Verification and certification report form for CDM programme of activities

(Version 03.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION		
Title and UNFCCC reference number of the programme of activities (PoA)	Improved Cookstoves Program for Malawi and cross-border regions of Mozambique - PoA 9558	
Version number(s) of the PoA-DD(s) to which this report applies	11	
Version number of the verification and certification report	1.0	
Completion date of the verification and certification report	05/09/2019	
Monitoring period number and duration of this morning period	Fifth Monitoring Period 16/04/2018 to 15/04/2019 (both days inclusive)	
Number and version number of the monitoring report to which this report applies	Monitoring Report Number 01 Version 2.0	
Coordinating/managing entity (CME)	C-Quest Capital Malaysia Global Stoves Limited	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	Republic of Malawi	Yes
Applied methodologies and standardized baselines	AMS-II.G: “Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass” (Version 05.0)	
Mandatory sectoral scopes	Sectoral scope 3: Energy demand	
Conditional sectoral scopes, if applicable	Not Applicable	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	166,336 tCO_2e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	168,158 tCO_2e	
Name and UNFCCC reference number of the DOE	LGAI Technological Center, S.A. (Applus+ Certification) E-0032	
Name, position and signature of the approver of the verification and certification report	Mr. Juan Sendín Caballero *Applus+ Certification Business Unit Managing Director* Signature: 	

SECTION A. Executive summary

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The registered PoA involves the dissemination (distribution/installation) of TLC Rocket fixed improved cooking stoves (ICS) in Malawi, later the stoves will also be distributed in cross-border regions in Mozambique. The ICS disseminated through this programme has replaced the prevailing inefficient three-stone fire stove or traditional pot supports, which combust wood more efficiently, and improve thermal transfer to pots, hence saving fuel and lowering greenhouse gas emissions. This monitoring period includes the implementation and monitoring of all five included CPAs (i.e. 9558-0001, 9558-0002, 9558-0003, 9558-0004 and 9558-0005) as part of registered PoA within the geographical boundary of Malawi.

Detailed implementation status of these 5 implemented CPAs has been discussed in subsequent sections of this report and CME has also reported the same in monitoring report, thus complying with §259 of CDM PS for PoA, V2/16/ and §340 of CDM VVS for PoA, V2/16/.

LGAI Technological Center, S.A.(hereafter referred to as Applus+ Certification) has performed the Fifth verification of the CDM PoA "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" and UNFCCC PoA Reference Number 9558. The verification includes confirming the implementation of the monitoring plan of the revised approved PoA-DD, CPA-DDs and the application of the monitoring methodology as per AMS-II.G., Version 05/19/. A site visit was conducted to check the implementation of registered monitoring plan and verify the data submitted in the monitoring report.

Applus+ Certification confirms the following has been reviewed;
(a) The revised approved PoA-DD, CPA-DDs and the monitoring plan, and the corresponding validation opinion;
(b) The PRC validation report, first MP, second MP, third MP and fourth MP verification reports;
(c) The applied monitoring methodology;
(d) The monitoring report to verify that it is as per the standardized format;
(e) CER calculations sheets and all supporting documents;
(f) Any other information and references relevant to the project activity's emission reductions;
(g) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;

Applus+ Certification confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader, Technical Expert	OR	Joshi	Akhilesh	GCEES	Y	Y	Y	Y

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer Technical Expert	EI	Díaz	Miguel A. Cortés	Central Office
2.	Approver	IR	Sendin	Juan	Central Office

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Error in Data Transfer from Digital Records, Hard copy Records to ER Spread sheet for the monitoring parameters and sampling survey results. The errors could result from human errors during the information transfer from the source to emission reduction sheet.	High	The parameters were used in the calculation of emission reductions.	Since most of the monitoring parameter were confirmed through ex post monitoring survey conducted by CME, the verification team physically checked and verified the 30 households from Fifth ex post monitoring survey records/4/ (using acceptance sampling approach) and ICS registration database/5/ downloaded from ATL website/20d/. All hard copies of filled sampling survey forms as well as thermal efficiency calculation spreadsheet/10/ for all sampled ICS have been verified. Also compared PoA-DD/12/, CPA-DD/12/ and reference documents with ER spread sheet/3/ to check for any material error during data transfer.

C.2. Consideration of materiality in conducting the verification

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The identified/selected materiality threshold for the PoA under current monitoring period is 5% as PoA is small scale in accordance with §308(d) of CDM VVS for PoA, V2/16/.

	MR Version (Draft)	MR Version (Final)
Emission reductions/annum	141,085	168,158
Identified Threshold	5.0%	5.0%

In accordance to the §28 of the applied methodology/19/, the sample size is determined by either 95/10 (for biennial inspection) or 90/10 (for annual Inspection) confidence /precision. However, CME has considered 95/10 confidence /precision for annual sampling in the fifth ex post monitoring survey/4/ for single sampling plan at PoA level. CL-02 has been raised in this context. The verification team confirms that the sample size considered by CME is in line with the revised approved PoA-DD/12/ and CPA-DDs/12/ and shall give more accurate result.

Parameter	Reporting Frequency	No. of Discreet Data (100%)	Sample size selected for verification	Type of error identified (Isolated/ Systematic)	Impact on ERs	
					Extrapolated for population size (Qty and %)	Within Threshold (Yes/No)
$n_{y,j}$	Annually through Monitoring Survey	189 samples from CME's monitoring survey	30 samples from CME's monitoring survey records (Acceptance sampling)	Isolated error identified. CL-02 has been raised and closed successfully.	No Impact	Yes
SS_y	Annually through Monitoring Survey	189 samples from CME's monitoring survey	30 samples from CME's monitoring survey records (Acceptance sampling)	Isolated error identified. CL-02 has been raised and closed successfully.	Value of SS_y changed from 95.52% to 95.77%.	Yes (+0.26%)
$\eta_{new,y,i}$	Annually through Monitoring Survey	57 samples from CME's monitoring survey	All WBT results has been verified through WBT Survey reports/6/	Isolated error identified. CAR-06 (e) and CAR-06 (d) has been raised and closed successfully.	Thermal Efficiency of vintage 3 and vintage 6 stoves corrected.	Yes (for vintage 3 it is +1.44% and vintage 6 it is -1.07%)
$t_{y,j}$	Continuously measured and recorded annually for each stove.	77,000 ICS distributed during the Monitoring period as per draft MR/1/.	Thorough cross check of ICS records from ICS registration database/5/ and ER spreadsheet/3/ for each ICS	No error Identified.	No Impact	Yes

Based on the above table, it can be confirmed that materiality threshold applicable for the PoA as per §308(d) of CDM VVS for PoA, V2/16/ is not breached.

Since most of the data is confirmed through ex post monitoring survey conducted by CME, the verification team has cross verified the ex-post survey data by applying acceptance sampling approach (30 number of ICS out of 189 ICS surveyed by CME). All ex-ante parameters were directly cross-checked from the PoA-DD/12/ and CPA-DD/12/. Verification team captured all the information of sampled households through interview with Stove owner or its close relative present onsite at the time of survey. The recorded information then matched with the CME survey records for checking consistency.

Verification team confirms that, there was no gap identified in the values of ex-ante parameters.

SECTION D. Means of verification

D.1. Desk/document 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.

D.2. On-site inspection

Duration of on-site inspection: 25/07/2019 to 28/07/2019				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Implementation and Operation of the CDM programme of activity based on registered Monitoring Plan and physical features of the project activity as per approved POA-DD and CPA-DDs	Ntchisi, Dowa, Salima and Lilongwe District of Malawi	25/07/2019 to 28/07/2019	Akhilesh Joshi
2.	Information flows for generating, aggregating and reporting the monitoring parameters			
3.	Competency of the operating personnel, monitoring personnel and calibrating agencies			
4.	Data collection procedures			
5.	Calibration performance and monitoring practices followed for monitoring equipment's used in the project activity			
6.	Quality Control and Quality Assurance procedures against the approved monitoring plan			
7.	Calculation and assumptions made in determining the GHG data and emission reductions			
8.	Compliance with CDM criterion and relevant guidance with respect to monitoring plan			
9.	Physical site visit: Households visited (Implementation of PoA)			

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Goudwe	Vincent	Total Land Care (TLC)	25/07/2019	Implementation of CPAs, monitoring activities, record keeping	Akhilesh Joshi
2.	Njikho	Matias		28/07/2019		
3.	Msachiwa	Onyx	CQC		Ex post Monitoring Survey	
4.	Garg	Vineet Kumar			Corrections in MR and ER sheet	
5.	Goswami	Tridip Kumar			Sampling approach, results and ER calculations	
6.	Mkandawire	Mike	Field Coordinator (TLC)	26/07/2019	Spot Check and CME Field Survey	
7.	Gondwe	Temwa	WBT Enumerator	28/07/2019	CME Monitoring Survey	
8.	Malizai	Mwazionela	Independent household representati	25/07/2019 – 28/07/2019	DOE Field Survey of ICS Users	Akhilesh Joshi with help of
9.	Modiyasi	Cecilia				
10.	Presha	Elube				

11.	Mediyasi	Zione	ve		(Ntchisi, Dowa, Salima and Lilongwe District of Malawi)	interpreter
12.	Ngonda	Stellia				
13.	Mose	Agness				
14.	Frank	Mercy				
15.	Hauledi	Junesi				
16.	Hamfule	Steria				
17.	Maupo	Eliza				
18.	Kunkokota	Steria				
19.	Josephy	Memory				
20.	Pililani	Grades				
21.	Chilamba	Bitrice				
22.	Banda	Jefita				
23.	Zinduma	Doreen				
24.	Moses	Laita				
25..	Edward	Gloria				
26.	Gift	Alefa				
27.	Boston	Mtunduwatha				
28.	Chingombe	Cecilia				
29.	Dokotala	Khilise				
30.	Kaira	Taweni	Independent household representative	11/08/2019	DOE Additional Telephonic Interview	Akhilesh Joshi with help of interpreter
31.	Nkhoma	Chifundo				
32.	Phiri	Chimwemwe				
33.	Heti	Elizabeth				
34.	Helbat	Agness				
35.	Mangani	Simita				
36.	Seza	Linivasi				
37.	Georgina	Kapala				

D.4. Sampling approach

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CME's sampling approach:

The CME has applied a sampling approach as per validated PoA-DD/12/ and registered CPA-DDs/12/. CL-02 has been raised and closed successfully. A confidence precision 95/10 was applied by CME in the annual sampling, which is appropriate given the length of the monitoring period. The sampling approach undertaken by CME is duly explained under Section E.3 of monitoring report/2/.

DOE's sampling approach:

In order to meet the requirements of §24 of Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/24/, the verification team applied acceptance sampling in the verification (in accordance with §27 of Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/24/). The verification team selected random sub-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.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/24/:

- The proportion of discrepancies between the CME's sample records and DOE's (field or onsite inspection results) sample records that can be considered acceptable. This is referred to as the AQL (Acceptable Quality Level): 1.0% was considered in this verification.
- The proportion of discrepancies between the CME's sample records and DOE's (field or onsite inspection results) sample records that would be considered unacceptable. This is the UQL (Unacceptable Quality Level): 15% was considered in this verification.
- The producer risk and consumer risk: 5% was considered for both.

Considering the above input values, a sample size of 30 was required as per Table in the Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/24/.

Accordingly, acceptance number (c) thus determined for the sample size is 1. A sample size of 30 meets the criteria. Therefore, the verification team together verified the 30 randomly[1] selected samples out of CME samples (22 samples physically verified onsite and 8 samples through telephonic interview) during site visit and observed that all the ICS checked were in operation (100%) as against the surveyed results, which indicates 100%, as per the vintage of ICS and CPA. There was no drop out observed in sample done by the verification team and thus gives a drop out of 0 %. This is considered appropriate and has been accepted by the verification team. It was observed that all the stoves were in working condition and thus less than or equal to c=0, discrepant records were observed with the MR/2/ and ER sheet/3/. Thus, CME's set of records has been accepted in line with §32 of the Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/24/.

The verification team together verified the 30 randomly selected samples out of CME samples (22 samples physically verified onsite and 8 samples through telephonic interview) during site visit and observed that all the results reported by CME for use of baseline stove were consistent with the survey results. Only 1 out of 30 users found using traditional stoves along with ICS, which means that 3.33% users still using traditional or baseline stoves. However, CME has considered value of SS_y as 4.23%, which is higher compared to the DOE onsite survey results. As there is only 1 discrepant record found, CME's set of samples were accepted in line with §32 of the Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/24/.

Based on DOE's experience and under the approach of getting objective evidences, DOE relies on the assessment of 100% scrutiny of WBT test records as well as evaluating competency of WBT enumerator to confirm that parameter has been monitored in accordance with applied methodology and monitoring plan. There was no DOE field survey conducted for efficiency related parameter as these were checked with the WBT survey records for each ICS retained by the CME as well as interview with monitoring team members who conducted WBTs on site. DOE conducted interview of one of the WBT enumerators, who conducted WBT test onsite for some of the project's ICS. This interview was to check whether a proper training of WBT enumerators was conducted by CME/CPA implementer before conducting monitoring survey. Same is verified from the training records dated 07/03/2019 provided by CME. DOE also checked the number of WBTs conducted by single person in a day with WBT ICS address to check whether it is feasible to conduct the number of WBTs in a single day. All the WBT survey filled forms were physically checked and verified by DOE. Few inconsistencies have been identified between survey records and actual results reported in sampling sheet, for which CAR-06c and CAR-06d have been raised and closed successfully. The verification team verified 100% of WBT results and found them in order.

D.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	0	1	0
Remaining forward action requests from validation and/or previous verifications	0	0	0
CPAs considered for verification and covered in this report	0	0	0
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD	1	0	0
Implementation and operation of the management system	0	1	0
Post-registration changes			
• Corrections	0	0	0
• Inclusion of a monitoring plan	0	0	0
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized	0	0	0

[1] Using online software https://www.randomizer.org/

baselines, or other methodological regulatory documents[2]			
• Changes to the programme design	0	0	0
• Addition of CPA inclusion template	0	0	0
• Change of coordinating/managing entity	0	0	0
• Changes specific to afforestation and reforestation activities	0	0	0
Component project activities			
Compliance of the CPA implementation with the included CPA design document	0	0	0
Post-registration changes	0	1	0
• Temporary deviations from registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	0	0	0
• Corrections	0	0	0
• Changes to the start date-of the crediting period	0	0	0
• Inclusion of a monitoring plan	0	0	0
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	0	0	0
• Changes to the project design	0	0	0
• Changes specific to afforestation and reforestation activities	0	0	0
Compliance of the registered monitoring plan with applied methodologies and standardized baselines	0	0	0
Compliance of monitoring activities with the registered monitoring plan			
• Data and parameters fixed ex ante or at renewal of crediting period	0	0	0
• Data and parameters monitored	0	1	0
• Implementation of sampling plan	1	0	0
Compliance with the calibration frequency requirements for measuring instruments	0	0	0
Assessment of data and calculation of emission reductions or net removals			
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	0	1	0
• Calculation of project GHG emissions or actual net GHG removals by sinks	0	0	0
• Calculation of leakage GHG emissions	0	0	0
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	0	0	0
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	0	1	0
• Remarks on difference from estimated value in included CPA	0	0	0
Assessment of reported sustainable development co-benefits	0	0	0
Global stakeholder consultation	0	0	0
Others (please specify)	0	0	0
Total	**2**	**6**	**0**

[2] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

SECTION E. Verification findings

E.1. General

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

Means of verification	The verification team has compared the final monitoring report/2/ with a latest applicable monitoring report form, version 03.0/22/. Same has been verified from UNFCCC website.
Findings	CAR-03 has been raised in this context. Refer Appendix 4 for detailed finding.
Conclusion	The verification team confirms that the final monitoring report/2/ has been appropriately prepared using the latest applicable monitoring report form/22/, and that all sections are complete.

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

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The verification team confirms that there are no pending FARs from validation and previous verification/13//14//15//21/.

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

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 001; 9558-0001	Yes	13/03/2014	11	Yes
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 002; 9558-0002	Yes	10/12/2014	11	Yes
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 003; 9558-0003	Yes	10/12/2014	11	Yes
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 004; 9558-0004	Yes	06/10/2016	11	Yes

Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 005; 9558-0005	Yes	06/10/2016	11	Yes

E.2. Programme of activities

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

Means of verification

The registered PoA involves the promotion, distribution and sale of improved cooking stoves (ICS) (i.e. TLC Rocket stove) in Malawi manufactured by CME through coordination with local/ channel sellers/ distributors e.g., Total Land Care. At later stage the stoves will also be distributed in cross-border regions in Mozambique. The overall responsibility of implementation and operation is with CME (CQC), which was also evident during the site visit. This is consistent with revised approved PoA-DD and CPA-DDs/12/.

This monitoring period includes the implementation and monitoring of all five implemented CPAs (CPA 9558-0001, 9558-0002, 9558-0003, 9558-0004 and CPA 9558-0005) as part of PoA/18/ (at the end of the current monitoring period) within the geographical boundary of Malawi. The implementation of all implemented CPAs, as referenced above, are within the geographical boundary of the PoA-DD (Section A.5.)/12/, which constitutes the physical boundary of PoA as well.

In the referenced CPAs, during the monitoring period, only one model of the improved cookstove (ICS) i.e., TLC Rocket Stove/7/ is deployed/installed/distributed. The distribution/ implementation of the ICS under all CPAs is done by the TLC who is the sole CPA implementer for this PoA.

The stoves have been sold/distributed in altogether across the various districts of Northern, Central and Southern Region of Malawi. This was confirmed through the registration database of each CPA/5/.

The start date of crediting period of the PoA is 13/03/2014/18/. This was also the date of registration of the PoA. The first stove included in this monitoring period was registered on 20/10/2013/5/.

The total number of stoves that were sold/distributed at the end of the current monitoring period as per specific case CPA-DDs/12/ were verified as under:

CPA Reference Number	Total installed ICS (TLC Rocket)	Estimated in CPA-DD
9558-0001	19,907	20,763
9558-0002	19,469	20,763
9558-0003	20,763	20,763
9558-0004	16,861	20,763
9558-0005	0	20,763
Total	**77,000**	**103,815**

CPA Reference	Date of Installation	Date of registration

	<table><tr><th>Number</th><th>of 1st ICS</th><th>(Earliest)of 1st ICS</th></tr><tr><td>9558-0001</td><td>21/08/2013</td><td>20/10/2013</td></tr><tr><td>9558-0002</td><td>24/09/2013</td><td>10/12/2014</td></tr><tr><td>9558-0003</td><td>06/06/2015</td><td>20/10/2015</td></tr><tr><td>9558-0004</td><td>01/01/2016</td><td>23/07/2016</td></tr><tr><td>9558-0005</td><td>-</td><td>-</td></tr></table> Therefore, the quantity, specification and target group of the ICS were found in accordance with the PoA-DD and respective CPA-DDs/12/. Further, based on the review of registration database of ICS/5/, physical observations and interview conducted during the site visit, the verification team found that the actual implementation on ground of the PoA is consistent with PoA-DD and respective CPA-DDs/12/.
Findings	CL-01 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	The verification team confirms–that - • The physical features (technology/type of ICS) of the implementation were in accordance with the revised approved PoA-DD/12/. • The distribution of ICS is still ongoing as it has not yet reached the estimated quantity given in the respective CPA-DDs/12/. • The actual operation is in line to respective CPA-DD, which is further explained under Section I.1 of this report. • No information with regard to data and variables was identified that may surpass the estimated quantity of ERs in the respective CPA-DD/12/. • The emission reductions achieved for PoA 9558 were within the estimated quantity in the registered CPA-DDs/12/.

E.2.2. Implementation and operation of the management system

Means of verification	Based on the interview of CME representative (CME) and monitoring team during the site visit, it was confirmed that the CME has organized an appropriate management and operational system for implementation, monitoring and reporting functions. TLC (CPA implementer) has a database manager who manages the process of collecting the completed sales receipts from the stove distributors and entering the data into the database. The monitoring manager at the CME is then responsible for QA/QC of the data, analysis and reporting into the monitoring report. For survey data, a monitoring team has been organized by the CME consisting of trained monitoring staff/11/, who conducted the surveys and WBTs. The monitoring manager at the CME is responsible for QA/QC of the data, analysis and reporting into the monitoring report. CPA Implementer field staff continually randomly selects households included in the database and visit them to cross-check the information on the database with the factual evidence in the field, referred as spot check. Any inconsistencies found (e.g., change in the address of a user) are updated on the database, and in the case, ICS are found to be no longer in use, they will be clearly marked as such and excluded from emission reductions calculations. During the interview with CPA implementers and field coordinators, it was evident that field coordinators frequently visit the villages and meet ICS users for spot checks and addressing there needs throughout the year. As evidenced during the DOE onsite visit, ICS users always identified the field coordinator and welcomed them. This also proves that Field coordinators frequently visited the village in the past for spot checks. The electronic databases/5/ containing the monitored data were maintained by the

	CME. The database (and its backup) was checked during the site visit. The database is stored online so it is accessible to both the CME monitoring manager in India and the CME head office in Washington D.C. Original copies of completed survey forms and WBT test reports/6/ is retained by the CPA implementer. The organizational structure and roles and responsibilities for monitoring are in line with the situation on the ground as observed during the site visit, and the structure is considered appropriate.
Findings	CAR-04 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	The verification team assessed the management systems in place to implement the monitoring of the PoA/12/. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system. This has been described in detail in the MR/2/. The verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.

E.2.3. Post-registration changes

E.2.3.1. Corrections

>>
The corrections to the registered PoA-DD have been approved on 11/08/2015 (Ref: PRC-9558-001). No corrections were identified during the verification of current monitoring period.

E.2.3.2. Inclusion of a monitoring plan

>>
Not applicable, since monitoring plan was included in the registered PoA-DD/12/.

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

>>
The permanent changes to the registered monitoring plan as described in the registered PoA-DD have been approved on 11/08/2015 (Ref: PRC-9558-001). No permanent changes were identified during the verification of current monitoring period.

E.2.3.4. Changes to the programme design

>>
No changes to the programme design were identified during the current monitoring period.

E.2.3.5. Addition of CPA inclusion template

>>
Not Applicable.

E.2.3.6. Change of coordination/managing entity

>>
No changes in CME during the current monitoring period.

E.2.3.7. Changes specific to afforestation and reforestation activities

>>
Not Applicable.

E.3. Component project activities

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

Means of verification	There are 05 specific CPAs (9558-0001, 9558-0002, 9558-0003,9558-0004 and 9558-0005) included in the PoA/18/ at the end of the current monitoring period and all are covered in the current monitoring period. All 5 CPAs (9558-0001, 9558-0002, 9558-0003, 9558-0004 and 9558-0005) were implemented at the end of current monitoring period. The 5 implemented CPAs are grouped together in this section for verification and reporting as these are of similar in nature (technology and type). Each of the specific CPA targets the promotion, distribution and sale of TLC Rocket Stove. C-Quest Capital Malaysia Global Stoves Limited (CQC) is the Coordinating and Managing Entity (CME) for the implementation of CPA. The CQC coordinates and manages each CPA Implementer and assists them in implementing each element of the monitoring plan. There are 28 districts under three regions (Southern, Central and Northern region) of Malawi in which included specific CPAs were implemented. Although, the districts for all CPAs are common but stoves are separated by their unique serial numbers and fixed locations (household addresses and geographical coordinates). The implementation and operation status of each CPA has been verified as follows: CPA 9558-0001 (also referred to as CPA 001): ICS were distributed in different villages all of which were located across the different districts in Southern, Central and Northern region of Malawi, which is consistent with the description given in the included CPA-DD (Section A.3)/12/. By the end of current monitoring period total 19,907 cook stoves/5/ were disseminated under CPA 001, which is within estimated quantity of 20,763 ICSs as per Section A.3 of the CPA-DD/12/. It has been checked by the verification team that the CPA is below the threshold of 180 GWh/year (thermal) (i.e.169.21 GWh_{th} saving /30/ achieved during this monitoring period of 365 days). The distribution model in CPA 001 is that stoves are distributed by local distributors (TLC), managed by CME. The stoves are distributed to end users, these are installed as per required specification and installation date is recorded through a mobile based app (ODK – Open Data Kit) developed by ATL/20d/. The other details e.g., unique geographical coordinates, administrative unit, user name, phone number etc. are also recorded. Once the ICS is installed it is revisited by TLC field staff after few days/weeks (in general) to check whether the constructed stove meets the specified specifications and once it is found of acceptable quality, the same ICS is registered in the same manner through ODK. A registration number is issued to the ICS user for records. The ICSs that do not meet the specifications are not registered at this stage and are kept out of CPA-DD boundary. The operation/use of ICS starts from the installation date itself. CPA 9558-0002 (also referred to as CPA 002): ICS were distributed in different villages all of which were located across the different districts in Southern, Central and Northern region of Malawi, which is consistent with the description given in the included CPA-DD (Section A.7)/12/. Therefore, the Districts for CPA 002 are same as that of other included CPAs but stoves are separated by their unique serial numbers and fixed locations (household addresses and geographical coordinates). By the end of current monitoring period total 19,469 ICSs/5/ were disseminated under CPA 002, which is within estimated quantity of 20,763 as per Section A.3 of the CPA-DD/12/. It has been checked by the verification team that the CPA is below the threshold of 180 GWh/year (thermal) (i.e. 165.87 GWh_{th} saving/30/ achieved during this monitoring period of 365 days).

	The distribution model in CPA 002 is that stoves are distributed by local distributors (TLC), managed by CME. The stoves are distributed to end users, these are installed as per required specification and installation d2ate is recorded through a mobile based app (ODK – Open Data Kit) developed by ATL/20d/. The other details e.g., unique geographical coordinates, administrative unit, user name, phone number etc. are also recorded. Once the ICS is installed it is revisited by TLC field staff after few days/weeks (in general) to check whether the constructed stove meets the specified specifications and once it is found of acceptable quality, the same ICS is registered in the same manner through ODK. A registration number is issued to the ICS user for records. The ICSs that do not meet the specifications are not registered at this stage and are kept out of CPA DD boundary. The operation/use of ICS starts from the installation date itself. CPA 9558-0003 (also referred to as CPA 003): ICS were distributed in different villages all of which were located across the different districts in Southern, Central and Northern region of Malawi, which is consistent with the description given in the included CPA-DD (Section A.7)/12/. Therefore, the Districts for CPA 003 are same as that of other included CPAs, but stoves are separated by their unique serial numbers and fixed locations (household addresses and geographical coordinates). By the end of current monitoring period total 20,763 cook stoves were disseminated under CPA 003, which is equal to the estimated quantity of 20,763 ICSs as per Section A.3.of the CPA-DD/12/. It has been checked by the verification team that the CPA is below the threshold of 180 GWh/year (thermal) (i.e. 178.11 GWh_{th} saving achieved during this monitoring period of 365 days). The distribution model in CPA 003 is that stoves are distributed by local distributors (TLC), managed by CME. The stoves are distributed to end users, these are installed as per required specification and installation date is recorded through a mobile based app (ODK – Open Data Kit) developed by ATL/20d/. The other details e.g., unique geographical coordinates, administrative unit, user name, phone number etc. are also recorded. Once the ICS is installed it is revisited by TLC field staff after few days/weeks (in general) to check whether the constructed stove meets the specified specifications and once it is found of acceptable quality, the same ICS is registered in the same manner through ODK. A registration number is issued to the ICS user for records. The ICSs that do not meet the specifications are not registered at this stage and are kept out of CPA DD boundary. The operation/use of ICS starts from the installation date itself. CPA 9558-0004 (also referred to as CPA 004): ICS were distributed in different villages all of which were located across the different districts in Southern, Central and Northern region of Malawi, which is consistent with the description given in the included CPA-DD (Section A.7)/12/. Therefore, the districts for CPA 004 are same as that of other included CPAs, but stoves are separated by their unique serial numbers and fixed locations (household addresses and geographical coordinates). By the end of current monitoring period total 16,861 cook stoves were disseminated under CPA 004, which is less than the estimated quantity of 20,763 ICSs /5/ as per Section A.3.of the CPA-DD/12/. Some of the stoves (1599 ICS from previous verification/5/) were removed from the database during this monitoring period due to no proper maintenance available from CME side. It has been checked by the verification team that the CPA is below the threshold of 180 GWh/year (thermal) (i.e. 114.53 GWh_{th} /30/ saving achieved during this monitoring period of 365 days). The distribution model in CPA 004 is that stoves are distributed by local distributors (TLC), managed by CME. The stoves are distributed to end users, these are installed as per required specification and installation date is recorded through a mobile based app (ODK – Open Data Kit) developed by ATL/20d/. The other details e.g., unique geographical

	coordinates, administrative unit, user name, phone number etc. are also recorded. Once the ICS is installed it is revisited by TLC field staff after few days/weeks (in general) to check whether the constructed stove meets the specified specifications and once it is found of acceptable quality, the same ICS is registered in the same manner through ODK. A registration number is issued to the ICS user for records. The ICSs that do not meet the specifications are not registered at this stage and are kept out of CPA. The operation/use of ICS starts from the installation date itself. CPA 9558-0005 (also referred to as CPA 005): ICS were distributed in different villages all of which were located across the different districts in Southern, Central and Northern region of Malawi, which is consistent with the description given in the included CPA-DD (Section A.7)/12/. Therefore, the districts for CPA 005 are same as that of other included CPAs, but stoves are separated by their unique serial numbers and fixed locations (household addresses). By the end of current monitoring period total 8,593 cook stoves were disseminated under CPA 005, which is less than the estimated quantity of 20,763 ICSs as per Section A.3.of the CPA-DD/12/. However, all the stoves distributed under CPA 005 were excluded from monitoring during this monitoring period due to no proper maintenance available from CME side. There was no emission reduction claimed from CME side for this CPA during this monitoring period. This approach is conservative and hence accepted by verification team. Based on review of the database for all 5 CPAs, stoves were sold throughout different villages all of which were located across the 28 districts in Southern, Central and Northern region of Malawi. The database records the stove unique serial number ID and name of household with address and geographical coordinates. Stove IDs are used for unique identification of the units. The unique stove ID is also recorded on the registration card and then is entered into the electronic database. The process of registration of individual ICS was demonstrated by CPA implementer (TLC) during on site visit through the mobile application (developed by ATL). The details once entered in the application, cannot be edited by the site personnel and will be automatically saved in online electronic database manged by ATL/20d/. The type of stoves distributed was confirmed to be TLC Rocket Stove, based on site visit observations in households. This is consistent with the revised approved PoA-DD and CPA-DDs/12/. The final MR/2/ includes complete description of the implementing partners, locations, and implementation status, which is consistent with the observations and interviews during the site visit as well as review of the sales database.
Findings	No findings have been raised in this context.
Conclusion	The verification team confirms that physical features of the CPAs have been implemented in accordance with the registered CPA-DDs/12/. 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 CPAs have been implemented in accordance with the CPA-DDs/12/. The CPAs were also found to be completely operational in line with the CPA-DDs/12/. The information provided in the relevant sections of the monitoring report is appropriately described the implementation and operational status of the PoA/18/.

E.3.2. Post-registration changes

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

>>
No deviations were identified during the current monitoring period.

E.3.2.2. Corrections

>>
There were corrections proposed as part of PRC-9558-001 request in which CPA DDs were revised for CPA 9558-0001, 9558-0002 and 9558-0003. The proposed PRC (Ref: PRC-9558-001) was accepted and approved on 11/08/2015.No corrections were identified during the current monitoring period.

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

>>
The start date of crediting period for specific CPAs has been changed, at the request of CME through the direct communication/notification. These changes are already reflected on UNFCCC project webpage/18/.

CPA	Initial start date of crediting period	Revised start date of crediting period
9558-0003	10/12/2014	20/10/2015
9558-0005	07/10/2016	16/04/2017

E.3.2.4. Inclusion of a monitoring plan

>>
Not Applicable.

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

>>
There were permanent changes in monitoring plan proposed as part of PRC-9558-001 request in which CPA DDs were revised for CPA 9558-0001, 9558-0002 and 9558-0003. The proposed PRC (Ref: PRC-9558-001) was accepted and approved on 11/08/2015. No permanent changes were identified during the current monitoring period.

E.3.2.6. Changes to the project design

>>
No such changes were identified during the current monitoring period.

E.3.2.7. Changes specific to afforestation and reforestation activities

>>
Not Applicable.

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

Means of verification	The monitoring plan as contained in all CPA-DDs/12/ was reviewed against the monitoring requirements of the applied methodology AMS-II.G, version 05/19/ as well as PoA-DD/12/. 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/12/ and applied methodology/19/.
Findings	No finding has been raised.
Conclusion	The monitoring plan is in accordance with the approved methodology, AMS-II.G., version 05/19/, that is included in each registered CPA-DD/12/.

E.3.4. Compliance of monitoring activities with the registered monitoring plan

E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period

<table>
<tr><td>Means of verification</td><td>The values of B_{old} , $f_{NRB,y}$, η_{old} , $EF_{projected\_fossilfuel}$, $NCV_{biomass}$ and L have been fixed ex-ante during registration of the Project activity. Accordingly, the values were checked and confirmed with the approved revised PoA-DD and respective CPA-DDs/12/.

1. Data/Parameter, Unit: B_{old},Tonnes per annum
Description: Quantity of woody biomass used in absence of the project activity per device
Verified Value: 3.2558
Consistent with the approved revised PoA-DD and respective CPA-DDs/12/ and fixed ex-ante.

2. Data/Parameter, Unit: $f_{NRB,y}$, Fraction
Description: Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
Verified Value:
<table><tr><th>Region</th><th>f_{NRB}</th></tr><tr><td>Central</td><td>0.97</td></tr><tr><td>Northern</td><td>0.93</td></tr><tr><td>Southern</td><td>0.90</td></tr></table>Consistent with the approved revised PoA-DD and respective CPA-DDs/12/ and fixed ex-ante.

3. Data/Parameter, Unit: η_{old} , Fraction
Description: Efficiency of 3-stone fire or traditional pot support cooking method (system being replaced)
Verified Value: 0.10
Default value in accordance with paragraph 12 of the AMS II.G, version 05/19/. Consistent with the approved revised PoA-DD and respective CPA-DDs/12/ and fixed ex-ante.

4. Data/Parameter, Unit: $EF_{projected\_fossilfuel}$, tCO_2/TJ
Description: Emission factor: substitution of non-renewable woody biomass by similar consumers
Verified Value: 81.6
IPCC 2006 default value in accordance with applied methodology AMS II.G, version 05/19/. Consistent with the approved revised PoA-DD and respective CPA-DDs/12/ and fixed ex-ante

5. Data/Parameter, Unit: $NCV_{biomass}$, TJ/ tonne
Description: Net calorific value of the non-renewable woody biomass that is substituted
Verified Value: 0.015
IPCC 2006 default value for biomass applied. Consistent with the approved revised PoA-DD and respective CPA-DDs/12/ and fixed ex-ante.

6. Data/Parameter, Unit: L , Fraction
Description: Leakage adjustment factor
Verified Value: 0.95
Default value in accordance with paragraph 20 of the AMS II.G, version 05/19/. Consistent with the approved revised PoA-DD and respective CPA-DDs/12/ and fixed ex-ante.</td></tr>
<tr><td>Findings</td><td>No finding has been raised.</td></tr>
<tr><td>Conclusion</td><td>The values of ex ante fixed parameters have been verified from the approved revised PoA-DD and respective CPA-DDs/12/. Same has been cross checked with the source mentioned in the CPA-DDs and found to be consistent. The verification team confirms that the values used/applied are correct and justified. Also, the ex-ante values have been correctly applied in the calculation of emission reductions.</td></tr>
</table>

E.3.4.2. Data and parameters monitored

<table>
<tr><td>Means of verification</td><td>The monitoring has been carried out in accordance with the monitoring plan contained in the approved revised PoA-DD and respective CPA-DDs/12/. During the verification, all relevant monitoring parameter have been verified about the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures:

1. Data/Parameter, Unit: n_{y,j}, quantity
Description: Number of stoves still in operation during the monitoring period as determined by the monitoring survey. This includes total number of stoves installed in the entire CPA
<table>
<tr><td>Measuring /Reading /Recording frequency</td><td>The monitoring frequency is annual as mentioned in the CPA-DD (page 24) and PoA-DD (page 31)/12/. In accordance with Section B.7.2 of PoA-DD/12/, it is mentioned that if a single CPA is sampled, 90/10 confidence/precision for annual and 95/10 confidence/precision shall be required for biennial sampling. For single sampling plan for group of CPA 95/10 confidence/precision shall be required for annual as well as biennial sampling.</td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes. The PoA-DD/12/ allows the monitoring frequency to be annual or biennial provided confidence level and precision are appropriately considered. In the current monitoring period 95/10 confidence/precision has been considered for annual monitoring for group of CPAs, which is considered appropriate.</td></tr>
<tr><td>Monitoring equipment</td><td>Not applicable</td></tr>
<tr><td>Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer’s specification?</td><td>Not applicable</td></tr>
<tr><td>Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?</td><td>Not applicable</td></tr>
<tr><td>Calibration frequency /interval:</td><td>Not applicable</td></tr>
</table>
</td></tr>
</table>

		Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
		Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
		Is(are) calibration(s) valid for the whole reporting period?	Not applicable
		Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
		How were the values in the monitoring report verified?	The value of parameter is calculated based on the results of the single sampling survey that was conducted by TLC for all 5 implemented CPAs in the current monitoring period. The monitoring of this parameter was done through interviews with end users as part of the monitoring survey performed by the monitoring team using the questionnaire developed by the CME/10/. There were two questions asked in this regard – a) Is the stove operational? b) Are TLC Rocket Stove used in the cooking in the household? If the answer to Question a) is Yes and answer to Question b) is No, still the ICS is considered non-operational, since it is not being used for cooking purpose. During the survey, 100% user replied as ICS in working condition. This survey provided the value for the p_y(the percentage of improved cook stoves found to be still in operation based on the sampling survey)as per the ICS type across all CPAs.

ICS found operating	189
ICS found non-operating	0
Total responded samples	**189**
***p*(operating)**	**100%**

The number of stoves still in operation is determined as below-

	9558-0001: 19,907 9558-0002: 19,469 9558-0003: 20,763 9558-0004: 16,861 9558-0005: 0 The calculation for determining the sample size were checked by the verification team and found to be appropriate and consistent with equation in PoA-DD/12/. The verified values are included in the final MR/2/. The required level of precision i.e. 10% or less has been achieved at 95% confidence level.
If applicable, has the reported data been cross-checked with other available data?	Yes. The survey results/6/, assumptions and electronic project database/5/ were checked by the verification team onsite and were found acceptable. The results are reproducible in the corresponding ER spreadsheet/3/ of final MR/2/. The verification team randomly selected 30 samples for DOE's field survey and found that all the ICS were operational, which confirms the CME's sample survey results.
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 on-site assessment.

2. Data/Parameter, Unit:***SS_y , Percentage***
Description: The percentage of ongoing baseline stove use within the population of in-use ICS during a monitoring period

Measuring /Reading /Recording frequency	The monitoring frequency is annually as mentioned in the CPA-DD and PoA-DD (page 32)/12/. In accordance with Section B.7.2 of PoA-DD, it is mentioned that if a single CPA is sampled, 90/10 confidence/precision for annual and 95/10 confidence/precision shall be required for biennial sampling. For single sampling plan for group of CPA 95/10 confidence/precision shall be required for annual as well as biennial sampling.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The PoA-DD/12/ allows the monitoring frequency to be annual or biennial provided confidence level and precision are appropriately considered. In the current monitoring period

			95/10 confidence level and precision has been considered for annual monitoring for group of CPAs, which is appropriate.
		Monitoring equipment	Not applicable
		Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
		Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
		Calibration frequency /interval:	Not applicable
		Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
		Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
		Is(are) calibration(s) valid for the whole reporting period?	Not applicable
		Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
		How were the values in the monitoring report verified?	The value of parameter is calculated based on the results of the sampling survey that was conducted by TLC for all 5 implemented CPAs in the current monitoring period. The monitoring of this parameter was done through interviews with end users as part of the monitoring survey performed by the monitoring team using the questionnaire developed by the CME/10/. This survey provided the value for the SSy as per the ICS type across all CPAs. The sample size calculator required a minimum of 189 for ICS model TLC Rocket Stove. The calculation for determining the sample size were checked by

			the verification team and found to be appropriate and consistent with equation in PoA-DD/12/. The value of SSy, thus determined, is used further in calculation of $B_{old,adjusted}$. **Baseline stove** Baseline Stove not in use: **181** Baseline Stove in use: **8** **Total Samples Surveyed: 189** ***p*(baseline stove not in use): 95.77%** The verified values are in included in the final MR/2/. The required level of precision i.e. 10% or less has been achieved at 95% confidence level. The verified results were – ICS Model: SSy for all CPAs TLC Rocket: 4.23%
		If applicable, has the reported data been cross-checked with other available data?	Yes. The survey results/6/ were checked by the verification team onsite and were found acceptable. The results are reproducible in the corresponding ER spreadsheet/3/ of final MR/2/. The verification team randomly selected 30 samples for DOE's field survey and found that only 1 (3.33%) traditional stoves were operational along with ICS installed, which confirms the CME's sample survey results are appropriate. The verification team observed that the sampled household generally does not rely on one cook stove. They use the project ICS as a preference but there are various circumstances (bulk cooking/social events/gathering) that forces them to use an additional cook stove. The survey presented by CME also confirms to the same.
		Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Based on the interaction during on site visit the verification team confirmed that trainings were provided to the staff responsible for collection of data and that the QA/QC procedure are in place.

3. Data/Parameter, Unit: **$t_{y,j}$, Fraction**
   Description: Fraction of monitoring period the stove is in operation (days in

operation/total days in monitoring period)

Measuring /Reading /Recording frequency	Continuously measured and recorded annually for each stove and consolidated result presented for the whole monitoring period.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. As per PoA-DD (page 32)/12/.
Monitoring equipment	Not applicable
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
Calibration frequency /interval:	Not applicable
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
Is(are) calibration(s) valid for the whole reporting period?	Not applicable
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
How were the values in the monitoring report verified?	The parameter is calculated based on the formula: $\mathbf{t_{y,j}}$ **=** (Date of end of monitoring period – Date of stove registration) / Length of monitoring period The maximum value for any stove can be 1 e.g., for ICS registered prior to commencement of current monitoring period. The lowest can be 0 e.g., for ICS registered after the end date of current monitoring period. For all other ICS, in between, the value will result in

	fraction. The verification team has verified that the application of formula results in appropriate output as it also considers the start date of respective CPA. Finally, an average value was calculated for all ICS sold/distributed for each CPA. The verified results are included in the final MR/2/ and corresponding ER spreadsheet/3/. The verified results were: Average CPA 1: 1.00 Average CPA 2: 1.00 Average CPA 3: 1.00 Average CPA 4: 1.00 Average CPA 5: -
If applicable, has the reported data been cross-checked with other available data?	Yes. All the input values used to calculate this parameter were cross-checked by verification team e.g., Registration database for ICS/5/ (for dates), relevant dates of crediting and monitoring period as presented in ER spreadsheet/3/.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Once the ICS is sold/distributed to the beneficiary it is registered into respective CPA database based on purchase receipts (hard copies/SMS). The spot checks were regularly conducted by TLC (seller/distributor) to correct the CPA database, as appropriate. During the site visit the sale process, record keeping (registration dates) and process of spot check were reviewed and were found reliable.

4. Data/Parameter, Unit: $\eta_{new,y,i}$, **Fraction**
Description: Continuing efficiency of ICS

Measuring /Reading /Recording frequency	Calculated once in a year using Water Boiling Test/23/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. As per PoA-DD (page 32)/12/.
Monitoring equipment	The WBT tests were coordinated by the CME and undertaken following a simplified version of WBT protocol 4.2.3/23/ by an experienced party. The PoA-DD or CPA-DDs /12/ do not prescribe any specific monitoring equipment but weighing scale and digital thermometer were required and used to conduct WBT. The detail is provided under Section E.3.5 of this report.

		Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy complies with Manufacturer's recommendation and national standards of Malawi.
		Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for entire range.
		Calibration frequency /interval:	Please refer Section E.3.5 of this report
		Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Please refer Section E.3.5 of this report
		Is the calibration of measuring equipment carried out by an accredited person or institution?	Please refer Section E.3.5 of this report
		Is(are) calibration(s) valid for the whole reporting period?	Please refer Section E.3.5 of this report
		Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Please refer Section E.3.5 of this report
		How were the values in the monitoring report verified?	The reported values were checked with the actual WBT results/4/ and CME filled in Sheets (for this purpose)/10/ and were found consistent. The WBT results were conducted for ICS based on Model and Vintage using sampling survey. The sample survey approach is included under Section E.3.4.3 of this report. The efficiency of the TLC Rocket stove in CPA-DDs and PoA-DD/12/ was assumed based on efficiency value of ICS from the WBT test conducted by ICS promoter Total Land Care on request from CQC (CME). However, during the actual WBT test carried out by trained professionals of CPA implementer (TLC) the actual efficiency of ICS varied - from 24.98% to 28.32% for vintage 2 ICS,

			from 25.32% to 31.72% for vintage 3 ICS, from 24.70% to 28.75% for vintage 4 ICS, from 25.11% to 30.07% for vintage 5 ICS, from 25.30% to 28.01% for vintage 6 ICS. The average value of all WBT result has been considered for calculation as per the methodology. The efficiency of ICS installed varies based on the several factors like quality of local wood used, weather conditions etc.; as the WBT were conducted at the ICS user premises and not under standard conditions. Thermal efficiency for vintage 1 has been considered same as vintage 2, since there was no ICS present from vintage 1 at the time of monitoring survey. The verified values are summarized below; Vintage 1: 0.2666 Vintage 2: 0.2666 Vintage 3: 0.2737 Vintage 4: 0.2674 Vintage 5: 0.2687 Vintage 6: 0.2659
		If applicable, has the reported data been cross-checked with other available data?	Yes. The data has been cross-checked with the estimated efficiency (25.66%) in the registered CPA-DDs/12/. The actual efficiencies in this monitoring period were slightly higher, which is based on actual WBT tests/6/ conducted at ICS user premises and hence acceptable.
		Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Based on the interaction during on site visit the verification team confirmed that trainings were provided to the staff responsible for conducting the WBT and that the QA/QC procedure is in place. WBT Protocol Version 4.2.3/23/ was applied, which is acceptable.
Findings	CAR-06 has been raised in this context and closed successfully. Refer Appendix 4 of this report for detailed finding.		
Conclusion	Corresponding to the §347 of CDM VVS for PoA, V2/16/, the verification team confirm that the monitoring has been carried out in accordance with the approved revised PoA-DD and CPA-DDs/12/. The monitoring system follows the information flow for the parameters as mentioned in monitoring plan in approved revised PoA-DD and registered CPA-DDs/12/. The monitored data for the parameters has been verified by checking the procedure for information flow and found to be complete and consistent with registered CPA-DDs/12/.		

E.3.4.3. Implementation of sampling plan

Means of verification	The monitoring has been carried out in accordance with the monitoring plan contained in the PoA-DD and respective CPA-DDs /12/. **Sampling Design/Target Population/Sampling Frame/Reliability**: A simple random sampling method has been used, which is in line with the monitoring plan of the PoA-DD (Section B.7.2) as referred in the respective CPA-DDs /12/. In this sampling design all 5 CPAs that are implemented under the current monitoring period were subjected. The sampling frame considered confidence level and precision as 95/10 for annual sampling survey in order to meet the requirement of Standard/24/. As there is only one CPA implementer, it

was considered as Primary Sample Unit. The target population was the households located in various districts in Malawi. Each household from each CPA had the equal chance of selection. Initially, CME used 90/10 confidence/precision for annual sampling at PoA level which was not appropriate for single sampling plan for group of CPAs. Verification team raised CL-02 in this context and CME further recalculated the sample size based on 95/10 confidence/precision for each parameter of interest. However, only the additional sampling was required for parameter SS_y .

Sampling Method:

There was one primary sampling unit as discussed above. Thereafter, ICS/households present in each district were randomly selected as per the outcome of sampling size calculation for respective parameter. CME has listed the process followed for calculation of sample size for each of the monitoring parameters and selection of simple random samples through using online website *STATTREK* from the combined data of all 4 CPAs (5th CPA has no ICS involved and claims no ERs) downloaded from online database as shown during onsite visit.

ICS then sorted vintage wise in the database to confirm the number of ICS in each vintage. Then samples identified based on results of *STATTREK* random number generator.

CME used the combined database of all CPAs to confirm the samples are randomly selected regardless of CPA to which it belongs.

Based on response to CL-02 raised by DOE, CME has recalculated the sample size based on 95/10 confidence/precision, but there was no change in sample size for parameter $\eta_{new,y,i}$ for each vintage WBT sampling.

Sample Size (Required and Actual) for Parameter of Interest:

The sampling is applied to the following monitoring parameters:

$n_{y,j}$: Proportion of ICS still in operation

SS_y: Percentage of continued baseline stove use among ICS households in the database

$\eta_{new,i}$: Thermal Efficiency of operational ICS

The sample sizes were determined for single type of ICS (TLC Rocket Stove), for $n_{y,j}$ and SS_y both being proportional value. The outcome of sample size calculation (required and actual samples) based on the considered confidence level and precision is presented below:

Type of Stoves	Sample Size for $n_{y,j}$	Sample Size for SS_y	Actual Sampling Done
TLC Rocket Stove	96	189	189

In this regard, sample size calculation spreadsheet /4/ was checked and found correct as per registered monitoring plan.

The sample size for $\eta_{new,i}$ were determined based on the ICS model and its vintage across all CPAs. The sample size with the applied 95/10 confidence precision level is presented in the table below. The number in the brackets represents the actual surveyed ICS for that type and vintage:

Type of Stoves	$\eta_{new,I}$ (actual sampling done mentioned in bracket)

	Vintage 2	Vintage 3	Vintage 4	Vintage 5	Vintage 6
TLC Rocket Stove	12(12)	12 (12)	8(8)	13 (13)	12(12)

As can be seen that the sampling requirements were met for TLC Rocket Stove for all vintages. The actual surveyed ICS were higher than the required number, as mentioned above. As these were based on sampling approach, the reliability of precision was checked and found within the prescribed limit (<10%).

Sample selection:

Considering the simple random sampling the CME targeted all districts for each of the parameter of interest with a varying number of ICS to be visited. This was found in accordance with Guideline: Sampling and surveys for CDM project activities and programmes of activities/25/. Keeping that in mind a minimum number of ICS was known to CME for each parameter of interest. Thereafter, the ICS were randomly selected. The randomization was undertaken in excel, and the same has been verified by the verification team. The samples were drawn from the complete sales databases. In order to confirm whether, the sample is representative of the single model of ICS with different vintages and the verification team has checked the proportion of selected households from combined database of all the CPAs. The same is found to be justified and appropriate. Hence the verification team able to confirm that the samples are representative of the total population.

DOE captured all the information of sampled households through interview with Stove owner or its close relative present onsite at the time of survey. The recorded information then matched with the CME survey records for checking consistency.

Based on interviews with the CME and surveyors during the site visit, in addition to simply asking this question to the end users, the surveyors were also trained to visually inspect the stoves to corroborate the responses received. Therefore, the implementation of survey was considered reliable.

Reliability and precision calculation:

The verification team has verified the sample size calculation spreadsheets/4/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under “Standard for sampling and surveys for CDM project activities and programme of activities” (version 07)/24/ and can confirm that the calculation of achieved reliability was done correctly. The verification team confirmed from the sample size calculation spreadsheet/4/ that the required precision was kept 10% during sample size calculation for each type of stove for each vintage.

The results for calculations are reproduced, as an example, in the table for parameter $n_{y,j}$ for TLC Rocket Stove as follows –

Table – Sample size calculation prior to survey

Parameter	Value	Source/ basis
Population Size	77,000	Project database (Number of stoves registered in database till 15/03/2019)
Expected Proportion considered	0.8	Assumed value by CME for sample size calculation.
Confidence Level	1.96	95% confidence level
Precision level	0.10	10% relative precision
Sample Size	96	Calculated (Roundup Value)

The following table represents precision achieved after the survey, as an example, for the same parameter of interest (i.e. $n_{y,j}$) discussed above.

Parameter	Value	Source/ basis
n	189	Actual sample size surveyed by CME
Overall Proportion	100%	Actual value
Confidence Level	1.96	95% confidence level
Precision achieved	0%	Calculated
Is required precision achieved?	Yes	< 10%

In the same manner, all parameters of interest are included in the Sample Size Calculation spreadsheet/4/. These 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 Sample Size Calculation Spreadsheet/4/ corresponding to final Monitoring Report/2/, which were also found correct.

Table – Actual Precision Achieved based on Survey results

Monitoring Parameter	Precision Achieved	Is required Precision achieved? (< 10%)
$n_{y,j}$	0.00%	Yes
SS_y	2.99%	Yes
$\eta_{new,l}$ (Vintage 2)	2.08%	Yes
$\eta_{new,l}$ (Vintage 3)	3.83%	Yes
$\eta_{new,l}$ (Vintage 4)	3.03%	Yes
$\eta_{new,l}$ (Vintage 5)	2.83%	Yes
$\eta_{new,l}$ (Vintage 6)	1.94%	Yes

Based on the verified results the verification team found that the required precision is met in all the cases and therefore the survey results/4/ were directly used in the calculation of ERs.

Findings

CL-02 has been raised in this context and closed successfully. Refer Appendix 4 of this report for detailed finding.

Conclusion

The sample size selected confirms the desired 95% level of confidence and with a 10% margin of error. Hence, the sampling survey carried out by CPA implementer is in accordance with §24 of Standard for "Sampling and surveys for CDM project activities and programmes of activities" (version 07)/24/.

E.3.5. Compliance with the calibration frequency requirements for measuring instruments

Means of verification

The registered monitoring plan (of respective CPA-DDs and PoA-DD/12/) does not state the calibration requirements for any of the parameter. However, as good practice, the verification team enquired information with regard to monitoring equipment viz., weighing scale and thermometer that were used to conduct the parameter "Efficiency of the new stove". As a result, following information was verified;

Instrument	Model	Other details
Weighing Scale	Ohaus Portable Balances – Valor 1000 V11P6-AM	Range: upto 6 kg (±1g) Calibration facility: within the instrument with known weights Calibration frequency: Once in 3 Years as per EB 61, Annex 21, paragraph 17 (c): Date of purchase: 21/09/2015 /8/ First Calibration Date: 02/02/2017 /8/ Second Calibration Date: 04/12/2017 /8/ Third Calibration date: 24/12/2018 /8/

			Due date of Next Calibration: 23/12/2021 Calibration Agency: Metrology Services Department, Malawi Bureau of Standards
	Digital Thermometer	Fluke 51-2 Single Input Digital Thermometer	Thermocouple Type: Type K, Chromel Alumel, bead style Range: - 40 °C to +260 °C (± 0.35°C) Calibration frequency: Annual/9/ Date of purchase: 21/09/2015 /9/ First Calibration Date: 02/02/2017 /9/ Second Calibration Date: 17/11/2017/9/ Third Calibration Date: 24/12/2018 /9/ Due date of Next Calibration: 23/12/2019 Calibration Agency: Metrology Services Department, Malawi Bureau of Standards

For electronic weighing scale, manufacturer/8/ recommended for span calibration by user based on the procedure specified in the manual before first use. The calibration frequency of Weighing Scale was not defined in product manual and it is up to user to calibrate it as and when the need arises. However, referring to "General Guidelines to SSC CDM methodologies", EB 61, Annex 21 (paragraph 17c), CME has decided to calibrate the weighing scale at least once in 3 years, which is before 03/12/2020 (3 years from date of purchase i.e. 21/09/2015). During on site verification, DOE observed that weighing scales have been calibrated on 24/12/2018, which is before the due date of calibration (i.e. 03/12/2020). Therefore, it can be stated that it was in worthy state of use.

For digital thermometers, manufacturer recommended/9/ that, the thermometer should be calibrated annually starting one year after purchase/9/ (Referred page 13 of user manual provided by Manufacturer). During on site verification, DOE observed that CME has calibrated the thermometers on 24/12/2018 /9/, which is after the due date of third calibration (i.e. 16/11/2018). However, the thermometer was only used during the 5th monitoring survey, which was conducted between 12/03/2019 – 29/03/2019. Thus, the thermometers are considered worthy of use during the last monitoring WBT test conducted, which was after the date of third calibration (i.e. 24/12/2018).

Findings	CAR-06a has been raised in this context and closed successfully. Refer Appendix 4 of this report for detailed finding.
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 CME was accepted.

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

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

Means of verification	The following equations were used to determine the baseline emissions as provided in the monitoring report/2/ and applied in the corresponding ER sheet/3/. The expressions used were found consistent with the revised PoA-DD and CPA-DDs/12/ and the applied methodology AMS-II.G, version 05/19/: $\mathbf{ER_y = B_{y,savings} \cdot f_{NRBy} \cdot NCV_{biomass} \cdot EF_{projected\_fossilfuel} \cdot L}$ Total biomass that is saved in tonnes during the monitoring year (y) $\mathbf{B_{y,\ savings}}$, is

calculated using the equation below:

$$B_{y,savings} = B_{old} \cdot \left(1 - \frac{\eta_{old}}{\eta_{new}}\right)$$

To determine the number of stoves under operation for fractions of the monitoring period, the following formula is used:

$$Ny,i = \sum_{j=1}^{J_y} n_{y,j} \cdot t_{y,j}$$

Therefore, $\mathbf{B_{y,savings}}$ is calculated using the following expression:

$$B_{y,savings} = B_{old,adjusted} \cdot \left[\sum_{i=1}^{n} N_{y,i}\left(1 - \frac{\eta_{old}}{\eta_{new,i}}\right)\right]$$

Further the value of $\mathbf{B_{old,adjusted}}$ is calculated for each CPAs for separately as under:

$$B_{old,adjusted} = B_{old} \times \left[\frac{1.0471}{1 + (SS_y / 0.197) \times (1.0471 - 1)}\right]$$

However, this formula will only be used in case the percentage of households continuously using baseline stove is higher than 19.7% during ex post monitoring survey, Otherwise, $B_{old,adjusted} = B_{old}$ (conservative approach).
During this monitoring period the SS_y comes out to be 4.23%, which is lower then 19.7% . Therefore,

$B_{old,adjusted} = B_{old}$ = 3.2558 Tonnes per annum per ICS

It is confirmed that all the stoves sold/distributed under each CPA has been categorized as per vintage. This is summarized in the table below;

Vintage (Type)	Cut-off date (Installation Date of ICS)	Remarks
Vintage 1	Between 16/04/2018 to 15/04/2019	Up to 1-year old registered ICS
Vintage 2	Between 16/04/2017 to 15/04/2018	Up to 2 years old registered ICS
Vintage 3	Between 16/04/2016 to 15/04/2017	Up to 3 years old registered ICS
Vintage 4	Between 16/04/2015 to 15/04/2016	Up to 4 years old registered ICS
Vintage 5	Between 16/04/2014 to 15/04/2015	Up to 5 years old registered ICS
Vintage 6	On or before 15/04/2014	Up to 6 years old registered ICS

Owing to the age of ICS, its efficiency may generally decrease over a period and

	therefore in order to discount that in the baseline emissions the total quantity of stoves as per relevant vintage is required. It has been verified that the corresponding ER sheet/3/ to the final Monitoring Report/2/ has considered the number of stoves as per the vintage and accordingly the efficiency of such stoves in the ER calculation for each CPA.
Findings	CAR-07 has been raised in this context and closed successfully. Refer Appendix 4 of this report for detailed finding.
Conclusion	The verification team confirms that - a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.3.4.2 of this report. The complete monitoring data is also presented in the corresponding ER sheet /3/ of final Monitoring Report /2/; b) As indicated above, the description about cross-check of reported data is included under respective parameter (refer Section E.3.4.2 of this report); c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed; d) All assumptions used in the emission calculations were found appropriate and therefore justified; e) Appropriate emission factors, IPCC default factors and other reference values were correctly applied. This has also been elaborated under Section E.3.4.1 of this report; f) There is no pro-rate approach (§360(e) of CDM VVS for PoA V2/16/) 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.

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

Means of verification	The PoA-DD/12/, CPA-DD/12/ and applied monitoring methodology/19/ 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.
Findings	No finding has been raised.
Conclusion	No additional project emissions calculation were required in accordance with the methodology AMS-II.G, version 05/19/.

E.3.6.3. Calculation of leakage GHG emissions

Means of verification	The PoA-DD/12/, CPA-DD/12/ and applied monitoring methodology/19/ 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 baseline calculations.
Findings	No finding has been raised.
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) calculation were required in accordance with the methodology AMS-II.G, version 05/19/.

E.3.6.4. 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 baseline emissions. The calculations presented in this regard in the final monitoring report/2/ and corresponding ER sheet/03/ were found appropriate and complying with the provisions prescribed in the registered monitoring plan of respective CPA DD/12/, PoA DD/12/ and applied methodology/19/. The verification team confirms that an audit trail that contains the evidence and records that validated the stated figures were checked and found acceptable.
Findings	No finding has been raised.
Conclusion	The verification team confirms that:

	a) The complete data was available and is duly reported; b) As indicated above, the description about cross-check of reported data is included under respective parameter (refer Section E.3.4.2 of this report); c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed; d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied; e) There is no pro-rate approach (§360(e) of CDM VVS for PoA V2/16/) 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. f) The total number of ERs achieved during the current monitoring period is 168,158 tCO_2e.

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO_2e)	Project emissions or actual net GHG removals by sinks (tCO_2e)	Leakage (tCO_2e)	GHG emission reductions or net GHG removals by sinks (tCO_2e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 001; 9558-0001	45,240	0	0	0	45,240	45,240
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 002; 9558-0002	44,711	0	0	0	44,711	44,711
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 003; 9558-0003	47,595	0	0	0	47,595	47,595

Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 004 ; 9558-0004	30,612	0	0	0	30,612	30,612
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 005 ; 9558-0005	0	0	0	0	0	0
Total	168,158	0	0	0	168,158	168,158

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

Means of verification	The actual emission reduction achieved for CPA 9558-0001 is 5.20% higher, for CPA 9558-0002 is 6.31% higher and for CPA 9558-0003 is 6.11% compared to ex ante estimates of respective CPA-DDs/12/ for the comparable period and equivalent number of ICS. For CPA 9558-0004, it is on lower side compared to estimated quantity in the respective CPA-DD/12/ for the comparable period and equivalent number of ICS.
Findings	CAR-08 has been raised in this context and closed successfully. Refer Appendix 4 of this report for detailed finding.
Conclusion	The actual emission reductions achieved during this monitoring period is slightly higher than the estimated quantity of ERs in the respective CPA-DDs/12/ for CPA 9558-0001, 9558-0002 and CPA 9558-0003. Same is verified and explained in section 3.6.6 of this report.

Title and UNFCCC reference number of the CPA	Actual values achieved by the CPAs during this monitoring period	Value estimated in ex ante calculation in the included CPA-DD(s)
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 001; 9558-0001	45,240	43,003
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 002; 9558-0002	44,711	42,057
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 003; 9558-0003	47,595	44,853

Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 004 ; 9558-0004	30,612	36,423
Improved Cookstoves Program for Malawi and cross-border regions of Mozambique – CPA – MAL – 005 ; 9558-0005	0	-
Total	168,158	166,336

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

Means of verification	As verified and evident from the final Monitoring Report /2/ and corresponding ER sheet/03/, the actual emission reductions achieved by CPA 9558-0001, 9558-0002 and CPA 9558-0003 that is included in the current monitoring period were found slightly higher than the estimated quantity in the respective CPA-DDs/12/ for the comparable period and equivalent number of ICS. This is due to achieving higher thermal efficiency compared to the ex-ante assumed value in CPA-DDs/12/, the actual emission reduction achieved for CPA 9558-0001 is 5.20% higher, for CPA 9558-0002 is 6.31% higher and for CPA 9558-0003 is 6.11% compared to ex ante estimates of respective CPA-DDs/12/. For CPA 9558-0004, it is on lower side compared to estimated quantity in the respective CPA-DD/12/ due to lower number of ICS distributed under CPA due to operational difficulties. In included CPA-DDs/12/ the efficiency of ICS was assumed as 25.66%, however during 5th monitoring survey the thermal efficiency of ICS comes out to be Vintage 1: 26.66%, Vintage 2: 26.66%, Vintage 3: 27.37%, Vintage 4: 26.74%, Vintage 5: 26.87% and vintage 6:26.59%. Verification team checked the WBT test reports/6/ for all vintages on sample basis and found them in line with the WBT protocol/23/.
Findings	No findings have been raised in this context.
Conclusion	The actual emission reductions achieved during this monitoring period is slightly higher than the estimated quantity of ERs in the respective CPA-DDs/12/ for CPA 9558-0001, 9558-0002 and CPA 9558-0003. The reason for increase is described in the MR/2/. Therefore, it is accepted by the verification team.

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

Means of verification	Not Applicable.
Findings	Not Applicable.
Conclusion	Not Applicable.

E.3.8. Global stakeholder consultation

Means of verification	Not Applicable.
Findings	Not Applicable.
Conclusion	Not Applicable.

SECTION F. Internal quality control

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The draft verification report that is prepared by verification team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Applus+ Certification were duly complied with and whether 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 Applus+ Certification.

SECTION G. Verification opinion

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Applus+ Certification, contracted by C-Quest Capital Malaysia Global Stoves Limited (CQC) (the CME for the PoA), has performed the fifth independent verification of the emission reductions for the registered CDM PoA 9558 "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" in Malawi for the monitoring period 16/04/2018 – 15/04/2019 (including both days) as reported in the Monitoring Report (public) Version 1.0 dated 29/04/2019/1/. The CME is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the PoA.

This verification report is for all the CPAs (9558-0001, 9558-0002, 9558-0003, 9558-0004 and 9558-0005), 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 are included.

Applus+ Certification 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 § 22 and 23 of CDM VVS for PoA, V2/16/.

The verification activities were conducted in accordance with Applus+ Certification's CDM Quality Manual System as per the steps indicated under Section A of this report. The verification process has resulted in conclusion that all the included CPAs confirms to the PoA-DD/12/ and respective CPA-DDs/12/ as well as comply with applicable CDM rules and regulations and in accordance with applied monitoring methodology AMS II.G., Version 05/19/.

As a result, it is confirmed that the emission reductions as 168,158 tCO2e from the CDM PoA 9558 "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" are correctly reported in the Monitoring Report (final) Version 2.0 dated 06/08/2019/2/ and corresponding ER spreadsheet/3/ for the monitoring period 16/04/2018 – 15/04/2019 (including both days). Therefore, this will be submitted as part of request for issuance as per CDM PCP for PoA, V2/16/.

SECTION H. Certification statement

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Applus+ Certification's 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. Applus+ Certification planned and performed the verification by obtaining evidence and other information and explanations that Applus+ Certification considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the PoA for the period 16/04/2018 – 15/04/2019 (including both days) are fairly stated in the Monitoring Report (final) Version 2.0 dated 06/08/2019.

Applus+ Certification, based on outcome of verification activities, certify in writing that, during the monitoring period 16/04/2018 – 15/04/2019 (including both days), the registered CDM PoA 9558 "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" achieved the verified amount of 168,158 tCO_2e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CPA.

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

CPAs (included in this Issuance request)	**Emission Reductions achieved in this monitoring period**	
	Up to 31/12/2012 (1st commitment period)	**01/01/2013 onwards (2nd commitment period)**

CPA 9558-0001	NIL	45,240
CPA 9558-0002	NIL	44,711
CPA 9558-0003	NIL	47,595
CPA 9558-0004	NIL	30,612
CPA 9558-0005	NIL	NIL
Total	**NIL**	168,158

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
ATL	Agronomy Technology Limited
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CERs	Certified Emission Reductions
CL	Clarification Request
CME	Coordinating or Managing Entity
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO_2e	Carbon dioxide equivalent
COP	Conference of Parties
CPA	Component Project Activity
CQC	C-Quest Capital Malaysia Global Stoves Limited
DD	Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
GPRS	General Packet Radio Service
GPS	Global Positioning System
GWh_{th}	Giga Watt Hour (Thermal, in this document)
ICS	Improved Cook Stove(s)
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Period
NA	Not Applicable
PE	Project Emissions
PoA	Programme of Activities
PRC	Post-registration change(s)
PS	Project Standard
PCP	Project Cycle Procedure
QA/QC	Quality Assurance/Quality Control
SMS	Short Message Service (Tex Messages)
TLC	Total Land Care
UNFCCC	United Nations Framework Convention on Climate Change
UQL	Unacceptable Quality Level
VVS	Validation & Verification Standard
WBT	Water Boiling Test

Appendix 2. Competence of team members and technical reviewers

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

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

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

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

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

Name	Role	SS/TA Knowledge	Financial Expertise	Attendance to on-site visit
Mr. Akhilesh Joshi	Lead Auditor (LA) / Technical Expert (TE)	YES (3.1)	*n/a*	YES
Mr. Miguel A. Cortés	Technical Reviewer (TR) / Technical Expert (TE)	YES (3.1)	*n/a*	*n/a*

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

Name	**SHORT CV. BACKGROUND INFORMATION**
Mr. Akhilesh Joshi	He is a BEE-Certified Energy Auditor (EA-16088) by Govt of India with 12+ years of experience mainly in auditing, research and consulting in Energy and Environment sector with responsibility of identifying and executing projects of varying complexity on new and emerging issues. He has vast experience of GHG auditing under various categories of projects stating from biomass power, wind power, hydro power, solar PV, Solar thermal, waste to energy, Solid waste management, demand side and supply side energy efficiency and WCD. He has successfully audited 100+ GHG (CDM/VCS/GS) projects in different parts of world. He has done Master in Business Administration (Oil & Gas Management) from University of Petroleum & Energy Studies (UPES Dehradun), India and Bachelor of Engineering (Chemical Engineering) from Malviya National Institute of Technology, Jaipur, India
Mr. Miguel A. Cortés Díaz	Mr. Miguel Cortés holds a Bachelor's Science Degree on Civil and Environmental Engineering, being specialized on Hydric Resources. He has worked as CDM/VCS/GS and environmental consultant for different industries of multidisciplinary sectors world widely. Mr. Miguel Cortés counts with several years of GHG assessment experience, working and being qualified as Lead Auditor and Technical Reviewer for different DOEs world widely, as well as has been part of Gold Standard expert's committees. Furthermore, he has performed his professional GHG assessment portfolio career worldwide and focusing in Latin America, developing assessments for projects in Argentina, Mexico, Panama, Colombia and Chile, among others.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	CQC	Monitoring Report (made publicly available)	Version 1.0 dated 29/04/2019	CME
2	CQC	Monitoring Report (final version)	Version 2.0 dated 06/08/2019	CME
3	CQC	• ER spread sheet corresponding to webhosted MR • ER spread sheet corresponding to MR (final version)	Version 1.0 dated 29/04/2019 Version 2.0 dated 06/08/2019	CME
4	CQC	• Sample Size Calculation Spreadsheet (for Sample size and precision calculation spreadsheet – prior to survey and after the survey) corresponding to webhosted MR • Sample Size Calculation Spreadsheet (for Sample size and precision calculation spreadsheet – prior to survey and after the survey) corresponding to MR (final version) • Proof of random generation of samples	Version 1.0 dated 29/04/2019 Version 2.0 dated 06/08/2019	CME
5	CQC	• ICS registration database till end date of 5th MP (i.e. 15/04/2019) • Records of ICS excluded during this monitoring period	-	CME
6	CQC	Reports of sampling survey conducted including WBT Tests for individual ICS	-	CME
7	CQC	Technical Specification of TLC Rocket Stove ICS distributed from Manufacturer / supplier (including photos of some installed ICSs)	-	CME
8	CQC Malawi Bureau of Standard	• Purchase receipts and User Manual of the weighing scale used for WBT tests • Certificate of Calibration of Weighting Scale issued by third party (i.e. Metrology Services Department, Malawi Bureau of Standards)	Dated 21/09/2015 Dated 02/02/2017 Dated 04/12/2017 Dated 27/12/2018	CME
9	CQC Malawi Bureau of Standard	• Purchase receipts and User Manual of the thermometer used for WBT tests • Certificate of Calibration of Thermometers issued by third party (i.e. Metrology Services Department, Malawi Bureau of Standards)	Dated 21/09/2015 Dated 02/02/2017 Dated 17/11/2017 Dated 27/12/2018	CME
10	CQC	• Sample copies of filled survey questionnaire during CME monitoring survey • Copies of all WBT test reports (excel spreadsheet)	-	CME
11	CQC	Records of training programs organized by	Dated 07/03/2019	CME

		TLC and CQC for – • Ex post Monitoring survey, • Conducting Water Boiling Test	Dated 08/03/2019 Dated 11/03/2019	
12	CQC	Latest revised approved PoA-DD and CPA-DDs for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558 - • PoA-DD version 11 dated 27/04/2015 • CPA-DD 9558-0001 version 11 dated 10/05/2015 • CPA-DD 9558-0002 version 05 dated 10/05/2015 • CPA-DD 9558-0003 version 05 dated 10/05/2015 • CPA-DD 9558-0004 version 01.1 dated 28/09/2016 • CPA-DD 9558-0005 version 01.1 dated 28/09/2016	Web link	Others
13	TUV SUD	PoA Validation report (Version 06 dated 10/03/2014), CPA 9558-0001 and CPA 9558-0002 Inclusion validation report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558	Web link	Others
14	ESPL	PRC Validation Opinion (Version 02 dated 10/06/2015) for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558	Web link	Others
15	TUV SUD Carbon Check	• CPA 9558-0003 inclusion validation report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558 • CPA 9558-0004 and CPA 9558-0005 Inclusion validation report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558	Web link Web link	Others
16	CDM EB	a) CDM Validation and Verification Standard for PoA b) CDM Project Standard for PoA c) CDM Project Cycle Procedure for PoA	Version 02	Others
17	CDM EB	E-mail from CDM Secretariat confirming the monitoring report /01/ made publicly available from 30/05/2019	Email dated 30/05/2019 from CDM RIT team	Others
18	CDM EB	UNFCCC project page of PoA reference number (9558)	Web link	Others
19	CDM EB	Approved CDM consolidated baseline and monitoring methodology AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass" (Version 05)	EB 70, Annex 30 dated 23/11/2012	Others

20	-	Websites referred: a. http://cdm.unfccc.int/index.html b. http://www.itouchmap.com/latlong.html c. http://www.ipcc-nggip.iges.or.jp/ d. http://dms.agrotechltd.org	-	Others
21	ESPL	• 1st MP Verification Report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558 • 2nd MP Verification Report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558 • 3rd MP Verification Report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558 • 4th MP Verification Report for "Improved Cookstoves Program for Malawi and cross-border regions of Mozambique" UNFCCC PoA 9558	version 01 dated 30/09/2014 version 03 dated 28/10/2016 version 02 dated 07/07/2017 version 02.1 dated 06/09/2018	Others
22	CDM EB	Monitoring Report Form for CDM programme of activities along with Instruction for filling out monitoring report	Version 03.0 dated 31/05/2019	Others
23	Global Alliance for Clean Cookstoves	The Water Boiling Test Protocol WBT Test Data Entry Spreadsheet	Version 4.2.3 Version 4.2.4	Others
24	CDM EB	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 07	Others
25	CDM EB	Guideline: Sampling and surveys for CDM project activities and programme of activities	Version 04	Others
26	Applus+ Certification	DOE Field Survey of Registered ICS Users	Between 25/07/2019 to 28/07/2019	Others
27	CQC	Records of various training programs organized by TLC and CQC for TLC Rocket Stove construction	Dated between 29/07/2013 to 30/08/2013	CME
28	HED Consulting	Baseline Firewood Consumption Study in Rural Malawi	Dated 11/12/2012	CME
29	CQC	Field Service Agreement between CQC and TLC Malawi regarding PoA implementation	Dated 20/02/2014	CME
30	CQC	Spreadsheet for computation of annual energy savings from each CPA	Dated 06/08/2019	CME

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

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

No FAR from validation or previous verification.

~~**FAR ID**~~	~~xx~~	~~**Section no.**~~		~~**Date:** DD/MM/YYYY~~
~~**Description of FAR**~~				
~~**CME response**~~				~~**Date:** DD/MM/YYYY~~
~~**Documentation provided by the CME**~~				
~~**DOE assessment**~~				~~**Date:** DD/MM/YYYY~~

Table 2. CLs from this verification

CL ID	01	**Section no.**	E.2.1	**Date :** 30/07/2019
Description of CL				
In accordance with §320(a) of CDM VVS for PoA, version 2.0, following documents are requested from CME to assess the implementation of PoA as per applicable PoA-DD – 1) Records of various training programs organized by project implementer on installation of TLC Rocket stoves in various locations as mentioned under section B.1 of webhosted MR. 2) Term Sheet and final agreement signed between CME and Project implementer as mentioned in footnote 2 of webhosted MR. 3) Photographic/ Video graphic evidence of conducting the WBT survey onsite by field surveyors during the fifth monitoring survey (if available).				
Project participant response				**Date :** 09/08/2019
Following documents are now being submitted to DOE: 1) Records of various training programs, 2) Agreement mentioned in footnote 2 3) Some photographs captured by the WBT team at the time of conducting the tests. This is not the regular practice to keep the photographic/ Video graphic evidence of conducting the WBT or SS_y, n_y survey. The submitted photographs were captured by the WBT team for their own.				
Documentation provided by project participant				
• Attendance register for the trainings provided to Field coordinators on installation of ICS. • Field Service Agreement signed between CQC and TLC dated 14/05/2014 • Photographic Evidence of WBT survey conducted onsite by CME				
DOE assessment				**Date:** 16/08/2019
CME as a response, have provided the requested documents for DOE reference. Same has been verified by verification team and found consistent with referred dates in monitoring report. Therefore, this CL is closed.				

CL ID	02	**Section no.**	E.3.4.3	**Date :** 30/07/2019
Description of CL				
CME has considered 90/10 confidence/ precision for annual sampling at the PoA level (for group of CPAs) during the present monitoring period. However, PoA-DD (section B.7.2) and CPA-DDs (section D.7.2) referred to conducting the annual sampling at the PoA level considering 95/10 confidence/ precision. CME to clarify, how it considered the 90/10 confidence/ precision for annual sampling at PoA level as appropriate for the present monitoring period?				
Project participant response				**Date :** 09/08/2019

CQC has erroneously considered 90/10 confidence/ precision for sample size calculation for the parameters $n_{y,i}$, SS_y and WBTs. CQC has corrected this mistake now and re-calculated the samples considering 95/10 confidence/ precision in consistence with the PoA-DD (section B.7.2) and CPA-DDs (section D.7.2). As pre the revised calculation, total 189 samples need to be surveyed for the parameters $n_{y,i}$, SS_y. Therefore 55 additional samples were required to be surveyed. To meet the required sample size as per the revised calculation, the CME has now conducted additional 55 survey for the parameters $n_{y,i}$, SS_y . These 55 samples were selected randomly from the database excluding the previously selected 134 samples. For WBT, the numbers of samples for each vintage is the same as that of the previous calculation. Hence no action is required for this parameter as the samples were selected randomly using simple random calculator. The values of $n_{y,i}$, SS_y were re-calculated and applied for the ER calculation. Revised sampling sheet, ER calculation sheet and MR are being submitted to the DOE for further review.
Documentation provided by project participant
Revised sampling sheet dated 06/08/2019 Revised MR version 2.0 dated 06/08/2019 Revised ER calculation spreadsheet dated 06/08/2019
DOE assessment **Date:** 16/08/2019
CME as a response, have recalculated the sample size based on applicable confidence/ precision of 95/10 for each parameter. Some additional sampling needed for parameter SS_y (55 additional samples required), which was conducted by CME on random basis out of 77000 ICS (excluding earlier considered 134 samples). Same has been verified from the revised sampling survey sheet. Also, verification team conducted telephonic interviews with 8 surveyed households out of 55 additional surveyed samples and confirms the survey results. There was no additional sampling required for any other parameter, therefore revised sampling survey results are considered appropriate. Therefore, this CL is closed.

Table 3. CARs from this verification

CAR ID	03	**Section no.**	E.1.1	**Date :** 30/07/2019
Description of CAR				
The PoA monitoring report template version 02.0 used is obsolete now. CME to update the MR in latest available version of PoA MR template on CDM EB Website. (Refer §338 of CDM VVS for PoA, version 02.0)				
Project participant response				**Date :** 09/08/2019
CQC has now updated the MR in latest available version of PoA MR (Ver. 03) and submitted to DOE for further review.				
Documentation provided by project participant				
Revised MR version 2.0 dated 06/08/2019				
DOE assessment				**Date:** 16/08/2019
CME as a response, have updated the MR in latest available PoA MR template version 03.0 on CDM EB website. Verification team confirms that all sections are properly addressed in revised MR. therefore, this CAR is closed.				

CAR ID	04	**Section no.**	E.2.2	**Date :** 30/07/2019
Description of CAR				
a) The webhosted monitoring report (section D) has provided information on the monitoring system for installation/registration of the ICS. However, no information is provided in the monitoring system to indicate the CME/ CPA implementer organizational structure, roles and responsibilities of personnel involved in the data monitoring, as well as procedures for replacement of damaged/missing parts of ICS. (Refer §261 of CDM PS for PoA, version 02.0) b) Also, the description of monitoring system in webhosted monitoring report (section D), didn't mentioned the steps taken during the implementation of CPA during the present monitoring period.				
Project participant response				**Date :** 09/08/2019
a) The MR has now been updated and the concerns raised has been taken care of. b) The process of monitoring has now been incorporated in the revised MR.				

Documentation provided by project participant	
Revised MR version 2.0 dated 06/08/2019	
DOE assessment	**Date:** 16/08/2019
a) CME as a response, have revised the MR to include the organizational structure of CDM monitoring team with description of roles and responsibilities of each team members. Also, procedure of replacement of damaged/ missing parts of ICS been elaborated in the revised MR. Verification team confirms the same through onsite interviews with monitoring team members and supporting documents. Therefore, this CAR is closed. b) CME as a response, have now corrected to mention the steps taken with regard to the implementation of the PoA and respective CPAs during the present monitoring period. Verification team confirms the same through onsite interviews with monitoring team members and supporting documents. Therefore, this CAR is closed.	

CAR ID	05	**Section no.**	E.3.2	**Date :** 30/07/2019
Description of CAR				
CME has provided the information about the PRC approved through PRC-9558-001 dated 11/08/2015 in the PoA-DD under section C.3.2 and C.3.5 of webhosted MR. However, these sections are specific to the PRC in registered CPA-DDs for all CPAs considered in this monitoring report.				
Project participant response				**Date :** 09/08/2019
CQC has now corrected the information about the PRC in registered CPA-DDs section C.3.2 and C.3.5 of the revised Monitoring report				
Documentation provided by project participant				
Revised MR version 2.0 dated 06/08/2019				
DOE assessment				**Date:** 16/08/2019
CME as a response, have now corrected the section C.3 of MR to mention the PRC approved in registered CPA-DDs approved up to the present monitoring period. Verification team confirms the same through CDM EB website and project webpage. Therefore, this CAR is closed.				

CAR ID	06	**Section no.**	E.3.4.2	**Date :** 30/07/2019
Description of CAR				
a) Under section E.2 of MR, the provided details of calibration of the monitoring equipment's used for determination of value of parameter $\eta_{new,y,I}$ are inconsistent with calibration certificates provided to the DOE. CME to substantiate the same. (Refer §351 of CDM VVS for PoA, version 02.0) b) The version number of WBT protocol shown as 4.2.3 is inconsistent with WBT template(spreadsheet) applied for computation of parameter $\eta_{new,y,I}$ for each vintage. c) Some sections of the sampling record shown for ICS ID TLC103615 for vintage 3 (spreadsheet for thermal efficiency computation) are incomplete. d) The sampling records for WBT test conducted to determine the value of parameter $\eta_{new,y,I}$ for vintage 6 (spreadsheet for thermal efficiency computation) shows that 14 ICS were considered for conducting WBT test for vintage 6 . However, CME has only considered WBT results of 12 ICS for computation of the value of parameter $\eta_{new,y,I}$ for vintage 6 (Refer Sampling survey result spreadsheet). CME to clarify, why only results of 12 ICS were considered in final computation?				
Project participant response				**Date :** 09/08/2019
a) CQC has now corrected the calibration details under section E.2 of the revised MR b) The version number of WBT protocol remains same as 4.2.3. However, the WBT survey results spreadsheet version is 4.2.4. Same is mentioned in revised MR and is now consistent with the spreadsheet version template applied for computation of parameter $\eta_{new,y,I}$ for each vintage. c) All the sections of the spreadsheets for thermal efficiency computation have now filled in accordance with the data collected during the WBT. d) CME use to provide a total sample which consists of 30% non-response. During WBT procedure, two teams out of five team employed have undertaken two extra WBTs and hence the 14 WBTs. However, the CME to be on conservative side has removed two samples which have shown comparatively higher efficiencies.				
Documentation provided by project participant				
Revised MR version 2.0 dated 06/08/2019 WBT survey result template for vintage 3 ICS Revised sampling sheet dated 06/08/2019				
DOE assessment				**Date:** 16/08/2019

a) CME as a response, have now corrected the date of latest calibration of WBT equipment's based on calibration certificates issued by Malawi Bureau of Standards. Verification team confirms the same from calibration certificates during onsite. Therefore, this CAR is closed. b) CME as a response, have clarified that WBT protocol latest version is 4.2.3 but the WBT result spreadsheet template used for computation of thermal efficiency is version 4.2.4. Same is corrected in revised MR. Therefore, this CAR is closed. c) CME as a response, have corrected the spreadsheet for thermal efficiency computation for ICS ID TLC103615 (vintage 3). Same has been verified by verification team based on actual survey form filled during conducting WBT test for TLC103615 (vintage 3). Therefore, this CAR is closed. d) CME as a response, have conservatively considered the thermal efficiency of 12 ICS for vintage 6, which has the least thermal efficiency out of 14 ICS surveyed. Verification team confirmed the same through actual survey form filled during conducting WBT test for vintage 6. The approach adopted by CME is found acceptable. Therefore, this CAR is closed.

CAR ID	07	**Section no.**	E.3.6.1	**Date :** 30/7/2019
Description of CAR				
In ER calculation spreadsheet, the formula applied for computation of time fraction in vintage 3 and time fraction in vintage 4 in CPA 3 database as well as CPA 4 database worksheet is incorrect.				
Project participant response				**Date :** 09/08/2019
All the formulae applied for ER calculation have now corrected in the revised ER calculation sheet.				
Documentation provided by project participant				
Revised MR version 2.0 dated 06/08/2019 Revised ER calculation spreadsheet dated 06/08/2019				
DOE assessment				**Date:** 16/08/2019
CME as a response, have corrected the formula for computation of time fraction in vintage 3 and vintage 4 in CPA 3 database as well as CPA 4 database. Same is checked and confirmed by verification team from revised ER spreadsheet. Therefore, this CAR is closed.				

CAR ID	08	**Section no.**	E.3.6.5	**Date :** 30/7/2019
Description of CAR				
The monitoring report (Sections F.4 and F.5) has concluded that the emissions reductions for the current monitoring period (141,085 tCO_2e) is less than the ex-ante estimations of 224,265 tCO2e. However, it is observed that this comparison is based on 77,000 stoves (distributed during this monitoring period) and 103,815 stoves (considered for the ex-ante estimation). The CME shall provide a comparison which is based on equivalent number of stoves actually distributed for each CPA separately.				
Project participant response				**Date :** 09/08/2019
CQC has now made the comparison between ex-ante estimated ERs and actual achieved ERs based on equivalent number of stoves actually distributed for each CPA in the revised ER calculation spreadsheet.				
Documentation provided by project participant				
Revised MR version 2.0 dated 06/08/2019 Revised ER calculation spreadsheet dated 06/08/2019				
DOE assessment				**Date:** 16/08/2019
CME as a response, have revised the calculation of ex-ante estimation of ERs in accordance with actual number of ICS distributed for each CPA for applied monitoring period of 365 days. There is slight increase in actual ERs achieved compared to ex ante estimation of ERs for three CPAs, which is explained under section F.6 of revised MR. Therefore, this CAR is closed.				

Table 4. FARs from this verification

There is no FAR from this verification.

~~**FAR ID**~~	~~xx~~	~~**Section No.**~~		~~**Date:** DD/MM/YYYY~~
~~**Description of FAR**~~				
~~**CME response**~~				~~**Date:** DD/MM/YYYY~~
~~**Documentation provided by the CME**~~				
~~**DOE assessment**~~				~~**Date:** DD/MM/YYYY~~

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Document information

Version	*Date*	*Description*
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for programmes of activities" (CDM-EB93-A08-STAN); • Make structural and editorial improvements.
02.0	29 December 2017	Revision to align with the requirements of the "CDM validation and verification standard for programme of activities" (version 01.0).
01.0	5 June 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
Keywords: programme of activities, verifying and certifying