



**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	The African Cookstoves Initiative Programme of Activities
Version number of the PoA-DD	4
Completion date of the PoA-DD	09/06/2021
Coordinating/managing entity	ALLCOT AG
Host Parties	Senegal; Côte d'Ivoire; Guinea Bissau, Guinea Conakry; Kenya
Applied methodologies and standardized baselines	Standardized baselines: not applicable AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass --- Version 11.1
Sectoral scopes	3 : Energy demand

PART I. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

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

The “African Cookstoves Initiative Programme of Activities” is based on the implementation of two different types of efficient technologies which have the main aim to improve air life quality in the areas and of the communities who have problems to obtain efficient technologies and have difficulties to improve their life by themselves, efficient cookstoves and dryers

The overall goal of Improved Cookstoves (ICS) is to increase market penetration in Africa. The ICS would be distributed/installed in households, schools, and amongst street food vendors who at present use inefficient cooking appliances. In turn, the ICS will reduce global greenhouse gas emissions by reducing the quantity of non-renewable biomass consumed as cooking fuel.

The end users of the ICS provided will benefit from having improved access to the ICS market, more affordable prices, and added investment in marketing. ICS also have the potential to reduce indoor air pollution levels and the various health risks associated with breathing polluted air, thus resulting in a range of social and economic benefits to users. The proposed PoA will deliver a long-term, secure and simple contribution to sustainable development in the host countries that, without carbon finance, would not exist.

The proposed PoA aims to reduce the negative impacts due to fuelwood and charcoal withdraw for consumption at the household level. The PoA decreases the GHG emissions caused by the burning of non-renewable biomass by disseminating improved cooking devices and dryer systems. This PoA is a voluntary action that aims to develop several activities that promote the local improved cookstove (ICS) and dryer systems production and diffusion in the different African regions, in concrete Ivory Coast, Senegal, Guinea, Guinea Bissau and Kenya. ICSs and dryers will replace traditional stoves and systems commonly used by the target population in urban, peri-urban and rural areas for both domestic and commercial use.

The PoA comprises individual CDM Component Project Activities (CPAs). The production and diffusion activities will follow the framework described in this PoA-DD.

A framework for the implementation of the PoA

This PoA will consist of two different project activities that will distribute similar types of technologies with the main of increase availability and affordability of improved cookstoves (ICS), and dryers (mostly fish dryers). The target segment will be households, restaurants, fast-foods, schools, or street vendors who use either wood or charcoal in inefficient three-stone fires traditional charcoal pot supports for cooking or traditional ovens to dry food, mostly fish.

The smoking of fish constitutes a socially and economically mobilizing activity in the countries included in the PoA and generator of jobs and in which many actors from different origins. From fishing activity to marketing through processing (through smoking) and conservation, we find nationals, internationals, traders and a whole chain of foreign intermediaries.

The PoA will structure in two categories of CPAs, as show as follow:

- Category 1 Generic CPA-1: Distribution of micro-scale cookstoves systems.
- Category 2 Generic CPA-2: Distribution of micro-scale dryer systems.

In the Category 1 Generic CPA-1 the cookstoves systems involve the promotion, distribution and sale of thermally-efficient ICS among different countries in Africa (Senegal, Côte d'Ivoire, Guinea, Guinea Bissau and Kenya). The ICS disseminated through this Programme will replace the prevailing inefficient three-stone fires, traditional pot supports, or equivalent inefficient cooking appliances with stoves that improve wood combustion and heat transfer to pots, thus saving fuel and lowering greenhouse gas emissions. Depending on the country, the provider of the cookstoves and dryers

will be different. The model will be adapted to the necessities of the local communities, and in all the countries, the devices will be locally assembled.

In the Category 2 Generic CPA-2 The fish dryer systems involve the promotion, distribution and sale of thermally-efficient dryers among the different countries included into the boundary of this Programme of Activities where the CPA implementers will be the local entities who will distribute the devices.

The processing of fish by smoking is an activity that requires a strong use of energy resources fuel mainly composed of biomass and woody plants. The traditional fish dryers are made of mud brick. Often, to give a certain hardness and adaptation to the effects of fire, the communities apply a few coats of cement. Some ovens have lengths ranging from 5 to 30m for 1m wide, subdivided into hearths which have a few doors without closing accessories to keep the smoke inside thus causing a loss of combustible energy and in particular wood. A litter made of wire mesh is used to contain the smoking products. The lack of sealing and cover facilitates air leaks and therefore useful heat and fumes regardless of the arrangement of the rows of fish.



Figure 1. Example of traditional fish dryers

The dryers disseminated through this programme will replace the inefficient traditional systems, introducing new systems which provide better wood combustion, thus saving fuel and lowering greenhouse gas emissions used to the activity of smoke fish (or any other similar use).

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

The proposed PoA is a voluntary initiative to encourage investments to reduce the negative impacts due to fuelwood and charcoal withdraw for consumption at the household level. The PoA decreases the GHG emissions caused by the burning of non-renewable biomass by disseminating improved cooking devices.

This ICSs and fish dryers program is to be undertaken by CME and is implemented without any valuable consideration or legal obligation.

How the PoA contributes to the sustainable development of the host Party

The PoA will help reduce the use of non-renewable biomass from African forests assisting the maintenance of existing forest stock, protecting natural forest eco-systems, soils, and associated ecosystem services such as the regulation of water-table levels to prevent flash flooding. More specifically, the successful implementation will contribute to:

- **Social well-being:** The ICS and dryers has the capacity to reduce indoor air pollution providing a safer method for combusting biomass for cooking, helping to reduce burn injuries. Through improved thermal efficiency, ICS and dryers reduce energy needs and the associated household expenditures on cooking fuel. In addition, considerably less time will need to be spent collecting wood fuel for the family home thereby reducing the work burden on rural families and presenting alternative opportunities for economic development, as saved household labour can be diverted to more productive economic activities.

Purchasing or collecting firewood or fossil fuels to boil the water constitute a significant

expense for the very poorest households and communities. The project activity will provide access to clean drinking water, which will reduce cost for families and thereby reduce child and adult morbidity and mortality, improve attendance at school, increase productivity, and more generally give a sense of hope and opportunity.

Poverty reduction, by lowering households' expenditure for kerosene, and improving engagement in education by permitting more evening study time for students.

- **Economic well-being:** The PoA will help strengthen the employee base of implementing organizations and create direct local employment opportunities in operational and/or management roles, as well as possible future assembly, manufacturing, distribution and sales activities.

ICS and dryer project activities focuses on the professional development of the supply-chain through capacity building for stakeholders in the key business processes, from the ICS production and distribution to the ICS and dryer end-user. The present socially driven PoA aims to ensure the strengthening of the ICS and dryer value chain to contribute to future local economic development and technological self-reliance.

- **Environmental well-being:** The use of charcoal and fuelwood has been documented as one of the major causes of deforestation. The introduction of ICS would reduce the dependency on woody biomass for cooking and reduce the pressure over the remaining forest resources. The PoA will reduce greenhouse gas emissions over its lifetime. The use of inefficient cooking stoves and three-stone fires in homes has been found to cause considerable disease and death, particularly among women and children.
- **Technological transfer:** This PoA is a good technology transfer between developed countries and host countries. Different trainings in terms of manufacturing will be carry out to the local communities, in order to obtain knowledge to a local growth and manufacturing of the devices.

A.2. Physical/geographical boundary of PoA

The “African Cookstoves Initiative Programme of Activities” will be developed in Senegal, Côte d'Ivoire, Guinea, Guinea Bissau and Kenya;



SENEGAL

IVORY COAST



GUINEA BISSAU

GUINEA



KENYA

A.3. Technologies/measures

The PoA will be organized in two generic CPAs depending of the technologies used in the project activity: ICS and dryers (mostly fish dryers). The project activities included in the different category of CPAs is resumed as follow:

1. CPAs category 1 - Cookstoves:

A typical CPA of category 1 under this PoA will include a set of measures to develop the production of efficient biomass cookstoves or ICS, and scale-up dissemination among the communities in rural, peri-urban and urban areas within the defined regional boundaries of the countries included into the scope of the PoA.

The specific zones of intervention will be defined for each CPA and shall be described in each CPA-DD after each baseline study is completed.

An ICS is commonly used for cooking, heating, and water purification purposes. These technologies can be an important source of revenue for ICS producers and retailers due to ICS demand in developing countries. ICS usage within each CPA shall decrease the national GHG emissions and decrease deforestation due to fuelwood and charcoal savings. The ICS shall improve indoor air quality, have positive economic impacts, such as job creation, and empower production networks.

The technology being disseminated by the CPAs is improved efficiency cookstoves. The specific ICS model disseminated will vary according to the following elements:

- Suitability to the local cultural environment and cooking practices of the target population;
- The type of fuel available for cookstoves (e.g. woodfuel and/or charcoal);
- The level of expertise of ICS production
- The availability of local materials for ICS production.

Each CPA of this category should determine the thermal efficiency of the ICS most suitable, which shall be based on one of the following options:

- a) Certification by a national standards body or an appropriate certifying agent recognized by that body as per methodology AMS-II.G.
- b) Manufacturer specifications on efficiency based on water boiling test (WBT).
- c) Use a simplified approach if the devices are produced by a manufacturer with a recognized management system in place (see parameter description)
- d) Using the most conservative value among the results of efficiency test conducted (in case project activities implement devices with saucepan capacities both greater than 30 L as well as smaller than 30 L).

2. Category 2 – Dryer Systems

A typical CPA of category 2 under this PoA will include a set of measures to develop the production of efficient biomass dryers, and scale-up dissemination among rural, peri-urban and urban areas within the defined regional boundaries of the PoA.

The specific zones of intervention will be defined for each CPA and shall be described in each CPA-DD after each baseline study is completed.

The smoke fish dryers can be an important source of revenue for dryer producers and retailers due to dryers' demand in developing countries. Dryers usage within each CPA will decrease the national GHG emissions and decrease deforestation due to fuelwood and charcoal savings. The dryers will improve indoor air quality, have positive economic impacts, such as job creation, and empower production networks.

The technology being disseminated by the CPAs is improved efficiency dryers. The specific dryers model disseminated will vary according to the following elements:

- Suitability to the local cultural environment and cooking practices of the target population;
- The type of fuel available for dryers (e.g. woodfuel and/or charcoal);
- The level of expertise of dryers production
- The availability of local materials for dryers production.

The smoking of fish is a socially and economically mobilizing activity that generates employment and in which many players from different origins are involved. From fishing activity to marketing, through processing (smoking) and conservation, there are national, international traders and a whole chain of intermediaries; Traditional ovens represent advances in processing techniques and systems. They reflect quantitative and qualitative production needs in relation to the past of the sector to face a potential market, exchange and commerce. It should be noted that these "non- standard" models are very energy intensive in terms of the use of fuels but also of greenhouse gas emissions.

A.4. Coordinating/managing entity

ALLCOT AG.

A.5. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Senegal (host party)	n/a	No
Côte d'Ivoire (host party)	ALLCOT AG	No
Guinea Bissau (host party)	ALLCOT AG	No
Guinea (host party)	ALLCOT AG	No
Kenya (host party)	ALLCOT AG	No

A.6. Public funding of PoA

No public funding diverted from ODA will be used for this activity. The financing scheme encourages private investments.

SECTION B. Management system

The management system is developed in accordance with the CDM project standard for programmes of activities Version 02.0.

The plan will implement operational and management arrangements for the implementation of the PoA, including:

- a) A record keeping system for each CPA under the PoA. The coordinating entity will maintain a database with the following information for each CPA:
 - a. Name of the CPA and CDM ID number
 - b. Implementing entity of the CPA (name and contact details)
 - c. Location of the project of each CPA: Region, Province, Commune, Country.
 - d. Specific Location of the devices distributed (coordinates of households, schools and businesses (street food vendors)
 - e. Type of technology/measure implemented of the CPA (ICS or dryers)
 - f. Control of the monitoring parameters of each CPA
 - g. Verification status for each monitoring period
 - h. Environmental Approval status and reference to the relevant documentation, if applicable.
- b) The provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA;

For the inclusion of a CPA under the PoA, the CPA Operator shall provide a notarized letter of consent, stating that:

- They are aware and have agreed that their activity is being subscribed to the PoA “The African Cookstoves Initiative Programme of Activities”
- The CPA will not be registered as a single CDM project activity or as a CPA under another PoA.

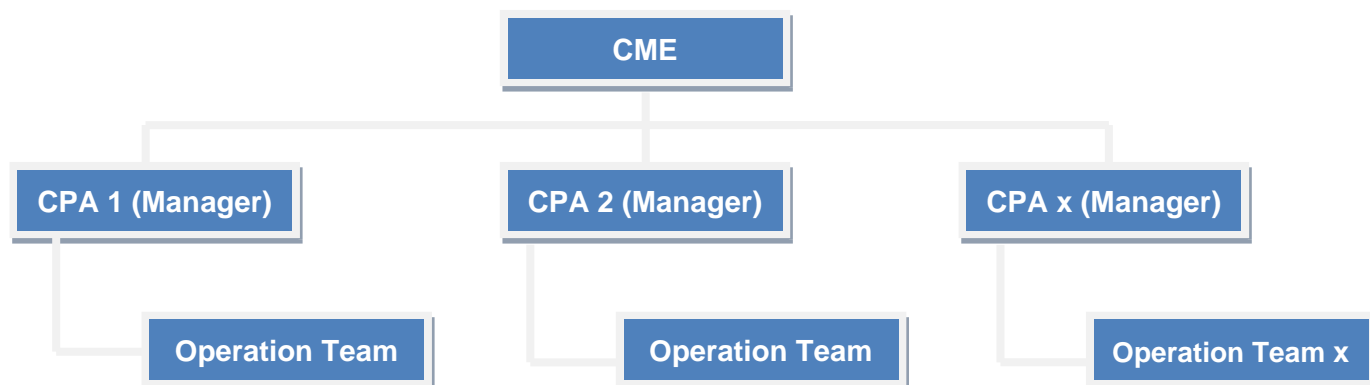
The electronic database described above shall be used to determine that a CPA is not a de-bundled component of another CDM project activity. Every new type of technology (ICS or dryer) included as a CPA will be compared to the already existing database and the list of project activities under-validation or registered at the UNFCCC. Further, the project participants will be made aware of the de-bundling rules and will certify that the proposed CPA is not a de-bundled part of a project. Should such a case occur then the coordinating entity would not proceed with inclusion of the corresponding CPA in the proposed PoA.

- c) A system to determine the status of verification at any time for each CPA. Monitoring could be carried out by the CME for each monitoring period, either a single or multiple separate monitoring report. The monitoring reports will be prepared and submitted to the DOE for verification. The CPAs included in a monitoring report may have different or identical verification periods. To avoid double accounting, it will have a control spreadsheet to register for each CPA the verification period covered by every monitoring report.

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

The operational and management structure set up a clear information and data flow channel between the CME and the CPA implementer.

At CPA level, CME will ensure the actual involvement of field personnel in the monitoring and data collection and record keeping activities. A CPA manager will be designated by each CPA, who work in concordance with the CME in the monitoring labors. The structure and responsibilities of each actor are presented in the following chart and table:



Team	Responsibilities
CME	<ul style="list-style-type: none"> Supervise all activities under the PoA Review of CPA before inclusion. Engaging the host country DNAs for letters of approvals etc. Develop data recording formats and provide them to the CPA implementer in each region. Designing of a standardized operational manual to be followed by all CPAs. Manage a centralized database system and maintain the data of each CPA. Carry out quality control and quality assurance of data and CPA operation. Supervise the data gathering process after project implementation to document emission reductions according to the Monitoring Plan. Calculate the emission reduction based on monitored parameters Prepare periodically monitoring reports Responsible for reviewing the monitoring parameters on a quarterly basis Maintain and manage PoA database. Hiring of a Consultant & DOE during verifications/renewal of PoA Periods and CPA crediting periods. Trainings.

CPA Implementer/Project participants	CPA Manager	<ul style="list-style-type: none"> ▪ Responsible for all activities under the CPA ▪ Management ▪ Manage database of devices (cookstoves and dryers) users for CPA in line with CDM requirements under the supervision of CME. ▪ Report CPA data and monitoring information to the CME. ▪ Database maintenance and management of the power plant in accordance with the monitoring plan. ▪ Ensure all relevant personnel are continuously trained on data recording and monitoring parameters.
	Operation Team	<ul style="list-style-type: none"> ▪ Responsible to ensure a correct distribution and utilization of the devices. <ul style="list-style-type: none"> ▪ Responsible of control and check the location of each specific device. ▪ Check data record and compilation ▪ Send independent units (ICS and dryers) data to CPA Manager ▪ Carry out operation and maintenance of the power plant. ▪ Capture hard copy data as per the data recording format (logbook), every day on a continuous basis.

Records of arrangements for training and capacity development for personnel

Training shall be provided by the CME to all the personnel involved in the CPA development and monitoring activities. It will be carried out to ensure the CME personnel is qualified to implement the PoA and is familiar with the EB latest guidelines related to PoA development, CPA inclusion, monitoring, verification and issuance.

The training and capacity building activities include seminars, webinars, and other courses carried-out by specialized entities. The frequency of such activities is subject to the outcomes of the periodic evaluation of the CME operation and management, carried-out as result of its policies on continuous improvements.

The CME Staff will be qualified to perform the below activities:

- Eligibility check
- Additionality tests
- Baseline estimations
- Monitoring requirements

The training and capacity development activities will ensure the correct monitoring procedures as established in the CPA-DD, so for this purpose, each CPA implementer will receive specific training adapted to the technical requirements of each CPA according to the installed technology of each type of ICS and dryers distributed (usage manual, easy-to-understand...). The CME will be responsible for keeping the record of training and capacity development activities provided to relevant personnel. Example of the record includes:

- Date, time, and venue of each training and capacity development events;
- Attendee records of each event;
- Agenda and content of each training and capacity development events

A procedure for technical review of inclusion of CPAs

The CME shall assess/cross-check the CPA(s) against the list of eligibility criteria above before accepting the CPA-DD and submitting to DOE for inclusion.

A procedure to avoid double counting

A system/procedure to avoid double accounting: avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA.

For this purpose, prior to the inclusion of a new CPA the databases of the different standards available will be checked to identify project activities located in the same Region. If the projects are identified, the specific locations and technical characteristics of the specific CPA will be compared. If the new CPA corresponds to another CDM project activity or a CPA included into another PoA, it will not proceed with its inclusion in the PoA.

Each unit to be installed in each CPA shall have unique identification based on the following information:

- Location and GPS coordinates of the plant
- Location and contact details of end'-users
- Agreement between CPA Implementer and CME
- CPA number

The coordinating/managing entity will have the sole rights to claim and own Carbon Emission Reductions under the Clean Development Mechanism of the UNFCCC.

Records and documentation control process for each CPA under the PoA

In order to ensure the quality and assurance of the information, the CME will develop and manage a records and documentation control system. Also, it will be responsible for regularly updating the PoA database. All the above data will be kept at least for 2 years after the end of the crediting period.

The CPA Manager will be responsible for managing and recording data associated to each SSC-CPA. The Excel database will be updated using data supplied by the CPA implementer; which will be the basis for the verification of SSC-CPAs and which will be available for inspection by the DOE at any point in time.

Measures for continuous improvements of the PoA management system

The CME has developed a profound PoA management system which clearly defines the CPA eligibility criteria, monitoring structure, data recording system, and roles and responsibilities of the CME and the CPA manager.

Those are the steps adopted to establish measures for improvement:

- Necessary information and training of CPA Implementers to improve the monitoring process as required by the PoA.
- Ensure that people involved in the actual monitoring process for the CPA are suitably trained.
- Updating the monitoring or measurement procedures at the time of revision in the actual scenarios.
- Conduct internal meeting and workshops for the management of the CPAs

The CME will organize a meeting with all his/her staff and CPA personnel to review the performance of the PoA management system on a semi-annual basis to identify any issues that need to be addressed in order to obtain continuous improvements.

An evaluation of the monitoring control of the CPA site will also be done in order to identify deviations and/or non-conformities to the monitoring plan, and to take corrective and prevention actions. In a first stage, the CME will check (along with the responsible personnel at the CPA site), the procedures related to registration and measurements of raw data, as well as recording and documentation measurements. If during this revision the CME identifies a deviation, potential deviation, or a non-conformity of the monitoring plan, the CME will communicate the situation by written notification.

The CPA owner (or CPA implementer, as applicable), shall implement corrective and preventing action in order to correct the situation in a timely manner. If there no errors or non-conformities are observed during the checking process, the CME will inform by written notification that there is no need for further actions.

SECTION C. Demonstration of additionality of PoA

Additionality shall be demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur. Under this PoA it has been proposed that the devices will be distributed to the targeted end users.

In accordance with the applied methodology, additionality is demonstrated using 3 of the methodology.

Option 3

CPAs are additional applying the "TOOL19: Demonstration of additionality of microscale project activities". The paragraph 12 of TOOL19 states that:

"Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year are additional if any one of the conditions below is satisfied:

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

The CPAs consist on the distribution of high efficiency biomass devices, and if each of the devices 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 this case, the requirements related to debundling stated in paragraph 6 of the Tool 19, do not apply.

SECTION D. Start date and duration of PoA**D.1. Start date of PoA**

26/03/2020 (corresponding to the date when the coordinating/managing entity notified the UNFCCC secretariat (hereinafter referred to as the secretariat) of the intention to seek the CDM status for the PoA in accordance with the “CDM project cycle procedure for programmes of activities” for the purpose of determining the start date of the PoA.

The notifications to the DNAs were made after the notification to the UNFCCC in the following dates:

- Senegal DNA: 17/08/2020
- Ivory Coast DNA: 05/10/2020

In the case of Guinea and Guinea Bissau the notification was made during the Letter of Approval request in November 2020.

In the case of Kenya, the notification was made during the Letter of Approval request in September 2020.

D.2. Duration of PoA

The length of the PoA is 28 years 0 months.

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

The Environmental Analysis will be done at CPA level. Individual CPAs under this PoA will be implemented at different geographical locations involving uniquely identified separate technological measures. Environmental impacts, if any, associated with the implementation of each CPA is, therefore, expected to occur at individual CPA level. Hence, the environmental analysis will be conducted at individual CPA levels as and when a new CPA is intended to be added to this PoA

E.2. Analysis of environmental impacts

Not applicable.

E.3. Environmental impact assessment

Not applicable.

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

The Local stakeholder consultations will be held at the CPA level, taking into consideration the differences of circumstances and opinions of each and every community in which each CPA is located. It is essential to capture each community's view on the impact of the CPA implemented in the surrounding.

As every CPA might present different circumstances and opinions of the relevant communities the local stakeholder comments will be invited separately for each CPA and not at PoA level.

In the case of CPAs including projects which must analyse its environmental impacts through an Environmental Impact Assessment (EIA), a formal stakeholder consultation needs to be included as part of the assessment process by the environmental authority.

F.2. Modalities for local stakeholder consultation

Not applicable.

F.3. Summary of comments received

Not applicable.

F.4. Consideration of comments received

Not applicable.

SECTION G. Approval and authorization

ALLCOT AG is authorized as CME by all the host countries through the letters of approval issued on:

- Senegal – 27/11/2020
- Ivory Coast – 23/10/2020
- Guinea Bissau – 06/11/2020
- Guinea – 10/11/2020
- Kenya – 26/05/2021

On the other hand, Ivory Coast, Guinea Bissau, Guinea Conakry and Kenya have also authorized ALLCOT AG as Project Participant of the Programme of Activities in the same Letter of Approval.

The letters of approval from Parties involved in the POA have been provided to the DOE for validation.

PART II. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

Category 1 Generic CPA-1: Distribution of micro-scale cookstoves systems

H.2. Reference number of generic CPA

Generic CPA-1

H.3. Purpose and general description of generic CPA

The project activity to be implemented is considered as Type II as per the project standard. The goal is to increase availability and affordability of improved cookstoves (ICS) in the countries included in the PoA boundary. The CPA will involve the promotion, distribution and sale of improved cooking stoves (ICS) among the target segment of the CPA. The target segment can be households, or schools, or street vendors who use either wood or charcoal in inefficient three-stone fires or traditional charcoal pot for cooking.

It will include specific measures to increase the production, dissemination and use of improved biomass cookstoves in urban, peri-urban and rural communities, improving in the production process, marketing actions and quality control and monitoring processes will be put in place.

The ICS disseminated through the CPA will replace the prevailing traditional pot supports or equivalent with stoves which combust woody biomass more efficiently, and improve thermal transfer to pots, hence saving fuel and lowering greenhouse gas emissions. Each CPA would result in a scaling up of the production and sale of ICS, leading to a decrease in biomass consumption, GHGs emissions, and indoor air pollution.

In accordance with paragraph 128 of the CDM Project Standard for Programme of Activities, Type II corresponds to energy efficiency improvement project activities that reduce energy consumption, on the supply and/or demand side, with a maximum energy saving of 60 GWh per year (or an appropriate equivalent) in any year of the crediting period. Since CPAs of this category are solely composed of improved cookstoves with a maximum energy saving per stove of 20GWh (microscale project activities), this category of CPA qualifies as Type II and microscale.

Hence, the CPA is qualified as micro scale Type II.

H.4. Technologies/measures

Compared to the replaced traditional cooking stove used by the end-users, ICSs are more efficient while providing the same service. They allow better heat retaining, i.e. quicker heating-up and longer cooking times with less wood fuel (and combustion fumes), curbing deforestation.

Currently the common systems used for cooking are the traditional open fire (3-stone) system and traditional stoves which are still dominant in most of the households. The introduced ICS model reduces fuel use and the emissions reductions by improving heat transfer and combustion efficiency compared to the pre-project device.

The efficient ICSs to be implemented for each CPA will be in the following range of specifications:

Technical Specifications Range	
Type Stove	Charcoal-Wooden
Boiling time	15-30 min

Thermal efficiency	20-50 ¹ %
Average lifetime	2-5 years

The cookstoves existing are based on the use of non-renewable biomass with a high emission factor, even more than many fossil fuels. Hence, it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs.

¹ In accordance with paragraph 3 of the applied methodology, consider all single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent or higher

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

The methodology AMS-II.G “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 11.1.0) will be applied. This methodology includes the use of the following Tools:

- Tool 19: [“Demonstration of additionality of micro-scale project activities” Version 09.0](#)
- Tool 30: [“Calculation of the fraction of non-renewable biomass” Version 03.0](#)

I.2. Applicability of methodologies and standardized baselines

This methodology comprises efficiency improvements in thermal applications of non-renewable biomass. In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent.

Id.	Applicability of the methodology AMS-II.G	Justification of applicability
1	This methodology 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 to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers ² .	The CPA includes dissemination of high efficiency biomass fired ICS to replace the existing traditional cookstoves in beneficiary households, schools and street food vendors. The same has been developed as an eligibility criterion 3 for inclusion of CPAs.
2	In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent.	The CPA shall include only those ICS that have a rated thermal efficiency of at least 20%. The same has been developed as an eligibility criterion 3 for inclusion of a CPA. Every type of ICS implemented in the CPA will present a certificate issued by manufacturer or an appropriate certifying agent at the time of CPA inclusion proving the thermal efficiency as required by the CDM methodology.
3	The aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input.	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. Demonstration of a compliance of the CPA with the small-scale thresholds at the aggregate level of the CPA is no longer required.

² Implementation of Greenfield applications is not covered in this methodology.

4	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	The CPA shall demonstrate the evidence of the use of the biomass (the non-renewable biomass in the region has been used since 1989).
5	For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology	Not applicable.
6	If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	Not applicable.
7	The CDM-PDD or CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end- user locations (e.g. programme logo).	Each CPA-DD will explain in detail the procedure of distribution of the devices to be implemented.
8	The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	Each CPA-DD will explain in detail the procedure to avoid the double counting emissions reductions. In the established contract, the serial numbers corresponding to each ICS will be indicated, which will be added to the corresponding database, in order to determine the novelty of the device and not their prior use. The contract will specify how the ownership of the carbon credits corresponds to the CME.
9	Demonstrate that the design of the generic CPA qualifies as Type I, Type II, and/or Type III in accordance with applicable provisions on small-scale project type and eligibility in the project standard.	This Generic CPA comprises project activities the implementation of project activities based on the reduction of energy consumption on demand side with a maximum energy saving per unit of 20 GWh(e) per year, therefore, type II in accordance with paragraph 126 of the CDM Project Standard for Programme of Activities.

I.3. Application of multiple methodologies

Not applicable.

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

The project boundary of the CPA follows the definition in AMS-II.G, Version 11.1.

Source		GHG	Included?	Justification/Explanation
Baseline	Combustion of non-renewable biomass for cooking	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor emission source excluded as conservative measure

		N ₂ O	No	Minor emission source excluded as conservative measure
Project activity	Combustion of non-renewable biomass for cooking (ICS)	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor emission source excluded for simplicity
		N ₂ O	No	Minor emission source excluded for simplicity

According to AMS-II.G (version 11.1), the spatial extent of the project boundary is the physical, geographical site of the efficient devices that utilize biomass. Also, as per methodology prescription a net to gross adjustment factor (i.e. default value of 0.95) has been considered in the PoA to account for leakages, as an ex-ante parameter. Therefore, no other emission sources for leakage emission are required in the project boundary, hence not included in the table above.

I.5. Establishment and description of baseline scenario

According to the methodology, it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. Non-renewable biomass is used in the pre-project scenario, which actually has a higher emissions factor than many fossil fuels.

As per the project description in the A.1 of the PoA-DD, the project device is the improved efficiency cookstoves reducing fuel use and emissions of GHGs. Consequently, the baseline scenario is the projected use of fossil fuel, the non-renewable biomass, to meet similar thermal energy needs as those provided by the project devices.

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.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

Emission reduction

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.

Emission reductions are calculated as:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

Equation (1)

Where:

- i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices³
- j = Indices for the situation where there is more than one batch of project device
- ER_y = Emission reductions during year y in t CO₂e
- $ER_{y,i,j}$ = Emission reductions by project device of type i and batch j during year y in t CO₂e

³ For example, in some instances, full replacement of the pre-project device would require the implementation of more than one project device (e.g. one stove suitable for cooking and the other stove suitable for cooking/boiling water).

LE_y = Leakage emissions in the year y

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

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

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

$f_{NRB,y}$ =Fraction of woody biomass that can be established as non-renewable biomass (fNRB)⁴.

$NCV_{biomass}$ =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').

$EF_{projected_fossil\ fuel}$ =Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers.

$N_{y,i,j}$ =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 7 and 9 (fraction). Use 1.0 in other cases.

To calculate the emission factor for the substitution of non-renewable woody biomass there are two ways to calculate, using default values (table 2 of the methodology for Sub-Saharan Africa) or applying the following equation making an estimation:

$$EF_{projected_fossil\ fuel} = \sum_j \{x_j \times (EF_{FF,j,CO_2} + EF_{FF,j,CH_4} \times GWP_{CH_4} + EF_{FF,j,N_2O} \times GWP_{N_2O})\} \quad \text{Equation (3)}$$

Where:

x_j = Percentage share of fossil fuel use⁵ (a fraction representing the share of fossil fuel type j in total fossil fuel used in the region/country or project area for cooking)

EF_{FF,j,CO_2} = CO₂ emission factor for the fossil fuel j. Use a value in the table 3 of the methodology (t CO₂/TJ)

EF_{FF,j,CH_4} = CH₄ emission factor for the fossil fuel j. Use a value in the table 3 of the methodology (t CH₄/TJ)

EF_{FF,j,N_2O} = N₂O emission factor for the fossil fuel j. Use a value in the table 3 of the methodology (t N₂O/TJ)

GWP_{CH_4} = Global Warming Potential of CH₄ valid for the commitment period

⁴ Default values endorsed by designated national authorities and approved by the Board are available at <http://cdm.unfccc.int/methodologies/standard_base/index.html>.

⁵ For example, percentage share of kerosene, LPG and coal in total fossil fuel used in the country X is 10%, 70% and 20%, then the parameter value for x_j should be 0.1, 0.7 and 0.2 respectively.

GWP_{N_2O} = Global Warming Potential of N_2O valid for the commitment period

The value of f_{NRB} shall be calculated using one of the following options in each CPA:

- Ex ante: Is determined once at the validation stage, thus no monitoring and recalculation of the f_{NRB} value during the crediting period is required.
- Ex post: Is determined for the year “y” in the crediting period ($f_{NRB,y}$), requiring the f_{NRB} to be updated annually, following a consistent calculation procedure throughout the crediting period.

In the following table are shown the different equations to be applied. Each CPA will choose one in function of the available information of each one.

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

Option	Equations to apply
Option 1: Thermal Energy Output (TEO)	$B_{y,savings,i,j} = \frac{HR_{y,i,j}}{NCV_{biomass}} \times \left(\frac{1}{\eta_{old,i,j}} - \frac{1}{\eta_{new,i,j}} \right) \quad \text{Equation (4)}$ <p>Where $HR_{y,i,j}$ is calculated as follows:</p> $HR_{y,i,j} = HC_{i,j} \times t_{y,i,j} \times 0.0000036 \quad \text{Equation (5)}$ <p>$HC_{i,j}$ = Rated thermal capacity as per manufacturer specification (kW)</p> <p>$t_{y,i,j}$ = Number of hours of utilization of the device during the year y</p> <p>0.0000036 = Factor to convert kWh to TJ</p>
Option 2: kitchen performance test (KPT)	$B_{y,savings,i,j} = B_{old,i,j} - B_{new,KPT,i,j} \quad \text{Equation (6)}$
Option 3: water boiling test (WBT)	$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}} \right) \quad \text{Equation (7)}$ $B_{y,savings,i,j} = B_{y=1,new,i,j,survey} \times \left(\frac{\eta_{new,i,j}}{\eta_{old,i,j}} - 1 \right) \quad \text{Equation (8)}$
Option 4: controlled cooking test (CCT)	$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{SC_{new,i,j}}{SC_{old}} \right) \quad \text{Equation (9)}$

Each CPA will choose one of the options above:

Where:

$HR_{y,i,j}$	= Useful thermal energy output delivered per project device i in batch j during year y (TJ)
$\eta_{old,i,j}$	= Efficiency of the old devices being replaced by project devices of type i and batch j
$\eta_{new,i,j}$	= Efficiency of the project device i and batch j
$B_{old,i,j}$	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 protocol. The KPT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the KPT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)).
$B_{y=1,new,i,j,survey}$	= Quantity of woody biomass used by project devices in tonnes per device of type i and batch j
SC_{old}	= Specific fuel consumption or fuel consumption rate of the pre-project devices
$SC_{new,i,j}$	= Specific fuel consumption or the fuel consumption rate of the devices of type i and batch j deployed as part of the project

Considering that baseline surveys or other methods may estimate the total consumption per household, an adjusted formula as below will be used in case more than one project device is used in the household.

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

$$B_{old,i,j} = B_{old,HH} \div N_{d,HH} \quad \text{Equation (10)}$$

$$B_{old,HH} = B_{old,p} \times N_{p,HH} \quad \text{Equation (11)}$$

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)

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) in case of charcoal is used as the

fuel by baseline (old) or project (new) devices ⁶. Alternatively, credible local conversion factors determined from a field study or literature may be applied.

In terms of the lifetime of project devices, each CPA-DD shall provide technical information based on the manufacturer's specification. In addition, will be necessary to demonstrate the life span of them, in case of being less than the crediting period, the devices shall be replaced, however no emission reductions can be claimed beyond the life span of the project devices.

As per paragraph 37 of the methodology, each CPA shall determine the loss in efficiency of the project devices, in function of the option chosen:

- a. For options 1 and 3: The loss in efficiency or decrease in the capacity should be identified ex ante following the options provided by the methodology.
- b. For options 2 and 4: any annual changes of the quantity of woody biomass used and any annual changes in specific fuel consumption will be captured by the KPT and CCT respectively, not being necessary apply any requirements explained in the methodology.

Leakage

AMS-II.G. requires that leakage related to the non-renewable woody biomass saved by the project activity will 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). AMS-II.G. allows that $By_{savings,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. A default value of 0.030 t CH₄/t charcoal may be used in accordance with "AMS-III.BG.: Emission reduction through sustainable charcoal production and consumption.

⁶ Refer to: <<http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf>>. The term 'wet basis' assumes that the wood is 'air-dried' as is specified in the IPCC default table

I.6.2. Data and parameters fixed ex ante

Data/Parameter	X_j
Data unit	Fraction
Description	Percentage share of fossil fuel use (a fraction representing the share of fossil fuel type j in total fossil fuel used in the region/country or project area for cooking)
Source of data	Published literature, official reports or statistics, surveys.
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of the emission reductions
Additional comment	-

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 standardized baseline may be used as an alternative to the default value provided
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	A baseline survey will be carried out in order to determine this value for each region
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	$N_{p,HH}$
Data unit	Number
Description	Average number of persons served per household prior to project implementation
Source of data	Determined ex ante prior to CPA implementation based on records of households served by the project
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	Based on records of households served by the project, baseline surveys or publicly available information of government statistics of average HH size in the country/region
Purpose of data	Calculation of the emission reductions
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 at CPA level
Value(s) applied	This parameter shall be determined at CPA level

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 the emission reductions
Additional comment	The value may be derived, based on the historical data or a sample survey conducted as per the latest version of “sampling and surveys for CDM project activities and programme of activities”. Paragraph 23 of “General guidelines for SSC CDM methodologies (version 22.1)” provides guidance on the use of data including historic data to derive parameter values. Values used in other schemes (e.g. registered Gold Standard carbon offset projects) from the same region are acceptable when it is demonstrated to be suitable for use as per the procedures indicated in the above general guidelines

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 at CPA level
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	$B_{old,HH}$ divided by $N_{d,HH}$
Purpose of data	Calculation of the emission reductions
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 of methodology

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	-
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	As per the “TOOL30: Calculation of the fraction of non-renewable biomass”
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	SC_{old}
Data unit	t fuel/unit output or t fuel/hour
Description	Specific fuel consumption or fuel consumption rate of the pre-project devices
Source of data	-
Value(s) applied	This parameter shall be determined at CPA level

Choice of data or Measurement methods and procedures	<ol style="list-style-type: none"> 1. Specific fuel consumption or fuel consumption rate of the pre-project devices, that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Specific fuel consumption or fuel consumption rate are to be determined using the CCT protocol carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the CCT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)). 2. Use weighted average values if more than one type of device is being replaced (taking the amount of woody biomass consumed by each device as the weighting factor). 3. When the CCT is conducted on a sample basis, the sampling requirements indicated in section 6.2 and guidance provided in the "Standard for sampling and surveys for CDM project activities and programme of activities" shall be followed
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	HC _{i,j}
Data unit	kW
Description	Rated capacity for delivering heat as per manufacturer specification (kW)
Source of data	This parameter shall be determined ex ante at CPA level
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	The useful thermal energy shall be calculated based on the rated capacity of the project device multiplied by the number of utilization hours. Refer Equation (4)
Purpose of data	Calculation of the emission reductions
Additional comment	-

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

As describe before, the emission reductions are calculated as follows:

Equation (12)

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

Where:

i	=	Indices for the situation where more than one type of project device is introduced to replace the pre-project devices ⁷
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

Being necessary to calculate before $ER_{y,i,j}$, which is determinate as follows:

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel}$$

Equation (13)

Where:

$B_{y,savings,i,j}$	=Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y.
$f_{NRB,y}$	=Fraction of woody biomass that can be established as non-renewable biomass (fNRB) ⁸ .
$NCV_{biomass}$	=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').
$EF_{projected_fossil\ fuel}$	=Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers.
$N_{y,i,j}$	=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 7 and 9 (fraction). Use 1.0 in other cases.

If apply the option to estimate the emission factor for the substitution of non-renewable woody biomass, shall be apply the following equation:

$$EF_{projected_fossil\ fuel} = \sum_j \{x_j \times (EF_{FF,j,CO2} + EF_{FF,j,CH4} \times GWP_{CH4} + EF_{FF,j,N2O} \times GWP_{N2O})\}$$
 Equation (14)

Where:

⁷ For example, in some instances, full replacement of the pre-project device would require the implementation of more than one project device (e.g. one stove suitable for cooking and the other stove suitable for cooking/boiling water).

⁸ Default values endorsed by designated national authorities and approved by the Board are available at <http://cdm.unfccc.int/methodologies/standard_base/index.html>.

x_j	= Percentage share of fossil fuel use ⁹ (a fraction representing the share of fossil fuel type j in total fossil fuel used in the region/country or project area for cooking)
EF_{FFj,CO_2}	= CO ₂ emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t CO ₂ /TJ)
EF_{FFj,CH_4}	= CH ₄ emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t CH ₄ /TJ)
EF_{FFj,N_2O}	= N ₂ O emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t N ₂ O/TJ)
GWP_{CH_4}	= Global Warming Potential of CH ₄ valid for the commitment period
GWP_{N_2O}	= Global Warming Potential of N ₂ O valid for the commitment period

⁹ For example, percentage share of kerosene, LPG and coal in total fossil fuel used in the country X is 10%, 70% and 20%, then the parameter value for x_j should be 0.1, 0.7 and 0.2 respectively.

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

Data/Parameter	$N_{y,i,j}$
Data unit	-
Description	Number of project devices of type i and batch j operating during year y
Source of data	Monitoring
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	Measured directly or based on a representative sample. Sampling standard shall be used for determining the sample size. As CPAs solely composed of “microscale CDM units” as defined in the Methodological tool “Demonstration of additionality of microscale project activities”, 95/10 confidence/precision shall be applied for sampling surveys.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation 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 Equation (6) and Equation (8), it is a fraction based on monitoring results. In other cases (i.e. applying equations: Equation (3), Equation (5) and Equation (7)), use 1.0
Value(s) applied	Determined at CPA level
Measurement methods and procedures	<p>This parameter should be monitored using one of the following methods:</p> <ol style="list-style-type: none"> 1. If the pre-project devices are decommissioned and no longer used, as determined by the monitoring survey its value is 1.0. If both the project devices and pre-project devices are used together, measurement campaigns shall be undertaken using data loggers such as stove utilization monitors (SUMs) which can log the operation of all devices (recording the situation of the device being used or not during any day ‘d’ of the measurement campaign) in order to determine the average device utilization intensity (to establish the relative share of the usage of the devices). The measurement campaign shall be conducted in at least 10 randomly selected participant households of the project activity or the component project activity (CPA) for at least 90 days during the year y. If seasonal variation is observed, the average value determined through the campaign shall be annualized taking into account seasonal variation of device utilization. 2. Alternatively, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices. For example, if there were 3 pre-project devices per household and it was determined during the survey that use of one of them continues during the crediting period then a conservative adjustment factor of 0.66 is applied for the relevant monitoring period. Another example would be the case where there was only one pre-project device per household and its use during the project period

	continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75. Where a more precise data is available i.e. the thermal capacity of the project and pre-project devices and respective utilization hours, a weighted average adjustment factor may be used
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation of the emission reduction
Additional comment	<p>- If Equation (7) under option 3 (WBT) is used combined with direct measurement of Biomass new, then may be assumed as 1.0.</p> <p>- When the data loggers are used, the days when only project devices or only pre-project devices are used will be attributed accordingly. The days where both devices have been used, if the data loggers are able to detect and record the time each device has been used (e.g. in hours), the share in the total duration of utilization will be used to attribute a fraction of this day to one or to the other device. Alternatively, if the data loggers are not able to determine the duration of the utilization, but only the situation of the device being on or off (i.e. used or not used during that day), the share of 50:50 may be used</p>

Data/Parameter	$t_{y,i,j}$
Data unit	Number of hours
Description	Number of hours of utilization of the device during the year y
Source of data	-
Value(s) applied	
Measurement methods and procedures	The rated capacity shall be based on the manufacturer specification. The number of utilization hours shall be estimated at least once every two years using surveys designed and managed in accordance with the the "Standard for sampling and surveys for CDM project activities and programme of activities", i.e, the surveys shall follow a 95 per cent confidence interval and a 10 per cent margin of error.
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation emission reductions
Additional comment	-

Data/Parameter	$\eta_{new,i,j}$
Data unit	Fraction
Description	Efficiency of the device of each type i and batch j implemented as part of the project activity
Source of data	-
Value(s) applied	This parameter shall be determined at CPA level

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 recognized by that body. 2. Alternatively, manufacturer specifications on efficiency based on water boiling test (WBT) may be used. The WBT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the WBT Protocol^{10 11}, or ISO 19867-1 listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)). The sampling test of stoves by such certification bodies/agents or manufacturers shall be conducted following a 95/10 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 in CPAs of this category, when the efficient devices are produced by a manufacturer with a recognized management system in place (e.g. ISO certification) to ensure that the individual equipment produced do not vary beyond the range of acceptance limits (e.g. characteristics such as materials, critical dimensions): <ol style="list-style-type: none"> (i) Conduct a sample test on three 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 per cent confidence shall be used instead of Z value), the efficiency determined is acceptable, otherwise more sample tests would be required until 90/10 precision is met. 4. For project activities that implement cookstoves with saucepan capacities both greater than 30 L as well as smaller than 30 L, the most conservative value among the results of efficiency tests conducted (i.e. the least efficiency determined) on cookstoves of sizes equal to or smaller than 30 L may be used for stoves that are larger than 30 L in lieu of actual testing of the efficiency of stoves that are above 30 L capacity. The simplified approach above may also be used to comply with eligibility requirements under paragraph 3 and can be used only if the following conditions are met: <ol style="list-style-type: none"> (i) Stoves that can hold saucepans that are larger than 30 L are from the same manufacturer¹² and of similar design (e.g. with respect to construction materials including insulation material, placement of grate, cooking vessels and if applicable chimney) as compared to the stoves that are smaller than 30 L; <p>Project proponents should demonstrate that comparable repair and maintenance practices are undertaken on all project stoves, irrespective of the size</p>
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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 37
QA/QC procedures	-
Purpose of data	Calculation emissions reductions

¹⁰ PPs/CMEs may conduct only the first two phases of the stove tests: cold-start high-power phase and hot- start high-power phase (not including the simmer phase) for calculation of the high-power thermal efficiency.

¹¹ The guidance provided in the WBT protocol may be followed for calibration of testing equipment

¹² For in-situ constructed stoves, show that the prefabricated components are sourced from the same supplier.

Additional comment	Follow provisions in paragraph 37 of the methodology to account for loss in efficiency of the project devices
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Data/Parameter	$NCV_{biomass}$
Data unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices
Source of data	-
Value(s) applied	0.0156
Measurement methods and procedures	IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass.
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation emissions reductions
Additional comment	-

Data/Parameter	$SC_{new,i,j}$
Data unit	t fuel/unit output or t fuel/hour
Description	Specific fuel consumption or fuel consumption rate during year y of the device(s) of type i deployed as part of the project that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour respectively with the age a
Source of data	-
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	As per paragraphs 33, using the controlled cooking test (CCT) procedure. The CCT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the CCT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)). When the CCT is conducted on a sample basis, the sampling requirements indicated in section 6.2 and guidance provided in the "Standard for sampling and surveys for CDM project activities and programme of activities" shall be followed
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation of the emissions reductions
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 .
Source of data	Sample survey of end user or direct measurement at each end user locations.
Value(s) applied	This parameter shall be determined at CPA level

Measurement methods and procedures	<p>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:</p> <p>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</p>
Monitoring frequency	First year of installation
QA/QC procedures	-
Purpose of data	Calculation of the baseline emissions
Additional comment	-

Data/Parameter	$B_{\text{new,KPT},i,j}$
Data unit	Tonnes
Description	Annual quantity of woody biomass used in tonnes per project device of type i
Source of data	Sample survey
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	<p>Measured as per the KPT protocol. The KPT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the KPT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)).</p> <p>The days selected for measurement of fuel consumption shall take into account seasonal/weekly variations in fuel consumption, or else the data from the measurement campaign shall be extrapolated in order to take into account the seasonal pattern.</p>
Monitoring frequency	Annual monitoring of the quantity of woody biomass used in tonnes per project device of type i and batch j
QA/QC procedures	-
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	$\eta_{\text{old},i,j}$
Data unit	<p>(i) Default 0.1 or 0.2 (please see details below);</p> <p>(ii) Establish prior to start of implementation based on survey</p>
Description	Efficiency of pre-project device, which is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Use weighted average values (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced
Source of data	-
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-

Monitoring frequency	Fixed for each individual household when included in the project activity database
QA/QC procedures	-
Purpose of data	Calculation of the emissions reductions
Additional comment	-

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 37
Source of data	Manufacturer (certified by a national standards body or an appropriate certifying agent recognized by that body)
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction
Additional comment	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	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	This parameter shall be determined at CPA level

Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction

Data/Parameter	Date of commissioning of device i
Data unit	Date
Description	Actual date of commissioning of the project device
Source of data	Internal records
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction
Additional comment	-

Data/Parameter	$N_{d,HH}$
Data unit	Number
Description	Number of project devices distributed per household, schools and street food vendors
Source of data	Internal records
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	It will be verified during monitoring campaign.
Purpose of data	Calculation of the emissions reduction
Additional comment	The results of ex post usage/monitoring survey should not be used to determine the value.

I.7.2. Sampling plan

According to para 14 of "Tool19: Demonstration of additionality of microscale project activities", (Version 09.0), the unit in this CPA is a "microscale CDM unit", and CPA sampling plan is designed based on the requirements of the methodology applied and standard (Sampling and surveys for CDM project activities and programmes of activities, version 09.0). Thus, the survey will be conducted to achieve the confidence / precision of 95/10.

The purpose of this sampling will be to obtain unbiased and reliable estimates of the mean value of parameters used in the calculations of GHG emission reductions.

The parameters to be monitored in each CPA are detailed in section I.7.1.

Above all, the target population for the proportion of devices still in operation ($N_{y,i,j}$) of this PoA is all users in the PoA database which are using project devices to be distributed, and the target population for pre project appliances (μy) is the set of old devices still in use under CPAs database.

Sampling methodology:

One unit of traditional cookstove will be replaced in each user with one type of ICS in this CPA.

A simple random sample in a subset of a population in each CPA is chosen randomly, such that each element (or unit) of the population has the same probability of being selected. The sample-based estimate (mean or proportion) is an unbiased estimate of the population parameter. Simple random sampling is conceptually straightforward and easy to implement – provided that a sampling frame of all elements of the population exists. Its simplicity makes it relatively easy to analyse the collected data. It is also appropriate when only minimum information of the population is known in advance of the data collection.

Simple random sampling is suited to populations that are homogeneous, like the population included in each CPA, and information about the monitoring parameters will be obtained.

Objective and Reliability Requirements:

The sampling objective is to provide unbiased and reliable estimates of these parameter values during the crediting period with the confidence/precision level required by AMS-II.G. This is achieved through a smaller but representative (statistically valid) sample of distributed ICS, as compared to the study of the total population of devices (ICS) distributed, which is often not feasible or possible.

Sample size

Since the corresponding CPAs are assumed to be homogeneous with respect to the population, type of device distributed and use, a simple random sampling plan is conducted to estimate the proportional parameters of interest involved in the emission reduction calculations. The below simple sample size shall be determined using the formula:

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

Where:

n	= Sample size
N	= Population size (Total number of households/ICS)
P	= Expected proportion
1.645	= Represents the 90% confidence required
0.1	= Represents the 10% relative precision

The sample size for monitoring parameters (detailed section I.7.1) will be calculated based on the same equation as mentioned above.

However, the efficiency of project device will be calculated using one of measurements:

- Certification by a national standards body or an appropriate certifying agent recognized by that body.
- Manufacturer specifications on efficiency based on water boiling test (WBT) may be used. The WBT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the WBT Protocol 17,18 or ISO 19867-1 listed by Clean Cooking Alliance (See <https://www.cleancookingalliance.org/technology-andfuels/testing/protocols.html>))

The sampling test of stoves by such certification bodies/agents or manufacturers shall be conducted following a 95/10 precision in accordance with the “Standard for sampling and surveys for CDM project activities and programme of activities”.

Hence, the sampling size will be determined upon the applied measurement at the time of the

inclusion of the CPA. In other words, the formula to determine the sample size will be decided upon which measurement is applied at the CPA level, and sample size will be only calculated when the specific measurement requires according to the methodology. In the case of calculating sample size for operating efficiency of distributed ICS (mean value parameter), it is required following formula:

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

Where:

V	= (SD/mean) ²
N	= sample size
N	= Population size (Total number of households/ICS)
Mean	= Expected mean
SD	= Expected standard deviation
1.96	= Represents the 95% confidence required
0.1	= Represents the 10% relative precision

If the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 shall be chosen.

a) Sample Frame:

Sample sizes will be sufficient to ensure that the precision of the sample is 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 value of corresponding confidence interval of the parameter value may be used as an alternative to repeat the survey. Alternatively, the survey may be expanded to reach the required confidence/precision.

To ensure a simple random sample selection, random number generators shall be applied. Each ICS in the target population is uniquely identifiable by its Serial ID number. Each ICS can thus be allocated a Sample Selection Number in each monitoring period, starting at 1 and increasing up to the total number of ICSs in the Database for that pre-defined simple random sampling frame. Applying the random number generators, the ICS can then be randomly chosen from the defined population up to the required sample size as calculated by the CME.

Sampling frame for proportion of ICS in operation ($N_{y,i,j}$):

The sample frame refers to all the information sources on the Database. There are two primary mechanisms for data collection: the Registration Process for newly distributed/installed ICS and the Monitoring Survey (which includes a household questionnaire and visual inspection of ICSs) that will be used throughout the lifetime of the PoA. The detailed information collected from Registration Process is used to populate the stoves Database and the Monitoring Survey follows “Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 09.

Sampling frame for continued use of pre-project devices during the year (μ_y):

In line with applied approved methodology AMS II.G version 11.1, as installing data logger is not practical and if any use of pre-project device can be monitored in a common survey with other monitoring parameters; therefore, a random sub-sample within the common survey can be taken to determine continued use of old cook stoves and its proportional usage by including suitable questionnaire.

There will be two situations 1) project ICS are completely discarded 2) the old stoves used along with project ICS. Hence in first case it will be simple multiplication of fraction of total number of project ICS displaced by old cook stoves by total number of cook stoves in CPA, to achieve precise results based on survey result sample size calculation can be repeated. However, for second case, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three- stone fire. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices.

Sampling frame for operating efficiency of distributed ICS ($\eta_{new,i,j}$):

The efficiency measure for project ICS will be determined whichever way the CME prefers at the time of inclusion in the CPA. Thus, the sample size will be calculated upon which efficiency measurement is applied. If CME measures the efficiency of the project devices based on a national standards body or an appropriate certifying agency recognized by that body, the sample size will be determined according to the requirements of the national standards body or certifying agent. But in other cases, the surveys should be designed to validate the measurement procedures with the manufacturer's specifications, management system, or saucepan capacity, respectively by conducting the required test based on the 95/10 precision. The certification or related data to measure or estimate the efficiency of project ICSs will be recorded or monitored by CME.

Survey Team:

The CME proposes to have experienced and independent samplers and testers to be involved in the sampling and survey; preference will be to hire local personnel for local language interactions which will enable full understanding of any responses given by users and to record data/results in errorless manner.

Monitoring Report:

The survey report will set out the data for emission reduction calculation. The CME will produce a monitoring report.

1.7.3 Other elements of monitoring plan

The CME is responsible for overall monitoring organization. The sampling plan, data collection & consolidation and results analysis are implemented by an adequately trained monitoring team, well aware of CDM requirements and supervised by the CME. The monitoring team will be appointed by the CPA manager to work in each CPA. If external expertise or support in management or controlling is needed or to avoid conflict of interest, the CME may contract local third-party experts assist the monitoring team.

Before the commencement of monitoring works, the CME ensures that the monitoring staff / CPA implementers (if applicable) receive training according to their responsibilities in the monitoring. For all staff, it involves information on the general PoA management system so that roles, responsibilities and communication channels are clear. Document evidence on training schedules, sessions and trainers is recorded and reflected in the monitoring reports.

Monitoring Plan	Detail
Training	All technical staff/team responsible for installation and maintenance of the stoves will be trained in terms of the understanding the requirements of CDM on the monitoring system. The technical, operational and maintenance trainings provided for the personnel will be described in each monitoring report. The CME shall review the efficacy of information gathering techniques and information flow and assess enumerator and partner feedback to make improvements as deemed necessary.
Data Collection	The survey team will collect the data as per the sampling method. Each CPA will have a specific CPA Database where information on ICS installed under that CPA will be recorded; and that will be centrally linked with a common electronic database of CME. At the time of distribution of ICS, each user of ICS will be registered under a beneficiary agreement and all the necessary information regarding the ICS unit and the end-user and the distributor/retailer of the ICS shall be recorded, allowing one (e.g. the CME or the DOE) to easily trace and identify each ICS when needed.
Data entry and storage	Level of supervision and guidance provided to staff, the standardized system/tool used to initially enter data into a computer and produce a final dataset, documenting steps taken to minimize 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, checking of subsamples of data by supervisors will be completed. Level of security and type of backup processes to guarantee data integrity, for example methods to prevent fraud and accidental deletion or duplication will be ensured.
Data Analysis	The trained field staff will randomly select households included in the database and visit them to cross-check the information on the database. Any inconsistencies found (e.g. change in the address of a user) will be informed to CME and shall be updated on the project database
Reporting	Annual report will be prepared. The report should contain explicit statements, explanations or content.

SECTION J. Crediting period type and duration

7 year and 0 months, renewable.

SECTION K. Eligibility criteria for inclusion of CPAs

Eligibility criteria for inclusion of CPAs in the PoA are following detailed including their usability to assess the inclusion of CPAs in the generic CPA-DD:

No.	Eligibility criterion category	Eligibility criterion – required condition	Supporting evidence for inclusion
1	Geographical	Each CPA is located within the physical/geographical boundary of PoA	Location and boundary are specified in each CPA-DD. - Information for geographical coordinate of CPA.
2	Avoid double counting	<p>Each CPA will not be involved in another registered or under validation as a CDM project activity or as a CPA under the proposed or another PoA or as other GHG reduction project related to small-scale renewable power generation.</p> <p>The CME before adding a CPA under this PoA shall review the project activity database on the UNFCCC website to ensure that the CPA is not already registered as a CDM project or a CPA of another PoA.</p> <p>Each CPA will have under control an updated database of the devices in order to have identified each one. The contract will specify how the ownership of the carbon credits corresponds to the CME, being the only one allowed for their claim and sale.</p>	Declaration of double counting check, and unique GPS coordinates to unique identify the stove. This information will be compared with project information provided in international standards recognized as UNFCCC, VCS and Gold Standard (among others) and description in each CPA- DD.
3	Specification of the technology/measure	Specification of technology/ measures proposed to be implemented under the CPA. The CPA-DD shall incorporate relevant details on the technological specifications, including level and type of service, performance specifications including compliance with testing/certifications.	Description of the technologies including type of stove, thermal efficiency (at least a 20%), expected lifetime, and any manufacturer specifications of CPA-DD;

4	Start date	The start date of each CPA will be the date on which the project participants commit to making expenditures for the purchase of the first ICS. The start date of any proposed CPA will be on or after the start date of the proposed CDM PoA, i.e. 26/03/2020.	1 st Contract of the purchase of devices (receipt, financial closure)
5	Compliance with the applicability conditions of AMS-II.G	Each CPA will satisfy the applicability conditions for simplified baseline and monitoring methodologies as specified in the AMS-II.G. (Version 11.1)	Applicability conditions of AMS-II.G. (Version.11.1)
6	Additionality	Each CPA under this category will follow the process in Section C of PoA-DD to demonstrate additionality of the micro-scale project activities.	Description of the process in the Section C of the PoA-DD. In each CPA, the demonstration of the additionality will fulfill requirements contained in the additionality section of the methodology AMS-II.G Ver 11.1
7	Local Stakeholder Consultation and Environmental Impact Analysis	Each CPA will hold local stakeholder consultation before the inclusion in PoA and construction. Each CPA will conduct environmental impact analysis as per the National Environmental Regulation of the country where the CPA is located.	Minutes, stakeholder consultation reports, evidence of invitations of relevant stakeholders, and any other documented evidence to justify the local consultation process . will be provided as per the requirements stated in the CDM Project Standard for Programme of Activities. Environmental Impact Assessment Report and approval if it is required by the national regulation.
8	Public funding	Each CPA will provide an affirmation that funding from Annex I party, if any, does not result in a diversion of official development assistance	Signed affirmation that public funding received is not part of ODA from Annex I party.
9	Target group	The distribution mechanism is the direct distribution of ICS to the households in rural area through the CME or regional partners. The target group is households, schools and street food vendors.	The selected distribution mechanisms included in each CPA are distinguished in each CPA. Described in the Section A.1 of the PoA-DD

10	Sampling	The CPA sampling plan shall comply the requirements as listed in the applied methodology and in the “Standard for sampling and surveys for CDM project activities and programme of activities”.	Sampling results (database and the ER sheet)
11	Debundling check	Each CPA consists solely of units that qualify the micro-scale CDM units, so as per TOOL19 debundling check is not required.	Not applicable
12	Small-scale or microscale thresholds	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.	Each CPA will detail how it complies with the conditions to be qualify as microscale CDM unit.

PART III. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

Category 2 Generic CPA-2: Distribution of micro scale dryer systems

H.2. Reference number of generic CPA

Generic CPA-2

H.3. Purpose and general description of generic CPA

The project activity to be implemented is considered as Type II as per project standard, whose goal is to increase availability and affordability of improved dryers in Africa. The CPA will involve the promotion, distribution and sale of dryers among the target segment of the CPA (the countries specified before). The target segment can be households, or schools, or street vendors who use either wood or charcoal in inefficient traditional charcoal dryers.

It will include specific measures to increase the production, dissemination and use of improved biomass dryers in urban, peri-urban and rural communities, improving in the production process, marketing actions and quality control and monitoring processes will be put in place.

The dryers disseminated through the CPA will replace the prevailing traditional systems which combust woody biomass more inefficiently, and improve thermal transfer, hence saving fuel and lowering greenhouse gas emissions. Each CPA would result in a scaling up of the production and sale of dryers, leading to a decrease in biomass consumption, GHGs emissions, and indoor air pollution, improving nutritional conditions.

In accordance with paragraph 126 of the CDM Project Standard for Programme of Activities, Type II corresponds to energy efficiency improvement project activities that reduce energy consumption, on the supply and/or demand side, with a maximum energy saving of 60 GWh per year (or an appropriate equivalent) in any year of the crediting period. Since CPAs of this category are solely composed of dryers with a maximum energy saving per dryer of 20GWh (microscale CDM units), this category of CPA qualifies as Type II and microscale.

H.4. Technologies/measures

The smoking of fish is a socially and economically mobilizing activity that generates employment and in which many players from different origins are involved. From fishing activity to marketing, through processing (smoking) and conservation, there are nationals, internationals, traders and a whole chain of intermediaries;

This sector brings together men and women of all ages through its practice, in an unstructured organizational framework. The individual dimension is more representative. Very often, there are a few women's groups supported by development partners. They are not the least vulnerable given their lack of financial resources and their weak involvement in decision-making bodies. The activity of processing through smoking has enormous potential which, through their development, contributes substantially to improving household income.

Despite the challenges of this practice of processing fish by smoking and the environmental impacts it could induce, the equipment is inefficient and remains rather traditional type with a fairly rapid rate of obsolescence. On the other hand, stakeholders are faced with difficulties in sourcing raw materials such as fish and firewood. Among the most salient constraints, we can note the absence of financial means to boost regular quantitative production and for a good part of the year, the inability to prospect for a more stable and larger market for finished products constitute as many limits for the promotion of this sector and its value chains.

Compared to the traditional dryers used by the end-users, project dryers are more efficient while providing the same service. They allow better heat retaining, i.e. quicker heating-up and longer cooking times with less wood fuel (and combustion fumes), curbing deforestation.

Currently the common systems used for cooking are the traditional systems and traditional dryers which are still dominant in most of the households. The introduced dryers model reduces fuel use and the emissions reductions by improving heat transfer and combustion efficiency compared to the pre-project device.

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

The methodology AMS-II.G “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 11.1.0) will be applied. This methodology includes the use of the following Tools:

Tool 19: [“Demonstration of additionality of micro-scale project activities” Version 09.0](#)

Tool 30: [“Calculation of the fraction of non-renewable biomass” Version 03.0](#)

I.2. Applicability of methodologies and standardized baselines

This methodology comprises efficiency improvements in thermal applications of non-renewable biomass dryers.

Id.	Applicability of the methodology AMS-II.G	Justification of applicability
1	This methodology 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 to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers. ¹³	The CPA includes dissemination of high efficiency biomass fired dryers to replace the existing traditional ones in new users (mostly street vendors, but also households or schools).
2	In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent.	The CME shall assure that the minimum energy efficiency of the device distributed is 20%.
3	The aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input.	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. Demonstration of a compliance of the CPA with the small-scale thresholds at the aggregate level of the CPA is no longer required.
4	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	The CPA shall demonstrate the evidence of the use of the biomass (the non-renewable biomass in the region has been used since 1989).
5	For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology	Not applicable.

¹³ Implementation of Greenfield applications is not covered in this methodology.
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6	If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	Not applicable.
7	The CDM-PDD or CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	Each CPA-DD will explain in detail the procedure of distribution of the devices to be implemented.
8	The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	<p>Each CPA-DD will explain in detail the procedure to avoid the double counting emissions reductions.</p> <p>In the established contract, the serial numbers corresponding to each device will be indicated, which will be added to the corresponding database, in order to determine the novelty of the device and not their prior use.</p> <p>The contract will specify how the ownership of the carbon credits corresponds to the CME, being the only one allowed for their claim and sale.</p>
9	Demonstrate that the design of the generic CPA qualifies as Type I, Type II, and/or Type III in accordance with applicable provisions on small-scale project type and eligibility in the project standard.	The Generic CPA comprises project activities the implementation of project activities based on the reduction of energy consumption on demand side with a maximum energy saving per unit of 20 GWh(e) per year. Therefore, type II in accordance with paragraph 126 of the CDM Project Standard for Programme of Activities.

I.3. Application of multiple methodologies

Not applicable.

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

The project boundary of the CPA follows the definition in AMS-II.G, Version 11.1.

Source		GHG	Included?	Justification/Explanation
Baseline	Combustion of non-renewable biomass for cooking	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor emission source excluded as conservative measure
		N ₂ O	No	Minor emission source excluded as conservative measure

Project activity	Combustion of non-renewable biomass for cooking (Dryers)	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor emission source excluded for simplicity.
		N ₂ O	No	Minor emission source excluded for simplicity.

According to AMS-II.G (version 11.1), the spatial extent of the project boundary is the physical, geographical site of the efficient devices that utilize biomass. Also, as per methodology prescription a net to gross adjustment factor (i.e. default value of 0.95) has been considered in the PoA to account for leakages, as an ex-ante parameter. Therefore, no other emission sources for leakage emission are required in the project boundary, hence not included in the table above.

I.5. Establishment and description of baseline scenario

According to the methodology, it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. Non-renewable biomass is used in the pre-project scenario, which actually has a higher emissions factor than many fossil fuels.

As per the project description in the A.1 of the PoA-DD, the project device is the improved efficiency dryers reducing fuel use and emissions of GHGs. Consequently, the baseline scenario is the projected use of fossil fuel, the non-renewable biomass, to meet similar thermal energy needs as those provided by the project devices.

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.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

Emission reduction

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.

Emission reductions are calculated as:

Equation (12)

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

Where:

i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices¹⁴

¹⁴ For example, in some instances, full replacement of the pre-project device would require the implementation of more than one project device (e.g. one stove suitable for cooking and the other stove suitable for cooking/boiling water).

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

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

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel} \quad \text{Equation (13)}$$

$B_{y,savings,i,j}$	= Quantity of woody biomass that is saved in tonnes per device of type i and batch j during year y .
$f_{NRB,y}$	= Fraction of woody biomass that can be established as non-renewable biomass (fNRB) ¹⁵ .
$NCV_{biomass}$	= 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').
$EF_{projected_fossil\ fuel}$	= Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers.
$N_{y,i,j}$	= 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 7 and 9 (fraction). Use 1.0 in other cases.

To calculate the emission factor for the substitution of non-renewable woody biomass there are two ways to calculate, using default values (table 2 of the methodology) or applying the following equation making an estimation:

$$EF_{projected_fossil\ fuel} = \sum_j \{x_j \times (EF_{FF,j,CO_2} + EF_{FF,j,CH_4} \times GWP_{CH_4} + EF_{FF,j,N_2O} \times GWP_{N_2O})\} \quad \text{Equation (14)}$$

Where:

x_j	= Percentage share of fossil fuel use ¹⁶ (a fraction representing the share of fossil fuel type j in total fossil fuel used in the region/country or project area for cooking)
EF_{FF,j,CO_2}	= CO ₂ emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t CO ₂ /TJ)

¹⁵ Default values endorsed by designated national authorities and approved by the Board are available at <http://cdm.unfccc.int/methodologies/standard_base/index.html>.

¹⁶ For example, percentage share of kerosene, LPG and coal in total fossil fuel used in the country X is 10%, 70% and 20%, then the parameter value for x_j should be 0.1, 0.7 and 0.2 respectively

EF_{FF,j,CH_4}	= CH ₄ emission factor for the fossil fuel <i>j</i> . Use a value in the table 3 of the methodology (t CH ₄ /TJ)
EF_{FF,j,N_2O}	= N ₂ O emission factor for the fossil fuel <i>j</i> . Use a value in the table 3 of the methodology (t N ₂ O/TJ)
GWP_{CH_4}	= Global Warming Potential of CH ₄ valid for the commitment period
GWP_{N_2O}	= Global Warming Potential of N ₂ O valid for the commitment period

The value of f_{NRB} shall be calculated using one of the following options in each CPA:

- Ex ante: Is determined once at the validation stage, thus no monitoring and recalculation of the f_{NRB} value during the crediting period is required.
- Ex post: Is determined for the year “y” in the crediting period ($f_{NRB,y}$), requiring the f_{NRB} to be updated annually, following a consistent calculation procedure throughout the crediting period.

In the following table are shown the different equations to be applied. Each CPA will choose one in function of the available information of each one.

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

Option	Equations to apply
Option 1: Thermal Energy Output (TEO)	$B_{y,savings,i,j} = \frac{HR_{y,i,j}}{NCV_{biomass}} \times \left(\frac{1}{\eta_{old,i,j}} - \frac{1}{\eta_{new,i,j}} \right)$ <p style="text-align: right;">Equation (15)</p> <p>Where $HR_{y,i,j}$ is calculated as follows:</p> $HR_{y,i,j} = HC_{i,j} \times t_{y,i,j} \times 0.0000036$ <p style="text-align: right;">Equation (5)</p> <p>$HC_{i,j}$ = Rated thermal capacity as per manufacturer specification (kW)</p> <p>$t_{y,i,j}$ = Number of hours of utilization of the device during the year y</p> <p>0.0000036 = Factor to convert kWh to TJ</p>
Option 2: kitchen performance test (KPT)	$B_{y,savings,i,j} = B_{old,i,j} - B_{new,KPT,i,j}$ <p style="text-align: right;">Equation (6)</p>
Option 3: water boiling test (WBT)	$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}} \right)$ <p style="text-align: right;">Equation (16)</p> $B_{y,savings,i,j} = B_{y=1,new,i,j,survey} \times \left(\frac{\eta_{new,i,j}}{\eta_{old,i,j}} - 1 \right)$ <p style="text-align: right;">Equation (17)</p>
Option 4: controlled cooking test (CCT)	$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{SC_{new,i,j}}{SC_{old}} \right)$ <p style="text-align: right;">Equation (9)</p>

Each CPA will choose one of the previous options:

Where:

$HR_{y,i,j}$	= Useful thermal energy output delivered per project device i in batch j during year y (TJ)
$\eta_{old,i,j}$	= Efficiency of the old devices being replaced by project devices of type i and batch j
$\eta_{new,i,j}$	= Efficiency of the project device i and batch j
$B_{old,i,j}$	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 by international methods aligned with the KPT protocol.
$B_{y=1,new,i,j,survey}$	= Quantity of woody biomass used by project devices in tonnes per device of type i and batch j
SC_{old}	= Specific fuel consumption or fuel consumption rate of the pre-project devices
$SC_{new,i,j}$	= Specific fuel consumption or the fuel consumption rate of the devices of type i and batch j deployed as part of the project

Considering that baseline surveys or other methods may estimate the total consumption per household, an adjusted formula as below will be used in case more than one project device is used in the household.

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

$$B_{old,i,j} = B_{old,HH} \div N_{d,HH} \quad \text{Equation (10)}$$

$$B_{old,HH} = B_{old,p} \times N_{p,HH} \quad \text{Equation (11)}$$

Where:

$B_{old,HH}$	= 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 devices (tonnes/household/year)
$N_{d,HH}$	= Number of project devices (number)
$B_{old,p}$	= Annual quantity of woody biomass that would have been used per in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices
$N_{p,HH}$	= Average number of persons per household (number)

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) in case of charcoal is used as the fuel by baseline (old) or project (new) devices.¹⁷ Alternatively, credible local conversion factors determined from a field study or literature may be applied.

In terms of the lifetime of project devices, each CPA-DD shall provide technical information based on the manufacturer's specification. In addition, will be necessary to demonstrate the life span of them, in case of being less than the crediting period, the devices shall be replaced, however no emission reductions can be claimed beyond the life span of the project devices.

As per paragraph 37 of the methodology, each CPA shall determine the loss in efficiency of the project devices, in function of the option chosen:

- For options 1 and 3: The loss in efficiency or decrease in the capacity should be identified ex ante following the options provided by the methodology.
- For options 2 and 4: any annual changes of the quantity of woody biomass used and any annual changes in specific fuel consumption will be captured by the KPT and CCT respectively, not being necessary apply any requirements explained in the methodology.

Leakage

AMS-II.G. requires that leakage related to the non-renewable woody biomass saved by the project activity will 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). AMS-II.G. 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.

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

I.6.2. Data and parameters fixed ex ante

Data/Parameter	X_f
Data unit	Fraction
Description	Percentage share of fossil fuel use (a fraction representing the share of fossil fuel type j in total fossil fuel used in the region/country or project area for cooking)
Source of data	Published literature, official reports or statistics, surveys.
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of the emission reductions
Additional comment	-

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 dryer user location in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices

¹⁷ Refer to: <<http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf>>. The term 'wet basis' assumes that the wood is 'air-dried' as is specified in the IPCC default table.

Source of data	Where applicable a value from a standardized baseline may be used as an alternative to the default value provided
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	A baseline survey will be carried out in order to determine this value for each region per category of user
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	$N_{p,HH}$
Data unit	Number
Description	In the case of the dryers, the main use is to smoke the fish, and all the dryers are located in the same place in the village. For ex ante calculation, each dryer is used by one person.
Source of data	Determined ex ante prior to CPA implementation based on records of dryers served by the project
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	Based on records of specific places where dryers are located. Baseline survey or publicly available information or government statistics about the use of this dryers.
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	$B_{old,HH}$
Data unit	tonnes/dryer/year
Description	Annual quantity of woody biomass that would have been used in the location dryer in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices. It is estimated that one dryer is used by one person.
Source of data	This parameter shall be determined ex ante at CPA level
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	Use one of the following options: 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 the emission reductions
Additional comment	The value may be derived, based on the historical data or a sample survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities".

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 at CPA level
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	It is assumed that one dryer is used by one person.
Purpose of data	Calculation of the emission reductions
Additional comment	$B_{old,I,j}$ equals $B_{old,HH}$ if only one device will be distributed per HH/school/street food vendor

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	-
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	As per the "TOOL30: Calculation of the fraction of non-renewable biomass"
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	SC_{old}
Data unit	t fuel/unit output or t fuel/hour
Description	Specific fuel consumption or fuel consumption rate of the pre-project devices
Source of data	-
Value(s) applied	This parameter shall be determined at CPA level
Choice of data or Measurement methods and procedures	<ol style="list-style-type: none"> Specific fuel consumption or fuel consumption rate of the pre-project devices, that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Specific fuel consumption or fuel consumption rate are to be determined using the CCT protocol carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the CCT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)). Use weighted average values if more than one type of device is being replaced (taking the amount of woody biomass consumed by each device as the weighting factor). When the CCT is conducted on a sample basis, the sampling requirements indicated in section 6.2 and guidance provided in the "Standard for sampling and surveys for CDM project activities and programme of activities" shall be followed
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	$HC_{i,j}$
Data unit	kW
Description	Rated capacity for delivering heat as per manufacturer specification (kW)
Source of data	This parameter shall be determined ex ante at CPA level
Value(s) applied	This parameter shall be determined at CPA level

Choice of data or Measurement methods and procedures	The useful thermal energy shall be calculated based on the rated capacity of the project device multiplied by the number of utilization hours. Refer Equation (15)
Purpose of data	Calculation of the emission reductions
Additional comment	-

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

As describe before, the emission reductions are calculated as follows:

Equation (12)

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

Where:

i	= Indices for the situation where more than one type of project device is introduced to replace the pre-project devices ¹⁸
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

Being necessary to calculate before $ER_{y,i,j}$, which is determinate as follows:

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel} \quad \text{Equation (13)}$$

Where:

$B_{y,savings,i,j}$	=Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y.
$f_{NRB,y}$	=Fraction of woody biomass that can be established as non-renewable biomass (fNRB) ¹⁹ .
$NCV_{biomass}$	=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').
$EF_{projected_fossil\ fuel}$	=Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers.

¹⁸ 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.

¹⁹ Default values endorsed by designated national authorities and approved by the Board are available at <http://cdm.unfccc.int/methodologies/standard_base/index.html>.

$N_{y,i,j}$ = 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 7 and 9 (fraction). Use 1.0 in other cases.

If apply the option to estimate the emission factor for the substitution of non-renewable woody biomass, shall be apply the following equation:

$$EF_{\text{projected_fossil_fuel}} = \sum_j \{x_j \times (EF_{FF,j,CO_2} + EF_{FF,j,CH_4} \times GWP_{CH_4} + EF_{FF,j,N_2O} \times GWP_{N_2O})\} \quad \text{Equation (14)}$$

Where:

x_j	= Percentage share of fossil fuel use ²⁰ (a fraction representing the share of fossil fuel type j in total fossil fuel used in the region/country or project area for cooking)
EF_{FF,j,CO_2}	= CO ₂ emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t CO ₂ /TJ)
EF_{FF,j,CH_4}	= CH ₄ emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t CH ₄ /TJ)
EF_{FF,j,N_2O}	= N ₂ O emission factor for the fossil fuel j . Use a value in the table 3 of the methodology (t N ₂ O/TJ)
GWP_{CH_4}	= Global Warming Potential of CH ₄ valid for the commitment period
GWP_{N_2O}	= Global Warming Potential of N ₂ O valid for the commitment period

²⁰ For example, percentage share of kerosene, LPG and coal in total fossil fuel used in the country X is 10%, 70% and 20%, then the parameter value for x_j should be 0.1, 0.7 and 0.2 respectively.

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

Data/Parameter	$N_{y,i,j}$
Data unit	-
Description	Number of project devices of type <i>i</i> and batch <i>j</i> operating during year <i>y</i>
Source of data	Monitoring
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	Measured directly or based on a representative sample. As CPAs solely composed of “microscale CDM units” as defined in the Methodological tool “Demonstration of additionality of microscale project activities”, 95/10 confidence/precision shall be applied for sampling surveys.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation 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 <i>y</i>
Source of data	When applying Equation (6) and Equation (8), it is a fraction based on monitoring results. In other cases (i.e. applying equations: Equation (14), Equation (5 and Equation (7), use 1.0
Value(s) applied	Determined at CPA level
Measurement methods and procedures	<p>This parameter should be monitored using one of the following methods:</p> <ol style="list-style-type: none"> 1. If the pre-project devices are decommissioned and no longer used, as determined by the monitoring survey its value is 1.0. If both the project devices and pre-project devices are used together, measurement campaigns shall be undertaken using data loggers such as device utilization monitors (SUMs) which can log the operation of all devices (recording the situation of the device being used or not during any day ‘<i>d</i>’ of the measurement campaign) in order to determine the average device utilization intensity (to establish the relative share of the usage of the devices). The measurement campaign shall be conducted in at least 10 randomly selected participant users of the the component project activity (CPA) for at least 90 days during the year <i>y</i>. If seasonal variation is observed, the average value determined through the campaign shall be annualized taking into account seasonal variation of device utilization. 2. Alternatively, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire. The surveys should be designed to capture the habits of fish dryers users in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices.

Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Calculation of the emission reduction
Additional comment	<ul style="list-style-type: none"> - If equation (8) under option 3 (WBT) is used combined with direct measurement of Biomass new, then may be assumed as 1.0. - When the data loggers are used, the days when only project devices or only pre-project devices are used will be attributed accordingly. The days where both devices have been used, if the data loggers are able to detect and record the time each device has been used (e.g. in hours), the share in the total duration of utilization will be used to attribute a fraction of this day to one or to the other device. Alternatively, if the data loggers are not able to determine the duration of the utilization, but only the situation of the device being on or off (i.e. used or not used during that day), the share of 50:50 may be used

Data/Parameter	$t_{y,i,j}$
Data unit	Number of hours
Description	Number of hours of utilization of the device during the year y
Source of data	-
Value(s) applied	
Measurement methods and procedures	<p>The rated capacity shall be based on the manufacturer specification.</p> <p>The number of utilization hours shall be estimated at least once every two years (annually or biennially). The biennial survey shall follow a 95 per cent confidence interval and a 10 per cent margin of error in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"</p>
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation emission reductions
Additional comment	-

Data/Parameter	$\eta_{new,i,j}$
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	-
Value(s) applied	This parameter shall be determined at CPA level
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 recognized by that body. 2. The following simplified approach may be used, when the efficient fish dryers are produced by a manufacturer with a recognized management system in place (e.g. ISO certification) to ensure that the individual equipment produced do not vary beyond the range of acceptance limits (e.g. characteristics such as materials, critical dimensions): <ol style="list-style-type: none"> (i) Conduct a sample test on three devices with three tests conducted for each device. The test can be carried out by project proponents by themselves or fish dryers manufacturers; (ii) If the standard deviation of the nine test results indicated above is very small and 90/10 precision requirement is met (in this case, the value of the t-distribution for 90 per cent confidence shall be used instead of Z value), the efficiency determined is acceptable, otherwise more sample tests would be required until 90/10 precision is met. <p>Project proponents should demonstrate that comparable repair and maintenance practices are undertaken on all project stoves, irrespective of the size</p>
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 37
QA/QC procedures	-
Purpose of data	Calculation emissions reductions
Additional comment	Follow provisions in paragraph 37 of the methodology to account for loss in efficiency of the project devices

²² PPs/CMEs may conduct only the first two phases of the stove tests: cold-start high-power phase and hot- start high-power phase (not including the simmer phase) for calculation of the high-power thermal efficiency.

²³ The guidance provided in the WBT protocol may be followed for calibration of testing equipment.

²⁴ For in-situ constructed stoves, show that the prefabricated components are sourced from the same supplier

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
Measurement methods and procedures	IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass.
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation emissions reductions
Additional comment	-

Data/Parameter	$SC_{new,i,j}$
Data unit	t fuel/unit output or t fuel/hour
Description	Specific fuel consumption or fuel consumption rate during year y of the device(s) of type i deployed as part of the project that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour respectively with the age a
Source of data	-
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	As per paragraphs 33, using the controlled cooking test (CCT) procedure. The CCT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the CCT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)). When the CCT is conducted on a sample basis, the sampling requirements indicated in section 6.2 and guidance provided in the "Standard for sampling and surveys for CDM project activities and programme of activities" shall be followed
Monitoring frequency	Yearly
QA/QC procedures	-
Purpose of data	Calculation of the emissions reductions
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 .
Source of data	Sample survey of end user or direct measurement at each end user locations.
Value(s) applied	This parameter shall be determined at CPA level

Measurement methods and procedures	<p>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:</p> <p>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</p>
Monitoring frequency	First year of installation
QA/QC procedures	-
Purpose of data	Calculation of the baseline emissions
Additional comment	-

Data/Parameter	$B_{new, KPT,i,f}$
Data unit	Tonnes
Description	Annual quantity of woody biomass used in tonnes per project device of type i
Source of data	Sample survey
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	<p>Measured as per the KPT protocol. The KPT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the KPT Protocol listed by Clean Cooking Alliance (See https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html)).</p> <p>The days selected for measurement of fuel consumption shall take into account seasonal/weekly variations in fuel consumption, or else the data from the measurement campaign shall be extrapolated in order to take into account the seasonal pattern.</p>
Monitoring frequency	Annual monitoring of the quantity of woody biomass used in tonnes per project device of type i and batch j
QA/QC procedures	-
Purpose of data	Calculation of the emission reductions
Additional comment	-

Data/Parameter	$\eta_{old,i,j}$
Data unit	<p>(i) Default 0.1 or 0.2 (please see details below);</p> <p>(ii) Establish prior to start of implementation based on survey</p>
Description	Efficiency of pre-project device, which is a device using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Use weighted average values (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced
Source of data	-

Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed for each individual user when included in the project activity database
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction
Additional comment	-

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 37
Source of data	Manufacturer (certified by a national standards body or an appropriate certifying agent recognized by that body)
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction
Additional comment	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	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	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction
Additional comment	To be reported in the monitoring report

Data/Parameter	Date of commissioning of device <i>i</i>
Data unit	Date
Description	Actual date of commissioning of the project device
Source of data	Internal records

Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Fixed and recorded at the time of commissioning/distribution
QA/QC procedures	-
Purpose of data	Calculation of the emissions reduction
Additional comment	-

Data/Parameter	$N_{d,HH}$
Data unit	Number
Description	Number of project devices distributed per user (household, schools, street vendors)
Source of data	Internal records
Value(s) applied	This parameter shall be determined at CPA level
Measurement methods and procedures	-
Monitoring frequency	Recorded at the time of commissioning/distribution of project devices
QA/QC procedures	It will be verified during monitoring campaign.
Purpose of data	Calculation of the emissions reduction
Additional comment	The results of ex post usage/monitoring survey should not be used to determine the value.

I.7.2. Sampling plan

According to para 14 of "Tool19: Demonstration of additionality of microscale project activities", (Version 09.0), the unit in this CPA is a "microscale CDM unit", and CPA sampling plan is designed based on the requirements of the methodology applied and standard (Sampling and surveys for CDM project activities and programmes of activities, version 09.0). Thus, the survey will be conducted to achieve the confidence / precision of 95/10.

The purpose of this sampling will be to obtain unbiased and reliable estimates of the mean value of parameters used in the calculations of GHG emission reductions.

The parameters to be monitored in each CPA in each CPA are detailed in section I.7.1.

Above all, the target population for the proportion of devices still in operation ($N_{y,i,j}$) of this PoA is all users in the PoA database which are using project devices to be distributed, and the target population for pre project appliances (μy) is the set of old devices still in use under CPAs database.

Sampling methodology:

One unit of traditional fish dryer will be replaced in each user with one type of efficient fish dryer in this CPA.

A simple random sample in a subset of a population in each CPA is chosen randomly, such that each element (or unit) of the population has the same probability of being selected. The sample-based estimate (mean or proportion) is an unbiased estimate of the population parameter. Simple random sampling is conceptually straightforward and easy to implement – provided that a sampling frame of all elements of the population exists. Its simplicity makes it relatively easy to analyze the collected data. It is also appropriate when only minimum information of the population is known in advance of the data collection.

Simple random sampling is suited to populations that are homogeneous, like the population included in each CPA.

Objective and Reliability Requirements:

The sampling objective is to provide unbiased and reliable estimates of these parameter values during the crediting period with the confidence/precision level required by AMS-II.G.. This is achieved through a smaller but representative (statistically valid) sample of distributed ICS, as compared to the study of the total population of fish dryers distributed, which is often not feasible or possible.

Sample size

Since the corresponding CPAs are assumed to be homogeneous with respect to type of devices, population and use, a simple random sampling plan is conducted to estimate the proportional parameters of interest. The below simple sample size shall be determined using the formula:

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

Where:

n	= Sample size
N	= Population size (Total number of households/ICS)
P	= Expected proportion
1.96	= Represents the 95% confidence required
0.1	= Represents the 10% relative precision

The sample size for monitoring parameters (detailed section I.7.1) will be calculated based on the same equation as mentioned above.

If the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 shall be chosen.

The efficiency of project device will be calculated using the certification by a national standards body or an appropriate certifying agent recognized by that body.

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*”.

Sample Frame:

Sample sizes will 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 value of corresponding confidence interval of the parameter value may be used as an alternative to repeat the survey. Alternatively, the survey may be expanded to reach the required confidence/precision.

To ensure a simple random sample selection, random number generators shall be applied. Each fish dryer in the target population is uniquely identifiable by its Serial ID number. Each device can thus be allocated a Sample Selection Number in each monitoring period, starting at 1 and increasing up to the total number of ICSs in the Database for that pre-defined simple random sampling frame. Applying the random number generators, the devices can then be randomly chosen from the defined population up to the required sample size as calculated by the CME.

Sampling frame for proportion of dryers in operation ($N_{y,i,j}$):

The sample frame refers to all the information sources on the Database. There are two primary mechanisms for data collection: the Registration Process for newly distributed/installed devices and the Monitoring Survey (which includes an users questionnaire and visual inspection of fish dryers) that will be used throughout the lifetime of the PoA. The detailed information collected from Registration Process is used to populate the users and devices Database and the Monitoring Survey follows “Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 09.

As proposed CME shall be the CPA Implementer, the same fish dryer model can therefore be grouped together and form a Primary Sampling Unit. In the event the POA has CPAs with two different CPA Implementers using the same devicemodel, these form two different Primary Sampling Units. Same is true if the same CPA Implementer has two different fish dryers models being implemented – this will form two Primary Sampling Units. This is justified by the fact that CPA Implementer might vary in terms of performance and it is important for the CME to collect and monitor accurate data for each CPA Implementer distributing each device model.

Sampling frame for continued use of pre-project devices during the year (μ_y):

In line with applied approved methodology AMS II.G version 11.1, as installing data logger is not practical and if any use of pre project device can be monitored in a common survey with other monitoring parameters; therefore, a random sub-sample within the common survey can be taken to determine continued use of old fish dryers and its proportional usage by including suitable questionnaire

There will be two situations 1) project ICS are completely discarded 2) the old fish dryers used along with project fish dryers. Hence in first case it will be simple multiplication of fraction of total number of project fish dryers displaced by old devices by total number of fish dryers distributed in CPA, to achieve precise results based on survey result sample size calculation can be repeated. However, for second case, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical. The surveys should be designed to capture the habits and stove fish dryers usage of users in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices.

Sampling frame for operating efficiency of distributed fish dryers ($\eta_{new,i,j}$):

The efficiency of project fish dryers will be based on a national standards body or an appropriate certifying agency recognized by that body. Therefore, the sample size will be determined according to the requirements of the national standards body or certifying agent.

The certification will be recorded or monitored by CME.

Survey Team:

The CME proposes to have experienced and independent samplers and testers to be involved in the sampling and survey; preference will be to hire local personnel for local language interactions which will enable full understanding of any responses given by users and to record data/results in errorless manner.

Monitoring Report:

The survey report will set out the data for emission reduction calculation. The CME will produce a monitoring report.

I.7.3 Other elements of monitoring plan

The CME is responsible for overall monitoring organization. The sampling plan, data collection & consolidation and results analysis are implemented by an adequately trained monitoring team, well

aware of CDM requirements and supervised by the CME. The monitoring team will be appointed by the CPA manager to work in each CPA. If external expertise or support in management or controlling is needed or to avoid conflict of interest, the CME may contract local third-party experts assist the monitoring team.

Before the commencement of monitoring works, the CME ensures that the monitoring staff / CPA implementers (if applicable) receive training according to their responsibilities in the monitoring. For all staff, it involves information on the general PoA management system so that roles, responsibilities and communication channels are clear. Document evidence on training schedules, sessions and trainers is recorded and reflected in the monitoring reports.

Monitoring Plan	Detail
Training	All technical staff/team responsible for installation and maintenance of the stoves will be trained in terms of the understanding the requirements of CDM on the monitoring system. The technical, operational and maintenance trainings provided for the personnel will be described in each monitoring report. The CME shall review the efficacy of information gathering techniques and information flow and assess enumerator and partner feedback to make improvements as deemed necessary.
Data Collection	The survey team will collect the data as per the sampling method. Each CPA will have a specific CPA Database where information on ICS installed under that CPA will be recorded; and that will be centrally linked with a common electronic database of CME. At the time of distribution of ICS, each user of ICS will be registered under a beneficiary agreement and all the necessary information regarding the ICS unit and the end-user and the distributor/retailer of the ICS shall be recorded, allowing one (e.g. the CME or the DOE) to easily trace and identify each ICS when needed.
Data entry and storage	Level of supervision and guidance provided to staff. The standardized system/tool used to initially enter data into a computer and produce a final dataset, documenting steps taken to minimize 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, checking of subsamples of data by supervisors will be completed. Level of security and type of backup processes to guarantee data integrity, for example methods to prevent fraud and accidental deletion or duplication will be ensured.
Data Analysis	The trained field staff will randomly select households included in the database and visit them to cross-check the information on the database. Any inconsistencies found (e.g. change in the address of a user) will be informed to CME and shall be updated on the project database
Reporting	Annual report will be prepared. The report should contain explicit statements, explanations or content.

SECTION J. Crediting period type and duration

7 year and 0 months, renewable.

SECTION K. Eligibility criteria for inclusion of CPAs

Eligibility criteria for inclusion of CPAs in the PoA are following detailed including their usability to assess the inclusion of CPAs in the generic CPA-DD:

No.	Eligibility criterion category	Eligibility criterion – required condition	Supporting evidence for inclusion
1	Geographical	Each CPA is located within the physical/geographical boundary of PoA	Location and boundary are specified in each CPA-DD. - Information for geographical coordinate of CPA.
2	Avoid double counting	Each CPA will not be involved in another registered or under validation as a CDM project activity or as a CPA under the proposed or another PoA or as other GHG reduction project related to small-scale renewable power generation. The CME before adding a CPA under this PoA shall review the project activity database on the UNFCCC website to ensure that the CPA is not already registered as a CDM project or a CPA of another PoA. Each CPA will have under control an update databased of the devices in order to have identified each one. The contract will specify how the ownership of the carbon credits corresponds to the CME.	Declaration of double counting check and unique GPS coordinates to unique identify the device with project information provided in international standards recognized as UNFCCC, VCS and Gold Standard (among others) and description in each CPA- DD.
3	Specification of the technology/measure	Specification of technology/ measures proposed to be implemented under the CPA. The CPA-DD shall incorporate relevant details on the technological specifications, including level and type of service, performance specifications including compliance with testing/certifications.	Description of the technologies including type of device, thermal efficiency (at least a 20%), expected lifetime, and any other technical specifications of the device distributed in the CPA.
4	Start date	The start date of each CPA will be the date on which the project participants commit to making expenditures for the purchase of dryer devices. The start date of any proposed CPA will be on or after the start date of the proposed CDM PoA, i.e. 26/03/2020.	1 st Contract of purchase of devices (receipt, financial closure

5	Compliance with the applicability conditions of AMS-II.G	Each CPA will satisfy the applicability conditions for simplified baseline and monitoring methodologies as specified in the AMS-II.G. (Version 11.1)	Applicability conditions of AMS-II.G. (Version.11.1)
6	Additionality	Each CPA under this category will follow the process in Section C of PoA-DD to demonstrate additionality of the micro scale-scale project activities	Description of the process in the Section C of the PoA-DD. In each CPA, the demonstration of the additionality and will fulfill requirements contained in the additionality section of the methodology AMS-II.G Ver 11.1
7	Local Stakeholder Consultation and Environmental Impact Analysis	Each CPA will hold local stakeholder consultation before the inclusion in PoA and construction. Each CPA will conduct environmental impact analysis as per the National Environmental Regulation of the country where the CPA is located.	Minutes, stakeholder consultation reports, evidence of invitations of relevant stakeholders and any other documented evidence to justify the local consultation process will be provided as per the requirements stated in the CDM Project Standard for Programme of Activities. Environmental Impact Assessment Report and approval if it is required by the national regulation.
8	Public funding	Each CPA will provide an affirmation that funding from Annex I party, if any, does not result in a diversion of official development assistance	Signed affirmation that public funding received is not part of ODA.
9	Target group	The distribution mechanism is the direct distribution of dryers to the households in rural area through the CME or regional partners. The target group is households, schools and street food vendors.	The selected distribution mechanisms included in each CPA are distinguished in each CPA. Described in the Section A.1 of the PoA-DD
10	Sampling	The CPA sampling plan shall comply the requirements as listed in the applied methodology and in the "Standard for sampling and surveys for CDM project activities and programme of activities".	Sampling results (database and the ER sheet)
11	Debundling check	Each CPA consists solely of units that qualify the micro-scale CDM units, so as per TOOL19 debundling check is not required.	Not applicable

12	Small-scale or microscale thresholds	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	Each CPA will details how comply with the conditions to be qualify as microscale CDM unit. CME will check that device is less than 20 GWh/year based on design specifications of stoves
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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	ALLCOT AG
Country	Switzerland
Address	Steinhauserstrasse 74, 6300 Zug, Switzerland
Telephone	+41 79 960 2924
Fax	
E-mail	all@allcot.com
Website	www.allcot.com
Contact person	Alexis Leroy

Appendix 2. Affirmation regarding public funding

Not public funding is involved in the project.

Appendix 3. Applicability of methodologies and standardized baselines

Not applicable.

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

Not applicable.

Appendix 5. Further background information on monitoring plan

Not applicable.

Appendix 6. Summary report of comments received from local stakeholders

Not applicable.

Appendix 7. Summary of post-registration changes

The geographical project boundary of this Programme of Activities has been expand including more host parties than Senegal and Ivory Coast, including now the following: Guinea Bissau, Guinea Conakry and Kenya.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
09.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN); • Make editorial improvements.
08.1	28 June 2017	Revision to: <ul style="list-style-type: none"> • Remove a duplicated instruction; • Make editorial improvement.
08.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Improve consistency with the “CDM project standard for programmes of activities” and with the PDD and CPA-DD forms; • Make editorial improvement.
07.0	25 May 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN) (version 01.0); • Incorporate the “Programme design document form for small-scale CDM programmes of activities” (CDM-SSC-PoA-DD-FORM); • Make editorial improvement.
06.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-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.

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	25 June 2014	<p>Revision to:</p> <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	<p>EB 70</p> <p>Revision to reflect changes to the <i>Guideline: Completing the programme design document form for CDM programmes of activities</i> (EB 70, Annex 6).</p>
02.0	13 March 2012	<p>EB 66</p> <p>Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, annex 12).</p>
01.0	27 July 2007	<p>EB 33, Annex 41</p> <p>Initial publication.</p>
<p>Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, project design document</p>		