



Verification and certification report form for CDM programme of activities

(version 01.0)

Complete this form in accordance with the "Attachment. Instructions for filling out the verification and certification report form for CDM programme of activities" at the end of this form.

VERIFICATION AND CERTIFICATION REPORT

Title of the programme of activities (PoA)	Biomass Energy Conservation Programme	
UNFCCC reference number of the PoA	10182	
Version number(s) of the PoA-DD(s) applicable to this report	07	
Version number of the verification and certification report	3.0	
Completion date of the verification and certification report	15/09/2017	
Monitoring period number	1 First (1 st) Monitoring Period	
Duration of this monitoring period	13/08/2015 – 31/01/2017	
Number and version number of the monitoring report to which this report applies	Monitoring Report Number: 1, Version 3.2, dated 14/09/2017	
Coordinating/managing entity (CME)	Hestian Innovation Ltd.	
Host Party(ies)	Host Party(ies) of the PoA	Is this a host Party to a CPA covered in this report?(yes/no)
	Malawi Rwanda	Yes No
Sectoral scope(s)	Sectoral Scope 3 (Energy Demand)	
Selected methodology(ies)	AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass --- Version 6.0	
Selected standardized baseline(s)	-	
Total estimated GHG emission reductions or net GHG removals for this monitoring period in the included CPA(s) covered in this report	93,816 tCO ₂ e	
Total certified GHG emission reductions or net GHG removals for this monitoring period for the included CPA(s) covered in this report	55,031 tCO ₂ e	
Name of DOE	Earthood Services Private Limited	

Name, position and signature of the approver of the verification and certification report

Dr. Kaviraj Singh, Managing Director

A handwritten signature in blue ink, appearing to read 'Dr. Kaviraj Singh', is written over a light yellow rectangular background.

SECTION A. Executive summary

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The proposed PoA involves the dissemination of highly efficient biomass fired Improved Cookstoves (ICS). The cook stoves disseminated through this programme replaces the inefficient three-stone fired or equivalent with stoves which combust wood more efficiently, and improve thermal transfer to pots, hence saving fuel and lowering greenhouse gas emissions. Each CPA supports the project goals of reducing fuel consumption, improving health, and reducing deforestation in Malawi. The target areas are all regions of Malawi with traditional biomass stove users.

The fuel type used by improved household cook-stoves is predominantly fire wood and to a small extent other biomass agricultural residue (e.g. pigeonpea stalks, maize hobs, etc.).

Hestian Innovation Ltd. is the CME for the PoA, which is the project participant providing the framework and incentives for the rest of parties involved to achieve the emission reductions.

The CME keep track of the list of ICS installations concerning to the PoA in the hard copies as well as a electronic form. The ICS users sign a title transfer with the CME while purchasing the product.

Scope of verification:

The verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification includes the implementation and operation of the PoA as set out in the registered PoA-DD & CPA-DDs viz., 10182-0001, 10182-0002, 10182-0003 and 10182-0004 in the monitoring period. The verification tests the data and assertions set out in the monitoring report based on the following:

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period by the CMEs and is based on the following:

- (i) The approved methodology AMS II.G version 06 "Energy efficiency measures in thermal applications of non-renewable biomass", applied in the POA-DD & CPA-DDs
- (ii) The registered PoA-DD & CPA-DD and monitoring plan
- (iii) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (iv) The CDM Validation and Verification Standard (VVS)
- (v) The CDM Project Standard (PS) and Project Cycle Procedure (PCP)
- (vi) Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions

The verification has considered both quantitative and qualitative aspects on stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by UNFCCC, as appropriate to the PoA. The verification is not meant to provide any consulting or recommendations to the CME/others. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Verification Process:

The verification process is conducted as per internal CDM Quality Manual, which includes the following steps;

- a) Contract with Hestian Innovation Ltd. and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report)
- b) Completeness check of Monitoring Report
- c) Publication of Monitoring Report at UNFCCC website
- d) Desk review (refer Section C.1 of this report) of Monitoring Report and corresponding ER sheet by verification team and planning of onsite audit (including sampling approach (refer Section C.4 of this report) to be applied)
- e) On site audit (refer Section C.2 of this report) (physical implementation and interview with relevant stakeholders) by verification team consistent of Team Leader and all Technical Experts, as a minimum
- f) Follow up activities e.g., interviews (refer Section C.3 of this report)
- g) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section C.5 of this report)
- h) Independent technical review (refer Section D of this report) of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences)
- i) Reporting and closure of TR comments/findings (refer Section C.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section E and F of this report).

j) Issuance of final verification report to contracted CME (or authorized representatives) and submission of request for issuance, as appropriate.

Verification Conclusion:

Based on the outcome of the verification process of the registered PoA “Biomass Energy Conservation Programme” and its 04 CPAs (10182-0001, 10182-0002, 10182-0003, and 10182-0004) for the monitoring period 13/08/2015 – 31/01/2017 (including both dates) we confirm that the implementation of referenced registered PoA and CPAs is complying with applicable CDM rules and regulations as stated in the Monitoring Report (final) Version 3.2 dated 14/09/2017. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodologies, AMS II.G Version 06 and the monitoring plan contained in the PoA-DD and the CPA DDs.

Earthood Services Private Limited is able to certify that the emission reductions from the registered CDM PoA UN#10182 “Biomass Energy Conservation Programme” in Malawi during the period 13/08/2015 – 31/01/2017 (including both days) amount to 55,031 tCO₂e. Therefore, this is being submitted for request for issuance, as per UNFCCC procedures.

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 review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Garg	Shreya	Central Office	Y	N	N	Y
2.	Verifier	IR	Mahala	Deepika	Central Office	Y	N	N	Y
3.	Meth Expert(AMS II G)	IR	Garg	Shreya	Central Office	Y	N	N	Y
4.	Technical Expert (TA 3.1)	IR	Garg	Shreya	Central Office	Y	N	N	Y
5.	Local Expert	EI	Katundu	Enea	Central Office	Y	Y	N	N
The site was conducted by the previous Team Leader Nayan Jyoti Deka									

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	EI	Chaudhary	Anu	Central Office
2	Technical Expert (TA 3.1) & meth expert (AMS II G)	EI	Chaudhary	Anu	Central Office
3	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Means of verification
C.1. Desk review

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The desk review involves;

- A review of the data and information presented to verify their completeness;

- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions;

The list of documents/evidences reviewed during the verification is provided under Appendix 3 of this report.

C.2. On-site inspection

Duration of on-site inspection: 19/04/2017 to 22/04/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	Physical site visit : Households visited (implementation of PoA)	Malawi	19/04/2017 to 22/04/2017	Nayan Jyoti Deka
2	Review of information flows for generating, aggregating and reporting the monitoring parameters	Malawi	19/04/2017 to 22/04/2017	Nayan Jyoti Deka
3	Cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;	Malawi	19/04/2017 to 22/04/2017	Nayan Jyoti Deka
4	A check of the monitoring equipment including calibration performance and observations of monitoring practices against the applicable requirements	Malawi	19/04/2017 to 22/04/2017	Nayan Jyoti Deka
5	identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	Malawi	19/04/2017 to 22/04/2017	Nayan Jyoti Deka

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Shlapak	Mykola	Hestian Innovation Ltd.	19/04/2017 to 22/04/2017	Sampling & ER calculation, survey sheet, WBT calculation MR related issues ,etc.	Nayan Jyoti Deka
2	Botha	Yamundu	Hestian Innovation Ltd. & Sunfire	19/04/2017 to 22/04/2017	Overall PoA description, QA/QC procedures, monitoring survey	Nayan Jyoti Deka
3	Botha	Getrude	Hestian Innovation Ltd. & Sunfire	19/04/2017 to 22/04/2017	Stoves sales & sales database, tracking	Nayan Jyoti Deka
4	Fox	Conor	Hestian Innovation Ltd.	19/04/2017 to 22/04/2017	Overall PoA description	Nayan Jyoti Deka
5	Mahenye	Esther	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
6	Chipendo	Egrey	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
7	Drahman	Loveness	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
8	Mateya	Kettie	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
09	Selemani	Bertha	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
10	Mateya	Ethel	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
11	Khweliwe	Catherine	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
12	Chiniko	Mary	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka
13	Chakwiya	Gladys	Household user	19/04/2017 to 22/04/2017	ICS Usages	Nayan Jyoti Deka

C.4. Sampling approach

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CME's sampling approach:

A Stratified sampling plan was carried out across all specific case CPAs covered in this monitoring period. The CME has applied Stratified Sampling across a group of CPAs for different monitoring parameters as per validated PoA DD and CPA DDs. 95/10 confidence precision was mainly applied by CME in the sampling, which is better than the 90/10 confidence precision prescribed in sampling tool for a period less than a year. The confidence and precision level applied by the CME meets the methodological requirements. The sampling approach undertaken by CME is duly explained under Section G.3 of monitoring report.

DOE's sampling approach:

CDM-PoA-VCR-FORM

In order to meet the requirements of Standard for Sampling and surveys for CDM project activities and programmes of activities, the verification team applied acceptance sampling in the verification. The verification team selected random samples of CME's sampled records, checked the acceptability (or otherwise) of the data for each such record with CME's sample records, and then based on the number of records where there is agreement, determined if the CME's sample records meet the requirements.

As per "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 7," A DOE may select a different sample size than the one indicated in paragraph 28, either by choosing a different value for the consumer risk and producer risk (e.g. 20% for the consumer risk) when applying acceptance sampling or by using another approach, if any of the following conditions apply:

- (a) The estimated volume of annual emission reductions of the project activity or the PoA being verified is equal to or less than 100,000 tCO₂e;
- (b) The security conditions in the project region prevents inspection of many samples (e.g. conflict zones); or
- (c) The project activity or the PoA is located in a least developed country or a host Party with 10 or fewer registered CDM project activities at the end of the monitoring period being verified.

In case of the current verification, the estimated annual emission reduction of the PoA being verified is less than 100,000 tCO₂ thus meeting the requirement of the standard. Secondly, the PoA is located in a least developed country i.e. Malawi, which has been confirmed through UNFCCC website (http://unfccc.int/resource/docs/publications/ldc_brochure2009.pdf), thus also meeting the requirement of para 31(c). Hence DOE has considered 8 samples from each type of ICS for the current verification.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgement and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities':

- The proportion of discrepancies between the CME's data and verification team's (field or onsite inspection results) data that can be considered acceptable. This is referred to as the AQL (Acceptable Quality Level): 0.5% was considered in this verification.
- The proportion of discrepancies between the CME's data and verification team's (field or onsite inspection results) data that would be considered unacceptable. This is the UQL (Unacceptable Quality Level): 20% was considered in this verification.
- The producer risk of 10% and consumer risk of 20% was considered.

Considering the above input values, a sample size of 8 was required as per Table 1 in the referred Standard for the monitoring period. Accordingly, Acceptance number (c) thus determined for the sample size is 0. A sample size of 8 meets the criteria. The assessment team has verified 9 sample considering one additional sample.

For other parameters viz. $B_{y=1,new,i,survey}$ (Annual quantity of woody biomass used by project devices in tonnes per device of type i) & $\mu_{y,i} / 365$ (Number of days of utilization of the project device during the year 'y'), $\eta_{new,i,a}$ (Thermal efficiency of device of type i being deployed as part of the project activity with the age a) the verification team has checked from the document/evidence submitted by the CME.

C.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verification	-	-	FAR#01(raise d during validation) FAR#02,03 (raised during inclusion of CPA 3 and CPA 4)

Specific-case CPA(s) considered for verification and covered in this report	-	-	-
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline 	-	-	-
<ul style="list-style-type: none"> Corrections 	-	-	-
<ul style="list-style-type: none"> Inclusion of a monitoring plan in a registered PoA-DD (including its generic CPA-DD(s)) 	-	-	-
<ul style="list-style-type: none"> Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline 	-	-	-
<ul style="list-style-type: none"> Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA 	-	-	-
<ul style="list-style-type: none"> Types of changes specific to afforestation and reforestation activities 	-	-	-
Component project activity(ies)			
Compliance of the CPA implementation with the included CPA design document	-	CAR#05	-
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline 	-	-	-
<ul style="list-style-type: none"> Corrections 	-	-	-
<ul style="list-style-type: none"> Changes to the start date of the crediting period 	-	-	-
<ul style="list-style-type: none"> Inclusion of a monitoring plan to an included CPA-DD 	-	-	-
<ul style="list-style-type: none"> Permanent changes to the monitoring plan as described in the included CPA-DD, applied methodology, or applied standardized baseline 	-	-	-
<ul style="list-style-type: none"> Changes to the programme design of the included CPA-DD 	-	-	-
<ul style="list-style-type: none"> Types of changes specific to afforestation and reforestation component project activities 	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	CAR#07	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
<ul style="list-style-type: none"> Data and parameters fixed ex ante or at renewal of crediting period 	-	-	-
<ul style="list-style-type: none"> Data and parameters monitored 	-	CAR#06	-
<ul style="list-style-type: none"> Implementation of sampling plan 	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	CL#04	-	-
Assessment of data and calculation of emission reductions or net removals			
<ul style="list-style-type: none"> Calculation of baseline GHG emissions or baseline net GHG removals by sinks 	-	-	-
<ul style="list-style-type: none"> Calculation of project GHG emissions or actual net GHG removals by sinks 	-	-	-
<ul style="list-style-type: none"> Calculation of leakage GHG emissions 	-	-	-
<ul style="list-style-type: none"> Summary of calculation of GHG emission 	-	-	-

reductions or net GHG removals by sinks			
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included specific-case CPA	-	-	-
• Remarks on difference from estimated value in registered PDD	-	-	-
Others (please specify)	-	-	-
Total	1	3	3

SECTION D. Internal quality control

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A draft verification report prepared by verification team is reviewed by an independent technical review team (one or more members) to confirm whether all the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion were reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team.

During the technical review process additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized by the Managing Director on behalf of Earthood Services Private Limited.

SECTION E. Verification opinion

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Earthood Services Private Limited (ESPL), contracted by Hestian Innovation Ltd. (the CME for the PoA), has performed the first independent verification of the emission reductions for the registered CDM PoA 10182 “Biomass Energy Conservation Programme” in Malawi for the monitoring period 13/08/2015-31/01/2017 (both days included) as reported in the Monitoring Report (public) Version 1.2 dated 24/03/2017. The CME is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

This verification report is for the CPAs (10182-0001, 10182-0002, 10182-0003, and 10182-0004), which were included at the UNFCCC webpage at the end of the current monitoring period. A single monitoring report has been prepared by the CME for the same in which implementation of all referred CPAs along with monitoring results is included.

ESPL confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. This verification report has been prepared using the latest available template specified by UNFCCC and complies with the instructions to follow as per CDM VVS Version 1.

The verification activities were conducted in accordance with ESPL’s CDM Quality Manual System as per the steps indicated under Section A of this report. The verification process has resulted in conclusion that the included CPAs confirm to the registered PoA DD as well as comply with applicable CDM rules and regulations and in accordance with applied monitoring methodology, AMS II.G Version 06.

As a result, it is confirmed that the emission reductions from the CDM PoA 10182 “Biomass Energy Conservation Programme” are correctly reported in the Monitoring Report (final) Version 3.2 dated 14/09/2017 and corresponding ER sheets for the monitoring period 13/08/2015-31/01/2017 (including both days) amount as 55,031 tCO₂e. Therefore, this will be submitted as part of request for issuance as per CDM PCP Version 1.

SECTION F. Certification statement

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The verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 13/08/2015-31/01/2017 are fairly stated in the Monitoring Report (final) Version 3.2 dated 14/09/2017.

ESPL, based on outcome of verification activities, certify in writing that, during the monitoring period 13/08/2015-31/01/2017 (including both days), the registered CDM PoA "Hestian Innovation Ltd." and all of the included CDM CPAs (10182-0001, 10182-0002, 10182-0003, and 10182-0004) in the registered CDM PoA achieved the verified amount of 55,031 tCO₂e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CPAs.

The verified amount of emission reductions is stated below as per each CPAs and as per commitment period;

	Emission Reductions (Amount) in this monitoring period (in tCO₂e)	
CPAs (included in this request)	Up to 31/12/2012 (1st commitment period)	01/01/2013 onwards
10182-0001	0	42,523
10182-0002	0	8,775
10182-0003	0	1,069
10182-0004	0	2,664
Total	0	55,031

SECTION G. Verification findings - General

G.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Monitoring report is prepared using the correct template i.e. CDM-PoA-MR-FORM Version 02.0. The verification team confirms that the monitoring report has been appropriately prepared using the latest applicable monitoring report form, and that all sections are completed.
Findings	No findings
Conclusion	Latest version of MR has been used and all the guidelines of the template have been followed by the CME to prepare the Monitoring Report.

G.2. Remaining forward action requests from validation and/or previous verification

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There was a FAR 01 raised during the validation of the project and two FARs from inclusion of CPA 3 and CPA 4. The FARs has been successfully resolved and closed. The description of the FARs has been detailed below –

The FAR has been raised requesting that "PP has defined the CPA start date as 01/06/2016. Evidence supporting the CPA starting date shall be provided at first periodic verification in line with the CDM Glossary of Terms". In response, PP has provided the documentary evidence which is the date of 1st actual sale of the stoves and PP has also justified that the stoves distribution has started on 01/06/2016, but the household user has actually paid the stove price and signed the sales receipts on 03/06/2016. Since the gap between 01/06/2016 & 03/06/2016 is significantly minimal, so DOE has accepted the PP's justification and closed the FAR.

FAR 02 and 03 have been discussed in detail in Appendix 4 and the start date of the CPAs have been verified.

G.3. Specific-case CPA(s) considered for verification and covered in this report

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Is the specific-case CPA considered for this verification? (yes/no)	Version number of the registered PoA-DD to which the specific-case CPA complies with	Confirmation that a request for issuance including the specific-case CPA has been published for the previous monitoring period (Y/N)
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10182-0001	Yes	Version 07, dated – 07/07/2015	Y
10182-0002	Yes	Version 07, dated – 07/07/2015	Y
10182-0003	Yes	Version 07, dated – 07/07/2015	Y
10182-0004	Yes	Version 07, dated – 07/07/2015	Y
10182-0005	No	Version 07, dated – 07/07/2015	N
10182-0006	No	Version 07, dated – 07/07/2015	N

SECTION H. Verification findings – Programme of activities

H.1. Compliance of the programme implementation with the registered programme design document

Means of verification	<p>The registered PoA involves the promotion, distribution and sale of improved cook stoves (ICS) in Malawi. CME has implemented the CPAs through coordination with the monitoring team and further with local CPA implementers/distributors. The overall responsibility of implementation and operation is with CME (Hestian Innovation Ltd.), which was also evident during the site visit. This is consistent with PoA DD /01/. This monitoring period includes the implementation and monitoring of 04 CPAs as part of registered PoA.</p> <p>The implementation of all CPAs, as referenced above, are within the geographical boundary of the PoA DD, which constitutes the physical boundary as well. The ICS (Improve Cook Stoves) models deployed under each CPA is verified as following:</p> <p>CPA (10182 – 0001):</p> <table border="1" data-bbox="488 1041 951 1161"> <tr> <th>Cook stove deployed/ Model</th><th>Number</th></tr> <tr> <td>Chitetezo Mbaula ceramic stove</td><td>21,933</td></tr> </table> <p>CPA (10182 – 0002):</p> <table border="1" data-bbox="488 1245 951 1365"> <tr> <th>Cook stove deployed/ Model</th><th>Number</th></tr> <tr> <td>Chitetezo Mbaula ceramic stove</td><td>16,633</td></tr> </table> <p>CPA (10182 – 0003):</p> <table border="1" data-bbox="488 1423 951 1543"> <tr> <th>Cook stove deployed/ Model</th><th>Number</th></tr> <tr> <td>Chitetezo Mbaula ceramic stove</td><td>2,574</td></tr> </table> <p>CPA (10182 – 0004):</p> <table border="1" data-bbox="488 1602 951 1722"> <tr> <th>Cook stove deployed/ Model</th><th>Number</th></tr> <tr> <td>Chitetezo Mbaula ceramic stove</td><td>15,389</td></tr> </table> <p>The verification team is able to confirm that the quantity, specification and target group of the ICSs is consistent with the PoA DD /01/ and respective CPA DDs/3-6/. Further, based on the review of sales data base /26/, physical observations and interview conducted during the site visit, the verification team found that:</p> <ul style="list-style-type: none"> The CPA(s) are implemented within the boundary of the PoA as described in the registered PoA-DD. 	Cook stove deployed/ Model	Number	Chitetezo Mbaula ceramic stove	21,933	Cook stove deployed/ Model	Number	Chitetezo Mbaula ceramic stove	16,633	Cook stove deployed/ Model	Number	Chitetezo Mbaula ceramic stove	2,574	Cook stove deployed/ Model	Number	Chitetezo Mbaula ceramic stove	15,389
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Cook stove deployed/ Model	Number																
Chitetezo Mbaula ceramic stove	15,389																

	<ul style="list-style-type: none">• The CME is same as that mentioned in the registered PoA-DD• The implementation and operation of the project activity has been conducted in accordance with the description contained in the registered PoA-DD and included CPA-DDs.• All physical features of the CPA proposed in the included CPA-DDs are in place.• The project participants/CPA implementer has operated the CPAs as per the included CPA-DDs. <p>The verification team has visited the households during site visit; It was observed that each ICS was assigned a unique identification number (serial number), and unique household mobile number. The unique serial number on each ICS, personal information of ICS owners and date of purchase of ICS was cross checked with the sales database/26/ available with the CME. The operation of the ICSs was confirmed through interviews of owners/representatives (of ICSs) during the site visit.</p> <p>The emission reductions being claimed during this monitoring period are lesser than the estimated emission reductions in the registered CPA-DDs, as given in the table below:</p> <table><tr><th>CPA</th><th>Value estimated in ex ante calculation in the included CPA-DD(s)</th><th>Actual values achieved by the specific-case CPA(s) during this monitoring period</th></tr><tr><td>10182-0001</td><td>58,512</td><td>42,523</td></tr><tr><td>10182-0002</td><td>11,768</td><td>8,775</td></tr><tr><td>10182-0003</td><td>11,768</td><td>1,069</td></tr><tr><td>10182-0004</td><td>11,768</td><td>2,664</td></tr><tr><td>Total</td><td>93,816</td><td>55,031</td></tr></table> <p>The information (including data and variables) provided in the MR/13/ is found to be in line with the details provided in the registered PoA-DD/1/.</p> <p>The verification team considers the project description of the project contained in the registered PoA-DD is complete and accurate. The PoA-DD complies with the relevant methodology, tools, forms and guidance at the time of PoA submission for registration/01/. The monitoring report was compared and verified against the description provided in the registered PoA-DD and found to be correct.</p>	CPA	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period	10182-0001	58,512	42,523	10182-0002	11,768	8,775	10182-0003	11,768	1,069	10182-0004	11,768	2,664	Total	93,816	55,031
CPA	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period																	
10182-0001	58,512	42,523																	
10182-0002	11,768	8,775																	
10182-0003	11,768	1,069																	
10182-0004	11,768	2,664																	
Total	93,816	55,031																	
Findings	CAR#05 was raised and closed.																		
Conclusion	<p>The verification team confirms that the physical features (technology/type of ICS) of the implementation were in accordance with the registered PoA DD.</p> <ul style="list-style-type: none">• The distribution of ICS is still ongoing as it has not yet reached the estimated quantity given in the respective specific case CPA DDs.• The actual operation is in line to respective CPA DD, which is further explained under Section I.1, J.1 and K.1 of this report.• The number of installations in any CPA for the type of CEP were either equal to or within the quantity estimated in the respective CPA DDs. The actual CERs for CPAs were slightly less for comparable monitoring period. Apart from this, no information with regard to data and variables was identified that may surpass the estimated quantity of ERs in the respective CPA DDs.• The emission reductions achieved for each specific case CPA DD were within the estimated quantity in the registered CPA DD.																		

H.2. Implementation and operation of the management system

Means of verification	The verification team during the site visit assessed the management systems in place to implement the monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system through physical inspection. The assessment team has also checked training of the monitoring & data recording
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	personnel, the maintenance schedules/records of the stoves and also cross checked the sales data records /26/ with the actual sales receipts /32/. The roles and responsibilities data collection transfer and aggregation procedures, data storage and archiving for the monitoring system have been provided in the MR /13/.
Findings	No finding was raised.
Conclusion	The verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.

H.3. Post-registration changes

H.3.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

>> Not Applicable

H.3.2. Corrections

>> Not Applicable

H.3.3. Inclusion of a monitoring plan in a registered PoA-DD (including its generic CPA-DD(s))

>> Not Applicable

H.3.4. Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline

>> Not Applicable

H.3.5. Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA

>> Not Applicable

H.3.6. Types of changes specific to afforestation and reforestation activities

>> Not Applicable

SECTION I. Verification findings – Component project activity(ies)

I.1. Compliance of the CPA implementation with the included CPA design document

Means of verification	The CPAs are grouped together in this section (i.e., Section I) for the purpose of verification and reporting as these are of similar in nature (technology and type). The CPAs involves the promotion and installation of ICS (portable) in rural areas of Malawi. The product is disseminated in residential households of the area. The current verification which includes verification of 4 CPAs viz. 10182-0001(CPA -01), 10182-0002 (CPA -02), 10182-0003 (CPA -03) & 10182-0004 (CPA -04). The implementation status of the ICS has been verified by physically verifying the samples of ICS from the PP's sample. The types of model of ICS installed is Chitetezo Mbaula type model have been installed by the CME, which is in line to
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the PoA DD/01/.

ICS installed Break-up CPA				
	CPA -01	CPA -02	CPA -03	CPA -04
Chitetezo Mbaula ceramic stove	21,933	16,633	2,574	15,389

Hestian Innovation Ltd. is the CME for the implementation of the CPAs and is also responsible for coordinating and managing the implementation of each element of the monitoring plan. The details of each CPA are as follows:

	CPA -01	CPA -02	CPA -03	CPA -04	
CPA ref.#	10182-0001	10182-0002	10182-0003	10182-0004	The reference numbers have been checked from the UN website/38/.
Inclusion date	13/08/2015	15/10/2016	15/10/2016	15/10/2016	The dates have been checked from the UN website/38/.
Location	Across Malawi	Across Malawi	Across Malawi	Across Malawi	Verified from the onsite audit, PoA DD/1/ and CPA DDs/3-6/.
ICS types	Chitetezo Mbaula ceramic stove	Chitetezo Mbaula ceramic stove	Chitetezo Mbaula ceramic stove	Chitetezo Mbaula ceramic stove	Verified from the sales database/26/.
Total ICS sold	21,933	16,633	2,574	15,389	Verified from the sales database//26.
Monitoring period under this MR	13/08/2015 - 31/01/2017	15/10/2016 - 31/01/2017	15/10/2016 - 31/01/2017	15/10/2016 - 31/01/2017	-

The model/ types of ICS have been verified during the on-site inspection of sample verifications in order to assess that all physical features of the registered CPA DDs are in place and the CME have operated the PoA & CPA as per the registered PoA – DD/1/ and CPA – DDs/3,4,5,6/.

Findings

CAR#05 was raised and closed.

Conclusion	<ul style="list-style-type: none"> • The verification team is in opinion that physical features of the CPAs have been implemented in accordance with the registered CPA-DDs. • No specific monitoring equipment had to be installed according to the monitoring plan. • It is also confirmed, through the physical site visit and review of the supporting documentation that physical features of the component CPAs have been implemented in accordance with the CPA-DDs. • The CPAs were also found to be completely operational in line with the CPA-DDs. • The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA.
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I.2. Post-registration changes

I.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

>> Not Applicable

I.2.2. Corrections

>> Not Applicable

I.2.3. Changes to the start date of the crediting period

>> Not Applicable

I.2.4. Inclusion of a monitoring plan to an included CPA-DD

>> Not Applicable

I.2.5. Permanent changes to the monitoring plan as described in the included CPA-DD, applied methodology, or applied standardized baseline

>> Not Applicable

I.2.6. Changes to the programme design of the included CPA-DD

>> Not Applicable

I.2.7. Types of changes specific to afforestation and reforestation component project activities

>> Not Applicable

I.3. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	The monitoring plan as contained in respective CPA DDs were reviewed against
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	the monitoring requirements of the applied methodology AMS-II.G version 06 /11/ as well as PoA DD/01/ with reference to the technology involved. Based on this review it was found the monitoring plan contained in the CPA DDs includes all the required parameters to be monitored in the context of the CPA design and description and allows proper determination of emission reductions in accordance with PoA DD/1/ and applied methodology AMS-II.G version 06/11/.
Findings	No finding was raised.
Conclusion	The monitoring plan is in accordance with the approved methodology, AMS-II.G version 06 /11/, that is included in each respective CPA DDs/3,4,5,6/.

I.4. Compliance of monitoring activities with the registered monitoring plan

I.4.1. Data and parameters fixed ex ante or at renewal of crediting period

I.4.1.1 Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass, %, $f_{NRB,y}$

Means of verification	This is a default value of fraction of non-renewable biomass approved by CDM EB and accepted by DNA as indicated at UNFCCC website. The value applied is 0.81 for Malawi. The value of this parameter is considered is mentioned below as per CPA DDs. This was checked with the regd. PoA-DD/1/ and included CPA-DDs/3,4,5,6/.		
	CPA ref no.	Value applied	Consistency checked with
	CPA -01	0.81	CPA DD of page 11
	CPA -02	0.81	CPA DD of page 12
	CPA -03	0.81	CPA DD of page 12
	CPA -04	0.81	CPA DD of page 12
Findings	No finding was raised.		
Conclusion	The value in the monitoring report and corresponding emission reduction calculations spreadsheet are consistent with the registered PoA-DD/1/ & CPA DDs/3,4,5,6/. The applied value is correct and justified.		

I.4.1.2 Net calorific value of the non-renewable biomass that is substituted, TJ/t, NCV, biomass

Means of verification	The value of this parameter is considered is mentioned below as per CPA DDs. This was checked with the regd. PoA-DD/1/ and included CPA-DDs/3,4,5,6/.		
	CPA ref no.	Value applied	Consistency checked with
	CPA -01	0.015	CPA DD of page11
	CPA -02	0.015	CPA DD of page 12
	CPA -03	0.015	CPA DD of page 12
	CPA -04	0.015	CPA DD of page 12
Findings	No finding was raised.		
Conclusion	The value in the monitoring report and corresponding emission reduction calculations spreadsheet are consistent with the registered PoA-DD/1/ & CPA DDs/3,4,5,6/. The applied value is correct and justified.		

I.4.1.3 Emission factor for the substitution of non-renewable biomass by similar consumers, tCO_2/TJ , $EF_{projected_fossilfuel}$

Means of verification	The value of this parameter is considered is mentioned below as per CPA DDs. This was checked with the regd. PoA-DD/1/ and included CPA-DDs/3,4,5,6/.		
	CPA ref no.	Value applied	Consistency checked with
	CPA -01	81.6	CPA DD of page 12
	CPA -02	81.6	CPA DD of page 11
	CPA -03	81.6	CPA DD of page 11
	CPA -04	81.6	CPA DD of page 12
Findings	No finding was raised.		
Conclusion	The value in the monitoring report and corresponding emission reduction calculations spreadsheet are consistent with the registered PoA-DD/1/ & CPA DDs/3,4,5,6/. The applied value is correct and justified.		

I.4.1.4 Efficiency of the system being replaced, %, η_{old}

Means of verification	The value of this parameter is considered is mentioned below as per CPA DDs. This was checked with the regd. PoA-DD/01/ and included CPA-DDs/3,4,5,6/.		
	CPA ref no.	Value applied	Consistency checked with
	CPA -01	10	CPA DD of page 12
	CPA -02	10	CPA DD of page 12
	CPA -03	10	CPA DD of page 12
	CPA -04	10	CPA DD of page 12
Findings	No finding was raised.		
Conclusion	The value in the monitoring report and corresponding emission reduction calculations spreadsheet are consistent with the registered PoA-DD/01/ & CPA DDs/3,4,5,6/. The applied value is correct and justified.		

I.4.1.5 Leakage adjustment factor for period y, Fraction, L_y

Means of verification	The value of this parameter is considered is mentioned below as per CPA DDs. This was checked with the regd. PoA-DD/01/ and included CPA-DDs/3,4,5,6/.		
	CPA ref no.	Value applied	Consistency checked with
	CPA -01	0.95	CPA DD of page 12
	CPA -02	0.95	CPA DD of page 13
	CPA -03	0.95	CPA DD of page 13

	CPA -04	0.95	CPA DD of page 13
Findings	No finding was raised.		
Conclusion	The value in the monitoring report and corresponding emission reduction calculations spreadsheet are consistent with the registered PoA-DD/1/ & CPA DDs/3,4,5,6/. The applied value is correct and justified.		

I.4.2. Data and parameters monitored

I.4.2.1 Annual quantity of woody biomass used by project devices in tonnes per device of type I, t/HH/yr, ($B_{y=1,new,i,survey}$)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measured
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to registered CDM PoA DD/1/ and applied methodology.
	Monitoring equipment	Digital high precision weighing scale and moisture meter are used. Please refer section I.5 for details.
	Calibration frequency /interval:	Since the Calibration frequency for the monitoring equipment's are not defined in the regd PoA DD/CPA DDs, so considering the SSC guideline EB 61, Annex 21, para 17(c), the frequency is once in 3 years. All the monitoring equipment's are duly calibrated. Please refer section I.5 for details.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, from the calibration certificates it has been identified that calibration is valid for the whole reporting period. Please refer section I.5 for details.
	How were the values in the monitoring report verified?	<p>The CPAs measure the parameter by number of bundles of wood used in the project scenario is estimated via usage and monitoring survey of sampled households using an appropriate local metric (e.g. bundles of wood) for an easily understood period (e.g. per week). The average weight of a bundle of wood is calculated based on measurement of a sample of at least 30 different bundles adjusted for moisture content.</p> <p>Stratified random sampling is applied in the survey or field test conducted to determine the amount of fuel-wood used in the project activity by project devices. Survey questionnaires administered to a sample of end users elicit the quantification of wood used by the household user.</p> <p>The value of the parameter for all the CPAs i.e. CPA1, CPA 2, CPA 3 & CPA 4 is 1.881 tonnes/household/ year.</p> <p>It is noteworthy that PP has done sampling across the CPA due to the similar nature of the technology</p>

		employed in the PoA.
	If applicable, has the reported data been cross-checked with other available data?	The survey results/23/, assumptions and sales records were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/15/ of final Monitoring Report. The verification team randomly selected 9 samples for DOE's field survey and via on-site interview found out amount of woody biomass consumed per household per year, which was consistent with the CME's sample survey result.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment. During the site visit, the assessment team has duly verified the CME's QA/QC procedures in which the data transfer from hard copies (field survey reports etc.) to excel sheets are randomly cross checked by the senior management either from the hard copies/ sales receipts/ telephonic calls to ascertain the reliability and correctness of the entered data in the excel sheet.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding was raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

I.4.2,2 Number of project devices of type i and age a that are operating in year y, Number of items, ($N_{y,i,a}$)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measured continuously and aggregated annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to registered CDM PoA DD/1/ and applied methodology//.
	Monitoring equipment	Not applicable
	Calibration frequency	Not applicable

	/interval:	
	How were the values in the monitoring report verified?	<p>The values in the MR/13/ have been verified from the sales database/26/.</p> <p>The value of the parameter for all the CPAs i.e.</p> <p>CPA 1= 21,933</p> <p>CPA 2= 16,633</p> <p>CPA 3= 2,574</p> <p>CPA 4= 15,389</p> <p>The total number of stoves in each CPA have been indicated above, the PP has segregated the stoves into two age groups. The age group has been identified based on the days of operation of the stove in the monitoring period. The two age groups covered under the current monitoring period are:</p> <ul style="list-style-type: none"> a) Age 1: Stoves operating for less than 365 days b) Age 2: Stoves operating for more than 365 days <p>The reference for the calculation of days of operation has been taken as the end date of the monitoring period which was found acceptable by the assessment team.</p> <p>The detailed calculation of the of the number of age of stoves can be referred from the ER calculation sheet.</p> <p>Additionally, the number of stoves used for emission reduction calculation has been multiplied with usage rate to arrive at the number of operational stoves.</p> <p>The usage rate is determined through usage survey and is further discounted by a value of 10.26% to adjust for the households owning 2 ICS. The discounted usage rate for each age group can be found in detail in 'Usage and Monitoring survey' sheet. The approach followed by the PP was found acceptable including the sampling technique which was found representative.</p>
	If applicable, has the reported data been cross-checked with other available data?	<p>The sales records/26/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/15/ of final Monitoring Report.</p> <p>The verification team randomly selected 9 samples for DOE's field survey and via on-site interview found out that all the ICS which are picked up for sampling are installed at the household and are in working condition, and the details of the stoves were consistent with the CME's sample survey result.</p>
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	<p>Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment. During the site visit, the assessment team has duly verified the CME's QA/QC procedures in which the data transfer from hard copies to excel sheets are randomly cross checked by the senior management either from the hard copies/ sales receipts/ telephonic calls to ascertain the reliability and correctness of the entered data in the excel sheet.</p>

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding was raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

I.4.2.3 Number of days of utilization of the project device during the year 'y', %,($\mu_{y,i} / 365$)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated biennially
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to registered CDM PoA DD/1/ and applied methodology.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	<p>The values have been verified from the Usage and monitoring Survey conducted by CME/23/. The value of the parameter for all the CPAs i.e. CPA1, CPA 2, CPA 3 & CPA 4 are</p> <p><u>$\mu_{y,i}$</u></p> <p>CPA 1 – 282 CPA 2 – 282 CPA 3 – 282 CPA 4 – 282</p> <p><u>$\mu_{y,i} / 365$</u></p> <p>CPA 1 – 0.773 CPA 2 – 0.773 CPA 3 – 0.773 CPA 4 – 0.773</p> <p>It is noteworthy that PP has done sampling across the CPA due to the similar nature of the technology employed in the PoA.</p>

	If applicable, has the reported data been cross-checked with other available data?	The survey results/23/, assumptions and sales records// were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/15/ of final Monitoring Report. The verification team randomly selected 9 samples for DOE's field survey and via on-site interview found out the usage of the installed ICS which was consistent with the CME's sample survey result.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment. During the site visit, the assessment team has duly verified the CME's QA/QC procedures in which the data transfer from hard copies (field survey reports etc.) to excel sheets are randomly cross checked by the senior management either from the hard copies/ sales receipts/ telephonic calls to ascertain the reliability and correctness of the entered data in the excel sheet.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	CAR#07 was raised and closed.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

I.4.2.4 Factor to consider the efficiency loss of the project device type i due to its aging at the year y, %, ($\Delta\eta_{y,i,a}$)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measured
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to registered CDM PoA DD/1/ and applied methodology/11/.
	Monitoring equipment	Scales, thermometer, timer, wood moisture meter are used as the monitoring equipment. Please refer section I.5 for details.
	Calibration frequency /interval:	Since the calibration frequency for the monitoring equipment's are not defined in the regd PoA DD/CPA DDs, so considering the SSC guideline EB

		61, Annex 21, para 17(c), the frequency is once in 3 years. All the monitoring equipment's are duly calibrated. Please refer section I.5 for details.
	How were the values in the monitoring report verified?	<p>The WBT results/15/ are checked with the WBT raw data copies/29/ and found to be correct. Also , people involved with the WBT were interviewed to understand the procedures followed for WBT.CME has applied WBT protocol ver 4.3.2.</p> <p>The Factor to consider the efficiency loss of the project device type i due to its aging at the year y for the CPAs are –</p> <p>CPA 1 – 84.71 for age group 1, 86.60 for age group 2</p> <p>CPA 2 – 84.71 for age group 1, 86.60 for age group 2</p> <p>CPA 3 – 84.71 for age group 1, 86.60 for age group 2</p> <p>CPA 4 – 84.71 for age group 1, 86.60 for age group 2</p>
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment. During the site visit, the assessment team has duly verified the CME's QA/QC procedures in which the data transfer from hard copies to excel sheets are randomly cross checked by the senior management either from the hard copies/ sales receipts/ telephonic calls to ascertain the reliability and correctness of the entered data in the excel sheet.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

I.4.2.5 Thermal efficiency of device of type i being deployed as part of the project activity with the age a, %,($\eta_{new,i,a}$)

Means of verification	Criteria/Requirements	Assessment/Observation
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	Measuring /Reading /Recording frequency	Measured
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to registered CDM PoA DD/1/ and applied methodology/11/.
	Monitoring equipment	Scales, thermometer, timer, wood moisture meter are used as the monitoring equipment. Please refer section I.5 for details.
	Calibration frequency /interval:	Since the calibration frequency for the monitoring equipment's are not defined in the regd PoA DD/CPA DDs, so considering the SSC guideline EB 61, Annex 21, para 17(c), the frequency is once in 3 years. All the monitoring equipment's are duly calibrated. Please refer section I.5 for details.
	How were the values in the monitoring report verified?	CPA 1 – 25.92% for age 1, 26.50% for age 2 CPA 2 – 25.92% for age 1, 26.50% for age 2 CPA 3 – 25.92% for age 1, 26.50% for age 2 CPA 4 – 25.92% for age 1, 26.50% for age 2 The assessment team has checked the WBT records /29/are checked as well as the WBT analysis sheet/24/ and also interviewed the persons involved in the WBT and found that the WBT was carried out appropriately and correctly and in accordance with the WBT protocol version 4.2.3.
	If applicable, has the reported data been cross-checked with other available data?	The hard copies of the WBT records /29/are checked as well as the WBT analysis sheet/24/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment. During the site visit, the assessment team has duly verified the CME's QA/QC procedures in which the data transfer from hard copies to excel sheets are randomly cross checked by the senior management either from the hard copies/ sales receipts/ telephonic calls to ascertain the reliability and correctness of the entered data in the excel sheet.
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.	
Findings	CAR#06 was raised and closed.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

I.4.3. Implementation of sampling plan

Means of verification	<p>The assessment of CME's sampling is discussed below -</p> <p>Target population - The target population were the stoves distributed under the current CPAs i.e. CPA 1, CPA 2, CPA 3 & CPA 4. As per page 37 of the PoA-DD, "the population will be divided into primary sampling units (PSU) by same country and fuel consumption cluster, ICS type, ICS vintage and CPA implementer". Thus, the strata were defined by the PP in the MR which has been found to be correct and acceptable. Once the PSUs are defined, ICS will be randomly selected based on the relative size of the strata. To ensure a random selection of ICS, random number generators has been used.</p> <p>Sampling frame – ICSs distributed in 4 Districts randomly sampled taking into account the population size of each District, i.e. considering probability proportional to size on the primary unit (this gives more populous areas a higher chance of being selected)</p> <p>sampling methods - stratified random sampling, in order to determine the sample size for monitoring the parameters viz. $B_{y=1,new,i,survey}$ (Annual quantity of woody biomass used by project devices in tonnes per device of type i), $n_{y,j}$ (Proportion of ICS still in operation), $\mu_{y,i}/365$ (Number of days of utilization of the project device during the year 'y'), & $\eta_{new,i,a}$ (Thermal efficiency of device of type i being deployed as part of the project activity with the age a'). The stoves were selected by randomly assigning, in corresponding stratum. The monitoring surveys and WBTs were conducted from 11 Jan 2017 to 26 February 2017.</p> <p>For the monitoring parameters, PP has used following formulas used in the sampling:</p> <ul style="list-style-type: none"> • overall proportion and overall variance for proportional parameters were calculated based on equations (5) and (6); overall mean and overall variance for mean parameters were calculated based on equations (22) and (23) of CDM Guideline "Sampling and surveys for CDM project activities and programmes of activities". • the minimum sample size required is calculated based on equation (4) for proportional parameters and equation (21) for mean parameters of CDM Guideline "Sampling and surveys for CDM project activities and programmes of activities". <p>The assessment team has checked and found that the formula used by PP is inline with the CDM guidelines "Sampling and surveys for CDM project activities and programmes of activities".</p> <p>There is only one country to be sampled, only one fuel consumption cluster (i.e. only firewood-fuelled stoves), there is only one ICS type, there are 2 ICS vintages, and there are 2 CPA implementers (but one only started implementing in June / July 2016).</p> <p>So, there are 3 primary sampling units:</p> <ul style="list-style-type: none"> • CPA Implementer Area 55 implementing 1 year old stoves, • CPA Implementer Sunfire implementing 1 year old stoves, • CPA Implementer Area 55 implementing 2 year old stoves. <p>The CPA DDs/3-6/ mention a reliability level of 95/10 which was followed by in the CPA which is evident as per the sampling calculations in the ER sheet/15/. The expected parameter values (mean, standard deviation and proportion) have been determined based on PP's knowledge and experience as per para 12(b) and 12(c) of the "Standard: Sampling and surveys for CDM project activities and programmes of activities", which is acceptable to the assessment team as per the guidance.</p>
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Parameter	Sample size calculated	Whether minimum sample size (30) achieved	Sample size arrived	Actual Sample Size	Precision achieved
$\mu_{y,i}/365$	30	Yes	30	35	5%
$\eta_{new,i,a}$	10	No, Student t-distribution is applied	13	15	3%
B $y=1,new,i,survey$ KPT	35	Yes	35	40	10%

For the parameter, $n_{y,j}$ the data is considered from the stoves sales data which is a continuous process, and thus no sampling is used since 100% of the stoves sales record is considered.

However, for parameter $\mu_{y,i}/365$ the data was collected through a survey form and for the parameter $\eta_{new,i,a}$ water boiling tests were conducted using WBT protocol by PCIA as available on GACC website and for the parameter **B** $y=1,new,i,survey$ KPT analysis has been done by the PP at the user premises.

The sampling calculation in the ER sheet has been checked and found that PP has correctly applied all the formulas to determine the required sample size.

All parameters of interest included in the Sample Size Calculator spread sheet/22/ were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER sheet /15/ corresponding to final Monitoring Report /15/, which were also found correct. Based on the verified results the verification team found that the required precision is met in all the cases.

Findings CAR#06 was raised and closed.

Conclusion The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD /01/.

1.5. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The monitoring plan (included in CPA DDs/2,3 &4/ and registered PoA DD/01/) does not state the calibration requirements for any of the parameter (Section 1.4.2). However, the verification team has checked if the monitoring equipment used during WBT test (mass balance, moisture meter and thermometer) were duly calibrated. As a result, following information was verified;		
	Equipment	Type	measuring range - accuracy
	Thermometer	Voltcraft K 101	200°C to +1370°C (reversible °C/°F); 200°C to +200°C accuracy of 0.3% of the display, +1 °C
	Thermometer	TFA LT-101	- 40 to +200 (reversible °C/°F) accuracy of ± 0.5 °C.
	Mass Balance	MyWeigh	8 kg capacity accurate to 1 g

	KD- 8000		
Moisture Meter	Voltcraft FM-300	measuring range 6% to 99.9%,	±1% (in moisture range 6% ~ 40%).
Calibration details –			
Equipment	Brand	Date of calibration	Validity
Thermometer	Voltcraft K 101	13/01/2017	3 years from the date of calibration
Thermometer	TFA LT-101	13/01/2017	3 years from the date of calibration
Mass Balance	MyWeigh KD- 8000	13/01/2017	3 years from the date of calibration
Moisture Meter	Voltcraft FM-300	13/01/2017	12/01/2018
<p>It is noteworthy that in the regd PoA DD as well as CPA DDs, there is no calibration frequency was mentioned for the monitoring equipment's that will be used during the verification. However, CME has done the calibration of monitoring equipment's from a reputed agency, even though the equipment are newly purchased and are under guaranty from the manufacturer. Since neither the calibration agency nor the equipment manufacturer mentioned any specific validity of the calibration, thus CME has followed the guidelines as per "General Guidelines to SSC CDM methodologies" EB 61, Annex 21, para 17 (c): "Measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years". Hence, the monitoring equipment will be calibrated before completion of three years from the date of last calibrations of the respective equipment.</p>			
Findings	CL#04 was raised and closed.		
Conclusion	The verification team confirm that CME applied good practices (as per manufacturer recommendation) while using the monitoring equipment and these were under the state of calibration. There is no specific requirement prescribed in this regard in the registered monitoring plan of monitoring methodology. Therefore, the approach presented by PP was accepted.		

I.6. Assessment of data and calculation of emission reductions or net removals

I.6.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	<p>The verification team verified that</p> <p>a) A complete set of data for the monitoring period was available for the monitoring period and the verification of each monitoring parameter is elaborated under Section I.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /15/ of final Monitoring Report /13/.</p> <p>b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section I.4.2 of this report.</p> <p>c) The calculations of baseline emissions as presented in the corresponding ER calculations sheet of final Monitoring Report were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of each relevant CPA DD, PoA DD and the applied methodology.</p> <p>d) All assumptions used in the emission calculations were found appropriate and therefore justified</p> <p>e) Appropriate emission factors, IPCC default factors/24/ and other reference</p>
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values have been correctly applied. This has also been elaborated under Section I.4.1 of this report.

f) No standardized baseline was prescribed in the PoA DD and therefore it has not been applied.

g) There is no pro-rata approach was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.

The following equations were used to determine the baseline emissions as provided in the monitoring report // and applied in the corresponding ER calculations sheets /15/. The expressions used were found consistent with the registered PoA DD, CPA DDs and the applied methodology AMS-II.G, version 06: Total ER reductions achieved in the current monitoring period by all types of ICS distributed in the relevant CPA is calculated using the following expressions:

Emission reductions are calculated as follows:

$$ER_{y,i} =$$

$$\sum_{a=1}^{Y_{max}} B_{y,savings,i,a} \times N_{y,i,a} \times \left(\frac{\mu_{y,i}}{365} \right) \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel} - LE_y$$

Where:

ER_y – emission reductions, t CO₂e,

'a' – the indices for the age (in years) of the cook stoves that are operating in the year y of the crediting period.

$B_{y,savings,i,a}$ – annual quantity of woody biomass that is saved in tonnes per cook stove device of type i and age a in year y

$N_{y,i,a}$ – number of project devices of type i and age a that are operating in year y

$\mu_{y,i}$ – number of days of utilization of the project device during the 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

$NCV_{biomass}$ – net calorific value of the non-renewable biomass that is substituted

$EF_{projected_fossil_fuel}$ – emission factor for the substitution of non-renewable biomass by similar consumers

LE_y – Leakage adjustment factor for period y

CPAs	10182-0001	10182-0002	10182-0003	10182-0004	MOV
ER_y	42,523	8,775	1,069	2,664	Calculation checked in ER sheet/15/
$f_{NRB,y}$	0.81	0.81	0.81	0.81	Checked from PoA DD/01/ and CPA DDs/3-6/.
$NCV_{biomass}$	0.015	0.015	0.015	0.015	Checked from PoA DD/01/ and CPA DDs/3-6/.
$EF_{projected_fossil_fuel}$	81.6	81.6	81.6	81.6	Checked from PoA DD/01/ and CPA DDs/3-6/.
L_y	0.95	0.95	0.95	0.95	Checked from PoA DD/01/ and CPA DDs/3-6/.
$N_{y,i,a}$	The number of project devices have been calculated for each year for the two age groups				Sales database/25/
$\mu_{y,i} / 365$	0.773	0.773	0.773	0.773	Calculation checked in ER sheet/16/
$B_{y,savings,i,a}$	2.995 for age 1, a=1 And	2.995 for age 1, a=1	2.995 for age 1, a=1	2.995 for age 1, a=1	Calculation checked in ER sheet/2/

3.104 for age 2, a=2				
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$B_{y, savings, i, a}$ is calculated using Equation 6 of the methodology AMS-II.G Version 6.0:

$$B_{y, savings, i, a} = B_{y=1, new, i, survey} \times ((\eta_{new, i, a=1} \times \Delta\eta_{y, i, a} / \eta_{old}) - 1)$$

and

$$\Delta\eta_{y, i, a} = (\eta_{new, i, a} / \eta_{new, i, a=1})$$

Where

$B_{y=1, new, i, survey}$ – annual quantity of woody biomass used by project devices in tonnes per device of type I

$\eta_{new, i, a}$ – the thermal efficiency of the device 'i' at age 'a' determined using the water boiling test

$\eta_{new, i, a=1}$ – the thermal efficiency of the device at its first year of operation

$\Delta\eta_{y, i, a}$ – factor to consider the efficiency loss of the project device type i due to its aging at the year y

η_{old} – efficiency of the device being replaced

Parameter	Description	Value applied	Means of Verification
$B_{y=1, new, i, survey}$	annual quantity of woody biomass used by project devices in tonnes per device of type I	CPA1: 1.881 CPA2: 1.881 CPA3: 1.881 CPA4: 1.881	Verified from survey records/23/.
$\Delta\eta_{y, i, a}$	Factor to consider the efficiency loss of the project device type i due to its aging at the year y	CPA 1 – 84.71 for age group 1, 86.60 for age group 2 CPA 2 – 84.71 for age group 1, 86.60 for age group 2 CPA 3 – 84.71 for age group 1, 86.60 for age group 2 CPA 4 – 84.71 for age group 1, 86.60 for age group 2	Calculation checked in ER sheet/15/
$\eta_{new, i, a}$	Thermal efficiency of device of type i being deployed as part of the project activity with the age a	CPA 1 – 25.92% for age 1, 26.50% for age 2 CPA 2 – 25.92% for age 1, 26.50% for age 2 CPA 3 – 25.92% for age 1, 26.50% for age 2 CPA 4 – 25.92% for age 1, 26.50% for age 2	Checked from WBT records/24/.

	$\eta_{\text{new, i, a=1}}$	the thermal efficiency of the device at its first year of operation	CPA 1 – 30.6% CPA 2 – 30.6% CPA 3 – 30.6% CPA 4 – 30.6%	Checked from PoA DD/01/ and CPA DDs/3-6/.
	η_{old}	efficiency of the device being replaced	0.10	Checked from PoA DD/01/ and CPA DDs/3-6/.
Detailed assessment of all the parameters used to calculate emission reductions is provided under section I.4.2.				
Findings	CAR#07 was raised and closed.			
Conclusion	<p>The verification team confirms that</p> <p>a) The complete data was available and is duly reported;</p> <p>b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section I.4.2 of this report);</p> <p>c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed;</p> <p>d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied.</p> <p>e) There is no pro-rate approach was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.</p>			

I.6.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The PoA DD, CPA DD and applied monitoring methodology does not prescribe any project emissions to be considered. The onsite visit and project design also did not reveal any potential source to be considered in this regard. However for illustrative purpose PP has calculated the project emission using the similar approach as for emission reduction. The results of calculations are presented below				
	CPA	2015	2016	2017	Total
	CPA 1	2,807	36,308	3,408	42,523
	CPA 2	0	6,121	2,654	8,775
	CPA 3	0	675	394	1,069
	CPA 4	0	821	1,843	2,664
	Total	2,807	43,925	8,299	55,031
Findings	No finding was raised				
Conclusion	No project emissions were required to be calculated, however, PP has calculated the project emission for illustrative purpose and the approach used is found to be correct.				

I.6.3. Calculation of leakage GHG emissions

Means of verification	The PoA DD, CPA DD and applied monitoring methodology does not prescribe any leakage emissions to be considered. The onsite visit and project design also did not reveal any potential source to be considered in this regard. However, the leakage adjustment factor that is required to adjust the baseline emissions has been duly accounted in emission reduction calculations.
Findings	No finding was raised.
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) were required in accordance with the methodology AMS-II G, version 06 /11/, however, PP has calculated the leakage emission for illustrative purpose and the approach used is found to be correct.

I.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	As elaborated above, the entire emission reductions from the PoA were based on emission reduction calculation formulae prescribed by the applied methodology, the
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	<p>PP has followed same approach for calculation. The calculations presented in this regard in the final monitoring report /13/ and corresponding ER calculations sheet /15/ were found appropriate and complying with the provisions prescribed in the registered monitoring plan of respective CPA- DD, PoA-DD and applied methodology.</p> <p>The verification team confirms that an audit trail that contains the evidence and records that validated the stated figures were checked and found acceptable.</p>
Findings	No finding was raised.
Conclusion	<p>The verification team confirms that :</p> <p>a) The complete data was available and is duly reported;</p> <p>b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section I.4.2 of this report);</p> <p>c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed;</p> <p>d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied.</p> <p>e) There is no pro-rate approach was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.</p> <p>The total number of ERs achieved during the current monitoring period is 55,031 tCO₂e.</p>

Specific-case CPA reference number	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)		
				Results achieved in the period up to 31 December 2012	Results achieved in the period from 1 January 2013 onwards	Results achieved in the entire monitoring period
CPA 1	--	--	--	0	42,523	42,523
CPA 2	--	--	--	0	8,775	8,775
CPA 3	--	--	--	0	1,069	1,069
CPA 4	--	--	--	0	2,664	2,664
Total	--	--	--	0	55,031	55,031

I.6.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included specific-case CPA

Means of verification	As verified and evident from the final Monitoring Report /11/ and corresponding ER calculations sheet /15/, the actual emission reductions achieved by each CPA that is included in the current monitoring period were found less than the estimated quantity in the respective CPA DDs for the comparable period since the due to gradual introduction of project technology (improved portable clay stoves).
Findings	No finding was raised.
Conclusion	The actual emission reductions achieved in each specific CPA DD are not higher than the estimated quantity of ERs in the respective CPA DDs. Accordingly, it was accepted by the verification team.

Specific-case CPA reference number	Value estimated in ex ante calculation in the included specific-case CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period
CPA 1	58,512	42,523
CPA 2	11,768	8,775
CPA 3	11,768	1,069
CPA 4	11,768	2,664
Total	93,816	55,031

I.6.6. Remarks on difference from estimated value in registered PDD

Means of verification	As verified and evident from the final Monitoring Report /13/ and corresponding ER sheet /15/, the actual emission reductions achieved by ICS for CPA that is included in the current monitoring period were found less than the estimated quantity in the respective CPA DDs for the comparable period.
Findings	No findings
Conclusion	The actual emission reductions achieved for CEP covered under this Section for specific CPA DD are not higher than the estimated quantity of ERs in the respective CPA DD.

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CER	Certified Emission Reduction
CL	Clarification Request
CME	Coordinating or Managing Entity
CPA	Component Project Activity
CP	Crediting period
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
ESPL	Earthood Services Private Limited
FAR	Forward action request
GHG	Green House Gases
GS	Gold standard
ICS	Improve Cook Stoves
IPCC	Intergovernmental Panel on Climate change
MIS	Management Information System
POA	Programme Of Activity
PO	Partner Organization
TA	Technical Area
TR	Technical Reviewer
VVS	Validation and Verification Standard
UNFCCC	United Nation Framework convention on Climate change
WBT	Water Boiling Test
GACC	Global Alliance for Clean Cookstoves

Appendix 2. Competence of team members and technical reviewers

Competence Statement	
Name	Shreya Garg
Country	India
Education	M.Sc. (Climate Science & Policy), TERI University
Experience	5 Years +
Field	Climate Change
Approved Roles	
Team Leader	YES
Validator	YES
Verifier	YES
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012

Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	20/07/2017
Approved by	Ashok Gautam	Date	20/07/2017

Competence Statement			
Name	Nayan Jyoti Deka		
Country	India		
Education	M.Tech. (Energy Technology), Tezpur University		
Experience	8 Years +		
Field	Climate Change & Energy Management		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-III.H., AMS-I.C., ACM0006, ACM0002, ACM0014, AMS-IIG, AMS-IE.		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.1, 1.2, 3.1, 13.1)	YES		
Reviewed by	Abhishek Mahawar	Date	01/02/2017
Approved by	Ashok Kumar Gautam	Date	01/02/2017

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environmental Mgmt), GGSIP University B.Sc. Honour (Chemistry), Sri Venkateshwar College, DU		
Experience	1.5 Year		
Field	Climate Change		
Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Trainee (Team Leader)	YES		
Reviewed by	Abhishek Mahawar	Date	08/09/2016
Approved by	Ashok Kumar Gautam	Date	08/09/2016

Competence Statement			
Name	Anu Chaudhary		
Country	India		
Education	Master of Science (Environmental Management)		
Experience	16 yrs		
Field	Environmental Science, CDM		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0001, AMS.II.G, AM0011, AMS.III.G, AMS.III.E, ACM0002, AMS.III.B, AMS.I.D, AMS.I.C, AMS.III.D, AMS.II.J, ACM0006		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 13.1)		
Reviewed by	Abhishek Mahawar	Date	01/12/2016
Approved by	Ashok Kumar Gautam	Date	01/12/2016

Competence Statement			
Name	Enea Katundu		
Country	Malawi		
Education	Master of Science		
Experience	8 Yrs		
Field	Research and Social Empowerment		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Malawi)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Reviewed by	Abhishek Mahawar	Date	08/09/2016
Approved by	Ashok Kumar Gautam	Date	08/09/2016

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1	CME	PoA DD	Version 07, dated – 07/07/2015	UNFCCC
2	TUV NORD	Validation report	Version 8000449119 – 14/021 , dated – 23/07/2015	UNFCCC

CDM-PoA-VCR-FORM

3	CME	CPA DD – 1	Version 05, dated – 07/07/2015	UNFCCC
4	CME	CPA DD – 2	Version 04, dated – 19/09/2016	UNFCCC
5	CME	CPA DD – 3	Version 04, dated -19/09/2016	UNFCCC
6	CME	CPA DD – 4	Version 04, dated -19/09/2016	UNFCCC
7	TUV NORD	CPA #1 validation report	Version 8000449119 – 14/021-CPA-001 , dated – 23/07/2015	UNFCCC
8	TUV NORD	CPA #2 validation report	Version 1.0, dated -21/09/2016	UNFCCC
9	TUV NORD	CPA #3 validation report	Version 1.0, dated -21/09/2016	UNFCCC
10	TUV NORD	CPA #4 validation report	Version 1.0, dated -21/09/2016	UNFCCC
11	UNFCCC	Methodology AMS II G,	Version – 06	UNFCCC
12	CME	Monitoring report (Publication)	Version 1.2, dated -24/03/2017	CME
13	CME	Monitoring report (Final version)	Version 3.2, dated -14/09/2017	CME
14	CME	ER calculation sheet (Initial)	-	CME
15	CME	ER calculation sheet (Final)	-	CME
16	UNFCCC	CDM PoA VVS	Version 01.0	UNFCCC
17	UNFCCC	CDM PoA PS	Version 01.0	UNFCCC
18	UNFCCC	CDM PoA PCP	Version 0.0	UNFCCC
19	IPCC	IPCC Defaults	-	IPCC
20	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 07	UNFCCC
21	UNFCCC	Guideline: Sampling and surveys for CDM project activities and programme of activities	Version 04	UNFCCC
22	CME	Sampling calculation sheet	-	CME
23	CME	U & M survey sheet	-	CME
24	CME	WBT result sheet	Various	CME
25	CME	By=1,new, survey sheet	Various	CME
26	CME	Total sales records database	-	CME
27	CME	U&M Surveys copies	Various	CME
28	CME	Survey report for WBT	Various	CME
29	CME	WBT raw data copies	Various	CME
30	CME	Technical specification of cook stove	-	CME
31	CME	KPT raw data copies	-	CME
32	CME	Emission Reduction Transfer Contract	-	CME
33	CME	Calibration certificates of the monitoring equipment's	Various	CME
34	GACC	Water Boiling Test protocol document	Version 4.2.3	CME
35	CME	Training of monitoring personnel related documents	Various	CME
36	CREEC	Stove efficiency test by CREEC at the regional stove testing centre	-	CME
37	UNFCCC	SSC PoA MR template	Version 01	UNFCCC
38	UNFCCC	Project web page https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/4A2PCYSNBWTWG81Z3L5FUH9RMJKQDV6/view	-	UNFCCC

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

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

CDM-PoA-VCR-FORM

FAR ID	01	Section no.	E.2	Date : 24/04/2017
Description of FAR				
PP has defined the CPA start date as 01/06/2016. Evidence supporting the CPA starting date shall be provided at first periodic verification in line with the CDM Glossary of Terms				
Project participant response				Date : 01/05/2017
01/06/2016 is indicated as a start date for CPA 2. This is the date from which the stoves distributed under PoA were distributed within CPA 2. The first stove was actually sold on 03/06/2016/				
Documentation provided by project participant				
DOE assessment				Date: 10/05/2017
PP has still not provided evidence in support of the start date i.e. 01/06/2016.				
Thus FAR#01 is still open.				
Project participant response				Date : 15/05/2017
The scanned copy of the Emission Reduction Transfer Contract dated 03/06/2016 has been provided.				
Documentation provided by project participant				
Emission Reduction Transfer Contract dated 03/06/2016				
DOE assessment				Date: 17/05/2017
From the PP's justification and the evidences provided , it has been found that PP has actual started distributing the stoves from 01/06/2016 and the stoves was sold on 03/06/2016, and the gap between these days are very insignificant and thus PP's justification is accepted.				
Thus FAR#01 was closed.				

FAR ID	02	Section no.	E.2	Date : 18/08/2017
Description of FAR				
PP has defined the CPA 3 start date as 01/07/2016. Evidence supporting the CPA starting date shall be provided at first periodic verification in line with the <i>CDM Glossary of Terms</i>				
Project participant response				Date : 29/08/2017
01/07/2016 is indicated as a start date for CPA 3. This is the date from which the stoves distributed under PoA were distributed within CPA 3. The first stove was actually sold on 05/05/2016. The scanned copy of the Emission Reduction Transfer Contract has been submitted to substantiate the same.				
Documentation provided by project participant				
DOE assessment				Date: 10/09/2017
From the evidences provided, it has been found that PP has actual started distributing the stoves from 05/05/2016, whereas the start date indicated in the CPA DD dated 19/09/2016 was 01/07/2016. PP needs to clarify how the ICS disseminated prior to the indicated start date have been included in CPA 3. Please clarify.				
Project participant response				Date : 14/09/2017
The start date of CPA 3 is 01/07/2016. The total sales database has been updated and the ICS disseminated prior to the indicated start date have not been included in CPA 3.				
Documentation provided by project participant				
Updated monitoring report version 3.2 dated 14/09/2017				
Updated ER calculation file				
DOE assessment				Date: 15/09/2017
The PP has only included the ICS sold after the mentioned inclusion date therefore the approach was accepted by the assessment team. closed				
Thus FAR#02 was closed.				

FAR ID	03	Section no.	E.2	Date : 18/08/2017
Description of FAR				
PP has defined the CPA 4 start date as 01/08/2016. Evidence supporting the CPA starting date shall be provided at first periodic verification in line with the <i>CDM Glossary of Terms</i>				
Project participant response				Date : 29/08/2017
01/08/2016 is indicated as a start date for CPA 4. This is the date from which the stoves distributed under PoA were distributed within CPA 4. The first stove was actually sold on 19/11/2016. The scanned copy of the Emission Reduction Transfer Contract has been submitted to substantiate the same.				
Documentation provided by project participant				

DOE assessment	Date: 10/09/2017
From the evidences provided, it has been found that PP has actual started distributing the stoves from 01/08/2016 and the stoves was sold on 19/11/2016 which was after the inclusion date, based on the documents provided, PP's justification is accepted.	
Thus FAR#03 was closed.	

Table 2. CL from this verification

CL ID	04	Section no.	I.5	Date : 24/04/2017
Description of CL				
Please provide the following documents –				
<ol style="list-style-type: none"> 1. Sample hard copies Sample survey questionnaire 2. Water boiling test results in hard copies 3. Calibration certificates of all the monitoring equipment 4. Evidence for carbon waiver form 5. Evidence for training and QA/QC for data management 6. Technical specifications if ICS 7. Interview of selected households 				
Project participant response				Date : 01/05/2017
The requested documents have been provided.				
Documentation provided by project participant				
<ol style="list-style-type: none"> 1. 8 samples of the scanned copies of usage and monitoring survey response forms. 2. 15 scanned copies of water boiling test results forms 3. Calibration report CDM 10182 4. Samples of emission reduction transfer contracts 5. To be provided. 6. Technical specifications for ICS: Quality control for Chitetezo Mbaula, How to make Chitetezo Mbaula using a paddle mould, How to fire Chitetezo Mbaula using a fuel efficient kiln. 7. Interview with selected households. 				
DOE assessment				Date: 10/05/2017
<ol style="list-style-type: none"> 1. PP has provided the copies of sample survey questionnaire. Issue closed. 2. Document for WBT not provided. Issue Open. 3. The user manual and purchase receipt of the monitoring equipment should also be provided. Moreover, it has been observed from the calibration report that the calibration has been carried out internally, however as per the standard practice it should have been done through accredited agency. Issue is Open. 4. PP has provided the documentary evidence for Carbon waiver form. Issue closed. 5. PP has not provided any documents related to QA/QC procedures / training. Issue open. 6. Ok, issue closed. 7. Ok, issue closed. 				
Thus CL is open.				
Project participant response				Date : 15/05/2017
Supporting documents have been provided.				
Documentation provided by project participant				
<ol style="list-style-type: none"> 2. The Water Boiling Test Version 4.2.3; 15 scanned copies of water boiling test results forms; 3. Calibration certificates issued by Malawi Bureau of Standards (7 certificates) 5. Information about Cleaner Cooking Camp 2016; Area 55 Staff Trainings August 2015-March 2017 				
DOE assessment				Date: 17/05/2017
<ol style="list-style-type: none"> 2. PP has provided the WBT documents 3. Calibration certificates provided by PP 5. PP has provided documents related to QA/QC & training. 				
Thus CL was closed.				

Table 3. CAR from this verification

CAR ID	05	Section no.	I.1, H.1	Date : 24/04/2017
Description of CAR				
<ol style="list-style-type: none"> Please clearly describe what fuel type is used in the project cook stoves whether fire wood, or charcoal or any other biomass type. Refer section A.1. Refer in section B.1 - Please provide the details as per MR completion guidance "Include: <ol style="list-style-type: none"> Description of implemented sampling design; which includes <ol style="list-style-type: none"> sampling design objective and reliability requirements Target population Sampling frame sampling methods sample size formulas used in the sampling Collected data (electronic spreadsheets may be attached and referenced); Analysis of the collected data; Demonstration of whether the required confidence/precision level has been met; Demonstration of whether the selected samples are representative of the population; Demonstration of whether the samples were randomly selected and are representative of the population. Under page 7 of MR, Please justify how the stoves operation based on usages is appropriate and conservative inline to applied methodology AMS IIG, version 7, para 22 & 23. Under page 7 of MR, PP is requested to kindly justify the appropriateness and conservativeness for WBT results, since PP has not used the age wise data for stove efficiency against the respective vintage.. Under section D.1 of MR - Please check as per guidance to fill the MR the following issues are taken care or not Provide a brief description of the implemented registered specific-case CPA or group of specific-case CPAs in terms of: <ol style="list-style-type: none"> Purpose of the specific-case CPA(s) and the measures taken for GHG emission reductions or net GHG removals by sinks; Description of the technology employed and installed equipment and/or infrastructure, including information requested by the eligibility criteria; Relevant dates for the specific-case CPA(s) (e.g. construction, commissioning, continued operation periods, etc.); Total GHG emission reductions or net GHG removals by sinks achieved in this monitoring period for the specific-case CPA(s), including information on how double counting is avoided. Kindly also mention the type of ICS disseminated, efficiency of ICS, make/ model of ICS and number of ERs for the respective CPAs along with the date of inclusion of the CPAs. Under section D.2. - Please provide as per the guidance to fill the MR Provide the following information on the location of the specific-case CPA(s): <ol style="list-style-type: none"> Host Party(ies); Region/state/province, etc.; City/town/community, etc.; Physical/geographical location. 				
Project participant response				Date : 01/05/2017
<ol style="list-style-type: none"> The information about fuel type has been provided in section A1. The description of implemented sampling design has been provided. Justification has been provided. WBTs resulted in higher value of efficiency for age group 2 comparing to age group 1 (26.59% vs 25.73%). To ensure conservative estimate of generated emission reduction overall average of stove efficiency based on all WBT was used in calculation (26.07%). Justification has been included in the monitoring report. Additional information has been provided. Information has been added. The section D.2. has been updated and extended to include the information required by guidances for MR. 				
Documentation provided by project participant				

Updated version of monitoring report (Version 2.1 dated 30/04/2017).	
DOE assessment	Date: 10/05/2017
<p>1. PP has included the information on the type of fuel used in the improved cookstoves in the revised MR. Issue closed.</p> <p>2. Still few points are not completely address by the PP. Issue Open.</p> <p>3. The justification is not appropriate, since PP need to considered para 22 & 23 of the applied methodology. Also, PP can consider 50% for the household where a baseline stoves is in use in addition to the project stove. Issue open.</p> <p>4. It is not appropriate to use weighted average value of age wise efficiencies, since it is not mentioned in the PoA DD or CPA DD that project will use the weighted average efficiency. Issue open.</p> <p>5. PP has revised the MR and has included the required details as per the MR completion guidance's. Issue closed</p> <p>6. PP has included the required details in the revised MR which and been checked and found to be correct. Thus issue closed.</p> <p>7. PP has included the required details under section D.2 of MR which has been found to be correct. Thus issue closed.</p> <p>The finding is open due to the many issues are still unresolved. Thus CAR is open.</p>	
Project participant response	Date : 15/05/2017
<p>2. The description of implemented sampling design has been updated.</p> <p>3. According to paragraph 22 of the methodology, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is not practical, for example when the baseline device is the three stone fire. As using data loggers is not practical due to high number of ICS distributed within PoA and the baseline device is the three stone fire, the use of surveys is justified. The justification has been included in the Monitoring Report.</p> <p>4. WBTs results have been corrected.</p>	
Documentation provided by project participant	
Updated version of monitoring report (Version 2.2 dated 15/05/2017).	
DOE assessment	Date: 17/05/2017
<p>2. PP has updated the MR accordingly. Issue closed.</p> <p>3. PP need to consider the baseline stoves usages while determine the number of days of operation for project stoves. Issue open.</p> <p>4. PP has now consider the efficiency of stove on age wise in the ER calculation, which is correct. Issue closed.</p> <p>Thus CAR is open.</p>	
Project participant response	Date : 23/05/2017
<p>3. The approach for baseline stove usages consideration has been revised to ensure conservative estimation of emission reductions. The surveys were designed to capture cooking habits and stove usage of households, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices. In cases, where households continue using baseline stoves it was conservatively assumed that 50% of meals is cooked with baseline stoves.</p>	
Documentation provided by project participant	
Updated version of monitoring report (Version 2.3 dated 23/05/2017).	
CDM 10182 PoA - U&M Survey - results - 23.05.2017.xls	
DOE assessment	Date: 25/05/2017
PP has address the raised issue and has submitted the revised documents which has been checked and found to be correct. Thus CAR was closed.	

CAR ID	06	Section no.	I.4.2.5, I.4.3	Date : 24/04/2017
Description of CAR				

1. Please mention - For the row "Monitoring equipment", provide the information on type, accuracy class, serial number, calibration frequency, date of last calibration and validity as per MR completion guidance.
2. The population size as mentioned in the sample sheet "56086" is found to be incorrect.
3. In case of sample size for WBT it has been observed from the sample size calculation sheet that WBT to be sampled for age group 1 are 11 & 1 for CPA implementer Area55 & Sunfire respectively, and for age group 2 is 3 for CPA implementer Area55, however from the summary sheet for WBT, it has been found that only 9 samples for age group 1 and 6 samples for age group 2 are conducted which is not matching with the required sample size. Please clarify.

Project participant response**Date : 01/05/2017**

1. Information about monitoring equipment has been provided in row "Monitoring equipment".
2. The value of population size has been corrected.
3. Due to unavailability of the sampled households it was not possible to collect 12 stoves of 1 year age. Therefore, 9 stoves of 1 year age and 6 stoves of 2 years age were collected for WBT. Total size of the sample is 15, which is in line with the defined sample size. Taking into account that defined sample size is greater than minimal required sample size (13) the number of tests conducted are assumed to be sufficient to estimate the efficiency of stoves for each age group.

Documentation provided by project participant

Updated version of monitoring report (Version 2.1 dated 30/04/2017).

DOE assessment**Date: 10/05/2017**

1. PP has provided the monitoring equipment details, however, the date of calibration or purchase of the equipment from when the calibration of the equipment is valid is not mentioned. Also the validity period of the equipments is not mentioned. Issue is open.
2. Still the total number of stoves is inconsistent in all the sheet and value is not matching with each other. E.g. in sample calculation sheet under sheet "sample size" provides the total population size i.e. total stoves sales as 56678, whereas for the TSR sheet the value comes out to be 18087. Also, if we add the respective CPAs stove sales data in the ER calculation sheet, the total value of stove sales comes out to be 70,588. Also if we add the total stoves from sheet "TSR 13082015-08022017" with sheet "Bulk sheet" in the ER calculation sheet the value of total stoves would be different i.e. 56686. PP is requested that the total stoves/ total population in the sampling should be corrected in all places in the sheet and should be consistent throughout all the documents. In the KPT sheet the total sales record is mentioned as 40000 which is again not matching with any other documents. Moreover, it is also creating a lot of confusion to the DOE. Issue is open.
3. The justification provided by PP is not acceptable, since PP has calculated samples for age-wise and CPA implementer-wise for the stoves and as per the calculation the samples come out to be 11 for Area55 for age group 1, 3 for Area 55 for age group 2 and 1 for Sunfire for age group 1, so PP has to ensure that the required sample size should be met. Moreover, during the sampling survey, PP should have gone for oversampling to meet the required sample size. Also, the sampling calculation on year of stove operation is not correct and PP should consider the sample size achieved based on age group. Issue is open.

Additional issues –

4. It is not clear why PP has considered in the 90/10 confidence level whereas as per the CPA DD/ PoA DD only 95/10 confidence level is mentioned for determining the sampling irrespective of the ageing of the devices.

5. Why PP has not included the sampling for By=1, new, survey, which is mentioned as KPT results is not included under the main sampling calculation sheet. Also, please rename the sheet from KPT result to "By=1, new, survey".

Thus CAR is open.

Project participant response**Date : 15/05/2017**

1. The information on calibration dates and validity periods have been indicated in monitoring report.
2. The correct total population size i.e. total stoves sales as 56678, including 36 371 stoves from sheet "TSR 13082015-08022017" and 20 307 stoves from sheet "Bulk sheet" in the ER calculation file. Please, note that total sales records database also contains 8 stoves sold after the end of the current monitoring period (31/01/2017), which are not included in total population size. The records have been corrected to ensure consistency and transparency.
3. The results of the WBTs and the sampling calculations have been amended.
4. 90/10 confidence level is not used for the calculation of minimal required sample size. Excel file with the samples calculations have been updated.
5. The sampling for By=1, newi, survey has been included under the main sampling calculation sheet. The file has been renamed.

Documentation provided by project participant

Calibration certificates for monitoring equipment.
 Updated version of monitoring report (Version 2.2 dated 15/05/2017).
 Summary thermal efficiency CDM 10182 Mw WBTs – 15.05.2017.xls
 CDM 10182 Sampling - 15.05.2017.xls

DOE assessment**Date:** 17/05/2017

1. PP has included the calibration details in the MR. Issue closed.
 2. PP has corrected the total population size in all the documents. The assessment team has checked that the correct total population size i.e. total stoves sales is 56678, including 36 371 stoves from sheet "TSR 13082015-08022017" and 20 307 stoves from sheet "Bulk sheet" in the ER calculation file. Now in all the documents, PP has consistently mentioned the total stoves size correctly. Issue closed.
 3. PP has provided the WBT sampling analysis sheet. Issue closed.
 4. PP has corrected the excel files. Issue closed.
 5. PP has included the sampling calculation for "By=1, newi, survey" in the sampling sheet. Issue closed.
- Thus CAR is closed.

CAR ID	07	Section no.	I.4.2.3, I.6.1	Date	: 24/04/2017
Description of CAR					
<ol style="list-style-type: none"> 1. Please mention the monitored values CPA wise for the parameters "$N_{y,i,a}$", "$\mu_{y,i} / 365$", "$\Delta\eta_{y,i,a}$", "$\eta_{new,i,a}$" in the MR under the section G.2 2. For the parameter "$\mu_{y,i} / 365$", PP is requested to kindly justify how the monitoring for this parameter is met in accordance with the para 22 & 23 of the applied methodology AMS IIG version 6, considering that different meals take different lengths of time to prepare and the applied approach may lead to less conservative estimation of the parameter "number of days of utilization of the project device during the year ($\mu_{y,i,a}$)". 					
Project participant response					Date
<ol style="list-style-type: none"> 1. Monitored values were provided for each CPA. 2. According to paragraph 22 of the methodology, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is not practical, for example when the baseline device is the three stone fire. As using data loggers is not practical due to high number of ICS distributed within PoA and the baseline device is the three stone fire, the use of surveys is justified. The surveys were designed to capture cooking habits and stove usage of households, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices. In cases, where households continue using baseline stoves it was conservatively assumed that 50% of meals is cooked with baseline stoves (the assumption is conservative as monitoring surveys revealed that only 16% of meals are cooked using baseline stoves). Justification has been added in monitoring report. 					: 01/05/2017
Documentation provided by project participant					
Updated version of monitoring report (Version 2.1 dated 30/04/2017).					

DOE assessment	Date: 10/05/2017
<p>1. PP has mentioned the CPA wise value for the parameter in the revised MR. Issue closed.</p> <p>2. It is not clear, how PP has taken account of the household having baseline stove in addition to the project stove. Moreover, it has been also observed from the usage survey sheet that household are having more than one project stoves, so how the PP has taken into account of conservativeness.</p> <p>Thus CAR is open.</p>	
Project participant response	Date : 15/05/2017
<p>2. Households having baseline stove in addition to the project stove are accounted for while calculating proportion of discontinued use of baseline stoves. The percentage of households using baseline stove in addition to the project stove was determined based on the Usage and Monitoring survey (14 households out of 31 still using project stoves or 45.16%; incl. 11 households with stoves of age group 1 and 3 households with stoves of age group 2). The percentage of households using baseline stove in addition to the project stove was multiplied by the percentage of meals is cooked with baseline stoves to calculate the proportion of baseline stove use. The percentage of meals cooked with baseline stoves is estimated via Usage and Monitoring surveys by formulating questions on the number of meals per week cooked with baseline ("other") stove. It was estimated that among households having baseline stove in addition to the project stove 16% of meals are cooked with baseline stove. The proportion of discontinued use of baseline stoves was calculated as 1 minus the proportion of baseline stove use.</p> <p>According to Usage and Monitoring Survey 4 households out of 33 surveyed use 2 project stoves, which results in 37 stoves per 33 households. To ensure conservative calculation of generated emission reductions the usage rate estimated via Usage and Monitoring survey was discounted by 10.8% (1 – 33/37).</p>	
Documentation provided by project participant	
DOE assessment	Date: 17/05/2017
<ul style="list-style-type: none"> From the sheet "U & M Survey results", it has been observed that under column Qcell 18 & 19, where the survey question is "Still Using Sampled Stove (ICS)?(Choose Yes / No)", where the answer is "No", and under column "S", "If no, date of stop using:", where the respondent has mentioned the date when the stove has stopped working, however, in column "AV" "# Days in use (calculated)", PP has calculated upto the date of the survey, which is after the date of stoves operation. PP is requested to kindly clarify their approach and how it is technically correct. Moreover, why the column "w" "Old 3-stone stove in use? (Choose Yes / No)" is blank mostly?? PP should justify, how they have taken account of 3 stone baseline stoves as it has been observed for the sheet "U & M Survey results" under column "AG" there are instances where the responded state that they have a 3 stone stoves along side with project stove. So PP should justify how the number of days of operational for project stoves where the household is having a baseline stove is taken into account in a most conservative manner. In the ER calculation sheet, "CDM 10182 PoA - ER Calculation - 15.05.2017.xls", in the emission reduction formula, PP has consider "Proportion of discontinued use of baseline stoves" instead of "Proportion of operational stoves". PP should check and correct the approach. <p>Thus CAR is open.</p>	
Project participant response	Date : 23/05/2017
<ul style="list-style-type: none"> Column "AV" is used to estimate the age group of the stoves only. The description of the column and calculation has been updated to reflect the number of days since stove sale till the end of the monitoring period. Column W is applicable only for households, which do not use project stove anymore, therefore it is mostly empty In cases, where households continue using baseline stoves along with the project stoves it was conservatively assumed that 50% of meals is cooked with baseline stoves. This is taken into account during calculation of the Number of days of utilization of the project device during the year. This approach is inline to the applied methodology AMS II G, version 6, para 23. The calculation of emission reduction has been corrected. Number of days of utilization of the project device during the year 'y' is used in emission reduction calculation in line with the methodology. 	
Documentation provided by project participant	
<p>Updated version of monitoring report (Version 2.2 dated 15/05/2017).</p> <p>CDM 10182 PoA - ER Calculation – 23.05.2017.xls</p> <p>CDM 10182 PoA - U&M Survey - results - 23.05.2017.xls</p> <p>CDM 10182 PoA - WBTs results – 23.05.2017.xls</p> <p>CDM 10182 - By=1,new, survey - 23.05.2017.xlsx</p> <p>CDM 10182 Sampling - 23.05.2017.xls</p>	

DOE assessment	Date: 25/05/2017
PP has correction the ER calculation sheet, U & M survey sheet where the households which continue using baseline stoves along with the project stoves it was conservatively assumed that 50% of meals is cooked with baseline stoves. This is taken into account during calculation of the Number of days of utilization of the project device during the year. This approach is inline to the applied methodology AMS II G, version version 6, para 23, WBT results sheet, Sampling sheet and By=1new survey sheet along with the revision in the MR. all these documents are checked and found to be correct. Thus CAR was closed.	

Table 4. FAR from this verification

There is no FAR from this verification.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	5 June 2015	Initial publication.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Issuance		
Keywords: programme of activities, verifying and certifying		