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)	Clean Energy Program Supported by Republic of Korea PoA 10415	
Version number(s) of the PoA-DD(s) to which this report applies	2.0	
Version number of the verification and certification report	3.1	
Completion date of the verification and certification report	24/06/2019	
Monitoring period number and duration of this morning period	Monitoring Period Number 1 28/08/2018 to 11/01/2019 (inclusive of both days)	
Number and version number of the monitoring reportto which this report applies	Monitoring Report number 1 Version 4	
Coordinating/managing entity (CME)	ECOEYE Co., LTD	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report?(yes/no)
	Myanmar	Yes
Applied methodologies and standardized baselines	AMS-II.G. ver. 8 - Energy efficiency measures in thermal applications of non-renewable biomass	
Mandatory sectoral scopes	Sectoral Scope 3 : Energy demand	
Conditional sectoral scopes, if applicable	NA	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	142 tCO_2e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	148 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	Name: Juan Sendín Caballero Position: Applus+ Certification BU Managing Director Signature: 	

SECTION A. Executive summary

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The registered PoA involves the promotion and distribution of S 26-13 and S 32-13improved cooking stoves (ICS) in Myanmar. The ICS disseminated through this programme has replaced the prevailing inefficient three-stone fires or equivalent with stoves, 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 one CPA as part of registered PoA within the geographical boundary of Myanmar (for CPA 10415-0002). Ecoeye Co., has fully financed all improved cook stoves distributed to the households under the CPA including CPA implementation costs.

Detailed implementation status of this implemented CPA 10415-0002 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, V2/18/ and §340 of CDM VVS for PoA, V2/18/.

LGAI Technological Center, S.A.(hereafter referred to as Applus+ Certification) has performed the first verification of the CDM PoA “Clean Energy Program Supported by Republic of Korea” and UNFCCC PoA Reference Number 10415. 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 08/21/. 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;
(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
2.	Verifier, Technical Expert in training	OR	Ahirwar	Vivek Kumar	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.	Technical Reviewer Technical Expert in training	EI	Shen	Meng (Simon)	Central Office
3.	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 18 households from First ex post monitoring survey records/4/ and ICS registration database/5/. Also compared PoA-DD/14/, CPA-DD/14/ 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, V2/18/.

	MR Version (Draft)	MR Version (Final)
Emission reductions/annum	148	148
Identified Threshold	5.0%	5.0%

In accordance to the §40 of the applied methodology/21/, 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 First ex post monitoring survey/4/. The verification team confirms that the sample size considered by CME is more conservative 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)
$N_{y,i,j}$	At least once every two	130 samples	18 samples from CME's	No error found.	No Impact	Yes

	years through Monitoring Survey	from CME's monitoring survey	monitoring survey records (Acceptance sampling)			
Date of commissioning of project device *i*	Continuous recording at the time of distribution of project devices	10,826 ICS distributed during the Monitoring period	Random cross check of ICS records from ICS registration database/5/ and hard copy of End User Agreement/11/	No error found.	No Impact	Yes
μ_y	At least once every two years through Monitoring Survey	130 samples from CME's monitoring survey	18 samples from CME's monitoring survey records (Acceptance sampling)	No error found.	No Impact	Yes
$\eta_{\text{new,i,j}}$	At least once every two years through Monitoring Survey	3 ICS for S 32-13 and 3 ICS for S 26-13	All WBT results has been verified through WBT Survey reports/6/	No error found.	No Impact	Yes
$N_{d,HH}$	Continuous recording at the time of distribution of project devices	11,058 ICS distributed during the Monitoring period as per draft MR/1/.	Thoroughcross check of ICS records from ICS registration database/5/ and hard copy of End User Agreement/11/	Isolated Error - Multiple entries found by the same name and address in ICS registration Database/5/. CL-02 has been raised and closed successfully.	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, V2/18/ 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 (18 number of ICS out of 130 ICS for CPA 10415-0002 surveyed by CME). All ex-ante parameters were directly cross-checked from the PoA-DD/14/ and CPA-DD/14/.

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: 26/03/2019,27/03/2019				
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-DD	Ayeyarwaddy State of Myanmar	26/03/2019, 27/03/2019	Akhilesh Joshi and Vivek Kumar Ahirwar
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 : 18 Households visited (Implementation of PoA)			

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Rai	Rahul	ECOEYE Co., Ltd.	26/03/2019 – 27/03/2019	Implementation of CPAs, monitoring activities, record keeping; Ex post Monitoring Survey; Corrections in MR and ER sheet; Sampling approach, results and ER calculations	Akhilesh Joshi and Vivek Kumar Ahirwar
2.	Bae	Ho-Hyun				
3.	Kim	Jong-Ho				
4.	Swe	Aung Win				
5.	Oo	Daw Khin Swe	Independent household representative		DOE Field Survey of ICS Users (Ayeyarwady State of Myanmar)	
6.	Oo	Daw Phyu Thazin				
7.	Pyone	Daw				
8.	Al	Daw Htoo				
9.	Oo	Daw Mying				
10.	Than	Daw Myint Myint				
11.	Htway	Daw Khin Thidar				
12.	Win	Daw Htay Htay				
13.	Nwet	Daw Than				
14.	Htay	Daw Khin				
15.	Naing	U Kyaw Kyaw				
16.	Oo	U Myint				

17.	Min	U Tun Tun				
18.	Soe	U Mya				
19.	Oo	Daw Khin Swe				
20.	Than	U Aung				
21.	Htay	U Aung				
22.	Tin	U Aung				

D.4. Sampling approach

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CME's sampling approach:

The CME has applied a sampling approach as per approved revised PoA-DD/14/ and registered CPA-DD/14/. A confidence precision 95/10 was applied by CME in the annual sampling at CPA level (CPA 10415-0002), which is more 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 07/26/, the verification team applied acceptance sampling in the verification (in accordance with §27of Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/26/). The verification team selected random sub-samples of CME's sampled records for each CPA, 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 07/26/:

- 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): 20% was considered in this verification.
- The producer risk and consumer risk: 10% was considered for both.

Considering the above input values, a sample size of 18 was required as per Table in the Standard for "Sampling and surveys for CDM project activities and programmes of activities", Version 07/26/.

Accordingly, acceptance number (c) thus determined for the sample size is 1. A sample size of 18 for each CPA meets the criteria. Therefore, the verification team together verified the 18 randomly[1] selected samples out of CME sample records of 130 samples during site visit and observed that all the stoves checked were in operation (100%) as against the surveyed results, which indicates 96.92%/4/,for CPA 10415-0002. There was no drop out observed in sample done by the verification team and thus gives a drop out of 0 %. This is considered in line with CMEs sampling records 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 07/26/.

The verification team together verified the 18 randomly selected samples out of CME sample records of 130 samples during site visit and observed that all the results reported by CME for use of baseline stove were consistent with the survey results. None of the 18 ICS users found using traditional stoves along with ICS for CPA 10415-0002, which means that 0% users still using traditional or baseline stoves.
However, CME has considered value of ICS Usage rate as 85.63%/4/ for S26-13 ICS model and 85.67%/4/ for S32-13 ICS model CPA 10415-0002, which is conservative compared to the DOE onsite survey results.

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

As there were no discrepant records, 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 07/26/.

There was no DOE field survey conducted for new ICS efficiency related parameter as these were checked with the WBT records retained by the CME. The records were consistent with the reported results. The verification team checked 100% of CME's 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	1
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	0	1	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 baselines, or other methodological regulatory documents[2]	0	0	0
• 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			
• 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			

[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).

• Data and parameters fixed ex ante or at renewal of crediting period	0	0	0
• Data and parameters monitored	1	0	0
• Implementation of sampling plan	0	0	0
Compliance with the calibration frequency requirements for measuring instruments	0	1	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	0	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	1	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	1	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	1

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 monitoring report/2/ with a latest applicable monitoring report form, version 03.0/24/. Same has been verified from CDM EB Website.
Findings	CAR-09 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	The verification team confirms that the monitoring report has been appropriately prepared using the applicable monitoring report form/24/, 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 found that there are one (1) pending FAR from PRC Validation report/16/ and one (1) pending FAR from CPA 10415-0002 inclusion validation report/17/. However, the FAR from PRC Validation Report are not relevant for this verification as it is related to CPA 10415-0001, which is now withdrawn from the PoA 10415.

The one (1) pending FAR from CPA 10415-0002 inclusion validation report is being considered during this verification and raised as FAR-01 in Appendix 4 of this verification report. However, it is being forwarded to next verification, as this verification only considered single CPA for verification. Therefore, this FAR is being forwarded to next periodic verification as FAR-10 as mentioned in Appendix 4 of this verification report.

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)

CPA 10415-0001: CPA MM 01	No	Excluded on 03/01/2019	2.0	No
CPA 10415-0002: Clean Energy Program Supported by Republic of Korea CPA MM 02	Yes	27/12/2018	2.0	No. This is first verification for PoA 10415

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 dissemination (distribution/installation) of improved cooking stoves (ICS) in Myanmar by CME through coordination with local/ channel retailers/ distributors. The overall responsibility of implementation and operation is with CME (ECOEYE), which was also evident during the site visit. ECOEYE Co., Ltd. provided stove subsidy to distribute / install ICS on a non-commercial basis to household using baseline stove. ECOEYE Co., Ltd. provided operation & maintenance cost of ICS procurement and distribution to operate this CPA in financially sustainable condition. ECOEYE Co., Ltd, the CME (hereafter ECOEYE) has fully financed all ICS distributed to the households under the CPA/29/. This is consistent with PoA-DD and CPA-DD/14/. This monitoring period includes the implementation and monitoring of single CPA (CPA 10415-0002) as part of PoA/20/ (at the end of the current monitoring period) within the geographical boundary of Myanmar confirmed through iTouchMap website/22a/. The implementation of CPA 10415-0002, as referenced above, is within the geographical boundary of the PoA-DD (Section A.5.)/14/, which constitutes the physical boundary of PoA as well. In the referenced CPA 10415-0002, during the monitoring period, two model of the improved cookstove (ICS) i.e., S26-13/7/ and S32-13/7/ is deployed/distributed.   Stove Model S26-13Stove Model S32-13 The stoves have been distributed in altogether various townships across Ayeyarwady State of Myanmar (for CPA 10415-0002). This was confirmed through the ICS registration database of CPA 10415-0002/5/. The start date of crediting period of the PoA is 28/08/2018/20/. This was also the date of registration of the PoA. The first stove included in this monitoring period was distributed on 16/03/2018/5/ and has been verified from the End user Agreement signed by the ICS User/11/.However, since crediting period start date for the implemented CPA 10415-0002 starts from 10/01/2019, only 2 days of monitoring period,i.e10/01/2019 to 11/01/2019 (inclusive of both days) considered for ER estimation.

<table>
<tr><td></td><td>The total number of stoves that were distributed at the end of the current monitoring period were verified as under:

<table>
<tr><th>CPA Reference Number 10415-0002</th><th>ICS S26-13</th><th>ICS S32-13</th></tr>
<tr><td>Number of ICS type distributed</td><td>3,472*</td><td>7,354*</td></tr>
<tr><td>Date of distribution of first ICS under this monitoring period</td><td>16/03/2018</td><td>07/11/2018</td></tr>
<tr><td>Date of distribution of last ICS under this monitoring period</td><td>22/10/2018</td><td>27/11/2018</td></tr>
</table>

*The actual number of ICS distributed were 11,058 (3,566 ICS of S26-13 and 7,492 ICS of S32-13) as per webhosted MR. However, it was reduced to 10,826 (3,472 ICS of S26-13 and 7,354 ICS of S32-13) due to resolution of CL-02.

Therefore, the quantity, specification and target group of the ICS were found in accordance with the PoA-DD and respective CPA-DD/14/. Further, based on the review of ICS 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-DD/14/.</td></tr>
<tr><td>Findings</td><td>CL-02 and CAR-05 has been raised in this context. Refer Appendix 4 of this report for detailed finding.</td></tr>
<tr><td>Conclusion</td><td>The verification team confirms that -
• The physical features (technology/type of ICS) of the implementation were in accordance with the revised approved PoA-DD/14/.
• The distribution of ICS is still ongoing as it has not yet reached the estimated quantity given in the respective CPA-DD/14/.
• 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/14/.
• The emission reductions achieved for CPA 10415-0002 were within the estimated quantity in the registered CPA-DD/14/.</td></tr>
</table>

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. ECOEYE (CME and CPA implementer) has a database manager who manages the process of collecting the information of installed/registered ICS from the field staff through stove distribution team and entering the data into the ICS registration database. The monitoring manager at the CME/14/ 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's survey coordinator consisting of trained monitoring staff called survey supervisor/2/, who conducted the surveys and WBTs. The monitoring manager at the CME/14/ is responsible for QA/QC of the data, analysis and reporting into the monitoring report. Proper training/23/ of all field staff and survey supervisors was provided by the CME before starting distribution of ICS and conducting the monitoring survey. CME field staff continually randomly selects households included in the ICS registration database and visit them to cross-check the information on the ICS

	registration 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 ICS registration 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. There is no provision of repair / replacement of ICS as per project design as mentioned in the registered CPA-DD (page 27)/14/. The ICS registration databases/5/ containing the monitored data were maintained by the CME. The ICS registration database (and its backup) was checked during the site visit. The ICS registration database is stored in electronic format /5/ as well as hard copies of end user agreements/11/ and completed survey forms and WBT test reports/6/ is retained by the CME. PoA management system has been reviewed by the project manager at CME on regular basis for timely identification and resolution of issues related to the distribution of ICS and monitoring of PoA. 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 interview with monitoring staff, and the structure is considered appropriate.
Findings	CAR-07 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/14/. 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

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The corrections to the registered PoA-DD have been approved on 17/12/2018 (Ref: PRC-10415-001). Verification team checked the revised approved PoA-DD/14/ and did not find any new corrections during the current monitoring period.

E.2.3.2. Inclusion of a monitoring plan

>>
Not applicable, since monitoring plan was included in the registered PoA-DD/14/.

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 17/12/2018 (Ref: PRC-10415-001). Verification team checked the implementation of revised approved monitoring plan/14/ during onsite visit and did not find any changes during the current monitoring period.

E.2.3.4. Changes to the programme design

>>
No project design changes 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

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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 02 specific CPAs (10415-0001 and 10415-0002) included in the PoA/20/ at the end of the current monitoring period and only one CPA 10415-0002 is covered in the current monitoring period. CPA 10415-0001 was withdrawn by CME/30/ and only CPA 10415-0002 was implemented at the end of current monitoring period. CPA 10415-0002 targets the promotion and distribution of portable ICS models S26-13 and S32-13. The Verification Team has carried out onsite visits and interviews. ICS models, S26-13 and S32-13 have been checked and compared to that described in the CPA-DD/14/. ECOEYE Co., Ltd. is the Coordinating and Managing Entity (CME) for the implementation of CPA. The ECOEYE coordinates and manages CPA implementation and manages each element of the monitoring plan. The implementation and operation status of CPA 10415-0002 has been verified as follows: ICS were distributed in different villages/township all of which were located across the Ayeyarwady State in Myanmar as confirmed from ICS registration database/5/ and during onsite visit, which is consistent with the description given in the included CPA-DD (Section A.2)/14/. By the end of current monitoring period total 10,826 improved cook stoves (3,472 numbers of S26-13 and 7,354 numbers of S32-13 Stoves) were disseminated under CPA 10415-0002, which is within estimated quantity of 20,000 ICSs (10,000 numbers of S26-13 and 10,000 numbers of S32-13 Stoves) for the first year as per CPA-DD/14/. The actual number of ICS distributed were 11,058 (3,566 ICS of S26-13 and 7,492 ICS of S32-13) as per webhosted MR. However, it was reduced to 10,826 (3,472 numbers of S26-13 and 7,354 numbers of S32-13 Stoves) due to resolution of CL-02. The stoves are distributed to end users after each end user signs and accepts the End User Agreement/11/. The other details e.g., administrative unit, user name, phone number etc. are also recorded in Information Request Form, which is part of the End User Agreement/11/. The ICS registration database records the stove unique serial number ID and name of recipient with residential address. Stove IDs are used for unique identification of the units. Logo of the ECOEYE (as shown below) and Unique Stove IDs are marked on the stoves, on a name plate that is attached to the stove. A picture of the stove unique ID is presented below as an example.  ICS S 32-13: Unique Serial Number  ICS S 32-13: CME Logo For, S32-13 stoves, the unique Stove ID is of 12 digits, which is combination of manufacturing country (first 1digit of ID, i.e. 2 since these are co-produced in China and Myanmar and it was not possible to mention country code for any of the country in single digit), country of destination (Myanmar, i.e. 95), Date of Manufacturing (Year and month, i.e. 18 for 2018 and 10 for October) and last 5 digit is unique number.

	  ICS S 26-13: Unique Serial Number and CME Logo For S26-13 stoves, the unique Stove ID is of 12 digits, which is combination of manufacturing country (first 2 digits of ID, i.e. 82 for South Korea), country of destination (Myanmar, i.e. 95), Date of Manufacturing (Year and month, i.e. 18 for 2018 and 02 for February) and last 4 digit is unique number. The assessment team has also confirmed the unique identification system for the ICS from a letter provided by the ICS Manufacturer/31/ for both S 26-13 and S 32-13. This is in line with the procedure to avoid double counting of ICS, as mentioned in registered PoA-DD (page 8)/14/. The operation/use of ICS starts from the next day of the date of distribution of ICS to end User/5/. Same has been verified from the interview with end users during DOE onsite visit/13/ of randomly selected households. Once the ICS is installed it is revisited by CMEs field staff after few days/weeks (in general) to check whether the ICS functioning correctly. Also, CME clarified that as per registered monitoring plan (refer registered CPA-DD page 27/14/), there is no provision for replacement or repair of faulty ICS. If it is found to be non-operational during the monitoring survey or spot check by CME, it will be mentioned as not in use for entire period. The type of stoves distributed was confirmed to be S26-13 and S32-13, based on site visit observations in households. This is consistent with the revised approved PoA-DD and CPA-DD/14/. In accordance with §364 of CDM VVS for PoA, version 02.0/18/, verification team confirms that the annual energy saving of the ICS S 26-13 and ICS S 32-13 for this monitoring period is only 11.35 MWh_{th}/3/ and 12.85 MWh_{th}/3/ respectively which is less than 1% of the small-scale CDM thresholds i.e. 1800 MWh_{th} and satisfies the condition to qualify as a microscale CDM unit. Same is mentioned by CME under section F.7 of MR/2/. The final MR/2/ includes complete description of the implementation status, which is consistent with the observations and interviews during the site visit as well as review of the ICS registration database/5/.
Findings	CL-02 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	The verification team confirms that physical features of the CPA 10415-0002 has been implemented in accordance with the registered CPA-DD/14/. 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 CPA 10415-0002 have been implemented in accordance with the CPA-DD/14/. The CPA was also found to be completely operational in line with the CPA-DD/14/. The information provided in the relevant sections of the monitoring report is appropriately described the implementation and operational status of the PoA/20/.

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

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No deviations were identified during the verification of current monitoring period.

E.3.2.2. Corrections

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No corrections were identified during the verification of current monitoring period.

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

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No changes in the start date of the crediting period envisaged during the verification of current monitoring period.

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

>>
No permanent changes were identified during the verification of current monitoring period

E.3.2.6. Changes to the project design

>>
No project design changes were identified during the verification of 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 CPA-DD/14/ was reviewed against the monitoring requirements of the applied methodology AMS-II.G, Version 08/21/ as well as PoA-DD/14/. Based on this review it was found the monitoring plan contained in the CPA-DD/14/ 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/14/ and applied methodology/21/.
Findings	No finding has been raised.
Conclusion	The monitoring plan is in accordance with the approved methodology, AMS-II.G., Version 08/21/, that is included in registered CPA-DD/14/.

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

Means of verification	The values of, $\mathbf{f_{NRB}}$, $\mathbf{NCV_{biomass}}$, $\mathbf{\eta_{old}}$, $\mathbf{EF_{projected\_fossilfuel}}$, $\mathbf{LF_y}$, **Life Span**, $\mathbf{B_{old,HH}}$ and $\mathbf{B_{old,i,j}}$ have been fixed ex-ante during registration of the CPA-DD/14/. Accordingly, the values were checked and confirmed with the approved revised PoA-DD/14/ and respective CPA-DD/14/. 1. Data/Parameter, Unit: $\mathbf{f_{NRB}}$, Fraction Description: Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass

	Verified Value: 0.8832 (For CPA 10415-0002) To be determined at CPA level as per approved revised PoA-DD/14/ and consistent with the respective CPA-DD/14/ and fixed ex-ante. 2. Data/Parameter, Unit: **$NCV_{biomass}$** , TJ/ tonne Description: Net calorific value of biomass Verified Value: 0.015 IPCC 2006 default value for biomass applied in accordance with applied methodology AMS II.G, Version 08/21/. Consistent with the approved revised PoA-DD/14/ and respective CPA-DD/14/ and fixed ex-ante. 3. Data/Parameter, Unit: η_{old}, Fraction Description: Efficiency of pre - project device, which is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Weighted average values will be used (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced Verified Value: 0.10 Default value in accordance with Data / Parameter table 17of the AMS II.G, version 08/21/. Consistent with the approved revised PoA-DD/14/ and respective CPA-DD/14/ and fixed ex-ante. 4. Data/Parameter, Unit: $EF_{projected\_fossilfuel}$, TCO_2/TJ Description: Emission factor for the fossil fuels projected to be used for 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 08/21/. Consistent with the approved revised PoA-DD/14/ and respective CPA-DD/14/ and fixed ex-ante. 5. Data/Parameter, Unit: **LF_y**, Fraction Description: Leakage adjustment factor Verified Value: 0.95 Default value in accordance with paragraph 32of the AMS II.G, Version 08/21/. Consistent with the approved revised PoA-DD/14/ and respective CPA-DD/14/ and fixed ex-ante 6. Data/Parameter, Unit: **Life Span**, Number of years Description: Operating life time of S 26-13 and S 32-13 Verified Value: 5 Fixed and recorded at the time of commissioning/distribution and certified by Manufacturer/7/. Consistent with the respective CPA-DD/14/ and fixed ex-ante. 7. Data/Parameter, Unit: **$B_{old,HH}$**,tonnes/household/year Description: Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices Verified Value: 4.18 (For CPA 10415-0002) Consistent with the respective CPA-DD/14/ and fixed ex-ante at CPA level. 8. Data/Parameter, Unit: **$B_{old,i,j}$**,Tonnes / year Description: Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type *i* and batch *j* Verified Value: 4.18 (For CPA 10415-0002) Consistent with the respective CPA-DD/14/ and fixed ex-ante at CPA level.
Findings	No finding has been raised.
Conclusion	The values of ex ante fixed parameters have been verified from the approved revised PoA-DD/14/ and respective CPA-DD/14/. Same has been crosschecked with the source mentioned in the CPA-DD/14/ 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.

E.3.4.2. Data and parameters monitored

Means of verification	The monitoring has been carried out in accordance with the monitoring plan contained in the approved revised PoA-DD/14/ and respective CPA-DD/14/. 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: $\mathbf{n_{y,i,j}}$, **Number of units** Description: Number of project devices of type *i* and batch *j* operating during year *y*

Measuring /Reading /Recording frequency	The monitoring frequency is at least once every two years in the CPA-DD(page 22) and PoA-DD(page 29)/14/. In accordance with of CPA-DD (page 22) and PoA-DD(page 29)/14/ the required confidence level and precision for sampling is 95/10.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	The § 40 of applied methodology/21/ 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 monitoring at CPA level, which is acceptable considering required confidence level achieved.
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 CME at individual CPA level for CPA10415-0002 considered in the current monitoring period. This survey provided the fraction of each ICS type for CPA 10415-0002. In all, total 130 samples (45 samples of S26-13 and 85 Samples of S32-13) for CPA 10415-0002 were surveyed. The sample size calculator required a minimum of 97(31 samples of S26-13 and 66 Samples of S32-13). The calculation for determining the sample size were checked by the verification team from Sample size calculation spreadsheet/4/ and found to be appropriate and consistent with equation in PoA-DD (page 38)/14/. 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 as mentioned in section E.3.4.3 of this report. 100% ICS found operating for during the DOE sampling survey. Final verified values for ICS operating during this monitoring period - (S 26-13 Model) = 3,472 * 0.9778 = 3,394 (S 32-13 Model) = 7,354 * 0.9647 = 7,094
		If applicable, has the reported data been cross-checked with other available data?	Yes. The survey results/6/, assumptions and registration records/5/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER spreadsheet/3/ of final MR/2/. The verification team randomly selected 18 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 CME and established during the on-site assessment.

2. Data/Parameter, Unit: **Date of commissioning of project device *i* , *Date***
Description: Actual date of commissioning of the project device *i*

Measuring /Reading /Recording frequency	The data is recorded from start date of ICS distribution 16/03/2018 up to 27/11/2018, which is the end date of ICS distribution in ICS registration database/5/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The PoA-DD and CPA-DD/14/ follows the continuous recording frequency.
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 data of distribution of ICS is recorded in End User Agreement/11/ signed by ICS User at the time of ICS distribution to the individual household. After completion of distribution of ICS the data is transferred in electronic form (excel sheet) at CPA level by CME. The verification team checked the ICS distribution record (End User Agreement) /11/ and ICS registration database/5/. Also, verification team confirmed the same during on site visit for sample households against the entry in End User Agreement/11/ and ICS registration database/5/. Verification team can confirm that the recorded date of distribution of ICS in ICS registration Database/5/ is correctly mentioned. However, CME assumed that some end user may have got the ICS at the end of the day or in late afternoon during distribution to the end user. So, they may not start using the ICS on same day. Hence, consideration of ICS operation date asnext day from the date of distribution to end user is considered appropriate.
If applicable, has the reported data been cross-checked with other available data?	Yes. The verification team cross checked the start date and end date of distribution as mentioned in MR/02/ with the dates of ICS distribution as per signed end user agreement for individual ICS/11/ as well as from ICS registration database/5/ during on site visit.
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 CMR and established during the onsite assessment.

3. Data/Parameter, Unit: μ_y , ***Fraction***
Description: Adjustment to account for any continued use of pre-project devices during the year *y*

Measuring /Reading /Recording frequency	The monitoring frequency is at least once every two years in the CPA-DD(page 24) and PoA-DD(page 33)/14/. In accordance with of CPA-DD (page 24) and PoA-DD(page 33)/14/ the required confidence level and precision for sampling is 95/10.
Is measuring and reporting frequency	The PoA-DD and CPA-DD/14/

		in accordance with the monitoring plan and monitoring methodology? (Yes / No)	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 at CPA level, which is acceptable considering higher confidence level achieved.	
		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 CME at individual CPA level 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. This survey provided the value for the μ_v for each CPA.	

		In all, total 130 samples (45 samples of S26-13 and 85 Samples of S32-13) for CPA 10415-0002. The sample size calculator required a minimum of 110 (36 samples of S26-13 and 74 samples of S32-13). 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 (page 38)/14/. The required level of precision i.e. 10% or less has been achieved at 95% confidence level as mentioned in section E.3.4.3 of this report. None of the pre-project stove found operating for during the DOE sampling survey. The final verified values of 0.8563 for S26-13 and 0.8567 for S32-13 is included in the final MR/2/.
	If applicable, has the reported data been cross-checked with other available data?	Yes. The survey results/6/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER spreadsheet/3/ of final MR/2/. The verification team randomly selected 18 samples (11 samples for S32-13 and 7 samples for S26-13) for DOE's field survey and found that zero traditional stoves were operational along with ICS installed, which confirms the CME's sample survey results are appropriate. However, 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.

4. Data/Parameter, Unit: **$N_{d,HH}$, Number**
   Description: Number of project devices distributed per household

		Measuring /Reading /Recording frequency	The data is recorded from start date of ICS distribution 16/03/2018 up to 27/11/2018, which is the end date of ICS distribution in ICS registration database/5/.
		Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. It is in line with the PoA-DD (page 34) and CPA-DD (page 25).
		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 minimum value can be 1 e.g., for only one ICS provided to each household. The verification team has verified the same through the interview with Individual households during DOE on site visit. The verified results are included in the final MR/2/ and corresponding ER spreadsheet/3/. The verified results were: For S26-13: 1 For S32-13: 1

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 against ICS registration database/5/ any similar names and address appearing for more than 1 ICS number. CL-02 has been raised in this context and closed successfully.
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 distributed to the beneficiary it is registered into respective ICS registration database. The spot checks were regularly conducted by CME through CPA implementers in order to correct the ICS registration database, as appropriate. During the site visit the ICS distribution process, record keeping (distribution dates) and process of spot check were reviewed and were found reliable.

5. Data/Parameter, Unit: $\eta_{new,i,j}$, **Fraction**
Description: Efficiency of the project device of each type *i and* batch *j*

Measuring /Reading /Recording frequency	The efficiency of project device was calculated following Water Boiling Test protocol 4.2.3/25/ based on approach 3 of Data / Parameter table 11 of applied methodology /21/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. As per CPA-DD (page 23)/14/. The Stove technology provider is a reputed organization (https://www.ssmstoves.com/) all over the world for building quality stoves. Therefore, approach 3 of Data / Parameter table 11 of applied methodology /21/ can be applied for the monitoring of efficiency of the project device.
Monitoring equipment	The WBT tests were coordinated by the CME and undertaken following a simplified version of WBT protocol 4.2.3/25/ by experienced personnel which were trained/23/ by CME to conduct WBT. The PoA-DD or CPA-DD do not prescribe any specific monitoring equipment but weighing scale, digital moisture meter and digital thermometer were required and used to conduct WBT. The detail is provided under Section E.3.4.4 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. Please refer Section E.3.4.4 of this report.

		Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. Please refer Section E.3.4.4 of this report.
		Calibration frequency /interval:	Please refer Section E.3.4.4 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.3.4.4 of this report
		Is the calibration of measuring equipment carried out by an accredited person or institution?	Please refer Section E.3.4.4 of this report
		Is(are) calibration(s) valid for the whole reporting period?	Please refer Section E.3.4.4 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.3.4.4 of this report
		How were the values in the monitoring report verified?	The reported values were checked with the actual WBT results obtained from test conducted in Government Testing Laboratory (Forest Research Institute)/6/ and filled in Data Sheets (for this purpose) and were found consistent. The WBT results were conducted three times for 3 stoves each for each type of ICS model (total 18 tests) based and vintage. The sample survey approach is included under Section E.3.4.3 of this report. The verified values are summarized below:

ICS Model	$\eta_{new,i,j}$
	Vintage 1
For ICS S26-13	0.2864
For ICS S32-13	0.3805

		If applicable, has the reported data been cross-checked with other available data?	Yes. The data has been cross-checked with the estimated efficiency in the registered CPA-DD/14/. The actual efficiencies in this monitoring period were slightly lower compared to the values considered in CPA-DD (page 22)/14/. Since, the values are based on actual WBT tests conducted at standard laboratory conditions and therefore considered acceptable.
		Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC	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 4.2.3/25/ was applied,

	processes in place? | which is acceptable. 6. One of the monitoring parameters "**Date of commissioning of batch j**" as mentioned in the CPA-DD(page 23)/14/ was not monitored by CME, since CME considered date for commissioning for each individual ICS in ER Calculation rather than single date for commissioning for batch of ICS.This is in line with the applied methodology AMS-II.G., version 08, which states that CME may opt to group the devices in batches and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch. However, CME opted to report the date of commissioning of each project device separately which is reported via monitoring parameter "Date of commissioning of project device i". Same is explained above in detail.
Findings	CL-02 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	Corresponding to the §346 of CDM VVS for PoA, V2/18/, the verification team confirm that the monitoring has been carried out in accordance with the approved revised PoA-DD/14/ and CPA-DD/14/. The monitoring system follows the information flow for the parameters as mentioned in monitoring plan in approved revised PoA-DD and registered CPA-DD/14/. 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-DD/14/.

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/14/ and respective CPA-DD/14/. **Sampling Design/Target Population/Sampling Frame/Reliability**: A Stratified Sampling technique has been used, which is in line with the monitoring plan of the PoA-DD (Section I.7.2)/14/ as referred in the respective CPA- DD/14/. In this sampling design CPA 10415-0002 that was implemented under the current monitoring period was subjected. The sampling frame considered confidence level and precision as 95/10 for annual sampling survey in order to meet the requirement of Standard/26/. Each ICS had the equal chance of selection. **Sampling Method:** There was one primary sampling unit for each CPA as discussed above. Thereafter, ICS/households present in various townships were randomly selected as per the outcome of sampling size calculation for respective parameter for each CPA. The ICS of same type, age group and province in which they are operating were grouped in the same strata. **Sample Size (Required and Actual) for Parameter of Interest:** The sampling is applied to the following monitoring parameters: $\mathbf{n}_{y,i,j}$: Number of project devices of type i and batch j operating during year y $\boldsymbol{\mu}_y$: Adjustment to account for any continued use of pre-project devices during the year y $\boldsymbol{\eta}_{new,i,j}$: Efficiency of the project device of each type i and batch j The sample size was determined for each type of ICS separately for the stoves for $\mathbf{n}_{y,i,j}$and $\boldsymbol{\mu}_y$ both being proportional value. The population elements i.e. ICS were grouped into mutually exclusive, non-overlapping groups of sample units called strata. Every ICS was assigned to only one stratum in such a way that no ICS was

excluded. CME used the sample size calculator spreadsheet which is part of Guidelines for sampling and surveys for CDM project activities and programme of activities, version 04/27/. The outcome of sample size calculation (required and actual samples) based on the considered confidence level and precision is presented below:

ICS type	Sample Size for		Actual Sampling Done
	$n_{y,i,j}$	μ_y	
S26-13	31	36	45
S32-13	66	74	85

In this regard, sample size calculation spreadsheet/4/ was checked and found correct as per registered monitoring plan mentioned in CPA-DD/14/.

The sample size for $\eta_{new,i,j}$ was determined based on the ICS model and its vintage. The sample size with the applied 90/10 confidence precision level. CME has considered the measurement approach 3 of Data / Parameter table 11 of applied methodology /21/, which allows a sample test on three cook stoves with three tests conducted for each stove for each type of ICS. Therefore, CME conducted three test each on three ICS of each type (S26-13 and S32-13 model). As can be seen that the sampling requirements were met for stoves for all vintages for each type of stove. The actual surveyed ICS were equal to 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 stratified sampling the CME targeted all townships for each of the parameter of interest for each type of ICS. This was found in accordance with Guideline: Sampling and surveys for CDM project activities and programmes of activities, version 04/27/. 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 from the sample size calculation sheet/4/. The samples were drawn from the complete ICS registration databases. 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.

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)/26/ 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 $n_{y,i,j}$as follows –

Table – Sample size calculation prior to survey

Parameter	Value	Source/ basis

Population Size	11,058	ICS registration database (Number of stoves registered in database till 11/01/2019)
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 (overall)	97	Calculated (Roundup Value)
Sample Size (Model S26-13)	31	Calculated (Roundup Value)
Sample Size (Model S32-13)	66	Calculated (Roundup Value)

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

Parameter	**Value**	**Source/ basis**
N (Model S26-13)	45	Actual sample size surveyed by CME
N (Model S32-13)	85	Actual sample size surveyed by CME
Overall Proportion (Model S26-13)	0.9778	Actual value
Overall Proportion (Model S32-13)	0.9647	Actual value
Confidence Level	1.96	95% confidence level
Precision achieved (Model S26-13)	3.08%	Calculated
Precision achieved (Model S32-13)	3.08%	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. First monitoring survey for this monitoring for Parameters $\mathbf{n_{y,i,j}}$ and $\boldsymbol{\mu_y}$ was conducted from 24/01/2019 to 29/01/2019/6/ and for $\boldsymbol{\eta_{new,i,j}}$ from 28/01/2019 to 08/02/2019/6/.

Table – Actual Precision Achieved based on Survey results

Monitoring Parameter	**Precision Achieved**	**Is required Precision achieved? (< 10%)**
For ICS Model S26-13		
$\mathbf{n_{y,i,j}}$	3.08%	Yes
$\boldsymbol{\mu_y}$	6.28%	Yes
$\boldsymbol{\eta_{new,i,j}}$	3.85%	Yes
For ICS Model S32-13		
$\mathbf{n_{y,i,j}}$	3.08%	Yes
$\boldsymbol{\mu_y}$	6.28%	Yes
$\boldsymbol{\eta_{new,i,j}}$	3.21%	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	No finding has been raised.
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)/26/.

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

<table>
<tr><td>Means of verification</td><td>The registered monitoring plan (of respective CPA-DD and PoA-DD/14/) 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 project device of each type i and batch j”. As a result, following information was verified:
<table>
<tr><th>Instrument</th><th>Model</th><th>Other details</th></tr>
<tr><td>Digital Weighing Scale</td><td>HuzXi128
HANSUNG</td><td>Range: up to 20 kg (±1g)
Calibration frequency: Annual/8/
First Calibration Date: 18/01/2019 /8/
Due date of Next Calibration: 17/01/2020
Calibration Agency: SCT Engineering & Construction Co., Ltd. (ASEAN Professional Chartered Engineer) following the guidance of National Standards and Quality Department, Myanmar/28/</td></tr>
<tr><td>Digital Thermometer</td><td>YT305
UINS</td><td>Thermocouple Type: Type K, Chromel Alumel, bead style
Range: - 40 °C to +1399 °C (± 0.1°C)
Calibration frequency: Annual/9/
First Calibration Date: 18/01/2019 /8/
Due date of Next Calibration: 17/01/2020
Calibration Agency: SCT Engineering & Construction Co., Ltd. (ASEAN Professional Chartered Engineer) following the guidance of National Standards and Quality Department, Myanmar/28/</td></tr>
<tr><td>Digital Moisture meter</td><td>WM01
MUDDER</td><td>Range: 0 to 99% (± 0.5%)
Calibration frequency: Annual/9/
First Calibration Date: 18/01/2019 /8/
Due date of Next Calibration: 17/01/2020
Calibration Agency: SCT Engineering & Construction Co., Ltd. (ASEAN Professional Chartered Engineer) following the guidance of National Standards and Quality Department, Myanmar/28/</td></tr>
</table>
All equipment’s were used between 28/01/2019 to 08/02/2019 i.e., which is after the calibration dates (i.e. 18/01/2019) and therefore it can be stated that these were in worthy state of use at the time of WBT.

The specifications of equipment establish that the results are reliable. Therefore, appropriate QA/QC procedures have been followed for the monitoring parameters under discussion.</td></tr>
<tr><td>Findings</td><td>CAR-06 has been raised in this context. Refer Appendix 4 of this report for detailed finding.</td></tr>
<tr><td>Conclusion</td><td>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.</td></tr>
</table>

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/14/ and CPA-DD/14/ and the applied methodology AMS-II.G., Version 08/21/:

$$ERy = \Sigma_i \Sigma_j ER_{y,i,j} - LE_y$$

Where:

i	=	Indices for the situation where more than one type of project device is introduced to replace the pre-project devices (i.e Model S26-13 and S32-13)
ERy	=	Emission reductions during year *y* in t CO2e
ERy,i,j	=	Emission reductions by project device of type *i and* batch *j* during year *y* in t CO2e
LEy	=	Leakage emissions in the year *y*

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

Where:

$B_{y,savings,i,j}$	=	Quantity of woody biomass that is saved in tonnes per cook stove device of type *i* and batch *j* during year *y*
$f_{NRB,y}$	=	Fraction of woody biomass that can be established as non-renewable biomass using survey methods or government data or default country specific fraction of non-renewable woody biomass (fNRB) values available on the CDM website
$NCV_{biomass}$	=	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, based on the gross weight of the wood that is 'air-dried')
$EF_{projected\_fossilfuel}$	=	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 t CO_2/TJ
$N_{y,i,j}$	=	Number of project devices of type *i* and batch *j* operating during year *y*
μ_y	=	Adjustment to account for any continued use of pre-project devices during the year *y* when applying equations 6 and 8 (fraction).

To calculate $B_{y,savings,i,j}$CME used equation 6 of option 3 of the AMS-II.G,Version 08/21/ :

$$B_{y,savings,i,j} = B_{old,i,j} \times (1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}})$$

Where:

$B_{old,i,j}$	Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type *i and* batch *j*
$\eta_{old,i,j}$	Efficiency of the old devices being replaced by project devices of type *i* and batch *j*
$\eta_{new,i,j}$	Efficiency of the project device *i* and batch *j*

	$B_{old,i,j} = B_{old,HH} \div N_{d,HH}$ Where: $B_{old,HH}$ = Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices (tonnes/household/year) $N_{d,HH}$ = Number of project devices per household (number) It is confirmed that all the stoves distributed under CPA 10415-0002 has been categorized as per vintage. The ER Spreadsheet/3/ contains details of vintage computation for each ICS separately. This is summarized in the table below; Vintage (Type) | Cut-off date/3/ (Installation Date of ICS) | Remarks Vintage 1 | Between 12/01/2018 to 11/01/2019 | Up to 1-year old registered ICS It has been verified that the corresponding ER sheet/3/ to the final Monitoring Report/2/ has considered the number of each type of stoves as per the vintage and accordingly the efficiency of such stoves in the ER calculation for each CPA.
Findings	No finding has been raised.
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 V2/18/) 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/14/, CPA-DD/14/ and applied monitoring methodology/21/ 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 08/21/.

E.3.6.3. Calculation of leakage GHG emissions

Means of verification	In accordance with §32 of applied methodology/21/, the "*Leakage related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples). The potential source of leakage due to the use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources shall be considered. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass by the non-project*

	households/users, that is attributable to the project activity, then $B_{old,,}$ is adjusted to account for the quantified leakage. Alternatively, $B_{y,savings,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required." CME has multiplied $B_{y,ings,i,j}$ by a net to gross adjustment factor of 0.95 to account for leakages. Therefore, $LE_{y,26-13} = B_{y,savings,i,j,26-13} \times N_{y,i,j,26-13} \times \mu_{y,26-13} \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$* (1- 0.95) and $LE_{y,32-13} = B_{y,savings,i,j,32-13} \times N_{y,i,j,32-13} \times \mu_{y,32-13} \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$* (1- 0.95)
Findings	No finding has been raised.
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 leakage GHG emissions 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 V2/18/) 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.3.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	As elaborated above, the emission reductions from the PoA were based on baseline emissions minus leakage emissions. The calculations presented in this regard in the final monitoring report /2/ and corresponding ER sheet /3/ were found appropriate and complying with the provisions prescribed in the registered monitoring plan of respective CPA-DD/14/, PoA-DD/14/ and applied methodology/21/. 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	CAR-04 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
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 V2/18/) 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 148 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
CPA 10415-0002: Clean Energy Program Supported by Republic of Korea CPA MM 02	157	0	9	0	148	148
Total	**157**	**0**	**9**	**0**	**148**	**148**

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 verification team has checked the method to compare actual and estimated ex-ante emission reduction. As verified and evident from the section F.5.1 of final Monitoring Report /2/, the actual emission reductions achieved (148 tCO_2e) by CPA 10415-0002 that is included in the current monitoring period is found slightly higher than the estimated quantity (142 tCO_2e) in the respective CPA-DD/14/ for the comparable period of 2 days and equivalent number of ICS distributed.
Findings	CAR-08 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	The actual emission reductions achieved in CPA 10415-0002 is slightly higher (4.22%) than the estimated quantity of ERs in the respective CPA-DD/14/. The reason for increase is verified by DOE under section 3.6.6 of this report.

Title andUNFCCCreference number of theCPA	Actual values achieved by the CPAs during this monitoring period	Value estimated in ex ante calculation in the included CPA-DD(s)
CPA 10415-0002: Clean Energy Program Supported by Republic of Korea CPA MM 02	142tCO_2e	148 tCO_2e
Total	**142tCO_2e**	**148 tCO_2e**

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

Means of verification	The reason for increase is described in the section F.6 of MR/2/. The actual emission reductions achieved for CPA 10415-0002 is slightly higher than the estimation in the CPA-DD/14/ for an equivalent number of ICS and length of the monitoring period. This is mainly due to better ICS usage rate achieved during this monitoring period compared to the assumed value in registered CPA-DD/14/. The verification team has checked the survey report to confirm ICS usage rate including actual and ex-ante emission reductions calculation.

Findings	CL-03 and CAR-08 has been raised in this context. Refer Appendix 4 of this report for detailed finding.
Conclusion	The actual emission reductions achieved in CPA 10415-0002 is slightly higher (4.22%) than the estimated quantity of ERs in the respective CPA-DD/14/. 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	No comments received during the global stakeholder consultation process.
Findings	No finding has been raised.
Conclusion	In accordance with §370 of CDM VVS for PoA V2/18/, verification team confirms that no comments received during the global stakeholder consultation process.

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 ECOEYE Co., Ltd. (the CME for the PoA), has performed the First independent verification of the emission reductions for the registered CDM PoA 10415 “Clean Energy Program Supported by Republic of Korea” in Myanmar for the monitoring period 28/08/2018 – 11/01/2019 (including both days) as reported in the Monitoring Report (public) Version 2.1 dated 28/02/2019/1/. 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 single CPA10415-0002, which was 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 CPA 10415-0002 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, V2/18/.

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 the included CPA 10415-0002 confirm to the PoA-DD/14/ and respective CPA-DD/14/ as well as comply with applicable CDM rules and regulations and in accordance with applied monitoring methodology AMS II.G., Version 08/21/. There was one (1) FAR raised during CPA 10415-0002 inclusion validation, which required further attention from the verification team. Same has been raised as FAR-01 during this verification and forwarded to next periodic verification as FAR-10.

As a result, it is confirmed that the emission reductions as 148 tCO2e from the CDM PoA 10415 “Clean Energy Program Supported by Republic of Korea” are correctly reported in the Monitoring Report (final) Version 4 dated 18/06/2019 and corresponding ER spreadsheet for the monitoring period 28/08/2018 – 11/01/2019 (including both days). Therefore, this will be submitted as part of request for issuance as per CDM PCP for PoA, V2/18/.

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 28/08/2018 – 11/01/2019 (including both days) are fairly stated in the Monitoring Report (final) Version 4dated18/06/2019.

Applus+ Certification, based on outcome of verification activities, certify in writing that, during the monitoring period 28/08/2018 – 11/01/2019 (including both days), the registered CDM PoA 10415 “Clean Energy Program Supported by Republic of Korea” and one included CPA (10415-0002) in the registered CDM PoA achieved the verified amount of 148 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 10415-0002	NIL	148
Total	**NIL**	**148**

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
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
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 (Text Messages)
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 sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification. The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A).
- Technical Expert (TE) / Technical Expert in Training (TEiT).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Attendance to the On-Site Assessment
Akhilesh Joshi	Lead Auditor (LA) / Technical Expert (TE)	Yes (3)	Yes (3.1)	N/A	Yes
Vivek Kumar Ahirwar	Auditor (A) / Technical Expert in Training (TEiT)	No	No	N/A	Yes
Miguel A. Cortés Díaz	Technical Reviewer (TR) / Technical Expert (TE)	Yes (3)	Yes (3.1)	N/A	N/A
Meng (Simon) Shen	Technical Reviewer (TR) / Technical Expert in Training (TEiT)	No	No	N/A	N/A

The curricula vitae of the DOE's team members are provided below:

Name	SHORT CV. BACKGROUND INFORMATION
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
Vivek Kumar Ahirwar	He is a BEE-Certified Energy Auditor by Govt of India with over seven years of relevant experience in energy efficiency, energy audit and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD.

	He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the India. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India
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.
Meng (Simon) Shen	Meng (Simon) Shen (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD before he joined Applus+ for 3.5 years. Mr. Simon Shen has extensive experience also as former Applus+ Shanghai CDM Technical Manager.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	ECOEYE	Monitoring Report (made publicly available) Monitoring Report (intermediate version)	Version 2.1 dated 28/02/2019 Version 3 dated 05/04/2019	CME
2	ECOEYE	Monitoring Report (final version)	Version 4 dated 18/06/2019	CME
3	ECOEYE	• ER spread sheet corresponding to MR • ER spread sheet corresponding to MR (final version)	Version 1.0 Version 4	CME
4	ECOEYE	• Sample Size Calculation Spreadsheet Myanmar (for Sample size calculation – prior to survey) • Sample Size Calculation Spreadsheet Myanmar (for actual precision achieved –after the survey)	-	CME
5	ECOEYE	ICS registration database till end date of 1st MP (i.e. 11/01/2019)	-	CME
6	ECOEYE Stove testing laboratory, Forest Research	Reports of sampling survey conducted for Myanmar (Survey Data Spreadsheet) Certificate of WBT Tests for each type of ICS along with Data Sheet for WBT for individual stove.	Between 24/01/2019 to 29/01/2019 Dated 23/02/2019	CME

	Institute, Yezin			
7	ECOEYE	Technical Specification of ICS Model S26-13 and S32-13 from Manufacturer / supplier (including photos of some installed ICSs)	-	CME
8	SCT Engineering & Construction Co., Ltd.	• User Manual of the weighing scale used for WBT tests • Certificate of Calibration of Weighting Scale issued by third party (i.e. SCT Engineering & Construction Co., Ltd.)	- Dated 18/01/2019	CME
9	SCT Engineering & Construction Co., Ltd.	• User Manual of the thermometer used for WBT tests • Certificate of Calibration of Thermometers issued by third party (i.e. SCT Engineering & Construction Co., Ltd.)	- Dated 18/01/2019	CME
10	SCT Engineering & Construction Co., Ltd.	• User Manual of the moisture meter used for WBT tests • Certificate of Calibration of moisture meter issued by third party (i.e. SCT Engineering & Construction Co., Ltd.)	- Dated 18/01/2019	CME
11	ECOEYE	Sample copies of ICS End User Agreement signed by the ICS User at the time of Distribution of ICS (Between 16/03/2018 to 27/11/2018)	-	CME
12	ECOEYE	Sample copies of filled CME monitoring survey questionnaire	-	CME
13	Applus+ Certification	DOE Field Survey of Registered ICS Users	-	Others
14	CDM EB	• Revised approved PoA-DD for "Clean Energy Program Supported by Republic of Korea" UNFCCC PoA 10415 • Approved CPA-DD for CPA 10415-0002	Version 2.0 dated 25/09/2018 Version 03 dated 26/12/2018	Others
15	KBS Certification Services Pvt. Ltd.	PoA Validation report for "Clean Energy Program Supported by Republic of Korea" UNFCCC PoA 10415	Web link	Others
16	Earthood Services Pvt. Ltd.	PRC 10415-001 Validation Opinion for "Clean Energy Program Supported by Republic of Korea" UNFCCC PoA 10415	Version 3.0 dated 12/11/2018	Others
17	Earthood Services Pvt. Ltd.	CPA 10415-0002 Validation report for "Clean Energy Program Supported by Republic of Korea" UNFCCC PoA 10415	Version 02 dated 26/12/2018	Others
18	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
19	CDM EB	E-mail from CDM Secretariat confirming the monitoring report /01/ made publicly available from 01/03/2019	Email dated 01/03/2019 from CDM RIT Team	Others
20	CDM EB	UNFCCC project page of PoA reference	Web link	Others

		number (10415)		
21	CDM EB	Approved CDM consolidated baseline and monitoring methodology AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass" (Version 08)	Web link	Others
22	-	Websites referred: a. http://www.itouchmap.com/latlong.html b. http://www.ipcc-nggip.iges.or.jp/	-	Others
23	ECOEYE	CDM Monitoring and WBT Survey Staff training Records	Dated 16/03/2018	Others
24	CDM EB	Monitoring Report Form for CDM programme of activities along with Instruction for filling out monitoring report form	Version 03 dated 31/05/2019	Others
25	Global Alliance for Clean Cookstoves	The Water Boiling Test Protocol	Version 4.2.3	Others
26	CDM EB	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 07	Others
27	CDM EB	Guideline: Sampling and surveys for CDM project activities and programme of activities	Version 04	Others
28	National Standards and Quality Department, Myanmar	https://www.myanmarstandards.org.mm/metrology/#1550241880739-43795f45-edb8	-	Others
29	ECOEYE	Project Cost Information Sheet – Myanmar PoA CEP	-	CME
30	CDM EB	CPA 10415-0001 exclusion confirmation email	Dated 17/01/2019	CME
31	ICS Manufacturer	Confirmation of Serial Number for ECOEYE ICS (letter)	Dated 24/06/2019	Others

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

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

FAR ID	01	**Section no.**	E.1.2	**Date :** 02/04/2019
Description of FAR				
DOE involved in first verification of the PoA must ensure that the approach for calculating fNRB is same for all CPAs under this PoA.				
Project participant response				**Date :**05/04/2019
CPA has adopted approach as per AMS-II.G, version 08 (paragraph 43, option a) i.e. conduct local own studies to determine the local f_{NRB} value (sub national values). The same approach will be used for all CPAs under this PoA.				
Documentation provided by project participant				

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DOE assessment	**Date:**08/04/2019
Verification team confirm that there is only one CPA considered for this monitoring period. Therefore, this FAR is not relevant for this verification and carry forwarded to next verification. DOE involved in next periodic verification of the PoA must ensure that the approach for calculating f_{NRB} is same for all CPAs under this PoA. Therefore, **this FAR is converted to FAR-07 in table 4 below.**	

Table 2. CLs from this verification

CL ID	02	**Section no.**	E.3.4.2	**Date :** 02/04/2019
Description of CAR				
While reviewing the ICS registration database, verification team found that multiple stoves being distributed to the same person (name, village name and other details are same) but the same isnot reflected in the value of monitoring parameter $N_{d,HH}$. CME to clarify the same.				
Project participant response				**Date :**05/04/2019
CME has checked and updated the ICS distribution database: • Some recipients have same name and same village however they are unique individuals and households; • Extra ICS have been removed from the database in case where household has received more than one ICS				
Documentation provided by project participant				
Updated ICS registration Database Revised ER Spreadsheet dated 04/04/2019				
DOE assessment				**Date:**08/04/2019
CME as a response, have removed 232 ICS (94 ICS of S26-13 model and 138 ICS of S26-13 model) from Database to account for multiple entries in the name of same person. Verification team checked the revised ICS database and signed ICS End User Agreement of similar names appearing in the database. Verification team confirms that now none of household have more than 1 ICS as per revised Database. ER calculation has been revised based on the reduced number of ICS as per updated ICS registration database and found acceptable. Therefore, this CL is closed.				

CL ID	03	**Section no.**	E.3.6.5	**Date :** 02/04/2019
Description of CAR				
Under section F.6of MR, CME has mentioned that “During this monitoring period there is a slight increase in the GHG emission reductions achieved by the CPA due to higher ICS usage rate”. However, actual ERs achieved during this monitoring period are less than the ex-ante ERs as per included CPA-DD for CPA 10415-0002. CME to clarify the same.				
Project participant response				**Date :**05/04/2019
Yes, actual ERs achieved during this monitoring period are less than the ex-ante ERs. CME has corrected the section F.6 of the monitoring report				
Documentation provided by project participant				
Revised Monitoring Report version 3 Revised ER spreadsheet dated 04/04/2019				
DOE assessment				**Date:**08/04/2019
CME as a response have revised MR section F.6. in line with comparison between ex-ante ERs estimated for monitoring period of2 days as per CPA-DD of CPA 10415-0002 and actual ERs achieved during this monitoring period. Therefore, this CL is closed.				

Table 3. CARs from this verification

CAR ID	04	**Section no.**	E.3.6.4	**Date :** 02/04/2019
Description of CAR				
Amount of GHG emission reductions achieved by CPA 10415-0002 during the present monitoring period is inconsistent between ER calculation spreadsheet and MR.				
Project participant response				**Date :** 05/04/2019
CME has corrected ER calculation spreadsheet.				
Documentation provided by project participant				
Revised Monitoring Report version 3 Revised ER spreadsheet dated 04/04/2019				
DOE assessment				**Date:**08/04/2019

CME as a response have corrected the ER spreadsheet based on the reduction of number of ICS distributed in response to CL-02 above. The actual ERs achieved and other input values are now consistent with revised MR and other supporting documents. Therefore, this CAR is closed.

CAR ID	05	**Section no.**	E.2.1	**Date :** 02/04/2019
Description of CAR				
In accordance with para 259(d) of CDM PS for PoA, version 02, CME has not mentioned the implementation and actual operation of the included CPAs, including relevant dates (e.g. construction, commissioning, start of operation).				
Project participant response				**Date :** 05/04/2019
The implementation and actual operation of the included CPAs, including distributiondates of first and last ICS included under this monitoring period has been added to the monitoring report				
Documentation provided by project participant				
Revised Monitoring Report, version 3				
DOE assessment				**Date:**08/04/2019
CME as a response, have now included the number of ICS distributed and distribution date of first and last ICS during the present monitoring period in revised MR. Verification team checked the ICS registration database and copies of End user agreement signed by ICS users and confirms the date and number of ICS distributed are now consistent with the supporting documents. Therefore, this CAR is closed.				

CAR ID	06	**Section no.**	E.3.5	**Date :** 02/04/2019
Description of CAR				
In accordance with para 263(b) of CDM PS for PoA, version 02, CME has not mentioned the calibration information (frequency, date of calibration and validity) of equipment used to conduct WBT for monitoring parameter $\eta_{new,i,j}$.				
Project participant response				**Date :** 05/04/2019
The calibration information (frequency, date of calibration and validity) of equipment used to conduct WBT for monitoring parameter $\eta_{new,i,j}$. Has been added to the monitoring report				
Documentation provided by project participant				
Updated monitoring report				
DOE assessment				**Date:**08/04/2019
CME as a response have included the calibration information (frequency, date of calibration and validity) of equipment's in line with para 263(b) of CDM PS for PoA, version 02 in revised MR. Verification team have checked the calibration certificates of the monitoring equipment's and found the details consistent with revised MR. therefore, this CAR is closed.				

CAR ID	07	**Section no.**	E.2.2	**Date :** 14/06/2019
Description of CAR				
The monitoring report (page 8) has provided information on the distribution of the ICS. However, no information is provided in the monitoring system to indicate the CME organizational structure, roles and responsibilities of personnel involved in the data monitoring, as well as any procedures for replacement/repair of damaged project devices (please refer to the PS-PoA ver. 02 paragraph 261).				
Project participant response				**Date :** 18/06/2019
• The CME has added information related to the organizational structure, roles and responsibilities of personnel involved in the data monitoring; • There is no provision for replacement/repair of damaged project devices. *If an ICS is no longer in use, it will be accounted as not in use over the entire period (CPA DD MM 02 page 27)*				
Documentation provided by project participant				
Revised monitoring report, version 4 dated 18/06/2019				
DOE assessment				**Date:**19/06/2019
CME as a response have added information related to organisational structure with roles and responsibilities of monitoring personnel involved under section D of revised MR. This is in line with the DOE onsite observation and hence acceptable. Also, CME clarified that as per registered monitoring plan, there is no provision for replacement or repair of faulty ICS. If it is found to be non-operational during the monitoring survey or spot check by CME, it will be mentioned as not in use for entire monitoring period. Therefore, this CAR is closed.				

CAR ID	08	**Section no.**	E.3.6.5	**Date :** 14/06/2019
Description of CAR				

The monitoring report (Sections F.4 and F.5) has concluded that the emissions reductions for the current monitoring period (148 tCO2e) is less than the ex-ante estimations of 249 tCO2e. However, it is observed that this comparison is based on 11,058 stoves (distributed during this monitoring period) and 25,000 stoves (considered for the ex-ante estimation). The CME shall provide a comparison which is based on equivalent number of stoves.
Project participant response **Date :** 18/06/2019
The CME has revised the relevant sections. The comparison is based on equivalent stoves and days of operation.
Documentation provided by project participant
Revised MR, version 4 dated 18/06/2019
DOE assessment **Date:**19/06/2019
CME as a response, have revised the calculation of ex-ante estimation of ERs in accordance with actual number of ICS distributed for each type of ICS for applied monitoring period of 2 days for CPA 10415-0002. There is slight increase in actual ERs achieved compared to ex ante estimation of ERs, which is explained under section F.6 of revised MR. Therefore, CAR is closed.

CAR ID	09	**Section no.**	E.1.1	**Date :** 14/06/2019
Description of CAR				
The monitoring report template version 02.0 used is obsolete now. CME to update the MR in latest available version of MR template now.				
Project participant response				**Date :** 18/06/2019
The CME has revised the MR as per latest applicable MR template version 03.0 .				
Documentation provided by project participant				
Revised MR, version 4 dated 18/06/2019				
DOE assessment				**Date:**17/09/2019
CME as a response, have updated the MR as per latest applicable MR template version 03.0 on UNFCCC website. Therefore, CAR is closed.				

Table 4. FARs from this verification

FAR ID	10	**Section No.**	E.1.2	**Date:**26/04/2019
Description of FAR				
DOE involved in next periodic verification of the PoA must ensure that the approach for calculating f_{NRB} is same for all CPAs under this PoA.				
CME response				**Date:**DD/MM/YYYY
NA				
Documentation provided by the CME				
-				
DOE assessment				**Date:**DD/MM/YYYY
NA				

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Document information

Version	*Date*	*Description*
03.0	31May 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	5June 2015	Initial publication.

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