




**Verification and certification report form for  
CDM programme of activities  
(Version 03.0)**

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the programme of activities (PoA)</b>	Improved Cooking Stove Programme in Burundi supported by Republic of Korea (10474) <sup>1</sup>	
<b>Version number(s) of the PoA-DD(s) to which this report applies</b>	Version 1.2, 26/02/2019	
<b>Version number of the verification and certification report</b>	1.0	
<b>Completion date of the verification and certification report</b>	25/04/2020	
<b>Monitoring period number and duration of this monitoring period</b>	1 <sup>st</sup> Monitoring Period 10/09/2019 - 15/09/2019	
<b>Number and version number of the monitoring report to which this report applies</b>	Monitoring period number-1 Version- 1.1	
<b>Coordinating/managing entity (CME)</b>	ECOYEY CO., LTD	
<b>Host Parties</b>	<b>Host Parties of the PoA</b>	<b>Is this a host Party to a CPA covered in this report?(yes/no)</b>
	Burundi	Yes
<b>Applied methodologies and standardized baselines</b>	AMS-II.G. : "Energy efficiency measures in thermal applications of non-renewable biomass" (Version 10.0)	
<b>Mandatory sectoral scopes</b>	Sectoral Scope 03: Energy Demand	
<b>Conditional sectoral scopes, if applicable</b>	NA	
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report</b>	8,123 tCO <sub>2</sub> e	
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report</b>	826 tCO <sub>2</sub> e	
<b>Name and UNFCCC reference number of the DOE</b>	LGA Technological Center, S.A. (Applus+ Certification) UNFCCC Ref. No.: E-0032	
<b>Name, position and signature of the approver of the verification and certification report</b>	Mr. Juan Sendín Caballero Applus+ Certification Business Unit Managing Director Signature: 	

<sup>1</sup> [https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/U2ZYTf1EWXPBHK0069GCLNSDRIQ78A/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/U2ZYTf1EWXPBHK0069GCLNSDRIQ78A/view)

## SECTION A. Executive summary

LGA Technological Center, S.A. accredited DOE E-0032 (hereinafter referred to as *Applus+ Certification* or just the *DOE*) has been contracted by PoA CME *ECOYEY CO., LTD* to undertake the independent verification of the registered CDM PoA titled “Improved Cooking Stove Programme in Burundi supported by Republic of Korea” (PoA ID: 10474) covering CPA 001 titled “Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1”. The objectives of this verification are to verify and certify emission reductions reported for the specific Component Project Activity (CPA) for the monitoring period from 10/09/2019 - 15/09/2019 (first and last day included); and to verify that the data reported are complete and transparent.

This report summarizes the findings of the verification of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The scope of the verification process is defined as a third-party independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Component Project Activity, limited to and against the criteria stated in Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-II.G. : “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 10.0)<sup>5/</sup>, the latest version of the CDM Validation and Verification Standard for Programmes of Activities (VVS for PoAs version 02.0)<sup>1/</sup>, the latest version of the CDM Project Standard for Programmes of Activities (PS for PoAs version 02.0)<sup>2/</sup> and the latest version of the CDM Project Cycle Procedure for Programmes of Activities (PCP for PoAs version 02.0)<sup>3/</sup>, as well as any other related methodological tools, guidelines and other regulatory documents adopted by the CMP or the Board.

The verification process takes as a basis the validated Programme Design Document (PoA-DD), version 1.2, dated 26/02/2019 and registered Component Project Activity Design Document (CPA-DD), version 1.3, dated 08/08/2019 (hereinafter referred to as PoA-DD<sup>11/</sup> and CPA-DD<sup>12/</sup>, corresponding Validation Reports<sup>13/</sup> and CPA Monitoring Report<sup>15/</sup> (hereinafter also referred to as the final MR).

The verification team has, based on the requirements set up in the CDM Validation and Verification Standard for Programmes of Activities (VVS for PoAs version 02.0)<sup>1/</sup>, evaluated the provided information focusing on the identification of significant risks and reliability of project monitoring and generation of CERs.

The verification is not meant to provide any consulting towards the CME or authorized participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the programme design.

The purpose of the CPA is to combat climate change and contribute to sustainable development of Burundi, by reducing non-renewable wood fuel consumption and greenhouse gas (GHG) emissions of household users in rural and/or peri-urban areas of Burundi by selling affordable Improved Cooking Stoves (ICSs) in replacement of traditional wood stoves.

In the baseline scenario, *households* continue to using non-renewable biomass in traditional cooking stoves. An ICS combusts wood fuel more efficiently, i.e. requires less firewood than a traditional stove. This reduces CO<sub>2</sub> emissions.

CPA001 thus aims to reduce non-renewable wood fuel consumption and greenhouse gas (GHG) emissions of *households* (hereafter also “end-users”) in the *rural and peri-urban regions* of Burundi.

The ICS distributed under CPA001 is the so called Jiko Matawi stove, a Tanzanian-design moulded from fermented clay which is dried through high temperatures in a kiln to reinforce its properties including high thermo efficiency and durability. It is a multi-purpose stove capable of using both firewood and charcoal depending on the preference of the user at the time of cooking. The stove is available in entry cost levels via a stand-alone ceramic model (that can also be installed in a fixed hearth within the kitchen of their home; and as a metal clad version. Ecoeye Co., Ltd., and other Korean Companies have fully financed all improved cooking stoves distributed to the households; the total project cost per stove is 3 Euro including the stove manufacturing cost. This is being verified by the assessment team via Korean grant<sup>24/</sup> received from ECOEYE by AERA for OBEN under the joint development agreement of CDM programme dated 15/11/2018.

The verification team determines the conformity of the actual Component Project Activity and its operation with the CPA-DD<sup>/12/</sup> and MR<sup>/15/</sup>. Applus+ Certification has, by means of a desk review and an on-site visit, assessed that all physical features of the proposed CDM programme of activities proposed in the PoA-DD<sup>/11/</sup> are in place, and that the CME and authorized participants have operated the Component Project Activity as per the PoA-DD<sup>/11/</sup>, Generic CPA-DD<sup>/11/</sup> and Specific CPA-DD<sup>/12/</sup>. Thus the verification team has concluded that the Component Project Activity was implemented and operated as per the aforementioned references, and that all physical features of the project are in place. The verification team, based on the site visit and document review, is able to conclude that the project has been commissioned and implemented as per the above mentioned references. The start date of this monitoring period is 10/09/2019.

The monitoring report for this monitoring period is in compliance with the monitoring plan of the PoA-DD. The Component Project Activity was registered by applying the small scale methodology “: “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 10.0)<sup>/5/</sup> and the verification was carried out in accordance with the applied methodology. It was confirmed during the site visit that the Component Project Activity during the current verification is in accordance with the applicability criteria of the methodology. It is the responsibility of Applus+ Certification to express an independent GHG verification opinion on the GHG emission reductions and on the calculation of GHG emission reductions for the CPA for this monitoring period based on the reported emission reductions in the Monitoring Report<sup>/15/</sup>.

Applus+ Certification’s verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech Accords, as well as those defined by the CDM Executive board. Applus+ Certification’s approach was risk-based drawing on an understanding of the risks associated with reported GHG emissions data and the controls in place to mitigate these. The examination includes assessment of evidence relevant to the amounts and disclosures in relation to the project’s GHG emission reductions for this monitoring period.

The verification team has planned and performed the work to obtain the information and explanations that are considered necessary to provide sufficient evidence for it to give reasonable assurance that the amount of calculated GHG emission reductions for this monitoring period were fairly stated.

**SECTION B. Verification team, technical reviewer and approver****B.1. Verification team members**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor  Technical Expert (3.1)	OR	DAS	SUKANTA	Outsourced Entity ( <i>True Quality Certifications Pvt. Ltd.</i> )	X	X	X	X

**B.2. Technical reviewer and approver of the verification and certification report**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer  Technical Expert (3.1)	EI	CORTÉS	MIGUEL ÁNGEL	Applus+ Certification
2.	Report Approver	IR	SENDÍN	JUAN	Applus+ Certification

## SECTION C. Application of materiality in conducting the verification

## C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	<p>Errors in manual transfer of hard-copy records to ER spreadsheet for the monitoring parameters and sampling survey results.</p> <p>The errors may come from human error during the information transfer from the sources of the sampled data to the digital forms used for monitored parameters.</p>	<i>Medium</i>	<p>The database of selling agreements<sup>/19/</sup> contained in the ERs calculation spreadsheet<sup>/20/</sup> has been manually transferred from the hand-written surveillance records to the spreadsheet.</p> <p>The Monitoring survey 2019<sup>/17/</sup> results have been manually transferred to the spread sheet.</p>	<p>The risk was mitigated by the training to the personnel involved in data capture, calculation and by following the monitoring responsibilities. The training records were reviewed which was also confirmed during on site visit interviews. Verification team, based on the above, confirms that the risk is appropriately mitigated.</p> <p>Since relevant monitoring parameters were monitored through an ex-post monitoring survey conducted by the CME, the DOE's Verification Team has physically checked:</p> <ul style="list-style-type: none"> <li>• Selling agreements<sup>/19/</sup></li> <li>• ERs calculation spreadsheet<sup>/20/</sup></li> <li>• The monitoring survey 2019<sup>/17/</sup></li> </ul> <p>...of all the 22 household sampled users (using acceptance sampling approach), which are legally-binding and considered credible.</p> <p>The DOE's verification team has physically visited 22 ICS users.</p>
2.	<p>Information System:</p> <p>Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security.</p>	<i>Medium</i>	The data is recorded in the spreadsheets based on the raw data collected during the field visits. The access to the spreadsheets for calculation of ERs, monitoring and sales database and Stove efficiency testing records.	The identified risk was mitigated by managing access to the records. It was confirmed through interviews that the raw data is collected by the field personnel and then transmitted and stored in hard copy to the CME's office. The data quality control is maintained by the CME.
3.	Accuracy of the measuring equipment.	Low	Check the calibration records for the measurement equipment used for efficiency test.	The risk due to accuracy of the measuring equipment was ensured by planning to check calibration certificates of the

				measuring equipment used for WBT.
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## C.2. Consideration of materiality in conducting the verification

The threshold of materiality was evaluated based on “Guideline: Application of materiality in verifications” Version 02.0<sup>8/</sup> Paragraph 11 (b) focusing on hard copy data manually transferred to the database to minimize risks on conducting the verification, placing emphasis on that, and CDM VVS for PoAs, version 02.0<sup>1/</sup> Paragraph 307. It was concluded that the materiality threshold applicable to the project activity based on actual emission reductions achieved is 10% of 826 tCO<sub>2e</sub> which is equal to 82.6 tCO<sub>2e</sub>.

In planning the verification, verification team took cognizance of “Guideline: Application of materiality in verifications” Version 02.0<sup>8/</sup> Paragraph 11 and Paragraph 12. A materiality threshold of 82.6 tCO<sub>2e</sub> is determined in line with CDM VVS for PoAs, version 02.0<sup>1/</sup> Paragraph 308 (e), as the CPA qualifies as micro-scale as confirmed by checking the PoA-DD Validation Report<sup>13/</sup> and CPA-DD Validation Report<sup>13/</sup>.

Based on the above, risks were assessed in the following activities:

- Monitoring system including the data input procedure (including relevant personnel and applicable template forms used);
- Copy of the agreements between households and CME/CPA Implementer(s) (origin of data);
- Stove unique ID system;
- ER sheets (application of data);
- Data flow;
- Data control procedures;
- Monitoring survey and WBT records;
- Selling agreements;
- ERs calculation spread sheet.

In conducting the verification, DOE took cognizance of “Guideline: Application of materiality in verifications” Version 02.0<sup>8/</sup> Paragraphs 13 to 17 and based its process on the input of data from different sources checked through sampling of records during on-site and off-site. Data flow was checked through comparison of data in hand written forms<sup>22/</sup> and ER sheet<sup>20/</sup>. The competence of the personnel involved in conducting the Water boiling test (WBT)<sup>18/</sup>, recording of data and calculation of the emission reductions data, have been checked by the verification team by means of on-site visit interviews.

The risks identified can be mitigated through cross check with all sets of documents. The verification team performed the following checks in order to mitigate the effects of the above identified sources of error:

- Mitigation of Human error risks: the verification team mitigated the risk by checking the training records of the personnel and asking them about the process for data management during the on-site visit interviews. Further, data was crosschecked with the ER calculation spreadsheet<sup>20/</sup> and the raw data collected through the review of the sales agreements and data reported in the monitoring survey.
- Mitigation due to error in information system: the verification team by conducting interviews with the personnel responsible for such activities mitigated the risk due to error in information system. It was confirmed through interviews that the raw data is collected by the field personnel and then transmitted and stored at the spread sheet at CME's office. The data quality control is maintained by the CME.
- Accuracy of the measuring equipment: The risk due to inaccuracy in measurements was mitigated by reviewing calibration certificates<sup>23/</sup> of all the project equipment.

As no material errors, omissions or misstatements have been found during the implementation of these measures to mitigate the risks derived from the implementation status and considering materiality, a reasonable level of assurance is achieved.

## SECTION D. Means of verification

### D.1. Desk/document review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, and the QA/QC procedures, and an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reduction.

Thereof, Applus+ Certification has performed a Document Review (Desk Review) taking in consideration:

- A review of presented data and information to verify its completeness.
- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline and any other regulatory document, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
- Cross-checks between the presented data and information provided in the PoA-DD, CPA-DD, CPA-MR, GHG data and emission reductions and information from other sources, including, but not limited to, the publicly available information in the UNFCCC.
- The sectoral and local expertise of the DOE at the time of reviewing the provided data and information.

The initial Monitoring Report<sup>/15/</sup> version 1.0, dated on 31/10/2019 submitted by the CME and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step has involved the identification of corrective action requests and clarification requests (CARs and CLs) and Forward Actions Requests (FARs) which are presented in the Appendix 4 of this report.

As a result of these findings, the initial MR is revised to final MR version 1.1<sup>/15/</sup>, dated on 14/04/2020.

The references of the reviewed documentation can be observed under the Appendix 3 of this report.

**D.2. On-site inspection**

Duration of on-site inspection: 28/11/2019 to 30/11/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p>The verification team conducted visits to the CPA implementation site to confirm the information and to resolve issues identified in the document review.</p> <p>An on-site assessment was conducted as a part of verification activity and has involved:</p> <ol style="list-style-type: none"> <li>1) An assessment of the implementation and operation of the CDM Programme of Activities based on registered Monitoring Plan and physical features as per the approved PoA-DD/CPA-DD.</li> <li>2) A review of information flows for generating, aggregating and reporting of the monitoring parameters.</li> <li>3) Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan, as well as to confirm the competency of the operating/monitoring personnel and any calibration agency involved.</li> <li>4) A cross-check between information provided in the MR, the physical implementation of the CPA and data from other sources.</li> <li>5) A check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the approved PoA-DD/CPA-DD, the applied methodology and any other regulatory document.</li> <li>6) A review of calculations and assumptions made in determining the GHG data and ERs.</li> <li>7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.</li> <li>8) Assessment of the implementation status of the Programme of Activities as per the approved PoA-DD / CPA-DD.</li> <li>9) Physical inspection to assess the implementation of the Monitoring Plan: Visit to households and Interview with ICS users and stakeholders; Verification of baseline; Operation and maintenance; Procedures; and Technical details.</li> </ol>	<p>CPA Implementation site in Burundi</p> <p>See <i>Section D.3.</i> for more specific settlements locations.</p>	28/11/2019 to 30/11/2019	Mr. Sukanta Das



## D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Mayr	Sebastian	AERA group	28/11/2019 to 30/11/2019	CPA background and implementation,	Mr. Sukanta Das
2.	Ndizeye	Claver	OBEN	28/11/2019 to 30/11/2019	ICS types and distribution, monitoring activities and record keeping  Ex-post monitoring surveys (WBT and Usage Survey)  Programme Design, Baseline fuel usage, sampling approach, results and ER calculations	Mr. Sukanta Das
3.	Mayr	Sebastian	AERA group	Full assessment process	Coordinator for communications, corrections in the MR / ER sheet and overall coordination for findings resolution during the assessment process	Mr. Sukanta Das
4.	22 interviews to independent household representatives in the Districts: Bujumbura Bubanza  (See the list below)		Households	28/11/2019 to 30/11/2019	DOE site inspection and survey of ICS users (Usage Survey, Distribution system of ICS, Baseline fuel usage, Type of ICS used)	Mr. Sukanta Das
5.	NKURNZIZAFIUX		Households	28/11/2019	Project implementation and operation, Sales / Distribution records	Mr. Sukanta Das
6.	KABWIRIZA OAZCILLA					
6.	NIYOMUKIZA					
7.	NDIKURIYOAPPOLINAIRE					
9.	NDIKUMWENAYO GIEBERT					
10.	BIZIMANA MAJOR					
11.	BABAHEMANA ANICEL					
12.	KABURA LAURENT					
13.	NIMPAYE FIDILE					
14.	KABURA DAPHROSE					
15.	NIJIMBERE REMY					
16.	NSUWAYEZU GODEBARTHE					
17.	BIBONIMANA EJIDE			29/11/2019		

18.	BAYUBAHE JEAMNETTE		30/11/2019		
19.	BAZIKAMWE JOACHIN				
20.	BAZAUICA EMNUEL				
21.	NDUWAYEZU Godeberthe				
22.	BAYUBAHE RENEE				
23.	NADGIJIMANA BERNARD				
24.	NDAMUHAYENAYO ZENOEN				
25.	NDAYHINBAZA CLAVER				
26.	KADOYI				

#### D.4. Sampling approach

The total number of stoves distributed at the end of the monitoring period in the CPA is 35,185. The verification team used acceptance sampling approach for checking the operational status of the improved cook stoves. A sample size of 22 was required, based on an AQL of 0.5% and UQL of 15%, the producer risk used is 5% and consumer risk used was 15%.

As assessed in above sections, emission reductions from this CPA001, are being claimed for this monitoring period and the total population of the stoves under this CPA is 35,185.

The monitoring parameters required to be monitored through the sampling plan are:

- Proportion of distributed ICS still operating or replaced by an equivalent in service appliance under similar conditions under the project activity in year y
- Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y
- Efficiency of the device being deployed as part of the project activity in year y

Simple random sampling was applied by the CME for selection of the monitoring samples with 90/10 (annual) applied confidence/precision (90/10 (annual) applied for WBT) for cross-CPA sampling for all the parameters which is deemed acceptable as per the registered PoA DD<sup>/11/</sup> / CPA DD<sup>/12/</sup>.

As per the Standard for “Sampling and surveys for CDM project activities and programmes of activities” version 08.0<sup>/6/</sup>, Paragraph 25, the verification team has to verify whether the project participants or the coordinating/managing entity have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

- a) Whether the required confidence/precision has been met;
- b) Whether the selected sample was representative of the population.

The CME has applied sampling approach, the verification team has chosen acceptance sampling in accordance with the Standard for “Sampling and surveys for CDM project activities and programmes of activities” version 08.0<sup>/6/</sup>, Paragraph 28.

DOE used sampling during verification for checking the operational status and to check if the WBT tests have been done in the households and it was confirmed that WBT tests were conducted during the sampling process.

Considering that Burundi is a Least Developed Country<sup>2</sup>, applying paragraph 39 (c) of the Standard for “Sampling and surveys for CDM project activities and programmes of activities” version 08.0<sup>/6/</sup>, a sample size of 22 households was chosen (with no discrepant records). A sample size of 22 was required, based on an AQL of 0.5 % and UQL of 15 %, producer risk 5 % and consumer risk 15 %. Acceptance number (c) thus determined for the sample is 1. DOE visited 22 samples. It was observed that out of the 22 samples, 22 stoves were found to be operational and this matched with the CME’s records and hence no discrepant records were observed with the published MR<sup>/15/</sup> and ER sheet<sup>/20/</sup> and thus c=0. Thus, CME’s set of records has been accepted in line with the Standard for “Sampling and surveys for CDM project activities and programmes of activities” version 08.0<sup>/6/</sup>, Paragraph 38. Verification team has cross verified these sampling documents during the on-site visit.

<sup>2</sup> BURUNDI is considered as a Least Developed Country, and the same has been checked by the DOE in this [LINK](#).

The sampling plan implemented by the CME is in accordance with the PoA-DD<sup>/11/</sup> / CPA-DD<sup>/12/</sup> as well as the CME has appropriately performed Simple Random Sampling procedure in line with the applied approved monitoring methodology<sup>/5/</sup>. As the registered PoA-DD<sup>/11/</sup> mentions the option for Simple Random Sampling procedure based on software, like the used randomizer on Excel program, it is acceptable to the verification team.

The necessary confidence / precision of 90/10 for each of the parameters are met. This has been cross verified by the verification team from the supporting documents submitted<sup>/17/</sup>.

#### **D.5. Clarification requests, corrective action requests and forward action requests raised**

<b>Areas of verification findings</b>	<b>No. of CL</b>	<b>No. of CAR</b>	<b>No. of FAR</b>
<b>General</b>			
Compliance of the monitoring report with the monitoring report form			
Remaining forward action requests from validation and/or previous verifications			
CPAs considered for verification and covered in this report			
<b>Programme of activities</b>			
Compliance of the programme implementation with the registered PoA-DD	CL#1		
Implementation and operation of the management system	CL#2		
Post-registration changes			
<ul style="list-style-type: none"> <li>• Corrections</li> </ul>			
<ul style="list-style-type: none"> <li>• Inclusion of a monitoring plan</li> </ul>			
<ul style="list-style-type: none"> <li>• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents<sup>3</sup></li> </ul>			
<ul style="list-style-type: none"> <li>• Changes to the programme design</li> </ul>			
<ul style="list-style-type: none"> <li>• Addition of CPA inclusion template</li> </ul>			
<ul style="list-style-type: none"> <li>• Change of coordinating/managing entity</li> </ul>			
<ul style="list-style-type: none"> <li>• Changes specific to afforestation and reforestation activities</li> </ul>			
<b>Component project activities</b>			
Compliance of the CPA implementation with the included CPA design document			
Post-registration changes			
<ul style="list-style-type: none"> <li>• Temporary deviations from registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents</li> </ul>			
<ul style="list-style-type: none"> <li>• Corrections</li> </ul>			
<ul style="list-style-type: none"> <li>• Changes to the start date-of the crediting period</li> </ul>			
<ul style="list-style-type: none"> <li>• Inclusion of a monitoring plan</li> </ul>			
<ul style="list-style-type: none"> <li>• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents</li> </ul>			
<ul style="list-style-type: none"> <li>• Changes to the project design</li> </ul>			
<ul style="list-style-type: none"> <li>• Changes specific to afforestation and reforestation activities</li> </ul>			
Compliance of the registered monitoring plan with applied methodologies and standardized baselines			
Compliance of monitoring activities with the registered			

<sup>3</sup> Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied (selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

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monitoring plan			
<ul style="list-style-type: none"> <li>Data and parameters fixed ex ante or at renewal of crediting period</li> </ul>			
<ul style="list-style-type: none"> <li>Data and parameters monitored</li> </ul>		CAR#1	
<ul style="list-style-type: none"> <li>Implementation of sampling plan</li> </ul>			
Compliance with the calibration frequency requirements for measuring instruments		CAR#2	
Assessment of data and calculation of emission reductions or net removals			
<ul style="list-style-type: none"> <li>Calculation of baseline GHG emissions or baseline net GHG removals by sinks</li> </ul>	CL#3 CL#4 CL#6 CL#5		
<ul style="list-style-type: none"> <li>Calculation of project GHG emissions or actual net GHG removals by sinks</li> </ul>			
<ul style="list-style-type: none"> <li>Calculation of leakage GHG emissions</li> </ul>			
<ul style="list-style-type: none"> <li>Summary of calculation of GHG emission reductions or net GHG removals by sinks</li> </ul>			
<ul style="list-style-type: none"> <li>Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA</li> </ul>			
<ul style="list-style-type: none"> <li>Remarks on difference from estimated value in included CPA</li> </ul>			
Assessment of reported sustainable development co-benefits			
Global stakeholder consultation			
Others (please specify) - The serial Number of Stoves are not clear.			FAR#1
<b>Total</b>	6	2	1

## SECTION E. Verification findings

### E.1. General

#### E.1.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	The verification team determined whether the monitoring report was completed using the valid version of the applicable monitoring report form. The verification team has checked whether all the sections of the monitoring report follows the guidelines provided in the template itself.
<b>Findings</b>	No CAR/CL raised for this section.
<b>Conclusion</b>	The verification team concludes that the monitoring report provides all the information in accordance with the valid version of the CDM-PoA-MR-FORM (version 03.0) <sup>9/</sup> and the instructions therein for filling it.  The monitoring report has been prepared in line with VVS-PoA, version 02.0 <sup>1/</sup> .

#### E.1.2. Remaining forward action requests from validation and/or previous verifications

The verification team has reviewed the validation report and previous verification reports and observed that there was no FAR. The DOE has raised a forward Action Request (FAR) during this verification process. Please refer the Appendix 4 of this report for the detail of the FAR.

#### E.1.3. CPAs considered for verification and covered in this report

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1 Ref.: 10474-P1-0001-CP1	YES	10/09/2019	Version 1.2, 26/02/2019	NO. This is the 1 <sup>st</sup> Monitoring period of the CPA1 Ref.: 10474-P1-0001-CP1

### E.2. Programme of activities

#### E.2.1. Compliance of the programme implementation with the registered programme design document

<b>Means of verification</b>	The verification team determined the conformity of the actual component project activity and its operation with the registered programme design document. Applus+ Certification has, by means of a desk review and an on-site visit, assessed that all physical features of the component project activity in the registered PoA-DD <sup>11/</sup> are in place, and that the Coordinating/Managing Entity has operated the CPA as per the registered PoA-DD <sup>11/</sup> and CPA-DD <sup>12/</sup> .
<b>Findings</b>	CL 1 was raised in this section and closed accordingly.
<b>Conclusion</b>	The verification team by means of an on-site inspection and document review concludes that the component project activity was implemented and operated as per the registered PoA-DD <sup>11/</sup> and validated CPA-DD <sup>12/</sup> and that all physical features of the project are in place.  A total of 35,185 Jiko Matawi stove were distributed during in this Monitoring period; out of which only 23,457 cook stoves were operational. In addition to operating status, if baseline stove is not included under baseline defined under the specific CPA, the new device is counted as not operating, i.e. No emission

	<p>reductions are claimed. The fraction of stoves with a baseline not included under this CPA has been counted as 3/18 or 16,66%, as per monitoring survey. The value is further discounted by 20% for conservativeness. The number of stoves, which were using some charcoal in the project activity (in combination with firewood, which remained the principal fuel), was 4/18 or 22.22%. Leakage due to fuel switch to charcoal has been considered for these stoves.</p> <p>The cook stoves can be easily tracked using cook stove IDs punched on them. Thus the verification team states that the implementation of the CPA matches with that mentioned in the registered PoA-DD<sup>/11/</sup> and CPA-DD<sup>/12/</sup>. However a FAR is raised during this verification which needs to be checked during the subsequent verification.</p>
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### E.2.2. Implementation and operation of the management system

<b>Means of verification</b>	The verification team determined the roles and responsibilities, training arrangements and capacity development, procedure for technical review of inclusion of CPA's, data management responsibilities, detailed record-keeping system for the CPA under the PoA, and how the process performance documentation and relevant evidences are explained in the CPA-DD <sup>/12/</sup> .
<b>Findings</b>	CL 2 was raised in this section and closed accordingly.
<b>Conclusion</b>	<p>Verification team evaluated the management systems in place to implement the monitoring of the project activity.</p> <p>This included the management structure, records and document control process, procedures for training, continuous improvement of the PoA management system, record keeping system, procedures for double counting.</p> <p>The PoA management system including the record-keeping system and the management structure has been explained in section C of the registered PoA-DD<sup>/11/</sup>. During the course of verification, verification team based on review of section B.1 of the monitoring report, supporting documents and interview/observation has assessed this management system.</p> <p>The verification team confirms that the monitoring management systems and processes of the CDM PoA are in place; with the responsibilities properly identified; recording processes in place; a procedure for review of inclusion of CPAs established; a procedure to avoid double counting; and measures for continuous improvements; as described in the PoA-DD<sup>/11/</sup>.</p>

### E.2.3. Post-registration changes

#### E.2.3.1. Corrections

There is no change.

#### E.2.3.2. Inclusion of a monitoring plan

>>

There is no such change.

#### E.2.3.3. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

There is no such change.

#### E.2.3.4. Changes to the programme design

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There is no such change.

#### **E.2.3.5. Addition of CPA inclusion template**

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There is no such change.

#### **E.2.3.6. Change of coordination/managing entity**

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There is no such change.

#### **E.2.3.7. Changes specific to afforestation and reforestation activities**

>>

There is no such change.

### **E.3. Component project activities**

#### **E.3.1. Compliance of the CPA implementation with the included CPA design document**

<b>Means of verification</b>	The verification team determined how the generic CPA is part of a PoA-DD and checked how each technology/measure, methodology and combination thereof, or that technologies/measures have been combined in one generic CPA-DD in accordance with the relevant requirements in the "CDM project standard for programmes of activities, version 02.0" <sup>9/2/</sup> .
<b>Findings</b>	No findings were raised for this requirement.
<b>Conclusion</b>	The verification team concludes that the CPA description of the project contained in the registered CPA-DD to be complete and accurate. The CPA-DD complies with the relevant methodology, tools, forms and guidance at the time of CPA-DD submission for registration/inclusion. A total of 35,185 Jiko Matawi stove were distributed during in this CPA-001; out of which only 23,457 cook stoves were operational. The cook stoves can be easily tracked using cook stove IDs punched on them. Thus the verification team states that the implementation of the project matches with that mentioned in the registered PoA-DD <sup>11/</sup> and CPA-DD <sup>12/</sup> . However a FAR is raised during this verification which needs to be checked during the subsequent verification.

#### **E.3.2. Post-registration changes**

##### **E.3.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents**

The CME proposes a temporary deviation from the registered monitoring plan and the applied Standard for Sampling and Surveys version 08.0<sup>6/</sup> in the Monitoring Report version 1.1 dated on 14/04/2020<sup>15/</sup>.

The CME has been temporarily unable to monitor the included CPA in accordance with the sampling plan in the registered monitoring plan.

The nature and extent of the temporary deviation is defined by the CME as a deviation from the sampling plan in section B.5.2 of the registered monitoring plan<sup>12/</sup> in terms of:

- i) Sampling frame for monitored parameter values,  $\mu_y$  and  $\eta_{new,i,j}$ .

As per section A.2 of the registered CPA<sup>12/</sup>, the geographical boundaries of the CPA comprise rural and/or peri-urban areas of the whole Republic of Burundi consisting of 18 administrative provinces.

As per sampling plan, “the *target population* is the totality of ICSs (sampling unit) distributed” and “the *sampling frame* is the data on ICS sales entered and/or available in the CPA’s electronic database.”

Furthermore, “due to the homogeneity requirement for grouping CPAs under one sampling plan, the sampling method is simple random sampling for all parameters monitored through sampling at all times.”

- ii) Minimum sample size for monitored parameter values  $p_{\text{pop\_stoves},y}$ ,  $\mu_y$ .

A sample size is calculated in order to meet reliability requirements. In general, if the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 is chosen when the parameter of interest is a proportion. Otherwise, calculated minimum sample sizes apply.

The CME arguments that as per current political tensions and security issues across the country especially in light of upcoming general elections on 20 May 2020 make extensive unauthorized travel to or crossing insafe/unauthorized areas interviewing household users temporarily risky / impossible, especially with individuals from abroad<sup>4</sup>.

For the current monitoring period of 6 days, the CME has thus been unable to draw the sample of households to monitor parameter values  $p_{\text{pop\_stoves},y}$ ,  $\mu_y$  and  $\eta_{\text{new},i,j}$ , from the full sampling frame currently covering 7 provinces and to respect the minimum sample size of 30 for the monitored values of the proportions  $p_{\text{pop\_stoves},y}$  and  $\mu_y$ .

The DOE after evaluation of the description of the nature and extent of the proposed temporary deviation considers is defined as per the requirements on the PS for PoA version 02.0<sup>02/</sup> Paragraph 228.

Shall be noted that, during the current assessment, the DOE has performed a site visit and sampling efforts also limited in nature and extent due to the circumstances described by the CME about the current safety situation in some of the provinces and areas in which the CPA is implemented. The DOE thus confirms, by the experience on the ground, that the current safety issues in some parts of the country as well as the general climate of tension that is present, makes not possible to perform a sampling effort as complete as desirable, preserving the security of the personnel involved in the same (for both DOE and CME personnel, most of all when foreigners are implicated in the process).

The proposed duration of the temporary deviation is from 10/09/2019 - 15/09/2019 (6 days), i.e. the current monitoring period.

The CME, in line with the requisites applicable as per PS for PoA version 02.0<sup>02/</sup> Paragraph 228, has chosen the option stated in Paragraph 228 (a), this is, to propose alternative monitoring arrangements for the non-conforming monitoring period. The CME has applied the following alternative arrangements:

- i) For this monitoring period, the sampling frame for monitoring the parameter values  $p_{\text{pop\_stoves},y}$ ,  $\mu_y$  and  $\eta_{\text{new},i,j}$ , has been limited to the provinces of Bujumbura, Bubanza and Cibitoke, which are more peri-urban (safer) and involve less risks for traveling.

<sup>4</sup> Cf. OSAC’s “Burundi 2019 Crime & Safety Report” available at <https://www.osac.gov/Country/Burundi/Content/Detail/Report/b2893cfc-a67f-445e-a229-15f4aed057bf>  
Several incidents in the second half of 2019 confirm the issue, the deterioration of the situation in the course of the second half of 2019 and the security measures applied:

a) <http://burundi-agnews.org/afrique/des-elements-armees-venus-du-rwanda-ont-attaque-le-burundi/>  
b) <https://www.jeuneafrique.com/846420/politique/burundi-des-affrontements-entre-forces-de-securite-et-rebelles-font-plusieurs-morts/>  
c) <https://www.africanews.com/2019/12/31/burundian-journalists-face-15-year-jail-term-for-breaching-state-security/>



- ii) For this monitoring period, sample size for monitoring the parameter values  $p_{\text{pop\_stoves},y}$  and  $\mu_y$  has been limited to 18 household users drawing randomly a sample of 6 households in each of the 3 provinces of the above mentioned sampling frame using excel's RAND function.

The DOE thus confirms that alternative monitoring arrangements have been put in place in line with the provisions in the PS for PoA version 02.0<sup>/02/</sup> Paragraph 228 (a).

The proposed conservative measures taken by the CME in order to avoid the appearance of an overestimation of the achieved Emission Reductions for this monitoring period are:

- i) Households in peri-urban areas are more likely to use charcoal instead of firewood (due to absence of trees/firewood and the use of "more modern" fuels in and around urban areas) resulting in a likely overestimation of accounted leakage emissions due to fuel switch to charcoal.

The DOE considers this as conservative in line with PS for PoA version 02.0<sup>/02/</sup> Paragraph 228 (a) as during the site visit the same has been checked by the DOE.

- ii) A discount factor of 20% has been applied to the already conservative value of 83.33% of  $p_{\text{pop\_stoves}}$ .

As per the monitoring survey and onsite visit 100% of household users indicated that the stove was operational and working. The value has been reduced to 83.33% due to the rigorous application of the provisions in section B.5.1 of the registered CPA-DD<sup>/12/</sup>, based on the following statement: *"In addition to operating status, if baseline stove is not included under baseline defined under the specific CPA, the new device is counted as not operating, i.e. no emission reductions are claimed."*

As a furthermore conservative provision, the same is applied to stoves for which incoherent information has been found between information in the user survey and the user database/sales agreement.

The DOE, by checking the calculations in the ER calculation sheet<sup>/20/</sup> in which the monitoring survey results are included, has been able to cross check that the statement has been applied in a conservative manner, resulting in a reduced value of 83.33% of the users.

Moreover, the CME has applied extra conservative measures by applying a discount factor of 20% to the measurement of the parameter  $p_{\text{pop\_stoves}}$ , resulting in a final value of 66.67%, which is the one used for ER final calculations for the current monitoring period.

This is considered as conservative in light of an average sales date of 26/01/2019 in the full sampling frame, which suggests a very high functionality and very low degradation of all distributed stoves at the end of the current monitoring period (first monitoring period from 10/09/2019 to 15/09/2019).

- iii) A discount of 20% has been applied for pre-project device use (3.61% instead of 3.01%) to determine parameter value  $\mu_y$ .

The DOE, by checking the calculations in the ER calculation sheet<sup>/20/</sup> in which the monitoring survey results are included, has been able to cross check that the statement has been applied in a conservative manner applying a discount factor of 20% to the survey results for the parameter  $\mu_y$ .

- iv) A discount of 20% has been applied to the monitored stove efficiency value  $\eta_{\text{new},y}$  (29.75%), which becomes 23.80%. The monitored value is already significantly lower than in tests carried out ex-ante on new stoves (32.10%).

The DOE, considering that the population of stoves is not being used for a long time, as has an average date of sales of 26/01/2019, being the monitoring period in current assessment from 10/09/2019 to 15/09/2019, considers as conservative the measure taken to reduce the results of the efficiency tests (WBTs) with a 20% discount factor that makes the parameter  $\eta_{\text{new},y}$  to be

significantly lower (23.80%) than the expected value of ex-ante efficiency data (32.10%), around a 26% less efficiency considered within this monitoring period.

Considering the: above nature, extent, proposed alternative arrangements (i.e. doing in any case a sampling effort); application of discount factors of a mean of 20% in all the affected parameters by the temporary deviation; being this monitoring period a period of only 6 days and being the stoves recently distributed (so the final population across the whole country can be considered as homogeneous); taking into account that the decrease on the ex-ante estimation of emission reductions in comparison with the achieved by applying this measures, represent around 90% of decrease; and finally given that the ex-post first calculation of emission reductions were 1,378 tCO<sub>2</sub>e<sup>15/</sup> (MR in GSC), resulting then on a decrease of around 40% in comparison with the final value; the DOE considers that there is no risk of overestimating the emission reductions achieved for the current monitoring period and confirms its conservativeness and compliance with the provisions set out in the PS for PoA version 02.0<sup>102/</sup> Paragraph 228 (a).

#### **E.3.2.2. Corrections**

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There is no correction

#### **E.3.2.3. Changes to the start-date of the crediting period**

>>

There is no such change.

#### **E.3.2.4. Inclusion of a monitoring plan**

>>

There is no such change.

#### **E.3.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents**

>>

There is no such change.

#### **E.3.2.6. Changes to the project design**

>>

There is no change in project design

#### **E.3.2.7. Changes specific to afforestation and reforestation activities**

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Not applicable as the project does not involve afforestation and reforestation activity.

#### **E.3.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines**

<b>Means of verification</b>	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology <sup>5/</sup> including applicable tools and any other related regulatory document.
<b>Findings</b>	No CAR/CL raised.
<b>Conclusion</b>	The verification team is able to confirm that the monitoring plan contained in the registered CPA-DD is in accordance with the approved methodology applied i.e. AMS-II.G (version 10) <sup>5/</sup> . The monitoring plan contained in the PoA-DD <sup>11/</sup> /CPA-DD <sup>12/</sup> is in accordance with the approved methodology applied by the component project activity and its applicable tools and any other related regulatory documents.

**E.3.4. Compliance of monitoring activities with the registered monitoring plan****E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period**

<b>Means of verification</b>	The verification team has determined whether all ex-ante parameters used for emission reduction calculation stated in the registered monitoring plan are used appropriately as per the registered CPA-DD.
<b>Findings</b>	No findings were raised for this requirement.
<b>Conclusion</b>	Verification team confirms that the data and parameters fixed ex-ante are in compliance with the registered CPA-DD <sup>12/</sup> and monitoring plan. Please refer to the Appendix 5 in this report for further details.

**E.3.4.2. Data and parameters monitored**

<b>Means of verification</b>	The verification team has determined whether the registered monitoring plan has been properly implemented and followed by the CME and that the monitoring has been carried out in accordance with the registered monitoring plan.
<b>Findings</b>	CAR 1 was raised in this section and closed accordingly.
<b>Conclusion</b>	<p>The verification team has assessed the data and parameters monitored during the monitoring period and it confirms that ex-post parameters are monitored in accordance with the approved monitoring plan and applied methodology. Please refer to the Appendix 5 in this report for further details.</p> <p>In the Monitoring Survey<sup>17/</sup> (conducted at least Annual as stated in the Monitoring Plan), last one conducted on 2019, a sample size of 18 households for this monitoring period was set by CME as calculated in the separate Excel spreadsheet<sup>17/</sup>, in line with the applied methodology, is at least 90/10 (a 90% confidence interval and a 10% margin of error). During the monitoring period 100% of stoves have been found operating. The fraction of stoves with a baseline not included under this CPA has been counted as 3/18 or 16,66%, as per monitoring survey. The value is further discounted by 20% for conservativeness. The same is acceptable to the assessment team.</p> <p>For Water boiling test (WBT)<sup>18/</sup>, (conducted annually as per the Monitoring Plan), conducted annually for this monitoring period, sample size of 4 households for WBT 2019<sup>18/</sup> was set by CME as calculated in the separate Excel spreadsheet<sup>17/</sup>, in line with the applied methodology. The required precision of at least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology and the required confidence/precision level was met and reached. Please refer to the Appendix 5 in this report for further details.</p>

**E.3.4.3. Implementation of sampling plan**

<b>Means of verification</b>	The verification assessed whether there has been compliance of the sampling efforts and surveys with the registered sampling plan in accordance with the UNFCCC CDM Guideline for "Sampling and surveys for CDM project activities and programmes of activities" version 04.0 <sup>6/</sup> and if CME has applied a sampling approach to determine data and parameters monitored.
<b>Findings</b>	No findings were raised for this requirement.
<b>Conclusion</b>	<p>The verification team was able to confirm that "Simple random sampling" approach was followed by CME as a sampling approach for monitoring. The monitoring plan contains a detailed description in accordance with the UNFCCC CDM Guideline for "Sampling and surveys for CDM project activities and programmes of activities" version 04.0<sup>6/</sup>.</p> <p>In the Monitoring Survey<sup>17/</sup> (conducted at least Annual as stated in the Monitoring Plan), last one conducted on 2019, a sample size of 18 households for this monitoring period was set by CME as calculated in the separate Excel spreadsheet<sup>17/</sup>, in line with the applied methodology, is at least 90/10 (a 90% confidence interval and a 10% margin of error). During the monitoring period 100% of stoves have been found operating. The fraction of stoves with a baseline not included under this CPA has been counted as 3/18 or 16,66%, as per monitoring survey. The value is further discounted by 20% for conservativeness. The same is acceptable to the assessment team.</p>

	For Water boiling test (WBT) <sup>18/</sup> , (conducted annually as per the Monitoring Plan), conducted annually for this monitoring period, sample size of 4 households for WBT 2019 <sup>18/</sup> was set by CME as calculated in the separate Excel spreadsheet <sup>17/</sup> , in line with the applied methodology. The required precision of at least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology and the required confidence/precision level was met and reached. Please refer to the Appendix 5 in this report for further details.
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### E.3.5. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the CME at a frequency specified in the registered monitoring plan.			
Findings	CAR 2 was raised in this section and closed accordingly.			
Conclusion	The key monitoring equipment used for conducting the stove efficiencies is weighing scale and thermometer. The appropriate QA/QC procedures have been followed for the monitoring parameters. The verification team reviewed the calibration reports and observed the following: The scale and thermometer used are auto-calibrated before put into use. The validity is until next use from the calibration date. No other water boiling tests have been carried between date of calibration and test dates.			
	Equipment	WBT dates	Calibration date	Calibration agency
	Scale	11/11/2019 to 17/11/2019	10/11/2019	CRUEA
	Thermometer	11/11/2019 to 17/11/2019	10/11/2019	CRUEA
	The approach of making the calibration prior to field measurements is also in line with the requirements of the international standard ISO 9011 (par 7.6).The calibration is acceptable to the assessment team.			

### E.3.6. Assessment of data and calculation of emission reductions or net removals

#### E.3.6.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

<b>Means of verification</b>	The verification team assessed whether the data and calculations of baseline emissions resulting from the registered CPA-DD are correct. The verification team has checked whether calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
<b>Findings</b>	CL 3, CL 4, CL 5 and CL 6 were raised in this section and closed accordingly.
<b>Conclusion</b>	<p>The equations for baseline emissions, as provided in the Monitoring Report<sup>15/</sup> and confirmed with the registered CPA-DD and the methodology AMS-II.G, version 10 are:</p> $ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$ <p>Where:</p> <p><i>i</i> = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices<sup>5</sup></p> <p><i>j</i> = Indices for the situation where there is more than one batch of project device</p> <p><math>ER_y</math> = Emission reductions during year <i>y</i> in t CO<sub>2</sub>e</p> <p><math>ER_{y,i,j}</math> = Emission reductions by project device of type <i>i</i> and batch <i>j</i> during year <i>y</i> in t CO<sub>2</sub>e</p> <p><math>LE_y</math> = Leakage emissions in the year <i>y</i></p>

<sup>5</sup> 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).

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel} \quad \text{Equation (1)}$$

Where:

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

$f_{NRB,y}$  Fraction of woody biomass saved by the project activity in year  $y$  that can be established as non-renewable biomass using survey methods

$NCV_{biomass}$  Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, based on the gross weight of the wood that is 'air-dried')

$EF_{projected\_fossilfuel}$  Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 tCO<sub>2</sub>/TJ

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

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

$$B_{y,savings,i,j} = B_{old,i,j} \times \left(1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}}\right) \quad \text{Equation (2)}$$

Where:

$\eta_{old,i,j}$  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  $j$

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

$$B_{old,i,j} = B_{old,HH} \div N_{d,HH} \quad \text{Equation (3)}$$

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)

$B_{old,i,j}$  is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

#### Jiko Matawi stove: for the present project

Substituting for values for Jiko Matawi stoves in use for 100% of the time over the monitoring period, the calculation results in the below.

	Value	Unit	Source/reference
N	35,185	n/a	The value total number of Stove distributed for the monitoring period. The Same is checked from the Sale agreements.
$N_{y,i,j}$	23,457	n/a	Section E.2 $N_{y,i,j} = N * pop\_stoves,y$ . The value is checked by the assessment team from the ER sheet and found correct.
$\mu_y$	0.9639	fraction	Section E.2. The fraction is correct and acceptable to the assessment team.
$f_{NRB,y}$	81.83%	fraction	Section E.1. The value is correct and acceptable to the assessment team.
$NCV_{biomass}$	0.0156	TJ/tonne	Section E.2. The value is correct and acceptable to the assessment team.
$EF_{projected\_fossilfuel}$	63.7	tCO <sub>2</sub> /TJ	Section F.1 The value is correct and acceptable to the assessment team.

	$B_{y,savings,i,j}$	3.17	tonnes/year	ER calculations $B_{y,savings,i,j} = B_{old,i,j} * (1 - \eta_{old,i,j} / \eta_{new,i,j}) * 0.95$ . The value is checked by the assessment team from the ER sheet and found correct.
	$B_{old,i,j}$	5.03	tonnes/year	Section E.1 The value is correct and acceptable to the assessment team
	$B_{old,HH}$	5.03	tonnes/HH/year	Section E.1 The value is correct and acceptable to the assessment team
	$N_{d,HH}$	1.0	Personnes/HH	Section E.2 The value is correct and acceptable to the assessment team
	$\eta_{old,i,j}$	10	%	Section E.1 The value is correct and acceptable to the assessment team
	$\eta_{new,i,j}$	23.80	%	Section E.2 The value is correct and acceptable to the assessment team
	Baseline Emissions	826	tCO <sub>2</sub> /year	Section F.1, ER calculations $ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$ The value is checked by the assessment team from the ER sheet and found correct.
	Project emissions (PE <sub>y</sub> )	0	tCO <sub>2</sub> /year	Section F.2, ER calculations The value is checked by the assessment team from the ER sheet and found correct.
	Leakage emissions (LE <sub>y</sub> )	16	tCO <sub>2</sub> /year	Section E.1, section F.3 Adjustment factor (0.95) already applied at $B_{y,savings,i,j}$ level The value is checked by the assessment team from the ER sheet and found correct.
Emission reductions	826	tCO <sub>2</sub> /year	ER calculations $ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$ The value is checked by the assessment team from the ER sheet and found correct.	

After taking account of the effective usage days of each individual stove after the date of sale effective emissions reductions are as follows:

	ER <sub>y</sub> (tCO <sub>2e</sub> )
10/09/2019-15/09/2019	826
<b>TOTAL</b>	<b>826</b>

Total baseline emissions calculated are 826 tCO<sub>2e</sub>.

### E.3.6.2. Calculation of project GHG emissions or actual net GHG removals by sinks

<b>Means of verification</b>	There are no project emissions identified in the monitoring methodology.
<b>Findings</b>	No findings were raised for this requirement.
<b>Conclusion</b>	There are no project emissions identified in the monitoring methodology.

### E.3.6.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	The verification team assessed whether the data and calculations of leakage emissions resulting from the registered PoA-DD are correct. The verification team has checked whether calculations of leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
<b>Findings</b>	No findings were raised for this requirement.

<b>Conclusion</b>	<p>A default (0.95) Net to gross adjustment factor to account for leakages (<b>Bold</b>) has been considered by the CPA and thus it is in line with the requirement of monitoring methodology and the CPA-DD.</p> <p>Leakage due to switch from firewood to charcoal has been accounted for.</p> <p>Total leakages for the current monitoring period are 11 tCO<sub>2</sub>e.</p>
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#### E.3.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

<b>Means of verification</b>	The verification team assessed whether the data and calculations of GHG emission reductions achieved are in line with the resulting from the registered CDM PoA Component Project Activity. The verification team has checked whether calculations of GHG emission reductions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
<b>Findings</b>	No finding raised.
<b>Conclusion</b>	<p>Verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the predefined formulae from registered CPA-DD<sup>/12/</sup>.</p> <p>The total number of ERs achieved during the monitoring period is 826 tCO<sub>2</sub>e.</p> <p>In summary, verification team confirms that actual emission reductions are lower than the estimate of the currently approved CPA-DD<sup>/12/</sup> for this monitoring period. The difference between the estimated and actual, realized emission reductions is mainly due to a high number of devices counted as non-operating</p>

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO <sub>2</sub> e)	Project emissions or actual net GHG removals by sinks (tCO <sub>2</sub> e)	Leakage (tCO <sub>2</sub> e)	GHG emission reductions or net GHG removals by sinks (tCO <sub>2</sub> e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1 Ref.: 10474-P1-0001-CP1	826	0	0	0	826	826
<b>Total</b>	826	0	0	0	826	826

#### E.3.6.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

<b>Means of verification</b>	The verification team has compared the CERs achieved during this monitoring period with the estimated value and reason for increase if any.
<b>Findings</b>	No findings were raised for this requirement.
<b>Conclusion</b>	The total number of ERs achieved during the monitoring period is 826 tCO <sub>2</sub> e.

	In summary, verification team confirms that actual emission reductions are lower than the estimated ones of the currently approved CPA-DD <sup>/12/</sup> for this monitoring period.
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Title and UNFCCC reference number of the CPA	Actual values achieved by the CPAs during this monitoring period	Value estimated in ex ante calculation in the included CPA-DD(s)
"Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1 Ref.: 10474-P1-0001-CP1	826	The amount of ex-ante emission reductions for 2019 (165,159 tCO <sub>2</sub> e) is divided by the ex-ante number of credited days in 2019 (122) divided by the number of days in this monitoring period (6)= 8,123
<b>Total</b>	826	8,123

#### E.3.6.6. Remarks on difference from estimated value in included CPA

<b>Means of verification</b>	The verification team compared the actual values achieved by the CPA during this monitoring period with the values estimated in ex-ante calculations in the included CPA-DD.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	<p>In summary, verification team confirms that actual emission reductions are lower than the estimate of the currently approved CPA-DD<sup>/12/</sup> for this monitoring period. The difference between the estimated and actual, realized emission reductions is mainly due to a high number of devices counted as non-operating.</p> <p>The fraction of stoves with a baseline not included under this CPA has been counted as 3/18 or 16,66%, as per monitoring survey. The value is further discounted by 20% for conservativeness. This is also one of the main reasons for lower achieved ER for the monitoring period.</p>

#### E.3.7. Assessment of reported sustainable development co-benefits

<b>Means of verification</b>	NA
<b>Findings</b>	NA
<b>Conclusion</b>	NA

#### E.3.8. Global stakeholder consultation

<b>Means of verification</b>	The project MR <sup>/15/</sup> was webhosted on UNFCCC website
<b>Findings</b>	No findings were raised for this requirement.
<b>Conclusion</b>	The project MR <sup>/15/</sup> was webhosted on UNFCCC website. No comments were received during the public availability period.



**SECTION F. Internal quality control**

&gt;&gt;

As a final step for Verification, the final documentation, including the verification report, has to undergo an internal quality control by independent and qualified Technical Reviewer(s) to be approved.

Details of the Technical Reviewer(s) are provided within the verification report in Section B.2 and Appendix 2 for further references of knowledge and capability to conduct the quality checking.

After the Technical Review process, and once the Technical Review comments (if any) are incorporated to the Final Verification Report and this is approved by the Technical Review Team, the final documentation has to undergo a final quality checking process called Administrative Review, done by the Applus+ Certification's Project Activity Manager and/or Technical Support.

For final approval, the final set of documents are prepared by the DOE's Technical Manager or its deputy and signed by the authorized signatory of the DOE.

In case any of the persons performing this final internal quality control approval process has acted as a part of the Assessment Team or Technical Review team, the approval can only be given by DOE's personnel who have not been part of those teams.

If the final set of documents has been satisfactorily approved, the Request for Issuance is submitted to the UNFCCC CDM EB along with the relevant documents.

## SECTION G. Verification opinion

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LGAI Technological Center, S.A. (Applus+ Certification) DOE E-0032 has been contracted by PoA's CME ECOEYE CO., LTD to undertake the independent verification of the registered CDM PoA titled "Improved Cooking Stove Programme in Burundi supported by Republic of Korea" (PoA ID: 10474) covering CPA 001 titled "Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1". The objectives of this verification are to verify and certify emission reductions reported for the specific Component Project Activity (CPA) for the monitoring period from 10/09/2019 to 15/09/2019 (first and last day included); and to verify that the data reported are complete and transparent.

The Verification Team has, by means of a desk review, on-site inspection and physical/online interviews, that all physical features of the proposed PoA and CPA in the approved versions of the PoA-DD<sup>/11/</sup>, version 1.2 dated on 26/02/2019 and the CPA-DD<sup>/12/</sup>, version 1.3, dated on 08/08/2019, respectively, are in place and that the Coordinating/Managing Entity (CME) and CPA Implementer(s) have operated the Component Project Activity as per the aforementioned references.

The review of the registered Monitoring plan of the CPA-DD, the necessary supporting documentation, the publicly available information including the approved versions of the PoA-DD<sup>/11/</sup>, version 1.2 dated on 26/02/2019 and the CPA-DD<sup>/12/</sup>, version 1.3, dated on 08/08/2019, as well as any other external source used for cross-checking requirements and subsequent follow-up actions (including physical onsite inspections, Skype calls and interviews), have provided Applus+ Certification with sufficient evidences to determine the compliance with the applicable requirements and regulatory documents for the monitoring period starting on 10/09/2019 to 15/09/2019.

The final Monitoring Report<sup>/15/</sup>, version 1.1 dated on 14/04/2020 complies with all the applicable requirements set out in VVS for PoA version 02.0, PS for PoA version 02.0 and PCP for PoA version 02.0 and correctly applies the selected baseline and monitoring methodology set out in the methodology AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 10), as well as all the applicable requirements set out in any other applicable regulatory document.

The management of the Coordinating/Managing Entity (CME) and CPA Implementer(s) is responsible for the preparation and reporting of GHG Emission Reductions data, and the reported GHG Emission Reductions on the basis set out within the PoA and CPA monitoring plan. The development and maintenance of records and data transferring/reporting procedures in accordance with the monitoring plan, including the calculation and determination of GHG Emission Reductions claimed by the CPA is a responsibility of the management of the Coordinating/Managing Entity (CME) and CPA Implementer(s).

It is the responsibility of Applus+ Certification to express an independent GHG Verification opinion on the GHG Emissions Reductions and on the calculation of GHG Emission Reductions claimed by the PoA CPA for this monitoring period based on the reported information in the in the Monitoring Report<sup>/15/</sup>, version 1.1 dated on 14/04/2020.

Applus+ Certification's Verification process is defined as a third-party independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Component Project Activity, limited to and against the criteria stated in Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 10.0)<sup>/5/</sup>, the latest version of the CDM Validation and Verification Standard for Programmes of Activities (VVS for PoAs version 02.0)<sup>/1/</sup>, the latest version of the CDM Project Standard for Programmes of Activities (PS for PoAs version 02.0)<sup>/2/</sup> and the latest version of the CDM Project Cycle Procedure for Programmes of Activities (PCP for PoAs version 02.0)<sup>/3/</sup>, as well as any other related methodological tools, guidelines and other regulatory documents adopted by the CMP or the Board.

Applus+ Certification approach was risk-based, drawing on an understanding of the risks associated with reported data and information and the controls in place to mitigate such risks. The examination includes assessment of evidences relevant to the amounts and disclosures in relation to the claimed GHG Emission Reductions for this monitoring period. The verification team has planned and performed the work to obtain the information and explanations that are considered necessary to provide sufficient evidence for the DOE to give reasonable assurance that the amount of claimed GHG Emission Reductions for this monitoring period were fairly stated.

In DOE's opinion, the Monitoring Report for the CPA meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria.

**SECTION H. Certification statement**

&gt;&gt;

LGAI Technological Center, S.A. (Applus+ Certification) DOE E-0032 has carried out the independent verification of the registered CDM PoA “Improved Cooking Stove Programme in Burundi supported by Republic of Korea” (PoA ID: 10474) covering CPA 001 titled “Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1” for the monitoring period from 10/09/2019 to 15/09/2019 (first and last day included).

As per the given above DOE’s opinion, the Monitoring Report for the CPA meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria, thereof confirms the following:

PoA title:	Improved Cooking Stove Programme in Burundi supported by Republic of Korea
CDM PoA ID:	10474
CPA Title:	Improved Cooking Stoves Programme in Burundi supported by Republic of Korea – CPA1
Crediting period of the verified CPA:	10/09/2019 to 09/09/2026
Approved PoA-DD:	Version 1.2, 26/02/2019
Final Version of the Monitoring Report:	Version 1.1, 14/04/2020
Applied Methodology:	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass” (Version 10)
Applicable monitoring period:	10/09/2019 to 15/09/2019 (first and last day included), 1 <sup>st</sup> Monitoring Period
Claimed and certified Emission Reductions:	826 tCO <sub>2</sub> e

The Monitoring Report for the CPA, hence, is recommended by Applus+ Certification for issuance of the claimed and certified Emission Reductions for the given monitoring period within the UNFCCC CDM.

## Appendix 1. Abbreviations

Abbreviations	Full texts
Applus+ Certification	LGAI Technological Center, S.A. (Applus+ Certification) DOE E-0032
AS	Accreditation Standard
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification request
CME	Coordinating/Managing Entity
CMP	The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO2	Carbon Dioxide
CO2e	Carbon Dioxide equivalent
CPA	Component Project Activity
CPA-DD	Component Project Activity Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EI	External Individual
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
HQ	Headquarters (Applus+ Certification)
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
MoC	Modalities of communication
MP	Monitoring Plan
MR	Monitoring Report
OE	Outsourced Entity
PCP for PoA	Project Cycle Procedure for Programmes of Activities
PoA-DD	Programme of Activities Design Document
PS for PoA	Project Standard for Programmes of Activities
UNFCCC	United Nations Framework Convention on Climate Change
VVS for PoA	Validation and Verification Standard for Programmes of Activities
WBT	Water Boiling test

## Appendix 2. Competence of team members and technical reviewers

According to the applicable sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed an assessment team in compliance with the Contract Review and Assessment Team appointment rules in the internal Quality Management System of Applus+ Certification as well as in compliance with the applicable requirements in the Accreditation Standard.

The composition of the Assessment Team has been approved by Applus+ Certification during the Contract Review process ensuring that the required skills and capabilities are covered.

The qualification levels for Assessment Team members that are assigned by aforementioned appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A).
- Technical Expert (TE).
- Technical Reviewer (TR).
- Any of the above mentioned roles in training (iT, e.g. AiT for auditor in training).

The Sectoral Scope / Technical Area required knowledge linked to the applied methodology(ies) is covered by the Assessment Team as shown below:

Name	Role	SS/TA Knowledge	Financial Expertise	Attendance to on-site visit
Mr. Sukanta Das	LA / TE	YES (3.1)	n/a	YES
Mr. Miguel A. Cortés	TR /TE	YES (3.1)	n/a	n/a

A brief Curriculum Vitae (CV) of the Assessment Team members is provided below:

**Mr. Sukanta Das** Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from InternationalSC App for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than (11) years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.

**Mr. Miguel A. Cortés** Mr. Miguel A. Cortés holds a Bachelor's Science Degree on Civil and Environmental Engineering, being specialized on Hydric Resources.

He has worked as CDM/VCS/GS and environmental consultant for different industries of multidisciplinary sectors world widely.

Mr. Miguel Cortés counts with several years of GHG assessment experience, working and being qualified as Lead Auditor and Technical Reviewer for different DOEs world widely, as well as has been part of Gold Standard expert's committees.

Furthermore, he has performed his professional GHG assessment portfolio career worldwide and focusing in Latin America, developing assessments for projects in Argentina, Mexico, Panama, Colombia and Chile, among others

## Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UNFCCC	CDM Validation and Verification Standard for Programmes of Activities version 02.0	29/11/2018	Other
2	UNFCCC	CDM Project Standard for Programmes of Activities version 02.0	29/11/2018	Other
3	UNFCCC	CDM Project Cycle Procedure for Programmes of Activities version 02.0)	29/11/2018	Other
4	UNFCCC	CDM Accreditation Standard version 07.0	01/03/2018	Other
5	UNFCCC	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 10.0)	31/08/2018	Other
6	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities (version 08.0)	28/11/2019	Other
7	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities (version 04.0)	16/10/2015	Other
8	UNFCCC	Guideline on the application of materiality in verifications (version 02.0)	20/02/2015	Other
9	UNFCCC	CDM-PoA-MR-FORM Monitoring report form for CDM programme of activities (version 03.0)	31/05/2019	Other
10	UNFCCC	UNFCCC's list of LDCs	<a href="https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/ldc-country-information">https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/ldc-country-information</a>	Other
11	CME	Registered PoA-DD version 1.2	26/02/2019	Other
12	CME	Registered CPA-DD version 1.3	08/08/2019	Other
13	Validating DOEs	Validation Reports of PoA-DD and CPA-DD	<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/U2ZYTf1EWXPBHK0069GCLNSDRIQ78A/view">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/U2ZYTf1EWXPBHK0069GCLNSDRIQ78A/view</a> PoA DD  <a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/U2ZYTf1EWXPBHK0069GCLNSDRIQ78A/viewCPAs">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/U2ZYTf1EWXPBHK0069GCLNSDRIQ78A/viewCPAs</a> - CPA-DD	Other
15	CME	Monitoring Report version 01 Monitoring report version 1.1	31/10/2019 14/04/2020	CME
17	CME	Monitoring Survey- 2019	-	CME
18	CME	WBT test reports dated 2019	-	CME
19	CME	Sales Agreements	-	CME
20	CME	ER Calculations _ver02	03/04/2020	CME

**CDM-PoA-VCR-FORM**

22	CME	Survey forms filled	-	CME
23	CME	Calibration Certificates	The scale are auto-calibrated before put in use. The calibration date is 10/11/2019	CME
24	CME	Korean grant received from ECOEYE by AERA for OBEN under the joint development agreement of CDM program dated 15/11/2018	15/11/2018- Agreement date	CME



## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FARs from validation and/or previous verification

<b>FAR ID</b>	NIL	<b>Section no.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
N/A				
<b>CME response</b>				<b>Date:</b> DD/MM/YYYY
N/A				
<b>Documentation provided by the CME</b>				
N/A				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY
N/A				

Table 2 CLs from this verification

<b>CL ID</b>	01	<b>Section no.</b>	E.2.1	<b>Date:</b> 17/12/2019
<b>Description of CL</b>				
<p>Following observation are made by the DOE:</p> <ol style="list-style-type: none"> <li>1. On Page 1 of the MR "Monitoring report number for this monitoring period" is mentioned as 1. Clarification is sought for the same</li> <li>2. As per UNFCCC home page the CME is mentioned as "ECOYEY CO., LTD." While the MR mentions as "AERA GROUP S.A.S" .Clarification is sought for the same</li> <li>3. As per Page 1 of the MR "the estimated value is mentioned as 8,123 tCO<sub>2e</sub>. The pro-rata Calculation is not define. Clarification is sought for the same</li> <li>4. Section A.2 of the MR mentions the CME name as "ECOYEY CO., LTD." Which is contradicting with page 1 of the MR. Clarification is sought for the same</li> </ol>				
<b>CME response</b>				<b>Date:</b> 02/01/2020
<ol style="list-style-type: none"> <li>1. Modified to n/a</li> <li>2. Modified to ECOYEY CO., LTD</li> <li>3. The calculation is detailed in the relevant section F.5.1</li> <li>4. ECOYEY CO., LTD is correct, no changes made.</li> </ol>				
<b>Documentation provided by the CME</b>				
<b>Revised MR</b>				
<b>DOE assessment</b>				<b>Date:</b> 03/04/2020
The modification is the revised MR and ER sheet is acceptable to the assessment team. CL is closed.				

CL ID	02	Section no.	E.2.2	Date: 17/12/2019
<b>Description of CL</b>				
<ol style="list-style-type: none"> <li>1) In section B.1 of the MR under Para "Records of arrangements for training and capacity development for personnel are maintained. However, the records are not submitted.</li> <li>2) In sec. B.1, under para " measures for continuous improvements of the PoA Management System, CME shall describe : <ul style="list-style-type: none"> <li>• Review of latest developments and events,</li> <li>• Recurring issues related to the inclusion process,</li> <li>• Feedback from the CPA implementers</li> </ul> <i>The detail are not submitted to the assessment team.</i> </li> <li>3. In section B.1 of the MR it is mentioned that Sales agreements between the CPA implementer and the end user or the retailer is kept as records. The corresponding evidence is not submitted to the assessment team.</li> <li>4. The agreement between CME and third party institute to carry out the WBT is not submitted to the assessment team.</li> <li>5. The user survey report is not submitted to the assessment team.</li> <li>6. The sampling procedure adopted to carry out the WBT is not defined. During the site visit assessment team interviewed the professor from the University regarding the same issue. As per the third party team the WBT to be conducted is informed by CME however the details are not mentioned in the MR neither the professor is able to explain the same.</li> <li>7. The avoidance of double-counting mechanism is mentioned in the MR however supporting (for example Original sales agreements with ICS serial number and buyer contact details) are stored and used to crosscheck the electronic database transmitted by the CPA implementers) of the same is not submitted to the assessment team.</li> <li>8. During the site visit it was observed that in some household neither the sale agreement is present nor the serial numbers are clearly visible to match with the database. CME is thus needed to explain the <i>repercussions on ER calculation due to this issue.</i></li> <li>9. During the onsite visit it was observed that in some of the household the date of purchase of the Stove as mentioned in the Sale agreement do not match to the database. CME is thus needed to explain the <i>repercussions on ER calculation due to this issue.</i></li> </ol>				
<b>CME response</b>				Date: 02/01/2020
<ol style="list-style-type: none"> <li>1) Records of arrangements for training and capacity development for personnel are submitted</li> <li>2) Section B.1 has been revised and a description has been added.</li> <li>3) As shown during OSV, the records are kept as hard copy but an online database is currently under development storing the sales agreements electronically. This comes in addition to the excel sheet already submitted, which serves as the official electronic database.</li> <li>4) The agreement is submitted herewith (CONTRAT CRUEA-OBEN.pdf)</li> <li>5) The user survey report consists in the tab "monitoring survey" in the ER calculations.</li> <li>6) The sampling plan how to carry out the WBT has been described by PP on page 16 of the CPA-DD. Same information is reproduced on page 17 of the MR.</li> <li>7) As shown during OSV, the records are kept as hard copy but an online database is currently under development storing the sales agreements electronically). This comes in addition to the excel sheet already submitted, which serves as the official electronic database.</li> <li>8) Whereas a sales agreement is issued for each stove, CME cannot guarantee that each user keeps it carefully with him/her. Some serial numbers are not visible anymore due to heavy usage of the stove. There are no repercussions on ER calculation due to this issue, as CME is in possession of a copy of the sales agreement and can identify users and stoves by means of the user's contact details provided in the sales agreement as well as by the type of stove installed. Furthermore, the mentioned households opted for a fixed model type (with one exception), i.e. stoves cannot be moved and possibly double-counted elsewhere. A check of the database will prove the same. - There are no other cook stove programs in the country.</li> <li>9) When carrying out the user survey, it was observed that some users were not in possession of a sales agreement anymore. Therefore, a new sales agreement was issued for their information and rights (such as maintenance service and contact details of the CPA implementer/CME). However, the new sales agreement was dated by mistake to the date of visit of the survey instead of the first purchase date. There are no repercussions on ER calculations due to this issue since CME is in possession of the original sales agreement signed.</li> </ol>				
<b>Documentation provided by the CME</b>				

<b>See above.</b>	
<b>DOE assessment</b>	<b>Date:</b> 03/04/2020
<ol style="list-style-type: none"> <li>1. The documents are submitted and found correct. CL is closed</li> <li>2. The revision in section B.1 for continual improvement is acceptable to the assessment team. CL is closed.</li> <li>3. The links provided do not work. The Sales agreement for the household visited during the OSV/monitoring survey sales agreement is submitted to the assessment team. Hence CL is closed</li> <li>4. The agreement is checked and found correct. CL is closed</li> <li>5. The ER sheet is not cross check mechanism. The data presented in the ER sheet needs to be verified and confirm. The hard copy of the user survey report (at-least for the household visited/monitoring survey sales agreement) is now submitted to the assessment team. The data of Sales agreement is now coincide with the ER data base Hence CL is open</li> <li>6. The sampling plan is now presented in the revised MR. CL is closed</li> <li>7. The Sales agreement for the household visited during the OSV/monitoring survey Sales agreement is now submitted to the assessment team. CL is closed</li> <li>8. Explanation is acceptable CL is closed</li> <li>9. The explanation is acceptable and since the original Sale agreement is in the possession of the PP. CL is closed.</li> </ol>	

<b>CL ID</b>	03	<b>Section no.</b>	E.3.6.1	<b>Date:</b> 17/12/2019
<b>Description of CL</b>				
During site visit, verification team interviewed 22 households. CME shall clarify how this diversity of fuel used is managed (both Charcoal and fuel wood are used) in the calculation of emission reductions as this nos. is significant considering sample size selected.				
<b>CME response</b>				<b>Date:</b> 02/01/2020
CME manages the diversity of fuel in line with p.11 of the registered CPA-DD, which states that if a "baseline stove is not included under baseline defined under the specific CPA, the new device is counted as not operating, i.e. no emission reductions are claimed." (cf. Columns L to O in tab monitoring survey of ER calculations)				
<b>Documentation provided by the CME</b>				
<b>Revised ER calculations</b>				
<b>DOE assessment</b>				<b>Date:</b> 03/04/2020
Assessment team checked the monitoring survey of ER calculation and found that diversity of the fuel is taken into account while taking ER calculation into consideration. CL is thus closed.				

<b>CL ID</b>	04	<b>Section no.</b>	E.3.6.1	<b>Date:</b> 17/12/2019
<b>Description of CL</b>				
During site visit it was observed that some households do not have sometime money to buy charcoal/fuel wood. CME shall clarify repercussions on ER calculation due to these issues and whether all these issues were taken into account during usage survey.				
<b>CME response</b>				<b>Date:</b> 02/01/2020
Users were asked how many meals they cook with the project stove (and baseline stove, if applicable), i.e. the issue is taken into account indirectly. If users have no money to buy fuel they either collect firewood (and make charcoal) themselves or cook less meals.				
<b>Documentation provided by the CME</b>				
-				
<b>DOE assessment</b>				<b>Date:</b> 03/04/2020
The explanation is acceptable and same is checked during onsite visit as well If users have no money to buy fuel they either collect firewood (and make charcoal) themselves or cook less meals.CL is thus closed.				

<b>CL ID</b>	05	<b>Section no.</b>	E.3.6.1	<b>Date:</b> 17/12/2019
<b>Description of CL</b>				
During site visit it was observed by verification team that cook stoves were replaced in some households, CME shall explain substitution or replacement mechanism of old/ broken stoves and its impact on CER calculation				
<b>CME response</b>				<b>Date:</b> 02/01/2020

<p>As per footnote 15 of the PoA-DD "If the efficiency of the project device falls below 20%, it is no longer eligible to be considered a project device."</p> <p>As per sales agreement the following procedure is foreseen:          "When the ICS is purchased, the household representative benefits from a maintenance service. The household representative agrees to call the maintenance team, OBEN, as soon as the equipment no longer functions. The team visits the household representative. A replacement contract is signed, in which the maintenance team collects and records the following information in an electronic database: 1. serial number of the ICS, 2. household contact details, 3. date of first purchase, and 5. date of replacement."          The database is modified accordingly (information of former stove replaced by the information of the new stove).          There is no impact on the CER Calculation since stoves, which are broken and not replaced, are discounted in the CER calculation through monitored parameter <math>p_{op\_stoves,y}</math>.</p>	
<b>Documentation provided by the CME</b>	
-	
<b>DOE assessment</b>	<b>Date:</b> 03/04/2020
<p>The replacement or broken Stove is taken into consideration. There is no impact on the CER Calculation since stoves, which are broken and not replaced, are discounted in the CER calculation through monitored parameter <math>p_{op\_stoves,y}</math>. CL is thus closed.</p>	

<b>CL ID</b>	06	<b>Section no.</b>	E.3.6.1	<b>Date:</b> 17/12/2019
<b>Description of CL</b>				
<p>PP has adopted biennial monitoring of parameter and used WBT for efficiency measurement for project and baseline stove which is allowed as per applied methodology of the CME able to demonstrate that the efficiency of the cook stoves does not drop significantly as compared to the initial efficiency of the new device, over a period of 2 years of typical usage. CME shall demonstrate and provide supporting evidence to demonstrate that efficiency of stove does not drop significantly (Para 32 of AMS.II.G in case option 3 is used i.e. WBT test).</p>				
<b>CME response</b>				<b>Date:</b> 02/01/2020
<p>As per section B.5.1 of the CPA, efficiency is monitored annually. As per section B.4.1, "project participants choose to account for the loss in efficiency as per below option:          d) Determine the loss in efficiency annually from a representative sample of each batch and use the actual loss rate that is measured."</p> <p>Cf. CL05 as concerns the mechanism for broken/old/malfunctioning stoves:          "As per footnote 15 of the PoA-DD "If the efficiency of the project device falls below 20%, it is no longer eligible to be considered a project device."          As per sales agreement the following procedure is foreseen:          "When the ICS is purchased, the household representative is provided with a maintenance service. The household representative agrees to call the maintenance team, OBEN, as soon as the equipment no longer functions. The team visits the household representative. A replacement contract is signed, in which the maintenance team collects and records the following information in an electronic database: 1. serial number of the ICS, 2. household contact details, 3. date of first purchase, and 5. date of replacement."          The database is modified accordingly (information of former stove replaced by the information of the new stove)."          There is no impact on the CER Calculation since stoves, which are broken and not replaced, are discounted in the CER calculation through monitored parameter <math>p_{op\_stoves,y}</math>.</p>				
<b>Documentation provided by the CME</b>				
-				
<b>DOE assessment</b>				<b>Date:</b> 03/04/2020
Explanation is acceptable, CL is thus closed.				

Table 3 CARs from this verification

<b>CAR ID</b>	01	<b>Section no.</b>	E.3.4.2	<b>Date:</b> 17/12/2019
<b>Description of CAR</b>				

Following observation are made on monitoring section:

1. The supporting document for CPA monitoring database is not submitted to the assessment team for the parameter  $N_{y,i,j}$
2.  $\eta_{new,i,j}$  parameter option 2 is mentioned in the MR. However WBT test is performed for the same. **Moreover**, Tests were performed by third party "Centre de Recherche Universitaire sur les Energies Alternatives (CRUEA)" (University of Burundi) and cross-checked with manufacturer information. The cross check mechanism is not defined.
3. For parameter  $NCV_{biomass}$  it is observed that in maximum household charcoal is used as a fuel. *CME shall clarify repercussions on ER calculation due to these issues and whether all these issues were taken into account during usage survey.*
4. The internal records as primary source of data for parameter "Date of commissioning of batch j, Date of commissioning of project device I is not submitted to the assessment team
5. Electronic database used for registering all ICS's sold is not submitted to the assessment team.
6. The internal records for Number of project devices distributed per household are not submitted to the assessment team.

CME response	Date: 02/01/2020
<ol style="list-style-type: none"> <li>1) As shown during OSV, the records are kept as hard copy but an online database is currently under development storing the sales agreements electronically. This comes in addition to the excel sheet already submitted, which serves as the official electronic database.</li> <li>2) An efficiency test has been ordered by manufacturer in July 2019, which revealed an efficiency of a 32.1% for a new stove (cf. July 2019 CREEC Test results.pdf), which is quite in line with the efficiency test results of the first verification (29.8% in average). The cross-check mechanism needs to be understood as such (rough comparison of initial test result of new stove with and tests of used stoves).</li> <li>3) Cf. CL03</li> <li>4) The date of commission of batch j, date of commissioning of project device I can be determined by means of the internal user database, which has been submitted to the DOE as part of the ER calculations.</li> <li>5) Cf. comment #4 &amp; #1</li> <li>6) Nd,HH is determined by the internal user database already submitted to the DOE. As column I of the tab "database" in the ER calculations reveal, there are no multiple stoves per household (should appear in red due to the use of the automatic excel tool), i.e. Nd,HH = 1 (cell O6).</li> </ol>	

Documentation provided by the CME	
Revised MR, Sales agreements	
DOE assessment	Date: 03/04/2020
<ol style="list-style-type: none"> <li>1. Explanation is acceptable and CAR is closed.</li> <li>2. The monitoring equipment <math>\eta_{new,i,j}</math> says Option 2 while we are using Option 3 i.e. WBT test. The revision is now done in MR. CAR is closed.</li> <li>3. The explanation as mentioned in CL03 is acceptable. CAR is closed</li> <li>4. The explanation is acceptable and CAR is closed.</li> <li>5. The explanation is acceptable and thus the CAR is closed.</li> <li>6. The ER calculation presented need to be checked from the database. The Sales agreement presented for the monitoring survey matches with the ER sheet.</li> </ol> <p>Hence CAR is closed.</p>	

CAR ID	02	Section no.	E.3.5	Date:	17/12/2019
Description of CAR					
CME shall provide records of calibration for the instruments (Weighing scale) used in the WBT test, Training records for the project monitoring staff and agreements made with Red cross.					
CME response					Date: 02/01/2020
<p>The following is submitted</p> <ul style="list-style-type: none"> <li>- Records of calibration for the instruments (Weighing scale) used in the WBT test → As already stated by the professor in charge of the laboratory during OSV, the instruments are calibrated regularly according to a specific procedure (cf. OBEN-CRUEA Calibrage instruments.pdf)</li> <li>- Training records for the project monitoring staff → cf. CVs of Monitoring Staff (CVs Monitoring Staff.zip)</li> <li>- Agreement made with Red cross (Contrat OBEN Red Cross.pdf)</li> </ul>					
Documentation provided by the CME					

<b>See above</b>	
<b>DOE assessment</b>	<b>Date:</b> 27/02/2020
The supporting documents are submitted like Calibration details, Training records of project Staff, And agreement made with red –cross. The documents are in line with the requirement and thus CAR is closed.	

Table 4 FARs from this verification

<b>FAR ID</b>	01	<b>Section No.</b>	Other	<b>Date:</b> 17/12/2019
<b>Description of FAR</b>				
During the onsite visit it was observed that in majority of the household the serial number of the Stoves are not visible clearly. The numbers are curved in the stove and due to usage of the same; the serial numbers are not clearly observed. For the present verification assessment team managed to obtain the serial number however in most probability for the next verification the issue will be critical. The arrangement to make the serial number clearly visible needs to be checked in the next verification.				
<b>CME response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by the CME</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

## Appendix 5. Data and parameters fixed ex-ante and monitored

### Ex-ante Parameter

Parameter	Explanation
$B_{old,p}$ - 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	PP has applied value of 1.07 tonnes/person/year. The value is Country-specific, conservative literature as detailed in PoA-DD section I.6.1. Since the Value is as per the registered PoA-DD, the same is acceptable to the assessment team. The value is used for baseline emission calculation.
$N_{p,HH}$ : Average number of persons served per household prior to project implementation	PP considered the value 4.7 which is considered from USAID 2008: Burundi Population Survey: Status and Structure of Population (p.34) <sup>6</sup> . Since the Value is as per the registered PoA-DD, the same is acceptable to the assessment team. The value is used for baseline emission calculation.
$B_{old,HH}$ : 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	PP considered the value as 5.03 tonnes/household/year. The value is used for baseline emission calculation. Since the Value is as per the registered PoA-DD, the same is acceptable to the assessment team
$B_{old,i,j}$ : 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 $j$	PP considered the value as 5.03 tonnes/year. The value is used for baseline emission calculation. Since the Value is as per the registered PoA-DD, the same is acceptable to the assessment team.
$\eta_{old,i,j}$ : Efficiency of the device being replaced	PP used the value as 0.1. The value is Determined ex ante at CPA-level, based on AMS-II.G. for default values and/or baseline survey literature, statistics etc. Since the 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 the value is considered correct. The value is used for baseline emission calculation.
<b>Leakage</b> Net to gross adjustment factor to account for leakages	$B_{old}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages according to AMS-II.G. The same is as per the requirement of the meth. Used for the Calculation of baseline emission
$f_{NRB,y}$ Fraction of woody biomass saved by the project activity in year $y$ that can be established as non-renewable biomass.	. The source of data is National or local statistics or other sources of information (following TOOL30: Calculation of the fraction of non-renewable biomass).

<sup>6</sup> <https://www.usaid.gov/documents/1866/2008-burundi-population-census-status-and-structure-population>

## Ex-post

Net calorific value of the non-renewable woody biomass that is substituted( $NCV_{biomass}$ , TJ/t)	PP has selected IPCC default value i.e., 0.015 TJ/t. It is used for calculation of project emissions or actual net GHG removals by sinks, fixed at PoA level and for entire crediting period of the CPA. The verification team confirms that IPCC default value for wood fuel is 0.0156 TJ/tonne can be used for net calorific value of the non-renewable woody biomass that is substituted( $NCV_{biomass}$ ) which is in line with the applied methodology(AMS-II.G, paragraph 11)																						
<b>Number of project devices of type i operating in year y (<math>N_{y,i}</math>, Number)</b>	<p><math>N_{y,i,j}</math> is determined by multiplying all devices sold (N) with the proportion of cooking stoves found to be operating in a representative sample, i.e. <math>p_{op\_stoves,y}</math> (= 66.67%)</p> <table border="1" data-bbox="762 600 1318 1115"> <tr><td>Batch average</td><td>100.00%</td></tr> <tr><td>Sample size</td><td>18</td></tr> <tr><td>Total population size</td><td>35,185</td></tr> <tr><td>Required precision</td><td>90%</td></tr> <tr><td>z-value at 90% confidence</td><td>1.64</td></tr> <tr><td>Confidence interval (+/-)</td><td>0%</td></tr> <tr><td>Lower bound of the interval (1-p)</td><td>100.00%</td></tr> <tr><td>Higher bound of the interval (1-p)</td><td>100.00%</td></tr> <tr><td>Maximum error (precision)</td><td>10%</td></tr> <tr><td>Sample monitoring precision</td><td>0%</td></tr> <tr><td colspan="2">Conclusion Precision OK</td></tr> </table> <p>In addition to operating status, if baseline stove is not included under baseline defined under the specific CPA, the new device is counted as not operating, i.e. no emission reductions are claimed. The fraction of stoves with a baseline not included under this CPA has been counted as 3/18 or 16,66%, as per monitoring survey. The value is further discounted by 20% for conservativeness. The number of stoves, which were using some charcoal in the project activity (in combination with firewood, which remained the principal fuel), was 4/18 or 22.22%. Leakage due to fuel switch to charcoal has been considered for these stoves.</p>	Batch average	100.00%	Sample size	18	Total population size	35,185	Required precision	90%	z-value at 90% confidence	1.64	Confidence interval (+/-)	0%	Lower bound of the interval (1-p)	100.00%	Higher bound of the interval (1-p)	100.00%	Maximum error (precision)	10%	Sample monitoring precision	0%	Conclusion Precision OK	
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Conclusion Precision OK																							
$\mu_y$ : Adjustment to account for any continued use of pre-project devices during year y	<p>During the annual monitoring campaign, CME-mandated field agents inquire if the baseline stove that was supposed to be replaced by the ICS is still used. Field agents estimate the usage rate of the pre-project stove(s) by formulating questions to determine the frequency of usage of both the project devices and baseline devices. The same is checked and found correct in the Monitoring survey sheet provided.</p> <p>The proportion of continued use of pre-project stoves is calculated as <math>1 - \mu_{y,i}</math>.</p> <table border="1" data-bbox="770 1861 1310 2063"> <tr><td>Batch average</td><td>3.01%</td></tr> <tr><td>Sample size</td><td>18</td></tr> <tr><td>Total population size</td><td>35,185</td></tr> <tr><td>Required precision</td><td>90%</td></tr> <tr><td>z-value at 90% confidence</td><td>1.64</td></tr> </table>	Batch average	3.01%	Sample size	18	Total population size	35,185	Required precision	90%	z-value at 90% confidence	1.64												
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	<table border="1"> <tr> <td>Confidence interval (+/-)</td> <td>7%</td> </tr> <tr> <td>Lower bound of the interval (1-p)</td> <td>-3.61%</td> </tr> <tr> <td>Higher bound of the interval (1-p)</td> <td>9.63%</td> </tr> <tr> <td>Maximum error (precision)</td> <td>10%</td> </tr> <tr> <td>Sample monitoring precision</td> <td>7%</td> </tr> <tr> <td><b>Conclusion</b></td> <td><b>Precision OK</b></td> </tr> </table> <p>For conservativeness, the value is discounted by 20%</p> <p>The calculation is found correct</p>	Confidence interval (+/-)	7%	Lower bound of the interval (1-p)	-3.61%	Higher bound of the interval (1-p)	9.63%	Maximum error (precision)	10%	Sample monitoring precision	7%	<b>Conclusion</b>	<b>Precision OK</b>												
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<p><math>\eta_{new,i,j}</math> Efficiency of the device of each type <math>i</math> and batch <math>j</math> implemented as part of the project activity</p>	<p>Water boiling Tests is done for the parameter to determine which is as per the requirement of Meth AMS.II.G version 10. Annual monitoring as default option c) is chosen to adjust for the loss in efficiency as per paragraph 25 of AMS II.G. Mean of three tests for each of the four cook stoves (from batch 1: stoves sold between 02/11/18 and 26/08/2019) carried out between 16/10/2019 and 19/10/2019</p> <table border="1"> <tr> <td>average efficiency</td> <td>29.75%</td> </tr> <tr> <td>Standard deviation</td> <td>0.0247</td> </tr> <tr> <td>Sample size</td> <td>4</td> </tr> <tr> <td>Total population size</td> <td>35,185</td> </tr> <tr> <td>Required precision</td> <td>90%</td> </tr> <tr> <td>t-value at 90% confidence</td> <td>2.35</td> </tr> <tr> <td>Confidence interval (+/-)</td> <td>0.0291</td> </tr> <tr> <td>Lower bound of the interval</td> <td>26.84%</td> </tr> <tr> <td>Higher bound of the interval</td> <td>32.65%</td> </tr> <tr> <td>Maximum error (precision)</td> <td>10%</td> </tr> <tr> <td>Sample precision</td> <td>10%</td> </tr> <tr> <td><b>Conclusion</b></td> <td><b>Precision OK</b></td> </tr> </table> <p>Stove numbers: 01BUJ000003, 03CIB045035, 02BUB047990, 01BUJ004499 Sample of 4 is considered (90/10 precision level)</p> <p>In case of two subsequent monitoring sessions the efficiency of stoves of an age group is determined at respectively <math>\eta_{i,j,1}</math> and <math>\eta_{i,j,2}</math>, <math>\eta_{i,j} = \frac{\eta_{i,j,1} + \eta_{i,j,2}}{2}</math></p> <p>Tests were performed by third party "Centre de Recherche Universitaire sur les Energies Alternatives (CRUEA)" (University of Burundi) and cross-checked with manufacturer information.</p> <p>Sampling test have been conducted following a 90/10 precision in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities", and 90/10 precision was met</p>	average efficiency	29.75%	Standard deviation	0.0247	Sample size	4	Total population size	35,185	Required precision	90%	t-value at 90% confidence	2.35	Confidence interval (+/-)	0.0291	Lower bound of the interval	26.84%	Higher bound of the interval	32.65%	Maximum error (precision)	10%	Sample precision	10%	<b>Conclusion</b>	<b>Precision OK</b>
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<p><b>Date of commissioning of batch <math>j</math>:</b> To establish the date of commissioning, the Project Participant opts to group the devices in "batches" and the latest date of commissioning</p>	<p>Every time an ICS is sold a sales agreement is filled. The information is entered in the ER database afterwards. Based on the database, the date of commissioning is determined, assuming conservative lead times between sale, construction/installation and commissioning. The Database is checked for the monitoring period</p>																								

of a device within the batch shall be used as the date of commissioning for the entire batch	and found correct by the assessment team
<b><i>Date of commissioning of project device i</i></b> Actual date of commissioning of the project device	Every time an ICS is sold a sales agreement is filled. The information is entered in the ER database afterwards. Based on the database, the date of commissioning is determined, assuming conservative lead times between sale, construction/installation and commissioning. The Database is checked for the monitoring period and found correct by the assessment team
Number of project devices distributed	Every time an ICS is sold a sale agreement is filled and an ER database is filled. Based on the information collected into this database, the number of ICSs distributed is determined. The Database is checked and found correct
Number of project devices distributed per household	Only one cooking stove per household is registered in the ER database and has the Sales agreement. If a household purchases more than one cooking stoves, monitoring surveys of sampled kitchens' stoves in use will account for any additional project device and be reflected in adjustment factor $N_{d,HH}$ . The same is acceptable by the DOE

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN);</li><li>• Make structural and editorial improvements.</li></ul>
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: programme of activities, verifying and certifying		