR) of the Council for Scientific and Industrial Research (CSIR), Ghana.

Region as part of the CPAs. This technology transfer could be from other countries which have developed affordable technologies suitable for the PoA-covered region and markets

The detailed description of the specific ECS design and the main manufacturing and/or production technologies, systems and equipment involved will be defined at the CPA level.

A.4. Coordinating/managing entity

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The CME for the PoA is ClimateCare Limited (ClimateCare). As the CME, ClimateCare will act as the Focal Point for all Scopes of Authority and is therefore the entity that communicates with the Executive Board of the CDM in all aspects relating to validation, verification, registration and issuance of carbon credits generated by the programme.

A.5. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Ghana (host)	ClimateCare Limited (CME) (Private)	No
Sweden	Swedish Energy Agency (Private)	No
Kenya (host)	ClimateCare Limited (CME) (Private)	No

A.6. Public funding of PoA

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The PoA has not and will not receive public funding from Parties included in Annex I. Any CPA that receives public funding from Annex 1 parties will confirm that it does not result in diversion of official development assistance.

SECTION B. Management system

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The PoA will set up an operational and management system for the implementation of the PoA. The management systems to be put in place will include the following aspects:

- i. A definition of the roles and responsibilities of personnel involved in the process of inclusion of CPAs
- ii. Records of arrangements for training and capacity development of personnel
- iii. Procedures for technical review of inclusion of CPAs
- iv. A procedure to avoid double counting
- v. Records and documentation control process for each CPA under the PoA
- vi. Measures for continuous improvements of the PoA Management system
- vii. Any other relevant elements

Roles and responsibilities

The programme is managed by ClimateCare Limited as the Co-ordinating/Managing Entity (CME), and it is implemented by Programme Activity Implementers (PAIs) through small scale CDM programme activities (CPAs), which will be implemented in geographically distinct areas across the Sub-Saharan African region.

ClimateCare Limited (ClimateCare), as the CME for the PoA, will act as the focal point for the Executive Board of the CDM in all aspects relating to validation, verification, registration and issuance of carbon credits generated by the programme.

The CME has the competencies to check and ensure that each CPA meets the eligibility criteria before inclusion and listing in the registered PoA.

The CME will provide oversight of the record-keeping by all parties involved in CPAs, verifying the Sales Database of the individual CPAs, maintaining the global PoA level Sales Database and preparing the monitoring reports. The CME will facilitate the validation and verification processes.

Implementation of the CPAs is the responsibility of the PAIs. PAIs will sell ECSs on a commercial basis through appropriate channels developed by the PAIs themselves, provide technical support and guidelines. Each PAI is responsible for the design or design adaptation, manufacture, marketing, distribution and after sale service of the ECSs, while also creating awareness and providing instructions on proper use of stove. The PAIs will maintain records of arrangements for training and capacity development of CPA personnel in stove production process and marketing where applicable. The PAIs will also be responsible for collecting and storing stoves Sales Database and maintaining the Sales Database for their respective CPAs. Each PAI will act individually, running the project in accordance with the demand of the local market.

Training and capacity development records

The PAI will arrange and provide appropriate training for staff, including in design, production and sale of stoves, and the required record keeping.

Procedures for technical review and inclusion of CPAs

The CME shall ensure that all CPAs included under the PoA meet the eligibility criteria outlined in this PoA-DD and that the records of the technical review process are maintained. The technical review process for each CPA shall ensure that the criteria outlined in the PoA-DD are met by the CPA.

The PoA Joining Agreement signed between ClimateCare Limited and each PAI for each CPA ensures that the PAI is aware of and has agreed that their activity is being subscribed to the PoA. The contract also ensures that the PAI is aware and agrees to abide by the inclusion criteria specified in this PoA-DD.

Procedures to assert legal rights for the carbon credits and avoid double counting

The CME will help each PAI to set up measures to ensure that legal rights of the carbon credits generated and to avoid double counting and also set up appropriate records and documentation control process for each CPA under the PoA.

The manufacturing and distribution process will be supported by an awareness campaign to ensure households are aware of the project activity and the stove benefits, and that adoption of the stoves is accelerated in the geographic area of operation of the CPA and PoA. The method of manufacture and distribution, together with the associated awareness-raising campaigns will focus on providing the target charcoal-using households, which could be urban or rural.

The operation of the ECS is carried out by the user, and training on how to use and maintain the ECS is given by the PAI either directly or through the use of a manual. The PAIs will follow the monitoring plan and procedures for identifying each stove sold as part of the programme and those which are still in use, so that, the appropriate emission reductions are claimed. To facilitate this process, the PAIs will assign a serial number to each ECS during its manufacture and record this number in the Sales Database, which will be maintained by the PAI.

During sale of the ECS, the user shall be informed that CDM finance is being used to fund the ECS, and the user shall agree to transfer the rights to the emission reductions to the PAI, and to cooperate with the PAI and the CME (ClimateCare Limited) for monitoring purposes as per the Warranty system.

The information collected by the PAI is transferred to an electronic database (the Sales Database) which is updated regularly and shared with the CME. The Sales Database carries all the sales information listed above including the actual sale date. The Sales Database is a key component of the annual monitoring report, since the actual sale date is used to calculate the emission reductions achieved by the sold ECSs.

Each CPA keeps a Sales Database, which will keep information on all ECS deployed, to determine the number of appliances in use in a given year. The following information will be recorded and updated continuously:

- i. ECSs sold with their serial numbers
- ii. User details (Name, Location, address and telephone number, if available)
- iii. Sales date

All PAI records are reviewed by the CME together with cross-checks on the PAIs' Sales Databases in order to confirm that the Sales Database is authentic and that no double-counting occurs. The CME will then use the sales data from the PAIs to update the global PoA sales database and to ensure no double counting, both of CPAs and ECSs.

Double counting is avoided by recording the serial number of each efficient stove installed and by registering these numbers in the global sales database together with the contact details of the user. The database will restrict entry of repeat serial numbers and/or contact details. The serial number together with the contact details of the user constitutes the unique identification of the system.

Accordingly, the PAIs will use the CER proceeds to reduce costs of ECS to users, provide maintenance and to recoup associated costs for the dissemination of stoves, such as training of supply chain personnel, marketing activities and building new manufacturing units.

Records and documentation control process for each CPA under the PoA

The database provides the basis for the emission reduction calculations. The database should therefore be complete and accurate.

The CME will establish and maintain an extensive database for each and every CPA wherein the following data will be recorded:

- i. Name of the CPA
- ii. Name of the implementing entity of the CPA (PAI)
- iii. Contact details of the implementing entity including contact person, address, telephone and email address
- iv. Types of stove (ECS)
- v. Any other relevant technical specifications of each CPA

All the above parameters will be provided by each CPA implementing entity at the time of registration. The CPA will record the data in its data collection system which is made available to the CME.

Each PAI will maintain a unique Sales Database, and maintain up-to-date and clear manufacturing, shipping, and stock records. ClimateCare Limited will also provide guidance on record keeping while providing quality control through supervision and spots checks. It will be possible therefore for a verifier to confirm the accuracy of the Sales Database, and to confirm that no ECSs have been double-counted. ClimateCare will ensure that no PAI is conducting a similar activity as a stand-alone CDM project activity or as another CPA within another PoA.

The CME will support the process of data collection by analysis of quarterly reports and co-operation with regard to preparation of the monitoring reports for submission to the verifying DOE.

The CME will also be responsible for the commissioning of annual monitoring surveys.

Each improved cookstove will start to generate emission reductions a month after the sales date (or the date of CPA inclusion, whichever is later), to account for delays between sales and first use.

Data will be kept for the whole crediting period of the CPA and an additional two years.

Measures for continuous improvements of the PoA management system.

Measures for continual improvements of the PoA management have been established and are implemented with each CPA.

CME, in close consultation with the PAIs, shall continually improve the effectiveness of the PoA management system through the use of the quality policy, quality objectives, audit results, data analysis, corrective and preventive actions with an appropriate management review system. If the methodology and standard are updated, the PoA management system will be improved too.

SECTION C. Demonstration of additionality of PoA

>>In the absence of this PoA, none of the implemented CPAs nor the emissions reduction activities described in Section A of this PoA-DD would occur. Given that there are no mandatory laws, policies or requirements mandating the use of the ECSs in the targeted Sub-Saharan African countries, the households would have continued with the prevailing practice of using traditional cookstoves instead of replacing them with costly new efficient cookstoves, resulting in comparatively higher consumption of charcoal, GHG emissions and negative health impacts.

Each of the efficient cook stove units under the CPAs to be included in the PoA will achieve energy savings at a scale of no more than 20 GWh per year, which is within the threshold for “microscale CDM units”. Therefore, the CPAs under this PoA will include solely units that qualify as “microscale CDM units”⁹ as defined in the “Methodological Tool 19: Demonstration of additionality of microscale project activities”. The conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs are therefore not required.¹⁰ Following the guidance in paragraph 5 of the “Methodological tool 21:

Demonstration

of additionality of small-scale project activities (Version 12.0)”, this PoA qualifies to apply “Tool 19: Demonstration of additionality of microscale project activities (Version 09).”

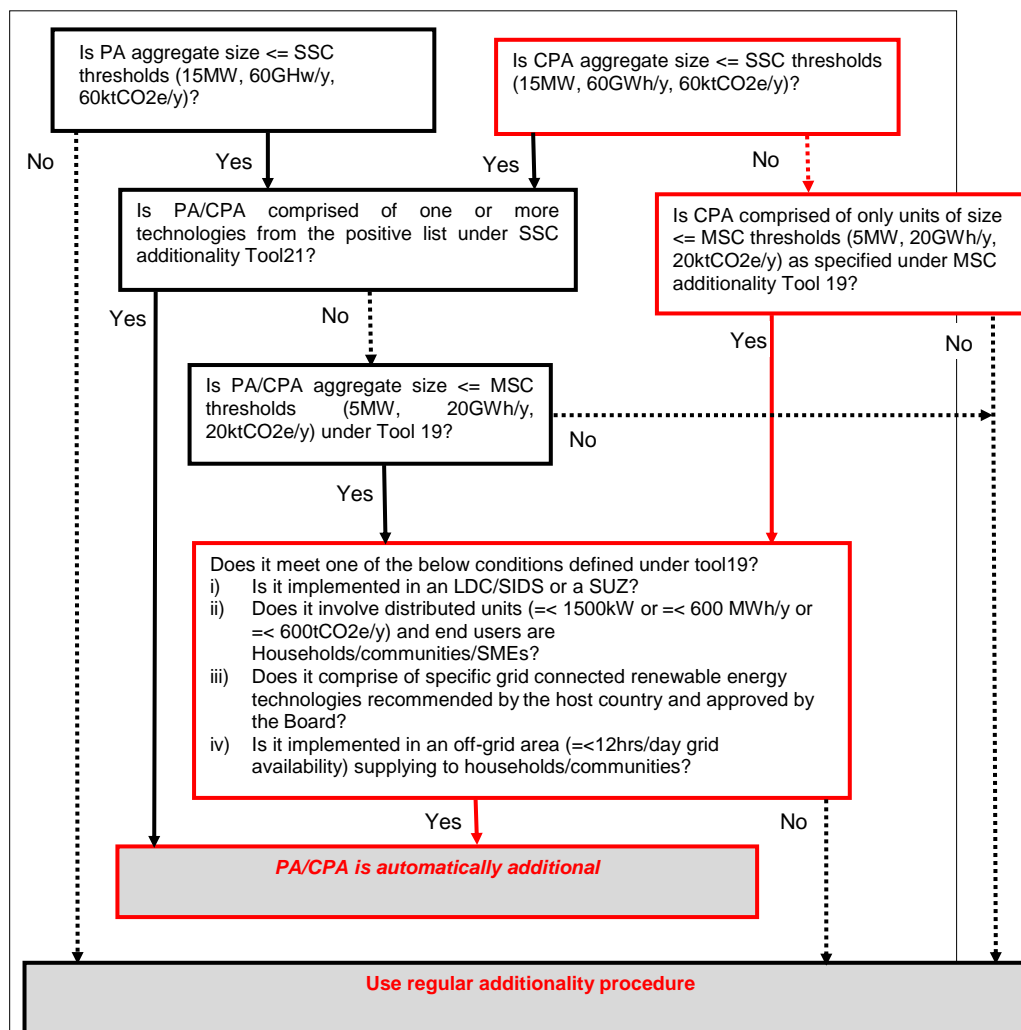
Applying paragraph 14 of Tool 19, and since the CPAs involve the provision of energy efficient cookstoves¹¹ to end users who are households¹², the CPA qualifies to apply microscale thresholds at the unit level rather than at the aggregate level of the CPA, and the term ‘project activities’ in paragraphs 4 and 11 to 13 of Tool 19 shall be read as ‘units’. The PoA is therefore automatically additional. The above argument is demonstrated diagrammatically in red in Figure 2 below.

⁹ "Methodological tool 19: Demonstration of additionality of microscale project activities", Version 09.0, paragraph 14 and 15 state For CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term 'project activities' in paragraphs 4, and 11 to 13 above shall be read as 'units'. If each of the units contained in the CPA satisfies the condition to qualify as a 'microscale CDM unit', then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA. In such cases, the requirements related to debundling stated in paragraphs 6 above do not apply."

¹⁰ AMS-II.G., Small-scale methodology: Energy efficiency measures in thermal applications of non-renewable biomass, Version `10.0, paragraph 46.

¹¹ The energy savings of each cookstove, which are high efficiency biomass fired devices, is not more than 20 GWh per year (Paragraph 12 of Tool 19, Version 9.0).

Figure 2: Schematic Diagram of Proof that PoA is Automatically Additional



**Note: As per the "Methodological tool 19: Demonstration of additionality of microscale project activities", Version 09.0, paragraph 14 and 15, "[f]or CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term 'project activities' in paragraphs 4, and 11 to 13 above shall be read as 'units'. If each of the units contained in the CPA satisfies the condition to qualify as a 'microscale CDM unit', then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA [...]". Therefore, the term 'PA' (Project Activity) shall be read as 'units' in the above diagram.*

SECTION D. Start date and duration of PoA

D.1. Start date of PoA

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11/09/2012

D.2. Duration of PoA

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28 years 0 Months

SECTION E. Environmental impacts

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

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The analysis of the environmental impacts is performed at the PoA level.

The objective of the SSC-PoA is the design, manufacture, procurement, promotion, awareness creation, distribution and sale of ECSs in Sub-Saharan African Countries. Due to its small-scale nature, together with its positive social and environmental benefits and absence of negative impacts and acknowledging that the impact of the distribution of millions of ECSs in Sub-Saharan African region is best assessed from a macro perspective, as per the requirements of the CDM modalities and procedures, environmental analysis is undertaken at a PoA level.

Where local regulation or laws require the conduct of an Environmental Impact Assessment (EIA), the EIA will be carried out at the CPA level.

E.2. Analysis of environmental impacts

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The following environmental benefits of the PoA have been identified:

- i. **Air quality:** Children and mothers will be exposed to fewer air pollutants through reduced emission of not only carbon dioxide, but also carbon monoxide and particulate matter. Air pollution from cooking with solid fuel is a key risk factor for childhood pneumonia as well as many other respiratory, cardiovascular and ocular diseases¹³.
- ii. **Biodiversity:** will be improved as the programme reduces deforestation and pressure on remaining forest reserves in Sub-Saharan African Countries.

No negative impacts can be identified.

E.3. Environmental impact assessment

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N/A

SECTION F. Local stakeholder consultation

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

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The local stakeholder consultation process is performed at the CPA level.

Each CPA operates within a geographically defined region and within any one of the Host Countries. For this reason, local stakeholder consultation is done at the CPA level to ensure that the stakeholders within the region that are actually affected by the project activity are adequately informed and consulted.

Comments from the local stakeholders will be invited through any of the following means:

- i. Public meetings
- ii. Individual consultations
- iii. Public advertisement

F.2. Modalities for local stakeholder consultation

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Not applicable

¹³ <http://www.thecitizen.co.tz/business/13-local-business/994-well-introduce-fuel-saving-stoves-in-local-market-ngo.html>

F.3. Summary of comments received

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F.4. Not applicable Consideration of comments received

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Not applicable

SECTION G. Approval and authorization

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The CME and the Implementers of the CookClean Ghana Limited —CPA01 and CPA02 have Host Country Approval.

The CME has received LoA from the Kenyan DNA for Host Country Approval for CPA03, CPA04 and CPA05.

PART II. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

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[XXXX]

H.2. Reference number of generic CPA

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CPA0XX

H.3. Purpose and general description of generic CPA

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The purpose of each CPA is to promote the use of efficient or improved charcoal stoves (ECS) which provide the same service with significantly less fuel than the traditional charcoal stoves in common use in [*name of project boundary party*] which is located within the Sub-Saharan African Region. The CPAs aim to establish regular use of efficient charcoal stoves (ECS) by distributing ECS to the majority of households. The adoption and usage of the improved cook-stoves therefore, constitute the project scenario for any of the CPAs to be included in the PoA.

The CME will support the SSC-CPA implementer(s) in implementing the CDM Programme Activities (CPAs) in [*name of project boundary party*]. The CME will be responsible for the carbon asset development, including taking the PoA-DD through validation and registration, inclusion of CPAs in the PoA reviewing the monitoring data for each CPA, and preparing the monitoring reports.

A typical CPA will be located within the PoA geographical boundary and replace inefficient traditional charcoal cookstoves with efficient improved charcoal cookstoves within [*name of project boundary party*]. By reducing non-renewable biomass consumption, the project activity shall reduce greenhouse gas (GHG) emissions generated through the use of non-renewable biomass.

Under a CPA, the Programme Activity Implementer (PAI), will adapt an appropriate ECS design, which the PAI will manufacture, create awareness of, market, distribute and sell on a commercial basis through appropriate agents developed by the company within the project host country. The company will also collect and store stoves sales data and maintain the Sales Database while providing the after-sales service to the users. The PAI will act individually, running the project in accordance with the demand of the local market.

The PAI will set up and apply procedures, appropriate records and, documentation control process to assert legal rights of the carbon credits generated and to avoid double counting. Through a Warranty Card system or some other appropriate system, the PAI will transfer the information of each ECS sold to the Sales Database, which will ensure that no ECS is counted more than once under the CPA. The Sales Database will also serve as the basis for the calculation of CERs.

Accordingly, the PAI will use the CER proceeds to reduce costs of ECS to users, provide maintenance and recoup associated costs for the dissemination of stoves, such as the development of the supply chain personnel and systems, marketing activities and building new manufacturing units.

In return, the households or end-users of the stoves will purchase the stoves at subsidised prices from the PAIs or their agents, use the stoves for cooking activities instead of the traditional ones in the prescribed manner and transfer carbon rights to the PAIs.

The CPA qualifies as a small-scale project activity Type II, i.e. an energy efficiency improvement project activity "that reduces energy consumption, on the supply and/or demand side, with an

aggregate energy savings equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input in any year of the crediting period”.

H.4. Technologies/measures

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The project promotes wide-spread manufacture and use of various types of efficient charcoal stoves developed to match market interest in various regions of Sub-Saharan Africa. The stove designs vary significantly provided they save charcoal relative to the respective baseline stoves and meet the other PoA joining criteria specified in the PoA-DD. The principal stove design features technologies that improve the efficiency of charcoal stoves and their demand, depending on the locally available skills and resources. The stoves will be constructed by locally trained technicians working mostly in either centralised manufacturing workshops operated and managed by the PAIs or decentralised production units coordinated by the PAIs. The main focus of the project is the design or adoption of an appropriate design, manufacture, promotion and awareness creation, distribution and sale of the ECSs. The stoves are mostly made of metal and clay liners and can be produced in a range of sizes depending on the needs of the target users.

The ECSs are more efficient than traditional charcoal stoves as they reduce the heat loss, with significant fuel and cash savings compared to the baseline traditional charcoal stove. Water boiling tests carried out on existing program stoves show that the stoves can achieve thermal efficiency higher than 40%¹⁴.

During the life of the project, research and development work may result in more efficient ECS designs, which shall be absorbed by this PoA, subject to the appropriate tests proving real and measurable quantity of charcoal saved.

The PAIs are encouraged to invest in research and development for the improvement of the current ECS being disseminated. This technology transfer could be from other countries which have developed affordable technologies suitable for the PoA covered region and markets

(The detailed description of the specific ECS design and the main manufacturing and/or production technologies, systems and equipment involved may be added to this section at the CPA level).

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

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The applicable small-scale approved baseline and monitoring methodology AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass (Version 10.0)¹⁵. The methodology is applicable to all CPAs under the PoA as per the PoA rules and refers to the latest approved versions of the following approved standards, guidelines and tool(s):

- i. TOOL 30: Calculation of the fraction of non-renewable biomass (Version 02.0)
- ii. Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 07.0)
- iii. Guideline: Sampling and surveys for CDM project activities and programmes of activities (Version 04.0)
- iv. TOOL 21: Demonstration of additionality of small-scale project activities (Version 12.0)
- v. TOOL 19: Demonstration of additionality of microscale project activities (Version 09.0)

¹⁴ See Water Boiling Test Results for CookMate carried out by the Institute of Industrial Research (IIR) of the Council for Scientific and Industrial Research (CSIR), Ghana.

¹⁵ <https://cdm.unfccc.int/methodologies/DB/HLXIKEIBAXBE4EHO24H5IAB824MBD8>

I.2. Applicability of methodologies and standardized baselines

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The CPAs under the PoA will fall under Type II projects involving the introduction of efficient cook stoves (ECS) which reduce the use of non-renewable biomass in thermal applications. The aggregate energy savings of the CPA is not limited by size since the threshold for “microscale CDM units” or the energy saving per unit (ECS) under the CPAs do not exceed 20 GWh/yr.

The use of this methodology in a project activity under a programme of activities is legitimate if the leakages due to the use of non-renewable biomass saved elsewhere and due to the PoA implementation as explained in AMS-II.G, version 10.0 are both accounted for.

Under the PoA, the two potential sources of leakage have been provided for by multiplying B_{old} by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

The value of fraction of non-renewable biomass (f_{NRB}) applied in a component project activity (CPA) of a PoA will be determined either by use of default national values approved by the Executive Board, EB (where available) or by calculation using TOOL 30; Methodological tool: Calculation of the fraction of non-renewable biomass (Version 02.0).

The applicable methodology (AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass (Version 10.0)) is applied for the CPAs under the PoA. The table below is a summary of how the methodology has been applied.

Applicability Requirement of AMS.IIG, Version 10.0	CPAs under the PoA	Criteria Met?
This category comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired project devices (cookstoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers	Each CPA will involve the distribution of energy efficient charcoal cook stoves	Yes
Single pot or multi pot portable or in-situ cook stoves with a specified efficiency of at least 20%.	Only charcoal stoves with efficiency levels of at least 20% will be included in the CPAs as per the technical specification/test results from independent testers either through Thermal Energy Output (TEO), Kitchen Performance Test (KPT), Water Boiling Test (WBT) or Controlled Cooking Test (CCT) at least biennially. The efficiency tests shall be carried out by either the national standards body, other appropriate national body or an agent recognised by it, or manufacturer specifications.	Yes
Non-renewable biomass has been used in the project region since 31	Each CPA will be able to show that non-renewable biomass has been used since	Yes

December 1989, using survey methods or referring to published literature, official reports or statistics.	31 December 1989, using published literature, official reports or statistics. Compliance with this applicability condition is part of the CPA eligibility criteria and it will be shown in the CPA-DD.	
Each of the efficient cook stove units under the CPAs to be included in the PoA shall achieve energy savings at a scale of no more than 20 GWh per year, which is within the threshold for "microscale CDM units".	For each CPA, it will be demonstrated that each stove unit saves not more than 20 GWh per year.	Yes
The use of this methodology in a project activity under a programme of activities is legitimate if the leakages are estimated and accounted for	The CPA shall follow paragraph 34 of the methodology and apply net to gross adjustment factor of 0.95 to account for leakages in the PoA without monitoring it.	Yes

The use of AMS-II.G - version 10.0 to distributed cookstoves as an energy efficiency measures in thermal applications of non-renewable biomass is thereby justified.

Qualification as Type II

The CPA qualifies as Type II small-scale project type because:

- The CPA is a thermal energy efficiency improvement project activity
- The CPA reduces energy consumption on the demand side
- The CPA involves isolated units (cooking stoves)

I.3. Application of multiple methodologies

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The CPA applies a single methodology, AMS.II.G. ver 10.0.

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

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Source		Gas	Included?	Justification / Explanation
Baseline	Combustion of non-renewable biomass for cooking using inefficient cook stoves. Emission Factor for combustion of fossil fuels for cooking.	CO ₂	Yes	Major source of emissions
		CH ₄	No	Not included in respect of AMS.II.G, ver 10.0
		N ₂ O	No	Not included in respect of AMS.II.G, ver 10.0
Project activity	Combustion of non-renewable biomass for cooking using efficient cook stoves. Emission Factor for combustion of fossil fuels for cooking.	CO ₂	Yes	Not included in respect of AMS.II.G, ver 10.0
		CH ₄	No	Not included in respect of AMS.II.G, ver 10.0
		N ₂ O	No	Not included in respect of AMS.II.G, ver 10.0

As per the applicable methodology, the project boundary is the physical, geographical site of the efficient devices that utilise biomass. Each customer who buys the cook stove for use will directly utilise the device for thermal energy generation in the household. The project boundary consists of households where the cookstoves are deployed as shown in the diagram below:

The delineation of the project boundary of the CPA includes all equipment, systems, and flows of mass and energy as shown in the diagram below:

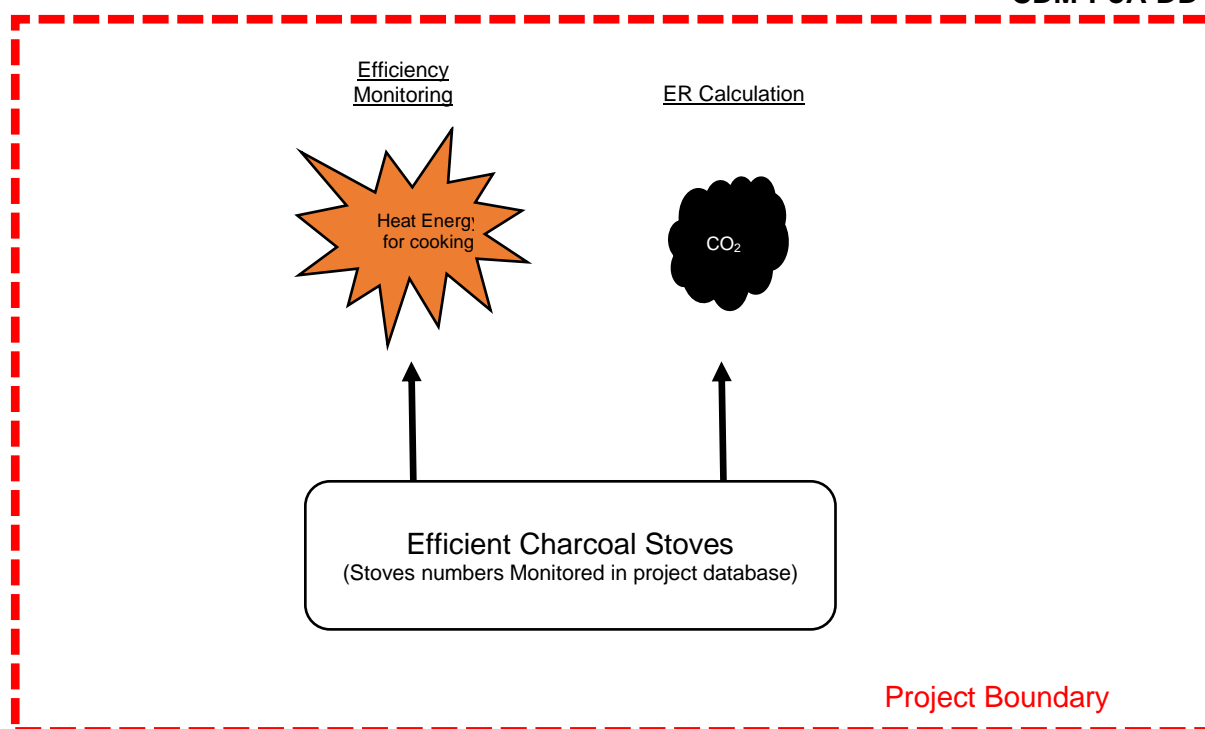


Figure 2: Project Boundary of a typical CPA.

I.5. Establishment and description of baseline scenario

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The continued validity of the original baseline is assessed and demonstrated in line with “Methodological Tool 11; “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” (Version 03.0.1).

Step 1: Assess the validity of the current baseline for the next crediting period

The “Procedures for the renewal of the crediting period of a registered CDM project activity” approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

The PoA project boundary covers Sub-Saharan African countries and the PoA currently has CPAs in Kenya and Ghana. In the two countries, energy master plans¹⁶ have been drafted which aim to increase adoption and use of efficient cook stoves. The plan formulates measures aimed at encouraging the adoption but they don't make their use mandatory. Most government policies and plans are aimed at encouraging the adoption and use of efficient stoves or renewable energy.

There are no mandatory laws in both countries requiring households to switch to use of efficient stoves and the household makes the switch voluntarily based on the information they receive from

¹⁶

https://www.undp.org/content/dam/ghana/docs/Reports/UNDP_GH_SUS_DEV_REN_MASTER_PLAN_2019.pdf and https://kplc.co.ke/img/full/BL4PdOqKtxFT_National%20Energy%20Policy%20October%20%202018.pdf

the promotional and marketing initiatives regarding the benefits of the stove. The project is therefore being implemented as a voluntary action.

Even though there are other improved cook stove players in the market, access to these stoves remains low and most of the population still use the traditional stoves for their cooking since they find them cheap and readily available. Due to their low cost, most households who cannot afford it opt to purchase the baseline stove which they are used to and it becomes hard for them to switch to ECS without access to proper information about the benefits of the ECS.

Step 1.2: Assess the impact of circumstances

At validation and registration of the PoA, the prevailing practice in the baseline is the use of inefficient stoves for cooking. Without the project activity, the households will continue to use inefficient stoves which are easily accessible and are cheap for household cooking. This practice is still the same whereby the ECS market is being expanded but the price of the ECS in the market is slightly higher than the prices offered for inefficient stove models. However, charcoal users are likely to transition to fossil fuel use such as LPG if their income levels increase.

Due to this, most households who have less disposable income are inclined to purchase baseline stove. Due to diminishing forests, charcoal prices increase due to scarcity and the households have to find alternatives to charcoal and wood. The most commonly plausible and available alternatives are fossil fuels. Therefore, the new circumstances do not have an impact on the baseline emissions. The conditions used to determine the baseline emissions in the previous crediting period are still valid at renewal. In the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs within the project boundary.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

The use of the inefficient baseline stoves is imbedded in society due to their longstanding use. There is a general belief that some traditional foods cooked using traditional stoves and charcoal taste better as opposed to those cooked using gas or electricity. The households continue to buy and use the old stove technology due to availability and price. Although there are different efficient stoves in the market, there is still a significant level of latent demand since most of the households have not been reached/covered due to several reasons such as affordability, availability, awareness etc. The baseline stoves have a short lifetime and are constantly replaced.

Even if there are now several players in the ECS sector, within the PoA boundary, the penetration rate of ECS is higher in urban areas. However, due to affordability and access to cleaner fuels, the traditional open fire, mud stove or coal pot cooking methods remain extremely popular, especially in rural areas. Therefore, the penetration rate of the market players will not affect the baseline.

Step 1.4: Assessment of the validity of the data and parameters

This step stipulates to *“assess whether data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period are still valid or whether they should be updated”*.

In order to ensure that the project ER are calculated using the most appropriate data, the data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period were examined in order to determine if they are still valid or they require updating. The data parameters were checked and the latest data parameters as per the applicable methodology and IPCC default values are applied.

The project activity was registered using the “AMS.II.G. Energy efficiency measures in thermal applications of non-renewable biomass, version 04” methodology. In accordance with the guidelines for crediting period renewal, updates should be undertaken in the following cases:

Where IPCC default values are used, the values should be updated if any new default values have been adopted and published by the IPCC, for example, in guidelines for national GHG inventories, IPCC assessment report or special reports by the IPCC;

The default values for Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers has been updated and a new default value of 63.7 t CO₂/TJ is now applied.

Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity.

The emission factors have been updated for the emission reduction calculations. Values that are determined once (at validation) have been identified and listed in their relevant sections.

Baseline Scenario

According to AMS-II.G.ver 10.0, “it is assumed that in the absence of the project activity, the baseline scenario would be the projected use of fossil fuels to meet similar thermal energy needs as those provided by the project devices.”

As per the PoA description, the project devices are ECSs using non-renewable wood fuel for all CPAs. Consequently, the baseline scenario is the projected use of non-renewable wood fuel to meet similar thermal energy needs as those provided by the ECSs, as long as the baseline device:

- i. would be used in the absence of the ECSs,
- ii. has a lower efficiency than the ECSs,
- iii. provides similar thermal energy needs as the ECSs, and
- iv. uses non-renewable wood fuels.

Each CPA being proposed will disseminate efficient cook stoves with a higher thermal efficiency which will replace baseline stoves with lower efficiencies. This action will lead to a reduction in the use of non-renewable biomass.

Section I.6.1 of the CPA-DD establishes the fraction of non-renewable biomass used in [*name of project boundary party*] and the efficiency of the baseline and project devices as well as the drawbacks of the baseline devices.

Section H.4 of the CPA-DD provides the technical specifications and service level of the project device of the CPA. It follows from the review above that in the absence of the project activity (baseline scenario) the ECSs end-users of the CPA would continue using non-renewable biomass in traditional cooking stoves with lower efficiency to meet similar thermal energy needs as those provided by the ECSs.

The emission reductions are calculated by multiplying the thermal energy from annual biomass savings stemming from non-renewable biomass with an emission factor for fossil fuels. As specified in the methodology, a value of 63.7tCO₂/TJ is applied as the emission factor for the substitution of non-renewable biomass by similar consumers (EF_{projected_fossilfuel})

There are no laws or regulations within the PoA boundary which make the sale/distribution or use of ECSs mandatory.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

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It is assumed that in the absence of the project activity, the baseline scenario would be the projected use of fossil fuels to meet similar thermal energy needs as those provided by the project devices.

The following methodological choices for calculation of the emission reductions of each CPA are used for each ECS type implemented.

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

Emission reductions are calculated as:

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

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 CO ₂ e
$ER_{y,i,j}$	=	Emission reductions by project device of type i and batch j during year y in t CO ₂ e
LE_y	=	Leakage emissions in the year y

A batch of stoves is defined as all stoves that have been sold within one calendar year (365 days), in other words, the maximum time difference between the first and last stove sold is 365 days. Since the CPA involves the deployment of improved cookstoves, the following equation is applicable as per AMS-II. G version 10.0 for calculation of emission reductions per device per year.

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

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 (f_{NRB})
$NCV_{biomass}$	=	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')
$EF_{projected_fossilfuel}$	=	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 t CO ₂ /TJ
$N_{y,i,j}$	=	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

Quantity of woody biomass saved $B_{y,savings,i,j}$ (due to implementation of efficient thermal devices) in the CPA is determined using either option 2 or option 3 of the methodology:

Option 2: kitchen performance test (KPT):

$$B_{y,savings,i,j} = B_{old,i,j} - B_{new,KPT,i,j} \quad \text{Equation (5)}$$

Where:

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

$B_{new,KPT,i,j}$ = Annual quantity of woody biomass used in tonnes per project device of type i and batch j , measured as per the KPT protocol¹⁷.

Option 3: water boiling test (WBT):

$$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}}\right) \quad \text{Equation (6)}$$

$$B_{y,savings,i,j} = B_{y=1,new,i,j,survey} \times \left(\frac{\eta_{new,i,j}}{\eta_{old,i,j}} - 1\right) \quad \text{Equation (7)}$$

Where:

$B_{y=1,new,i,j,survey}$ = Quantity of woody biomass used by project devices in tonnes per device of type i and batch j

In line with paragraph 45 of AMS-II.G. ver 10.0, the monitoring approach for $B_{y,savings,i,j}$ is determined at CPA level before the inclusion of the CPA.

For this PoA, the determination of the quantity of woody biomass saved will be done using Option 3 as the default option as it is deemed most practical, while option 2 may be chosen if justified.

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

The calculations in the equations above to determine $B_{y,savings,i,j}$ assume that there is only one device per household. Considering that baseline surveys or other methods may estimate the total consumption per household, 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.

$$B_{old,i,j} = B_{old,HH} \div N_{d,HH} \quad \text{Equation (9)}$$

$$B_{old,HH} = B_{old,p} \times N_{p,HH} \quad \text{Equation (10)}$$

¹⁷ The KPT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the KPT procedures specified by the partnership for clean indoor air (PCIA): <<http://www.pciaonline.org/node/1049>>

Where:

$B_{old,HH}$	= 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 (tonnes/household/year)
$N_{d,HH}$	= Number of project devices per household (number)
$B_{old,p}$	= 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 (tonnes/person/year)
$N_{p,HH}$	= Average number of persons per household (number)

By default, only one ECS may be purchased and used per household under this PoA. However, monitoring survey findings of sampled kitchens' stoves in use will be used to account for any additional project device and be reflected in adjustment factor $N_{d,HH}$.

As per paragraph 30 of the methodology, 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.

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

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

AMS.II-G, ver 10.0. requires to "use weighted average values if more than one type of device is being replaced."

In order to determine the efficiency of baseline stoves used in different end user locations (households or communities), the following approach may be used:

$\eta_{old,i,j}$ = 10% to 20% or a weighted average value if multiple devices are replaced, based on survey.

According to AMS.II-G. ver 10.0, a default value of 0.10 may be used if the replaced device is a three-stone fire using firewood, 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. Each CPA will determine this value and specify it in the CPA-DD during inclusion.

The loss in efficiency of the project devices i in each batch j due to aging shall be accounted during the monitoring period y . 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 device¹⁸.
- (b) The manufacturer of project devices shall confirm with technical justification based on certification by a national standards body or an appropriate certifying agent recognised by

¹⁸ If the efficiency of the project devices falls below 20%, it is no longer eligible to be considered a project device.

that body that no decrease in efficiency of project device is envisaged during the crediting period; or

- (c) Determine¹⁹ the rate of efficiency drop for a representative sample of the first batch of project device i in year y and assume that the 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.

For the purposes of this PoA, Option c is taken as the default option to be applied as it is deemed most practical, however, other options may be chosen and their choice be justified. As per AMS-II.G, ver 10.0. para. 31, life span²⁰ is only reported at CPA-level and fixed ex-ante if option a) is chosen.

Determination of $f_{NRB,y}$:

The value of the fraction of non-renewable biomass (f_{NRB}) to be applied in a component project activity (CPA) of the PoA is determined among one of the two options as follows:

- (a) Conduct local studies to determine the local $f_{NRB \text{ value}}$ (or sub-national values) as per the “TOOL 30: Calculation of the fraction of non-renewable biomass”; or
- (b) Use default values endorsed by Designated National Authorities and approved by the CDM Executive Board if available.

Leakage emissions

AMS-II.G ver 10.0 requires that 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 the woody biomass is sourced (using 90/30 precision for a selection of samples).

Paragraph 34 of AMS-II.G ver 10.0 allows that $B_{y,savings,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

In this PoA, the gross adjustment factor is used under this PoA and monitoring of leakage is therefore not required.

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

In the proposed projects under the PoA, the project will be selling new project devices to replace baseline charcoal stoves and no fuel switch will occur.

I.6.2. Data and parameters fixed ex ante

¹⁹ 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.

²⁰ If the life span of devices is less than the crediting period, it shall be demonstrated that the devices shall be replaced after the life span has ended. In such cases, if it cannot be demonstrated that the project devices will be replaced with new devices, no emission reductions can be claimed beyond the life span of the project devices

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	Where applicable a value from a standardised baseline may be used as an alternative to the default value provided
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	A default value of 0.5 tonnes/capita per year ²¹ may be used. This option is limited to household project devices (not eligible for ovens and dryers)
Purpose of data	Calculation of baseline emissions
Additional comment	-

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	This parameter shall be determined ex ante
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 comment	-

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	This parameter shall be determined ex-ante
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 comment	$B_{old,i,j}$ equals $B_{old,HH}$ when only one project device per household is distributed. For $N_{d,HH}$, please refer to Data / Parameter table 21

²¹ 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.

Data/Parameter	$f_{NRB,y}$
Data unit	-
Description	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass
Source of data	Published country-specific data/literature or FAO data
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	As per the "TOOL 30: Calculation of the fraction of non-renewable biomass"
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	$\eta_{old,i,j}$
Data unit	Fraction
Description	Efficiency of the device being replaced
Source of data	Determined ex-ante at CPA-level, based on AMS-II.G. for default values and/or baseline survey literature, statistics etc.
Value(s) applied	(i) Default 0.1 or 0.2 (please see details below); (ii) Establish prior to start of implementation based on survey
Choice of data or Measurement methods and procedures	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. Weighted average values (amount of woody biomass consumed by each device as the weighting factor) will be used if more than one type of device is being replaced.
Purpose of data	Calculation of baseline emissions
Additional comment	Use weighted average values if more than one type of system is being replaced. Only used if option 3 of AMS-II.G. is applied for determining $B_{y,savings,i,j}$

Data/Parameter	Leakage
Data unit	Fraction
Description	Net to gross adjustment factor to account for leakages
Source of data	AMS. II.G ver 10.0
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 comment	Bold is multiplied by a net to gross adjustment factor of 0.95 to account for leakages according to AMS-II.G.

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 ver 10.0
Value(s) applied	63.7
Choice of data or Measurement methods and procedures	This value represents the emission factor of the substitution fuels likely to be used by similar users, on a weighted average basis. The value is calculated, based on the global average ratio of cooking fuels (the normalized ratio of kerosene and liquefied petroleum gas (LPG) excluding coal), i.e. 9 per cent for kerosene (71.5 t CO ₂ /TJ) and 91 per cent for LPG (63.0 t CO ₂ /TJ).
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	m _{wood} / m _{charcoal}
Data unit	kg biomass/kg charcoal
Description	Conversion factor wood/charcoal
Source of data	IPCC 1996 Reference Manual, Chapter 1, Energy, p 1.45 as per in AMS II.G. ver 10.0
Value(s) applied	6
Choice of data or Measurement methods and procedures	As per in AMS II.G. Credible local conversion factors determined from a field study or literature may be applied, alternatively.
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	B _{y=1,new,i,j,survey}
Data unit	Tonnes
Description	Quantity of woody biomass used by project devices in tonnes per device of type <i>i</i> .
Source of data	Sample survey of end user or direct measurement at each end user locations.
Value(s) applied	xxx
Choice of data or Measurement methods and procedures	Calculated based on available published literature of baseline surveys or Kitchen Tests
Purpose of data	Calculation of baseline emissions
Additional comment	Determined in the first year of the introduction of the devices (e.g. during the first year of the crediting period, y=1) through measurement campaigns at representative households and/or sample survey. Sample surveys to estimate this parameter, that are solely based on questionnaires or interviews (i.e. that do not implement measurement campaigns) may only be used if the following conditions are satisfied: Pre-project devices have been completely decommissioned and only efficient project device(s) are exclusively used in the project households; If multiple devices are used in the project, it is possible from the results of the survey questions to clearly differentiate the quantity of woody biomass being used by each device. In other words, if more than one device, or another device that consumes woody biomass, are in use in project households, then the sample survey needs to distinguish the quantity of biomass used by the project device and the other devices that use biomass

Data/Parameter	Life Span
Data unit	Number of years
Description	The operating life time of the project device. The life span should be reported in cases where the PPs are opting to account the efficiency loss as per paragraph 32
Source of data	Manufacturer
Value(s) applied	XXX
Choice of data or Measurement methods and procedures	This value is based on manufacturer testing and design parameters
Purpose of data	Calculation of baseline emissions
Additional comment	This value is fixed at time of CPA inclusion for each CPA

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	0.0156
Choice of data or 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 fuel used in the project device is charcoal, 0.029 TJ/tonne may be used.
Purpose of data	Calculation of emission reductions
Additional comment	-

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

>>

For calculation of CPA emission reductions, any of the two options (option 2 and option 3) to determine $B_{y,savings,i,j}$ provided in AMS-II.G may be used.

The ex-ante emission reduction calculation per device is calculated using equation 2 as follows:

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

Where:

ER_y	xx	Emission reductions during year y in t CO ₂ e
$ER_{y,i,j}$	xx	Emission reductions by project device of type i and batch j during year y in t CO ₂ e
$B_{y,savings,i,j}$	xx	Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y
$f_{NRB,y}$	xx	Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB})
$NCV_{biomass}$	0.0156	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')

$EF_{projected_fossilfuel}$	63.7	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 t CO ₂ /TJ ²²
$N_{y,i,j}$	1	Number of project devices of type i and batch j operating during year y
μ_y	1	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
$\eta_{old,i,j}$	xx	Efficiency of the old devices being replaced by project devices of type i and batch j
$\eta_{new,i,j}$	xxx	Efficiency of the project device i and batch j
LAF	0.95	Leakage adjustment factor

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

²² This value represents the emission factor of the substitution fuels likely to be used by similar users, on a weighted average basis. The value is calculated, based on the global average ratio of cooking fuels (the normalized ratio of kerosene and liquefied petroleum gas (LPG) excluding coal), i.e. 9 per cent for kerosene (71.5 t CO₂/TJ) and 91 per cent for LPG (63.0 t CO₂/TJ).

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	Monitoring
Value(s) applied	XXX
Measurement methods and procedures	Measured directly or based on a representative sample. Sampling standard shall be used for determining the sample size to achieve 90/10 confidence precision. A discount shall be applied based on the percentage of devices operational as determined by the sample survey, e.g. if survey shows that 10% of the devices is non-operating, an adjustment factor of 0.9 shall be applied to number of project devices commissioned in a particular batch. Separate samples shall be taken for each batch
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation of emission reductions
Additional comment	-

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	When applying equations 6 and 8, it is a fraction based on monitoring results. In other cases (i.e. applying equations 3, 5 and 7), use 1.0
Value(s) applied	XXX
Measurement methods and procedures	This parameter should be monitored through surveys using questionnaire administration and telephone calls.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation of emission reductions
Additional comment	-

Data/Parameter	$\eta_{\text{new},i,j}$
Data unit	Fraction
Description	Efficiency of the device of each type <i>i</i> and batch <i>j</i> implemented as part of the project activity
Source of data	WBT findings
Value(s) applied	XXX
Measurement methods and procedures	<p>Efficiency shall be measured/estimated as per the following:</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 recognised 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 procedures specified by the Partnership for Clean Indoor Air (PCIA): <http://www.pciaonline.org/testing>. 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 cookstoves are produced by a manufacturer with a good quality management system in place 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 cookstoves 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 percent 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.
Monitoring frequency	<ol style="list-style-type: none"> (i) Recorded at the time of commissioning/distribution; (ii) Adjusted for the loss of efficiency as paragraph 32
QA/QC procedures	-
Purpose of data	Calculation of emission reductions
Additional comment	Follow provisions in paragraph 32 to account for loss in efficiency of the project devices

Data/Parameter	Date of commissioning of batch <i>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
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 emission reductions
Additional comment	To be reported in the monitoring report

Data/Parameter	Date of commissioning of project device <i>i</i>
Data unit	Date
Description	Actual date of commissioning of the project device
Source of data	Internal records
Value(s) applied	XXX
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures	-
Purpose of data	Calculation of emission reductions
Additional comment	-
Data/Parameter	$N_{d,HH}$
Data unit	Number
Description	Number of project devices distributed per household
Source of data	Internal records
Value(s) applied	XXX
Measurement methods and procedures	-
Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	-
Purpose of data	Calculation of emission reductions
Additional comment	-

I.7.2. Sampling plan

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Representative sampling will be undertaken that is designed in line with the requirements of the AMS-II.G methodology applied and the “Sampling and surveys for CDM project activities and programme of activities”.

Sampling design

Objectives and reliability requirements - The sampling objective is to provide unbiased and reliable estimates of each parameter throughout the crediting period. As per paragraph 41 of the applied methodology, “a statistically valid sample of the locations where the devices are deployed, with consideration, in the sampling design, of occupancy and demographic differences can be used to determine parameter values used to calculate emission reductions, as per the relevant requirements

for sampling in the “Standard for sampling and surveys for CDM project activities and programmes of activities”. When biennial inspection is chosen a 95 percent confidence interval and a 10 percent margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90 percent confidence interval and a 10 percent margin of error shall be achieved for the sampled parameters. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90 percent or 95 percent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.”

Target population -The target population is the number of project devices distributed within these selected monitoring period; applicable to all monitoring parameters.

Sampling method –Stratified random sampling technique will be applied since the project will have multiple batches. Detailed calculations are provided within the monitoring plan as per CDM guidelines “Sampling and surveys for CDM project activities and programmes of activities”.

Monitor parameters will be $N_{y,i,j}$, and $n_{new,i,j}$ and $B_{y=1,new,i,j,survey}$:

$N_{y,i,j}$	=	Visual inspection to see if ECS is operational and in use; interview with end user if required to verify that ECS is still in use and if the baseline stoves are retained and used (Yes/No)
$n_{new,i,j}$	=	Efficiency determined by the WBT during the monitoring period
$B_{y=1,new,i,j,survey}$	=	Quantity of woody biomass used by project devices in tonnes per device of type i^{23}

Sampling frame–Sampling frame is the database of ECSs distributed and active within the given monitoring period.

Sample size –As per the guideline, “if there is more than one parameter to be estimated, then a sample size calculation should be done for each of them. Then either the largest number for the sample size is chosen as sampling effort with one common survey, or separate sampling efforts and surveys are undertaken for each parameter”.

Thus, there are different equations to calculate the required sample size for different situations. Different equations will be used, depending on the type of the parameter of interest, that is either:

- A *percentage* (proportion parameter) – usage rate of improved cookstoves and continued-use rate of displaced pre-project cookstoves ($N_{y,i,j}$). or
- A *numeric value* (mean parameter) – the mean value of operating efficiency of improved cookstoves and/or Quantity of woody biomass used by project devices in tonnes per device ($n_{new,i,j}$ and $B_{y=1,new,i,j,survey}$).

For all of the parameters 95% confidence is required that the margin of error in the estimate is not more than $\pm 10\%$ in relative terms.

For a percentage (proportion parameter) - usage rate of improved cookstoves and continued-use rate of displaced baseline cookstoves the equation that will be used is as below:

$$n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V} \quad , \quad V = \frac{SD^2}{\bar{p}^2} = \frac{\text{overall variance}}{\bar{p}^2}$$

Where:

²³ This parameter is monitored only if the CPA applies a standardised baseline which has expired and a new value has not been published by the local DNA and approved by the CDM board.

n	=	Sample size
N	=	Number of ECSs installed in year y
p	=	Expected proportion
1.96	=	95 % confidence
0.1	=	10 % relative precision
\bar{p}	=	Overall proportion

For numeric value (mean parameter) – the mean value of operating efficiency of improved cookstoves and/or quantity of woody biomass used by project devices in tonnes per device:

$$n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V} \quad V = \left(\frac{SD}{mean} \right)^2$$

Where:

n	=	Sample size
N	=	Number of ICSs installed in year y
1.96	=	Represents the 95 % confidence required
0.1	=	Represents the 10 % relative precision
SD	=	Overall standard deviation
Mean	=	Overall mean

Sample sizes should be sufficient to ensure that the precision of the sample means/proportions are in accordance to the Sampling Frame established for the CPA within the PoA to estimate emissions reductions. In cases where survey results indicate that desired precision is not achieved, the lower bound of the corresponding confidence interval of the parameter value may be used as an alternative to repeating the survey. Alternatively, the survey may be expanded to reach the required confidence/precision.

The sampling methodology will be in accordance with the representative sampling methods provided by the methodology AMS-II.G ver 10.0 and other CDM sampling standards and guidelines. There may be partial non-response from the target population. Thus, over-sampling by 10% may be used to account for this; however, sampling may be ceased once the required confidence/precision is met. Samples will be drawn using the random number generator of an appropriate software – i.e. Excel's random selection function.

1.7.3. Other elements of monitoring plan

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Training	The CME and PAI will conduct a training programme for the PAI representative on the survey framework and approach. The major focus will be on understanding the collection of data as per the survey questionnaire.
Data Collection	The survey team will collect the data as per the sampling method.
Data entry and storage	Level of supervision and guidance provided to staff, documenting steps taken to minimise the introduction of errors. There will be a system in place to ensure all collected data is processed.
QA/QC	The type of quality checks performed on data entered, for example, range checks, inconsistency checks etc. The level of security and type of backup processes to guarantee data integrity, for example methods to prevent fraud and accidental deletion will be ensured.
Data Analysis	The data will be analysed for consolidation of findings. The data from the survey will be analysed. <ul style="list-style-type: none"> Determine the mean value of the efficiency of the ICS that are still operating ($\eta_{new,i,j}$) Determine number/fraction/proportion of project ECSs that are still in operation

	<ul style="list-style-type: none"> Determine the quantity of biomass used by project device (in the first year of the introduction of the device)²⁴
Reporting	Annual reports will be prepared. The report should contain explicit statements, explanations or content on project performance. This report will be in the form of a monitoring report.

SECTION J. Crediting period type and duration

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Renewable Crediting period

7 years and 0 Months

SECTION K. Eligibility criteria for inclusion of CPAs

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No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
1.	The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA	The CPA will be located within the geographical boundary set in the PoA in Section A.2. of PoA-DD	Database of project device distribution records
2.	Non-renewable biomass use	It can be shown that non-renewable biomass has been used since 31 December 1989, within the geographic boundary of PoA where CPA is implemented	Published literature
3.	Conditions that avoid double counting of ECSs and CPAs	<p>i. ECSs A unique serial numbering or identification system for the stoves disseminated is applied. The serial should be sequential.</p> <p>ii. CPAs The CPA is exclusively bound to the PoA. Confirmation that the programme activity has not been and will not be registered either as a single CDM project activity or as a CPA under another PoA. The serial numbers are listed in the CME Database.</p> <p>iii. Database of stove distribution records</p>	<p>A unique serial number assigned to each project device</p> <p>CPA joining agreement</p> <p>Database of project device distribution records</p>

²⁴ For cases where the standardised baseline applied has expired.

4.	The specifications of technology/measure and performance level	Improved cookstove has a minimum efficiency of 20%. The efficiency of the project systems to be certified by a national standards body or an appropriate certifying agent recognized by it.	Performance test results
5.	Conditions to check the start date	The CPA start date shall be after the PoA validation start following a successful pilot phase.	The first stove distribution order confirmation or the receipt of first stove sales
6.	The conditions that ensure that CPAs meet the additionality requirements	The CPA includes solely of units that qualify as “microscale CDM units” as defined in the “Methodological tool 19: Demonstration of additionality of microscale project activities”, such that it is not required to meet the small-scale or microscale thresholds within those thresholds.	Not applicable; refer to PoADD Section C for description
7.	Carbon rights ownership	The PAI shall cede the rights for issuance of the CERs to the CME	CPA Joining agreement
8.	Local stakeholder consultations and environmental impact analysis	Each CPA shall conduct a local stakeholder consultation process for informing the various relevant stakeholders and obtaining feedback and comments on the CPA as specified in section F of the PoA-DD. However, in cases where the CPA installs stoves and the small-scale limit is reached, and a new CPA is added, a new LSC is not necessary if the stoves are same and sold by same PAI. Environmental Impact Analysis (EIA) is not required to be conducted for CPAs under the PoA. Evidence will be provided that the CPA is exempt from undertaking the Environmental impact analysis (EIA) at CPA level.	Local stakeholder consultation report
9.	Non-diversion of ODA/Non-use of Public Funding	The CPA confirms that funding from Annex I parties, if any, does not result in a diversion of official development assistance.	CPA-DD Appendix 2, if applicable
10.	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/off-grid) and distribution mechanisms (e.g. direct installation	The target group will be households, commercial user and institutions using inefficient charcoal stoves for cooking using non-renewable biomass in urban areas.	<ul style="list-style-type: none"> • Conformity letters • Database of project device distribution records

11.	No mandatory laws, policies or requirements mandating the use of efficient charcoal cookstoves	The CPA must confirm that the country where its being implemented, there is mandatory requirement for cookstoves project to be implemented using efficient stoves	<ul style="list-style-type: none"> • Confirmation in the CPA-DD
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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 checked="" type="checkbox"/> Project participant
Organization name	ClimateCare Limited
Country	Channel Islands
Address	26 New Street, St Helier, Jersey, JE2 3RA
Telephone	+44 (0) 1534 888 777
Fax	N/A-
E-mail	tom.morton@climatecare.org
Website	www.climatecare.org
Contact person	Tom Morton

Coordinating/managing entity and/or project participants	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant
Organization name	Swedish Energy Agency
Country	Sweden
Address	Kungsgatan 43, P.O. Box 310 SE-631, 04 Eskilstuna
Telephone	+46 (0) 16 544 20 94
Fax	N/A
E-mail	kristian.holmberg@energimyndigheten.se
Website	
Contact person	Kristian Holmberg

Appendix 2. Affirmation regarding public funding

The proposed PoA does not envisage to utilise public funding or ODA

Appendix 3. Applicability of methodologies and standardized baselines

N/A

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

N/A

Appendix 5. Further background information on monitoring plan

N/A

Appendix 6. Summary report of comments received from local stakeholders

N/A

Appendix 7. Summary of post-registration changes

The following is a summary of the changes being proposed in this PRC, together with the reasons for the changes:

Proposed Change	Reason for the Proposed Changes
Additionality of the project has been revised	The PoA has applied Methodological Tool 19: "Demonstration of additionality of microscale project activities" whereby the CPAs under the PoA will include solely units that qualify as "microscale CDM units". Therefore, the CPAs within the PoA are automatically additional.
Small scale limit threshold has been removed	The PoA applies Tool 19 where each of the units contained in the CPA satisfies the condition to qualify as a 'microscale CDM unit', then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA
Eligibility criteria of CPA joining has been revised	The eligibility criteria has been refined to ensure the project operating conditions are considered by different CPAs implemented in different geographical areas
Debundling check has been removed	Tool 19 applied makes the CPA automatically additional and the small-scale threshold limit is no longer required.
Sampling design	The sampling design has been updated in line with the "Standard for Sampling and surveys for CDM project activities and programmes of activities" (Version 07.0) and the "Guideline for Sampling and surveys for CDM project activities and programmes of activities" (Version 04.0)

The following is the history of all post-registration changes to the PoA that have been approved by the Board after registration in the third PRC (PRC-8438-003) on 18th Dec 2018

Proposed Change	Reason for the Proposed Changes
i.) The frequency of monitoring the following parameters has been changed to "At least biennially" in line with the applicable methodology. a) Quantity of woody biomass used in the absence of the project activity (B_{old}) b) Statistically adjusted drop-off from total population of appliances in period y (DO_y). c) Efficiency of the project stoves deployed as part of the project activity (fraction), as determined using the Water Boiling Test (WBT) protocol η_{new} .	"At least biennial" monitoring will enable both annual and biennial verification, depending on the project circumstances. This will ensure cost-effectiveness of the monitoring and verification processes in future. To ensure consistency within the PoA-DD and the 'CDM project standard for programmes of activities', the sampling precision has been adjusted from 90/10 to 95/10 where biennial monitoring is applied. This aligns with the 'Standard for sampling and surveys for CDM project activities and programme of activities'.
ii.) Several non-material editorial changes made to the PoA-DD.	To correct non-material editorial errors and ensure consistency
iii.) Deleted in section I.2 of the PoA-DD. 'Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass ($f_{NRB,y}$), if not fixed at inclusion'.	To ensure consistency between the PoA-DD and the Monitoring Plan, since this parameter is not monitored through sampling and testing but is calculated, where national default values of fraction of non-renewable biomass do not exist.
v.) Clarification on the applicable precision for cross-CPA sampling	To ensure consistency within the PoA-DD and paragraph 20 of the "Standard for Sampling and

	Surveys for CDM project activities and programme of activities, Version 03.0", the applicable sampling precision has been clarified as 95/10 where cross-CPA sampling is applied.
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The following is the history of all post-registration changes to the PoA that have been approved by the Board after its registration in the second PRC (PRC-8438-002) on 30 May 2018:

- i.) Changes have been made on the following monitored parameter, where the frequency of monitoring has been changed from "once at the time of inclusion to the PoA" to "Annual"
 - a). Annual energy savings per appliance
 - b). Annual number of appliance to reach small scale threshold
- ii.) Monitoring frequency of the monitored parameter B_{old} has been changed from "calculation of the baseline emission reductions" to "Annual".
- iii.) Monitoring frequency of the monitored parameter DO_y has been changed from "Biennially for each CPA in the PoA" to "Annual"

The following is the history of all post-registration changes to the PoA that have been approved by the Board after its registration in the first PRC (PRC-8438-001) on 20 Dec 2016:

- i.) Change of PoA boundary to cover Kenya
- ii.) Use of positive list of technology and project activity types that are defined as automatically additional (deemed additionality) has been added as an option for additionality in the CPA inclusion criteria. This aligns with the requirements of the Methodological tool: Demonstration of additionality of small-scale project activities, ver 10.0, EB 83 annex 14.
- iii.) The specifications of technology/measure and performance level has also been changed to allow for broader efficiency testing of the stoves which will be included into the CPA. The efficiency testing has been broadened to allow PAI to test the stoves using appropriate method available to them in line with the approved methodology and with best practice on stove testing. This change does not affect the monitoring plan outlined nor will it affect the emission reductions achieved by the CPA.
- iv.) The source of data used to determine $B_{old, appliance, survey}$ has been changed to be both survey method and use of historical data. This change aligns with paragraph 7 (a) of the methodology. The change does not impact the design of the PDD nor affect the monitoring plan.
- v.) The parameter, $B_{old, appliance, survey}$, has been moved from section I.7.1 to section I.6.2 in response to a verification Forward Action Request (FAR) raised by the DOE during the last verification. This has been done due to the fact that the parameter is fixed at validation for a given CPA and it is not monitored for the entire crediting period.
- vi.) The requirement for a GS passport has been removed from the eligibility criteria of the PoA-DD. The requirement was removed because it is no longer relevant since the PoA is not going for Gold Standard certification as a result of the market requirements.

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Document information

Version	Date	Description
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.

Version	Date	Description
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-A04-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.
04.1	5 August 2014	Editorial revision to correct the document information table.
04.0	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 04.0)); • 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		