Verification and certification report form for CDM programme of activities

(Version 04.0)

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)	**Title**: Clean Energy Program Supported by Republic of Korea **UNFCCC reference number**: 10415		
Version number(s) of the PoA-DD(s) to which this report applies	Version 2.0		
Version number of the verification and certification report	02		
Completion date of the verification and certification report	17/09/2021		
Monitoring period number and duration of this morning period	**Monitoring period number**: 04 **Duration**: 23/06/2020 to 31/12/2020 (including both the days)		
Number and version number of the monitoring report to which this report applies	Number: 01 Version number: 1.2		
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	**Applied methodology**: "Energy efficiency measures in thermal applications of non-renewable biomass" AMS-II.G. (version 08.0) **Standardized baseline**: NA		
Mandatory sectoral scopes	Sectoral scope 3 (Energy Demand)		
Conditional sectoral scopes, if applicable	No conditional sectoral scope(s) linked to the applied methodology		
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	454,627 tCO_2e		
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	0 tCO_2e	396,659 tCO_2e	0 tCO_2e
Name and UNFCCC reference number of the DOE	4K Earth Science Private Limited UNFCCC Ref No. CDM-E-0069		

Name, position and signature of the approver of the verification and certification report	 S. Jagajothi Director

SECTION A. Executive summary

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4K Earth Science Private Limited has been commissioned by "ECOEYE Co., LTD" to perform an independent verification of its CDM registered PoA "Clean Energy Program Supported by Republic of Korea" UNFCCC Reference number 10415 for the reported GHG emission reductions for the given 4th monitoring period 23/06/2020 to 31/12/2020 (both dates included). The PoA must undergo independent third-party verification and certification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs). The CPA considered in the verification is:

Reference number	Title	Inclusion date
10415-P1-0002-CP1	Clean Energy Program Supported by Republic of Korea CPA MM 02	27/12/2018

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The CPA has been implemented and operated as per the approved PoA-DD & CPA-DD and that all physical features (technology, project equipment, and monitoring) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report confirms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the CPA under the PoA. The verification is based on review of monitoring report, supporting information and:

(a) The approved PoA-DD & CPA-DD, including the monitoring plan and the corresponding validation opinion(s);
(b) Previous verification reports, deviation requests, requests for revision of monitoring plan;
(c) Monitoring report for the monitoring period under verification including CER calculations sheets and all supporting documents;
(d) The applied monitoring methodology;
(e) The applied standardized baseline (if applicable);
(f) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
(g) All information and references relevant to the PoA's resulting in emission reductions.

The PoA is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

4K Earth Science Private Limited has, based on the recommendations in the latest version of CDM validation and verification standard for programmes of activities, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

Description of PoA:

The objective of the "Clean Energy Program Supported by Republic of Korea" (hereafter referred to as "the program") is to promote dissemination of fuelwood burning improved cookstoves (ICS). The implementation of projects under this program will improve access to clean energy, diminish demand for fuelwood, mitigate impact of climate change and contribute in socio-economic development of the beneficiary communities.

ECOEYE Co., LTD as a coordinating and managing entity (CME) is implementing the CDM PoA "Clean Energy Program Supported by Republic of Korea". ECOEYE Co., LTD is a leading carbon offset project developer and trader that assist for profit and not for profit organizations to implement climate mitigation projects. ECOEYE Co., Ltd. provides all implementation costs for the project under this CPA, including total operation & maintenance costs of ICS production and free distribution for CME and CPA implementers to operate the CPA(s) in a financially sustainable condition.

The program targets consumers that use fuelwood as their primary fuel for cooking to replace the existing technologies with ICS. The consumption of fuelwood degrade local environments creates indoor air pollution that causes respiratory diseases and adds significantly to GHGs emissions. The program by replacing inefficient technology/measure such as three stone stove, tripod and traditional cookstoves shall result in clean environment, reduction of GHG emissions and enhanced living standards in user households.

Title of PoA	Clean Energy Program Supported by Republic of Korea
UNFCCC reference number	10415
Host Party	Myanmar (Host)
Coordinating/Managing Entity	ECOEYE Co., LTD
Applied methodology	AMS-II.G. (Version 8.0)
Registration Date	28/08/2018
Renewal Period	28/08/2018 to 27/08/2025
PoA duration	13/04/2017 to 12/04/2045
Registered PoA-DD	Version 2.0, dated 25/09/2018
Period verified in this verification	23/06/2020 to 31/12/2020 (including both the days)

The brief description of the CPA (covered in this monitoring period "23/06/2020 to 31/12/2020") is detailed below.

CPA implementer	ECOEYE Co., LTD
Title of CPA	Clean Energy Program Supported by Republic of Korea CPA MM02
UNFCCC reference number	10415-P1-0002-CP1
Applied methodology	AMS-II.G. (Version 8.0)
Location	Physical/ Geographical boundary of the CPA is the Republic of The Union of Myanmar, Latitude: 19° 04' 24.47" N Longitude: 96° 40' 15.74" E
Inclusion date	27/12/2018
Crediting Period	10/01/2019 to 09/01/2029 (Fixed)
Included CPA-DD	Version 3.0 of 26/12/2018

The CPA is the implementation of improved cooking stoves (hereinafter "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 (hereinafter "GHG") emissions. Applicable models of ICS for this monitoring period are S26-13 and S32-13. An ICS has an enclosure for the fire to reduce the loss of radiant heat and protect it against the wind. It increases heat transfer to the cooking pot by guiding upward flow of the flue gases. ICS burns fuel more cleanly and efficiently reducing fuel consumption and GHG emissions, easing pressure on forest resources and reducing indoor air pollution.

Methodology:

4K Earth Science Private Limited follows a rule-based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the monitoring report of the PoA is made publicly

available at UNFCCC website as per CDM procedures. A desk review of the project documentation is undertaken, which is followed by a remote audit/telephonic interview by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and version 02.0 of "CDM validation and verification standard for programmes of activities", to capture the assessment of applicable CDM requirements viz., version 02.0 of "CDM project standard for programme of activities", approved PoA-DD & CPA-DD, applied methodology and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities, if any. The verification protocol is an internal document and is available on request. Following are the major milestones for the verification under consideration.

Verification contract	03/05/2021
Publication of MR	03/05/2021
Remote verification	27/05/2021, 21/06/2021 to 22/06/2021, 10/09/2021 and 13/09/2021
Draft Verification Report	14/09/2021
Final Verification Report	17/09/2021

4K Earth Science Private Limited confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

Based on the information seen and evaluated we confirm that the implementation of the CPA has resulted in 396,659 tCO_2e (round down) emission reductions during the monitoring period 23/06/2020 to 31/12/2020 (including both the days).

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 (3.1)	IR	Sharma	Chetan Swaroop	Central office	✓		✓	✓
2.	Local Expert	EI	Han	Zaw Zaw	Central office	✓		✓	

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 (TA 3.1)	IR	C	Indumathi	Central Office
2.	Approver	IR	S	Jagajothi	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.	The ICS distribution to the household is done by local partner (ASDO) and record the beneficiary details in "End user agreement" /24/. The information from "End user agreement" is further transferred to the ER sheet /04/. Error can be perceived during transfer of data from End user agreement to ER sheet by CME representative.	Medium	Verification team has checked the ER calculation sheet /04/ thoroughly to mitigate the risk.	To mitigate the risk, Verification team has checked the ICS registration data in the ER sheet /04/ through the remote interview acceptance sampling of the ICS and from the End user agreement /24/. The registration data was found consistent. Further Verification team has also checked the ER calculation sheet /04/ thoroughly to mitigate the risk.
2.	The data monitoring is done by CME through sampling and errors can be perceived during the information transfer from monitoring form to the emission reduction sheet.	High	As per the submitted Post registration change (**PRC-10415-004**) /06/ for this CPA, no sampling survey has been conducted corresponding to this monitoring period (23 Jun 2020 - 31 Dec 2020) and the data of the sampling survey conducted for MP02 (12 Jan 2019 - 12 Sep 2019) have been used for the ER calculation. There are number of monitoring parameters which are directly used for the baseline emission calculation. The data monitoring for these monitoring parameters is done by CME through Sampling and errors can be perceived during the information transfer from monitoring form to the emission reduction sheet.	Since most of the monitoring parameters were monitored through ex post monitoring survey conducted by CME, verification team has checked 19 households through telephonic survey by the local expert (using acceptance sampling approach) and compared the results with the sampling survey records /25/ and End user agreement forms/24/. All the filled sampling survey forms /25/ and end user agreement forms /24/ for all sampled household have been verified with ER spread sheet /04/ to check for any material error during data transfer.
3.	Errors can be perceived during the information transfer (Ex-ante parameters) from CPA-DD to the emission reduction sheet.	Medium	There are multiple ex-ante parameters in the Monitoring report which are used for the Baseline GHG emission calculation. Errors can be perceived during the information transfer (Ex-ante parameters) from CPA-DD to the emission reduction sheet.	To mitigate the risk, verification team has checked all the Ex-ante parameters under the ER sheet /04/ with the monitoring report /02/ and included CPA-DD /15/ and found consistent.

C.2. Consideration of materiality in conducting the verification

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The prescribed thresholds for materiality, as per §308 of "CDM validation and verification standard for programmes of activities" Version 02.0 /22/.

Prescribed range of ERs/annum	500,000+	300,000+ to 500,000	300,000	CDM PoAs comprised only of small-scale CPAs	CDM PoAs comprised only of microscale CPAs
Prescribed Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The identified/selected materiality threshold for the PoA under current monitoring period is 5% as CPA is small scale.

	MR Version (Draft) /01/	**MR Version (Final) /02/**
Emission reductions/monitoring period	399,217 tCO_2e	396,659 tCO_2e
Identified Threshold	5%	5%

The emission reductions for this monitoring period have been reduced due to raised CAR-05 which has been successfully closed. Refer Appendix 4 of this report for more details.

The assessment team confirms that the reported emission reductions are free from material errors, omissions or misstatements.

SECTION D. Means of verification

D.1. Desk/document review

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A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- 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 reviewed is included in the section 'Appendix 3' of this report.

D.2. On-site inspection

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the DOE and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), A DOE may postpone site visits for onsite inspections required by the "CDM validation and verification standard for programmes of activities" (version 02.0) /18/.

If the site visits cannot be postponed, a proper justification should be provided by the DOE why the site visits cannot be postponed, including the demonstration of a significant impact of delaying the site visits on the DOE, or project participants or coordinating/ managing entity (e.g. commitment/ timeline as per the validation or verification contract, CER delivery commitment by project participants) reliance on applicable force majeure provisions in the validation or verification contracts, if needed[1].

Considering the Myanmar travel restrictions due to COVID-19 Pandemic, Site visit was not expected to happen in near future. Site visit for this verification could not be postponed because it is not certain when the pandemic will be mitigated and delaying the site visit affects significantly with respect to project implementation schedule including CERs delivery which agreed between relevant stakeholders of the PoA. Hence, the site visit could not be postponed for this CPA. Hence, the DOE has skipped the on-site visit. However, as per the CDM EB, the DOE may use other standard auditing techniques for validation or verification as referred to in sections 7.1.3 and 10.1.3 of the VVS for PoA Version 02.0 /18/.

Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification. Along with desk review, audit team has conducted remote audit interview (Skype interview) as follows:

- A complete desk review of the Monitoring Report (initial and final versions), as well as all applicable country legal requirement and supportive evidences have been checked by the verification team.
- Verification team has performed Skype interview with representative of ECOEYE Co., LTD (CME and CPA Implementer for this CPA) in order to check implementation and operation of management system, project boundary, current situation, evaluation of data management, QA/QC system, monitoring equipment, monitoring procedures, calibration, trainings for surveyors and distributers etc.
- Further, the local expert conducted telephone interviews with representative of sampled households from 21/06/2021 to 22/06/2021, 10/09/2021 and 13/09/2021 to conduct DOE survey to check the acceptability of the data for each record in the CME's sample record and to determine whether the CME's sample records meet the requirements.
- Cross checks between information provided by interviewed personnel (i.e., by checking sources) to ensure that no relevant information has been omitted.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in MR and supporting documents.

[1] https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01041_index.html

Details of interviewees, topics covered and additional information presented in the below section "D.3 Interviews"

~~**Duration of on-site inspection:** DD/MM/YYYY to DD/MM/YYYY~~				
~~**No.**~~	~~**Activity performed on-site**~~	~~**Site location**~~	~~**Date**~~	~~**Team member**~~
~~1.~~				
~~…~~				

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Rai	Rahul	Project Manager Asia Carbon Project, ECOEYE Co., LTD (CME)	27/05/2021	• Monitoring plan • Implementation, Operation and Management of specific CPA • Emission reduction calculation • Training • Technical specifications of ICS • Life time of ICS • Manufacturing process • information flows for generating, aggregating and reporting of the monitoring parameters • Deviation justification • Quality Assurance/Quality Control • Sampling • CER rights • Double counting etc.	Chetan Swaroop Sharma (Team Leader & Technical Expert (3.1)) (Skype interview)
2.	Park	So Hyeon	Project Manager, ECOEYE Co., LTD (CME)	27/05/2021	• Implementation, Operation and Management of specific CPA	Chetan Swaroop Sharma (Team Leader & Technical Expert (3.1)) (Skype interview)

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	-	U Tin Aung	End User (Household representative)	21/06/2021	Interview with household representative	Zaw Zaw Han (Telephone interviews) For the monitoring parameters $N_{y,i,j}$ and
2.	-	Naw Feel Tu K	End User (Household representative)	21/06/2021		
3.	-	Saw Mu Lar	End User	21/06/2021		

		Hel	(Household representative)			μ_y from CME's MP02 monitoring survey
4.	-	D`Ohn Kyi	End User (Household representative)	21/06/2021		
5.	-	U Maung Maung Than	End User (Household representative)	21/06/2021		
6.	-	Daw Khing Tun	End User (Household representative)	21/06/2021		
7.	-	Daw War War Cho	End User (Household representative)	21/06/2021		
8.	-	U Thein Tan	End User (Household representative)	21/06/2021		
9.	-	U Thein Aung	End User (Household representative)	21/06/2021		
10.	-	U Myint Zaw	End User (Household representative)	22/06/2021		
11.	-	Daw Cho	End User (Household representative)	22/06/2021		
12.	-	Daw Htay Myint	End User (Household representative)	22/06/2021		
13.	-	Daw Tin Saung	End User (Household representative)	22/06/2021		
14.	-	Daw May Zar Oo	End User (Household representative)	22/06/2021		
15.	-	Daw Kyi Nyunt	End User (Household representative)	22/06/2021		
16.	-	Daw Hla Hla	End User (Household representative)	22/06/2021		
17.		U Khaing Tun	End User (Household representative)	22/06/2021		
18.	-	U Kyi Htwe	End User (Household representative)	22/06/2021		
19.	-	U Soe Win	End User (Household representative)	22/06/2021		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	-	Daw Yu Yu Myint	End User (Household representative)	13/09/2021	Interview with household representative	Zaw Zaw Han (Telephone interviews) For the monitoring parameters "Date of
2.	-	Daw Moe Moe Khaing	End User (Household representative)	10/09/2021		

3.	-	Saw Mu Lar Hel	End User (Household representative)	21/06/2021		commissioning of project device i" and "$N_{d,HH}$" from the households database till end of MP04
4.	-	U Nay Lin Htaik	End User (Household representative)	13/09/2021		
5.	-	U Maung Maung Than	End User (Household representative)	21/06/2021		
6.	-	Daw Than Than Sint	End User (Household representative)	10/09/2021		
7.	-	Daw War War Cho	End User (Household representative)	21/06/2021		
8.	-	Daw Phwar Mi Hlaing	End User (Household representative)	10/09/2021		
9.	-	U Thein Aung	End User (Household representative)	21/06/2021		
10.	-	Myo Thant	End User (Household representative)	10/09/2021		
11.	-	Daw Cho	End User (Household representative)	22/06/2021		
12.	-	U Mya Win	End User (Household representative)	13/09/2021		
13.	-	Daw Tin Saung	End User (Household representative)	22/06/2021		
14.	-	Daw May Zar Oo	End User (Household representative)	22/06/2021		
15.	-	U Nyi Nyi Lin	End User (Household representative)	10/09/2021		
16.	-	Daw Hla Hla	End User (Household representative)	22/06/2021		
17.	-	U Khaing Tun	End User (Household representative)	22/06/2021		
18.	-	U Kyi Htwe	End User (Household representative)	22/06/2021		
19.	-	U Than Min	End User (Household representative)	13/09/2021		

D.4. Sampling approach

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CME's sampling approach:

Sampling approach by the CME was applied for monitoring survey for 2nd monitoring period (12/01/2019 to 12/09/2019) but no monitoring survey for 3rd (13/09/2019 to 22/06/2020) and 4th (23/06/2020 to 31/12/2020) monitoring periods have been conducted due to the Covid-19 pandemic thus, CME has proposed alternative monitoring approach for this 4th monitoring period i.e., 23/06/2020 to 31/12/2020 (including both days) (refer to section E.3.2.1. and E.3.4.3 of this report for more details).

During MP02 (i.e., from 12/01/2019 to 12/09/2019), CME has applied a sampling approach as per approved PoA-DD /20/ and included CPA-DD /15/. A confidence/precision of 95/10 was applied by CME in the sampling survey for this CPA (CPA 10415- P1-0002-CP1) in accordance with the CPA-DD /15/. The sampling approach undertaken by CME is duly explained under Section E.3 of monitoring report /02/ which is found acceptable.

The CPA involves distribution of ICS throughout the project area thereby the population is heterogeneous in nature i.e., common technology with similar operating characteristics but dispersed i.e., distribution of ICS is spread across many provinces. Therefore, Stratified Sampling technique was undertaken by the CME for this CPA.
To ensure representativeness of the population, dissimilarity (such as ICS type, age group and provinces in which they are operating) within the included CPA were considered in the sample size calculation which is found OK. The households were selected randomly (by CME) as confirmed during the remote audit and from Screen captures of sample randomization /26/ and are representative of the population. Further sampling survey results were within the required precision. The sampling approach undertaken by CME is duly explained under Section E.3 of monitoring report /02/ which is found acceptable by the verification team.

DOE sampling:

There are total 4 monitoring parameters (as given below) for which sampling has been done by the DOE.

1. $N_{y,i,j}$
2. μ_y
3. Date of commissioning of project device i
4. $N_{d,HH}$

From the above parameters, two parameters ($N_{y,i,j}$ and μ_y) have been monitored by CME during MP02 sampling and recorded in Monitoring survey forms /25/ however the remaining parameters (Date of commissioning of project device i and $N_{d,HH}$) are recorded at the time of distribution of the ICS till the end of MP04.

The verification team has used acceptance sampling for remote surveys as part of this verification in accordance with Para. 28 of “Sampling and surveys for CDM project activities and programmes of activities, version 09.0” /12/ and paragraph 54 of the “Guideline: Sampling and surveys for CDM project activities and programmes of activities, version 04.0” /13/. Verification team carried out the random sampling from the CME’s sample records (for $N_{y,i,j}$ and μ_y), CME records (Date of commissioning of project device i and $N_{d,HH}$) and check (using its own professional judgment) the acceptability of the data for each record in the CME’s records for the Monitoring parameters. The DOE has determined acceptance sample size based on the “Table. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks” of standard “Sampling and surveys for CDM project activities and programmes of activities” version 09.0.

During the remote telephonic interview by the local expert, a random sampling approach has been used to verify the reported values for the monitored parameters as listed in section E.2 of the MR /02/ and ER Sheet /04/ which are determined through sample survey by CME during MP02 i.e., from 12/01/2019 to 12/09/2019 (including both the days) or during the distribution of devices.

For the determination of DOE’s acceptance sample size, verification team has selected the following using its own professional judgment:

1. Acceptable quality level (AQL) - 1%
2. Unacceptable Quality Level (UQL) – 15%
3. Producer risk -5%
4. Consumer risk -20%

Verification team has determined acceptance sample size based on the “Table 2. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks” of standard “Sampling and surveys for CDM project activities and programmes of activities” version 09.0 /12/. From the above factors, the verification team determined the minimum sample size (n) as 19 and acceptance number (c) as 1. The sample size used to verify the reported values for the monitored parameters which are determined through sample survey by CME. The verification team verified the 19 randomly selected samples during phone survey by local expert and filled the DOE survey form to check the acceptability of the data for each record in the CME’s records.

The actual number of sample size where the acceptance survey was done given below:

Parameters	Total Population	CME’s sample size	Acceptance sample size	Acceptance Number	Sampling method used
Monitoring parameters ($N_{y,i,j}$ and μ_y) as per section E.2 of the MR /02/	The target population includes all ICS using Households (HHs) in the project database (PD), which are end-users of the project technology. This represented total 176,545 HHs till end of MP02.	130 for the monitoring parameter μ_y and 140 for the monitoring parameter $N_{y,i,j}$	19	1	Acceptance Sampling based on random selection of households.
Monitoring parameters (Date of commissioning of project device i and $N_{d,HH}$) as per section E.2 of the MR /02/	The target population includes all ICS using Households (HHs) in the project database (PD), which are end-users of the project technology. This represented total 3,45,026 HHs distributed till end of MP04	Not applicable as these parameters are recorded at the time of distribution of ICS to HHs	19	1	Acceptance Sampling based on random selection of households.

Using acceptance sampling approach, verification team checked the CME’s results (reported in the Monitoring forms /25/ and End user agreements /24/) along with the following evidences:

1. Remote audit interview records by Local expert
2. CME household database under the ER sheet /04/
3. Shipping details of the ICS used by project participating households /33/

The result of the survey is given below:

Parameters	DOE Sample size	No of CME's record beyond unacceptable level	Accepted
Monitoring parameters (1. $N_{y,i,j}$, 2. μ_y, 3. Date of commissioning of project device i and 4. $N_{d,HH}$) as per section E.2 of the MR /02/	19	1	18, Therefore, the CME's set of records for Monitoring parameters are accepted.

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	00	01	00
Remaining forward action requests from validation and/or previous verifications	00	00	02
CPAs considered for verification and covered in this report	00	00	00
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD	00	00	00
Implementation and operation of the management system	00	00	00
Post-registration changes			
• Corrections	00	00	00
• Inclusion of a monitoring plan	00	00	00
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents[2]	00	00	00
• Changes to the programme design	00	00	00
• Addition of CPA inclusion template	00	00	00
• Change of coordinating/managing entity	00	00	00
• Changes specific to afforestation and reforestation activities	00	00	00
Component project activities			
Compliance of the CPA implementation with the included CPA design document	01	01	00
Post-registration changes			
• Temporary deviations from registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	00	00	00
• Corrections	00	00	00
• Changes to the start date-of the crediting period	00	00	00
• Inclusion of a monitoring plan	00	00	00
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	00	00	00

[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).

• Changes to the project design	00	00	00
• Changes specific to afforestation and reforestation activities	00	00	00
Compliance of the registered monitoring plan with applied methodologies and standardized baselines	00	00	00
Compliance of monitoring activities with the registered monitoring plan			
• Data and parameters fixed ex ante or at renewal of crediting period	00	00	00
• Data and parameters monitored	00	01	00
• Implementation of sampling plan	00	01	00
Compliance with the calibration frequency requirements for measuring instruments	00	00	00
Assessment of data and calculation of emission reductions or net removals			
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	00	01	00
• Calculation of project GHG emissions or actual net GHG removals by sinks	00	00	00
• Calculation of leakage GHG emissions	00	00	00
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	00	00	00
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	00	00	00
• Remarks on difference from estimated value in included CPA	00	00	00
Assessment of reported sustainable development co-benefits	00	00	00
Global stakeholder consultation	00	00	00
Others (please specify)	00	00	00
Total	01	05	02

SECTION E. Verification findings

E.1. General

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

Means of verification	Verification team checked the submitted monitoring report /01/ with latest version of MR form available in the UNFCCC website (i.e., version 4.0) and "Instructions for filling out the monitoring report form" mentioned as attachment to Monitoring report form (version 4.0).
Findings	CAR-01 has been raised in this regard and successfully closed. Refer Appendix-4 of this report for more details.
Conclusion	Verification team confirms that final monitoring report /02/ is completed using the latest valid version of the applicable monitoring report form /23/.

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

>>

This is 4th verification of the PoA and the verification team found that there is one remaining FAR pending from validation and previous verifications (1st, 2nd and 3rd), to be considered during this monitoring period (Refer to FAR ID 01 in Appendix 4 of this verification report). However, as single CPA (10415-P1-0002-CP1) is considered for this verification only, this FAR from previous verifications is not relevant to this verification and it is being carry forwarded to next verification as FAR ID 02 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)
Title: CPA MM 01 **UNFCCC reference no.:** 10415-P1-0001-CP1	No	28/08/2018 (Excluded on 03/01/2019)	2.0	N
Title: Clean Energy Program Supported by Republic of Korea CPA MM 02 **UNFCCC reference no.:** 10415-P1-0002-CP1	Yes	27/12/2018	2.0	Y
Title: Clean Energy Program Supported by Republic of Korea CPA MM 03 **UNFCCC reference no.:** 10415-P1-0003-CP1	No	16/12/2020	2.0	N

E.2. Programme of activities

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

Means of verification	Under this Monitoring report (4th monitoring period i.e., 23/06/2020 to 31/12/2020), only one CPA i.e., "Clean Energy Program Supported by Republic of Korea CPA MM 02" of UNFCCC Ref. No. 10415-P1-0002-CP1 (whose crediting period fall within this monitoring period) is considered for verification. Since registration of the PoA, three CPAs (10415-P1-0001-CP1, 10415-P1-0002-CP1 and 10415-P1-0003-CP1) included in the PoA until the end of the current monitoring period. First CPA (10415-P1-0001-CP1) was excluded on 03/01/2019 by request from CME and the third CPA (10415-P1-0003-CP1) has crediting period start date from 17/12/2020 however no ER has been claimed from CPA 3 under this monitoring report. Therefore, this monitoring report (monitoring period from 23/06/2020 to 31/12/2020) covers only one CPA of ref.no.10415-P1-0002-CP1. The verification team has checked whether the implementation and operation of the approved CDM PoA and the included CPA have been conducted in accordance with the description contained in the approved PoA-DD /20/ and included CPA-DD /15/. The verification team has checked the information in the monitoring report and compared against the approved PoA-DD /20/ and included CPA-DD /15/. During the remote audit and documents review, the verification team has checked that all physical features (technology, project equipment, and monitoring) of the included CPA specified in the included CPA-DD are in place and that the

coordinating/managing entity has operated the CDM PoA and included CPA as per the PoA-DD /20/, included CPA-DD /15/ and approved temporary deviation PRC /06/.

ECOEYE has disseminated fuelwood burning improved cookstoves (ICS) in Myanmar through coordination with local stove retailers and/or distributors under the registered PoA as a CME. The contract /30/ between CME and local partner i.e., ASDO has been checked by the verification team. The overall responsibility of implementation and operation is with CME, which was also confirmed during the remote interview and CPA-DD /15/. ECOEYE Co., Ltd. provided stove subsidy to distribute / install ICS on a non-commercial basis to household using traditional baseline stove. The verification team checked that ECOEYE provides all implementation cost for the PoA and the distribution of ICS has been for free as confirmed by the interview of CME, end-users and documented evidences of project cost. This is consistent with PoA-DD /20/ and CPA-DD /15/.

This monitoring report (for the monitoring period from 23/06/2020 to 31/12/2020) includes the implementation and operation of single CPA (Ref.no. 10415-P1-0002-CP1) as part of PoA /20/ within the geographical boundary of Myanmar. The verification team checked ICS using household's address in the ICS registration database /04/, during the telephonic interview by the local expert and confirmed that the implementation and operation of the CPA has been conducted within the geographical boundary of Myanmar. The implementation of CPA 10415-P1-0002-CP1, as referenced above is within the geographical boundary of the PoA-DD /20/.

The start date of crediting period of PoA is 28/08/2018. The first ICS included in this monitoring period, was distributed on 28/09/2017 and the distribution date of the last ICS was 22/12/2020. It was verified with relevant end-user agreements signed by ICS user /24/.

Till the end of 2nd Monitoring period (12/01/2019 to 12/09/2019), two model of the ICS i.e., S26-13 and S32-13 manufactured by SSM, have been distributed in townships across Yangon, Ayeyarwardy, Bago, Sagaing and Shan region of Myanmar. Meanwhile only model S32-13 has been distributed only in region of Ayeyarwardy till the end of the current 4th monitoring period i.e. 23/06/2020 to 31/12/2020. This was confirmed through the ICS registration database /04/ and total number of stoves distributed at the end date for the current monitoring period are as follows:

CPA (10415-P1-0002-CP1)	Number of ICS by type	
	ICS S26-13	ICS S32-13
Distributed from till end of 2nd monitoring period	6,997	169,548
Distributed after 2nd monitoring period till end of 4th monitoring period	0	168,481
Subtotal by type	6,997	338,029
Total	345,026	

As per the ER sheet of MP02 i.e., from 12/01/2019 to 12/09/2019 /10/ (available on UNFCCC website https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss547289295/view), Number of ICS distributed is 1,75,015 however as per the ER sheet submitted corresponding to MP04/04/, the number of distributed devices till end of MP02 is mentioned as 1,76,545. CL-01 has been raised in this respect and successfully closed. Refer appendix 4 of this report for more details. This discrepancy is due to the counting error of ICS in 2nd MP ER sheet (available on UNFCCC website https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss547289295/view).

In this issuance i.e., MP04 the number of ICSs are properly included in ER calculation:

- The CME correctly counted 1,534 ICSs in Ayeyarwaddy (ASDO17) region

for this monitoring period which were erroneously uncounted in the MR of 2nd MP even though they were registered in project database at 2nd verification;
- 4 ICSs with unrecognized serial number have been excluded from the total number of ICSs.

CME has submitted the excel screenshots to explain the discrepancy /35/ which is checked by the verification team and found OK. After reviewing the project database and ER sheets /04/, the verification team concluded that explanation of discrepancy in counting of ICSs is reasonable.

The verification team interviewed ICS user households by its local expert and checked that the ICS of the included CPA specified in the included CPA-DD are in place. Manufacturer's specification and WBT test report were provided and it was confirmed that all physical features of the included CPA specified in the included CPA-DD are in place.

CPA (10415-P1-0002-CP1)	Technical specification of ICS by type	
	ICS S26-13	ICS S32-13
Specific Fuel Consumption	0.035 MJ/min/L	0.039 MJ/min/L
Thermal Efficiency	28.9%	38.7%
Lifespan	5 years	5 years
Thermal power	3.8 kW	4 kW

There is a temporary deviation from the registered monitoring plan of the included CPA-DD /15/ applicable to this monitoring period which is already approved (PRC-10415-004). Please refer to section E.3.2.1. of this verification report and PRC validation report (Version 03, 23/07/2021) /06/ for more details.

Therefore, the quantity, specification and target group of the ICS were found in accordance with the PoA-DD /20/ and CPA-DD /15/. Further, based on the review of ICS registration database /04/, End user agreements /24/, remote interviews, monitoring survey/photos /25/ etc., verification team found that the actual implementation on ground of the PoA is consistent with PoA-DD /20/ and CPA-DD /15/.

Findings	No finding raised.
Conclusion	Verification team confirms that • The implementation and operation of the approved CDM PoA and the included CPA have been conducted in accordance with the description contained in the registered PoA-DD and included CPA-DD. This confirms the compliance of § 340 and § 341 of VVS for PoA version 02.0 /18/. • The information (data and variables) provided in the MR is in compliance with the approved PoA-DD and included CPA-DD except for the approved temporary deviations. • There is a temporary deviation from the registered monitoring plan of the included CPA-DD /15/ applicable to this monitoring period which is already approved (PRC-10415-004). Please refer to section E.3.2.1. of this verification report and PRC validation report (Version 03, 23/07/2021) /06/ for more details. • During the remote audit and documents review, the verification team has checked that all physical features (technology, project equipment, and monitoring) of the included CPA specified in the included CPA-DD are in place and that the coordinating/managing entity has operated the CDM PoA and included CPA as per the PoA-DD /20/, included CPA-DD /15/ and approved temporary deviation PRC /06/.

E.2.2. Implementation and operation of the management system

Means of verification	The verification team determined the implementation and operation management system through the desk review and remote interview of CME. The verification team has checked whether management and operational system including the responsibilities and authorities for monitoring, quality check and record-keeping system etc. are in accordance with the approved PoA-DD /20/ and CPA-DD /15/ through document review and remote interview with the CME.

	In order to ensure a successful implementation and operation of the PoA and included CPA, the CME has developed CDM operating Manual /31/. This manual includes a standard of procedure to assist CME, distributor of ICS and other monitoring teams in planning and conducting monitoring exercise for the PoA. Through document review and interviews with the CME, it was found that CME had established a well-defined management and operational system according to the manual. The organizational structure, responsibilities, competencies, training and capacity building for the PoA were found to be adequate. ECOEYE has involved as CME and CPA implementer for this CPA. The CME establishes end-user agreements with households for CER ownership and the verification team reviewed sampled hardcopies of the end-user agreements /24/ as evidence. Monitoring survey was conducted by the ECOEYE and stove distributor (ASDO) teams from 19/10/2019 to 26/10/2019 corresponding to MP02. The CME maintains ICS registration database in electronical format for the CPA of ref.no. 10415-P1-0002-CP1 as well as hard copies of end user agreements /24/ and completed survey forms /25/ and WBT test reports /07/ are retained by the CME. Distribution data, ICS model and user details are recorded for all distributed ICS in the database. By checking the database with the hardcopy of end-user agreements /24/, the verification team found that the total number of ICS distributed by type and age group was tracked in the database and the database adequately updated. 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)/15/. The survey team was supervised and trained by the ECOEYE for data collection and archiving. CME held the training courses on 03/10/2019 and 04/10/2019 in Myanmar. Training materials, pictures and attendance lists of the courses /27/ were provided to the verification team. The verification team confirms that management and operational system, the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan of the registered PoA-DD and CPA-DD. Further, the CPA implementer has implemented and operated the CPA as per the registered monitoring plan as mentioned in the PoA-DD and CPA-DD.
Findings	No finding raised.
Conclusion	4KES confirms that: • The PoA management system, quality assurance, record keeping system and related procedures have implemented as described in the MR /02/ and are in accordance with the approved PoA-DD /20/ and included CPA-DD /15/.

E.2.3. Post-registration changes

E.2.3.1. Corrections

>>

There is no correction on the PoA-DD /20/ applicable from this monitoring period.

Corrections approved by the board as applicable from the periods prior to this monitoring period:

Corrections to the registered PoA-DD were approved on 17/12/2018 (effective approval date) under reference number PRC-10415-001.

E.2.3.2. Inclusion of a monitoring plan

>>
Not applicable as monitoring plan is provided in the approved PoA-DD itself.

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

>>
No permanent changes to the registered monitoring plan described in the PoA-DD /20/, or permanent deviation of monitoring from the applied methodology or other methodological regulatory documents are being submitted with this monitoring report.

Changes that have been approved by the Board prior to the submission of this monitoring report:
Permanent changes to the registered PoA-DD were approved on 17/12/2018 (effective approval date) under reference number PRC-10415-001.

E.2.3.4. Changes to the programme design

>>
No change in programme design of approved PoA-DD /20/ during this monitoring period.

E.2.3.5. Addition of CPA inclusion template

>>
No post registration changes to the approved PoA-DD /20/ for the addition of CPA inclusion template during this monitoring period.

E.2.3.6. Change of coordination/managing entity

>>
Not applicable.

E.2.3.7. Changes specific to afforestation and reforestation activities

>>
Not applicable.

E.3. Component project activities

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

Means of verification	The verification team has checked whether the implementation and operation of the included CPA have been conducted in accordance with the description contained in the included CPA-DD /15/. The verification team has checked the information in the monitoring report and compared against the included CPA-DD /15/. During the remote audit and documents review, the verification team has checked that all physical features (technology, project equipment, and monitoring) of the included CPA specified in the included CPA-DD are in place and that the coordinating/managing entity has operated the included CPA as per the included CPA-DD /15/ and approved temporary deviation PRC /06/. On-site inspection was not conducted but remote interview was conducted with CME as alternative means of verification (Refer to the section D.2. of this Verification report for details). The verification team checked the operational records including ICS registration database /04/, Monitoring survey/photos /25/, End user agreement /24/ and other relevant information (Appendix 3) and interviewed relevant CME staff and end-user households on the actual operation.

CPA implementation and operation status

Under this Monitoring report (4th monitoring period i.e., 23/06/2020 to 31/12/2020), only one CPA i.e., "Clean Energy Program Supported by Republic of Korea CPA MM 02" of UNFCCC Ref. No. 10415-P1-0002-CP1 (whose crediting period fall within this monitoring period) is considered for verification.

Since registration of the PoA, three CPAs (10415-P1-0001-CP1, 10415-P1-0002-CP1 and 10415-P1-0003-CP1) included in the PoA until the end of the current monitoring period. First CPA (10415-P1-0001-CP1) was excluded on 03/01/2019 by request from CME and the third CPA (10415-P1-0003-CP1) has crediting period start date from 17/12/2020 however no ER has been claimed from CPA 3 under this monitoring report. Therefore, this monitoring report (monitoring period from 23/06/2020 to 31/12/2020) covers only one CPA of ref.no.10415-P1-0002-CP1.

The CPA 10415-P1-0002-CP1 includes distribution of portable ICS model called S26-13 and S32-13 manufactured by SSM. The verification team reviewed manufacturer's specification /05/, ICS registration database /04/ and end-user agreement /24/ with household as well as conducted interview with ICS end-users to check and compare the ICS model that described in the CPA-DD /15/.

ECOEYE has disseminated fuelwood burning improved cookstoves (ICS) in Myanmar through coordination with local stove retailers and/or distributors under the registered PoA as CME. The contract /30/ between CME and local partner i.e., ASDO has been checked by the verification team. The overall responsibility of implementation and operation is with CME, which was also confirmed during the remote interview and CPA-DD /15/. ECOEYE Co., Ltd. provided stove subsidy to distribute / install ICS on a non-commercial basis to household using traditional baseline stove. The verification team checked that ECOEYE provides all implementation cost for the PoA and the distribution of ICS has been for free as confirmed by the interview of CME, end-users and documented evidences of project cost. This is consistent with PoA-DD /20/ and CPA-DD /15/.

This monitoring report (for the monitoring period from 23/06/2020 to 31/12/2020) includes the implementation and operation of single CPA (Ref.no. 10415-P1-0002-CP1) as part of PoA /20/ within the geographical boundary of Myanmar. The verification team checked ICS using household's address in the ICS registration database /04/, during the telephonic interview by the local expert and confirmed that the implementation and operation of the CPA has been conducted within the geographical boundary of Myanmar as mentioned in the CPA-DD /15/.

The start date of crediting period of PoA is 28/08/2018. The first ICS included in this monitoring period, was distributed on 28/09/2017 and the distribution date of the last ICS was 22/12/2020. It was verified with relevant end-user agreements signed by ICS user /24/.

Till the end of 2nd Monitoring period (12/01/2019 to 12/09/2019), two model of the ICS i.e., S26-13 and S32-13 manufactured by SSM, have been distributed in townships across Yangon, Ayeyarwardy, Bago, Sagaing and Shan region of Myanmar. Meanwhile only model S32-13 has been distributed only in Ayeyarwardy region till the end of the current 4th monitoring period i.e., 23/06/2020 to 31/12/2020. This was confirmed through the ICS registration database /04/ and total number of stoves distributed at the end date for the current monitoring period are as follows:

CPA (10415-P1-0002-CP1)	Number of ICS by type	
	ICS S26-13	ICS S32-13
Distributed from till end of 2nd monitoring period	6,997	169,548
Distributed after 2nd monitoring period till end of 4th monitoring period	0	168,481
Subtotal by type	6,997	338,029
Total	345,026	

Verification team has checked the total no. of the installed ICS by the data base provided by the CME under the ER sheet /04/ and cross-checked from Sample check of the end user agreement /24/ and from invoices/shipping document of the ICS /33/.

As per the ER sheet of MP02 i.e. from 12/01/2019 to 12/09/2019 /10/ (available on UNFCCC website https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss547289295/view), Number of ICS distributed is 1,75,015 however as per the ER sheet submitted corresponding to MP04/04/, the number of distributed devices till end of MP02 is mentioned as 1,76,545. CL-01 has been raised in this respect and successfully closed. Refer appendix 4 of this report for more details. This discrepancy is due to the counting error of ICS in 2nd MP ER sheet (available on UNFCCC website https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss547289295/view).

In this issuance i.e., MP04 the number of ICSs are properly included in ER calculation:

- The CME correctly counted 1,534 ICSs in Ayeyarwaddy (ASDO17) region for this monitoring period which were erroneously uncounted in the MR of 2nd MP even though they were registered in project database at 2nd verification;
- 4 ICSs with unrecognized serial number have been excluded from the total number of ICSs.

CME has submitted the excel screenshots to explain the discrepancy /35/ which is checked by the verification team and found OK. After reviewing the project database under ER sheets /04/, the verification team concluded that explanation of discrepancy in counting of ICSs is reasonable.

ICS distributed (both ICS model S26-13 and S32-13) has own identification number with 12 digits for preventing double counting and are recorded in CME's ICS registration database. This is in line with the procedure to avoid double counting of ICS in registered PoA-DD /20/ and included CPA-DD /15/. The database includes serial number ID, name and address of recipient, retailer information, stove type replaced, distribution date and operation date, etc. of each stove. CME has considered ICS operation date as next day from the date of distribution to end user which is found conservative and accepted.

The verification team interviewed ICS user households by its local expert and checked that the ICS of the included CPA specified in the included CPA-DD are in place. Manufacturer's specification and WBT test report were provided and it was confirmed that all physical features of the included CPA specified in the included CPA-DD are in place.

CPA (10415-P1-0002-CP1)	Technical specification of ICS by type		Source of data
	ICS S26-13	ICS S32-13	
Specific Fuel Consumption	0.035 MJ/min/L	0.039 MJ/min/L	WBT certificate /08/
Thermal Efficiency	28.9%	38.7%	Manufacturer specification /05/
Lifespan	5 years	5 years	
Thermal power	3.8 kW	4 kW	

There is a temporary deviation from the registered monitoring plan of the included CPA-DD /15/ applicable to this monitoring period which is already approved (PRC-10415-004). Please refer to section E.3.2.1. of this verification report and PRC validation report (Version 03, 23/07/2021) /06/ for more details.

Therefore, the quantity, specification and target group of the ICS were found in accordance with the CPA-DD /15/. Further, based on the review of ICS registration database /04/, End user agreements /24/, remote interviews, monitoring survey/photos /25/ etc., verification team found that the actual implementation on

<table>
<tr><td></td><td>ground is consistent with CPA-DD /15/.

Regarding to scale of small-scale CPAs, CME explained that annual energy savings per ICS operated in the monitoring period is less than 1% of the small-scale CDM threshold, i.e., 1,800 MWhth and also satisfied the condition to qualify as a microscale CDM unit as explained in the section F.7. of MR /02/. The annual energy savings per ICS was verified through reviewing of the calculation in the ER spreadsheets /04/ and the annual energy savings were correctly determined. Therefore, compliance of the CPA with the small-scale thresholds at the aggregate level of the CPA is not required.
Annual Energy Savings per ICS in MWhth
<table>
<tr><td rowspan="2">Age Group (days)</td><td colspan="3">ICS Model</td></tr>
<tr><td>ICS S26-13 (Nmp02)</td><td>ICS S32-13 (Nmp02)</td><td>ICS S32-13 (Nmp02+)[3]</td></tr>
<tr><td>1-365</td><td>Not Applicable</td><td>Not Applicable</td><td>12.93</td></tr>
<tr><td>366-730</td><td>11.01</td><td>12.45</td><td>12.45</td></tr>
<tr><td>731-1095</td><td>10.55</td><td>11.85</td><td>Not Applicable</td></tr>
<tr><td>1096-1460</td><td>10.03</td><td>Not Applicable</td><td>Not Applicable</td></tr>
</table>

Consecutive monitoring period
This is the 4th monitoring period of PoA since registration of the PoA. Previous monitoring reports were already published on the UNFCCC CDM website in a consecutive manner. Thus, the verification team confirms that monitoring periods have been consecutive.</td></tr>
<tr><td>Findings</td><td>CL-01 and CAR-02 have been raised in this regard and successfully closed. Refer Appendix 4 of this report for more details.</td></tr>
<tr><td>Conclusion</td><td>4KES confirms that:
• CPA has been implemented and operated as per validated CPA-DD /15/.
• The verification team, based on the remote audit and document review, was able to conclude that the CPA has been implemented as per the validated CPA-DD /15/ and that all physical features of the CPA including data collection systems and storage are in place.
• All other relevant information provided in the MR is fully in accordance with respective information stated in the included CPA-DD; and
• The information on project operation, the management system and quality assurance are complete, correct and in accordance with the CPA-DD and;
• The management system and quality assurance and related procedures have implemented as described in the MR and in accordance with the included CPA-DD.</td></tr>
</table>

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

>>

There are temporary deviations from the registered monitoring plan (corresponding to this monitoring period) notified to the secretariat and already approved.

- Approved on: 05/09/2021
- Reference number: PRC-10415-004
- Deviation period: 23/06/2020 to 31/12/2020 (including both days)
- Summary of PRC: Biennial monitoring survey is required to determine number of project devices ($N_{y,i,j}$), adjustment to account for any continuous use of pre-project devices during

[3] Nmp02 and Nmp02+ has been defined in the section C.3.1 of Monitoring report.

the monitoring period (μ_y) and annual water boiling test (hereinafter "WBT") is required to determine the efficiency of the project device ($\eta_{new,i,j}$). However, the CME could not conduct new monitoring survey (for the monitoring parameters $N_{y,i,j}$ and μ_y) and WBT for this monitoring period due to Covid-19 pandemic. Thus, the CME proposed alternative approach to estimate $N_{y,i,j}$, μ_y and $\eta_{new,i,j}$ as follows:

- Lower bound of survey result of the 2nd monitoring period for $N_{y,i,j}$ and μ_y
- Option 1 for measurement method of Data/Parameter table 11 as initial efficiency and Para. 25(a) for the loss of efficiency of applied methodology (AMS-II.G. Version 8.0) for $\eta_{new,i,j}$

Refer to DOE assessment in relevant PRC validation report (Version 03, 23/07/2021) for more details.

E.3.2.2. Corrections

>>

No corrections have been notified to the secretariat during this monitoring period.

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

>>

No changes to the start-date of the crediting period have been notified to the secretariat during this monitoring period.

E.3.2.4. Inclusion of a monitoring plan

>>

No inclusion of a monitoring plan to the included CPA has been notified to the secretariat during this monitoring period.

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 to the registered monitoring plan, or permanent deviation of monitoring from the applied methodology or other methodological regulatory documents have been notified to the secretariat during this monitoring period.

E.3.2.6. Changes to the project design

>>

There is no change to the project design of the included CPA during this 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 /15/ was reviewed against the monitoring requirements of the applied methodology AMS-II.G., Version 08 /11/ as well as PoA-DD /20/. Based on this review it was found that the monitoring plan contained in the CPA-DD /15/ includes all the required parameters to be monitored and allows proper determination of emission reductions in accordance with PoA-DD /20/ and applied methodology /11/.
Findings	No finding raised.
Conclusion	Verification team confirms that the monitoring plan included in the CPA-DD /15/ is in accordance with the applied methodology, AMS-II.G. (version 8.0) /11/. There is no applicable standardized baseline for the included CPA. Thus, it conforms to the requirement of §343 of CDM validation and verification standard for programmes of

	activities, version 02 /18/.

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 verification team has checked the ex-ante parameters and data stated in Section E.1 of MR /02/ and compared with relevant section of the approved PoA-DD /20/, included CPA-DD /15/ and applied methodology AMS-II.G. (version 8.0) /11/ that whether all parameters fixed ex-ante for the crediting period have been applied correctly.

The Ex-ante parameters are as follows:

S. No.	Ex-ante Parameter and unit	Description	Source of data	Value	Consistent with the respective CPA-DD /15/ & the source mentioned in it
1	f_{NRB} (Fraction)	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass	fNRB calculation sheet • SSC WG 35th meeting Report, Annex 20, Eq 3 • FAO Forest Resource Assessment (FRA) 2015 • 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 4, Table 4.9 • http://www.fao.org/docrep/004/Y1997E/y1997e21.htm	0.8832	The value was fixed at the time of validation of CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. Hence accepted by the verification team.
2	$NCV_{biomass}$ (TJ/tonne)	Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices	AMS-II.G. version 08 - Page 17. Data/parameter table 12	0.015	Default value as per the applied methodology AMS-II.G. version 08 is applied. The value was fixed at the time

			.			of validation of PoA-DD /20/ and CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. Hence accepted by the verification team.
	3	η_{old} (Fraction)	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	AMS-II.G. version 08.0. Data/parameter table 17	0.1	The value was fixed at the time of validation of CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. The considered value is found correct as the project ICS are only distributed to the households using the traditional wood stove as confirmed from sampled

			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			ICS End User Agreement signed by the ICS User at the time of Distribution of ICS /24/. The same was also confirmed during the local expert's telephonic interview of the household representative. Hence accepted by the verification team.
	4	$EF_{projected\_fossilfuel}$ (tCO_2/TJ)	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers	AMS-II.G. version 08 - page 5	81.6	Default value as per the applied methodology AMS-II.G. version 08 is applied. The value was fixed at the time of validation of PoA-DD /20/ and CPA-DD /15/.

						The considered value is consistent with the CPA-DD /15/. Hence accepted by the verification team.
	5	LF_y (Fraction)	Leakage adjustment factor	AMS-II.G. version 08. Para 42 c	0.95	Default value as per the applied methodology AMS-II.G. version 08 is applied. The value was fixed at the time of validation of PoA-DD /20/ and CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. Hence accepted by the verification team.
	6	Life Span (Number of years)	Operating lifetime of S26-13 and S32-13	Manufacturer specification	5	The value was fixed at the time of validation of

						CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. Verification team has also checked the same from the manufacturer specification of ICS /05/ and found consistent. Hence accepted by the verification team.
	7	$B_{old,HH}$ (tonnes/household/year)	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	UN Database (http://data.un.org/Data.aspx?d=EDATA&f=cmID%3AFW%3BtrID%3A1231) year 2016 The 2014 Myanmar Population and Housing Census The Union Report Census Report Volume 2, 2015 Table 13 (https://myanmar.unfpa.org/en/publications/union-report-volume-2-main-census-report)	4.18	The value was fixed at the time of validation of CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. Hence accepted by the verification team.

			project devices			
	8	$B_{old,i,j}$ (tonnes/year)	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*	Calculated parameter to be fixed ex-ante	4.18	The value was fixed at the time of validation of CPA-DD /15/. The considered value is consistent with the CPA-DD /15/. The considered value is found correct as only one project ICS is distributed to each household as confirmed from sampled ICS End User Agreement signed by the ICS User at the time of Distribution of ICS /24/. The same was also confirmed during the local expert's telephonic

						interview of the household representative. Hence accepted by the verification team.
Findings	No finding raised.					
Conclusion	The values of ex-ante fixed parameters have been verified from the approved PoA-DD /20/ and included CPA-DD /15/. 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 verification team has determined whether the registered monitoring plan has been properly implemented and followed by the CME and the monitoring has been carried out in accordance with the registered monitoring plan; and determined whether all parameters including project emission parameters, baseline emission parameters and leakage parameters used for emission reduction calculation stated in the registered monitoring plan are monitored or used appropriately as per the included CPA-DD /15/. During the verification all monitoring parameters listed in Section E.2 of MR /02/ were compared with monitoring parameters and the monitoring plan of the included CPA-DD /15/ and have been verified with regard to the: (i) appropriateness of the applied measurement / determination method, (ii) the correctness of the values applied for ER calculation, (iii) the accuracy, and applied QA/QC measures. The verification team applied acceptance sampling and conducted phone survey (by the local expert) to determine whether the CME's record of monitoring survey /25/ (corresponding to MP02) met the relevant requirements of the "Sampling and surveys for CDM project activities and programmes of activities" (Refer to section D.4. of this report for details of assessment). Verification team has checked the monitoring parameters value indicated in the emission reduction spreadsheet /04/ and CME's monitoring survey forms/photos /25/ with End user agreement /24/, Remote audit interview records by Local expert, CME household database under the ER sheet /04/, Shipping details of ICS used by project participating households /33/ on sample basis as explained under section D.4 of this report. The verification of the information flow and data collection of monitoring parameter(s) was done by means of following documents and cross checked: Data generation and aggregation: ・ Information log in end user agreement and monitoring survey Aggregation to recording: ・ Transfer information from end user agreement and monitoring survey to project database Calculation and reporting: ・ Crosscheck of ER calculation spreadsheets against the PoA-DD and CPA-DD formulae ・ Data cross check between project database generated by the CME and ER calculation spreadsheets The CPA monitored under this monitoring period is as follows:

Reference number	Title
10415-P1-0002-CP1	Clean Energy Program Supported by Republic of Korea CPA MM

	02

During CME interview, the verification team checked that CME is keeping all scanned copies of end user agreement & monitoring survey, WBT result, training records and operating manual. Further, CME provided promptly any of requested documents. Thus, it could be confirmed that CME correctly implemented and is operating the record keeping system.

The means of verification in relation to the specific parameters are stated in detail in the tables further below.

Assessment on data/parameter:

Data/Parameter	$N_{y,i,j}$
Data Unit	Number of units
Description	Number of project devices of type i and batch j operating during year y
Measured/calculated/ default	Calculated under the ER sheet /04/
Source of data	ER sheet /04/ and monitoring survey /25/
Value(s)	Project devices for MP04 consist of devices which were distributed in or before MP02 and operating during MP04 (hereinafter "previously distributed devices") and devices newly distributed after MP02 and operated during MP04 (hereinafter "newly distributed devices"). CME denoted the quantity of project devices operating under MP04 as $N_{y,i,j}$ and classified into two groups N_{mp02} and N_{mp02+} for simplification where,

$N_{y,i,j}$	Number of project devices operating during MP04
N_{mp02}	Number of project devices distributed in or before MP02 and operating in MP04
N_{mp02+}	Number of project devices distributed after MP02 and operating in MP04

Parameter	Description	Value (number of units) – Lower bound value
N_{mp02}	Number of project devices distributed in or before MP02 and operating in MP04	158,426
N_{mp02+}	Number of project devices distributed after MP02 and operating in MP04	151,190
$N_{y,i,j}$	Number of project devices operating during MP04 $N_{y,i,j} = N_{mp02} + N_{mp02+}$	**309,616**

Lower bound values have been reported under the MR /02/ which is found OK. For the distributed devices and their application under the ER sheet, refer ER sheet /04/ and the approved PRC (PRC-10415-004) /06/.

Under the ER sheet /04/, Verification team has found the application of the values correct and in accordance with the applied monitoring plan in the included CPA-DD /15/ and approved PRC (PRC-10415-004) /06/.

Means of Verification	The verification team conducted document review and performed remote interview with CME in order to: ・Review information flows for generating, aggregating and reporting the monitoring parameters; ・Determine whether the data collection procedures are implemented

		in accordance with the monitoring plan in the included CPA-DD; ・Cross-check between information provided in the MR and data from other sources such as project database or monitoring survey result; ・Identify that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. Furthermore, the verification team assessed whether the value of the parameter is determined in accordance with alternative monitoring arrangement of the temporary deviation in section E.3.2.1.
	Findings	$N_{y,i,j}$ is the number of project devices of type i and batch j operating during year y. Monitoring equipment is not applicable for this monitoring period as no monitoring survey has been done during this monitoring period. **N_{mp02} is measured in accordance with the applied monitoring plan in the included CPA-DD /15/ and temporary deviation defined in PRC-10415-004 /06/:** According to section "B.5.1 Data and parameters to be monitored" of the CPA-DD (version 03) /15/, monitoring of the number of project devices ($N_{y,i,j}$) to be conducted at least once every two years (biennial) in accordance with applied methodology AMS-II.G (Version 8.0). Registered monitoring plan selected to monitor those data by monitoring survey. CME conducted monitoring survey to determine $N_{y,i,j}$ for the previous monitoring periods (MP01 and MP02) however CME could not conduct monitoring survey later on because of the Covid-19 pandemic. Because of the Covid-19 pandemic, CME concluded that it is not possible to conduct monitoring survey for the 4th monitoring period (23/06/2020 to 31/12/2020, hereinafter "MP04") as per the monitoring plan in the included CPA DD for the CPA "Clean Energy Program Supported by Republic of Korea CPA MM02 (UNFCCC Registration Ref. No. 10415-P1-0002-CP1)" and it is uncertain when the situation will be improved. Therefore, CME decided to proceed for PRC (temporary deviation from the registered monitoring plan) for the monitoring parameter $N_{y,i,j}$ for the 4th monitoring period (23/06/2020 to 31/12/2020, hereinafter "MP04"). PRC (PRC-10415-004) is already approved for the same. The survey (corresponding to MP02) provided the fraction of ICS operating. Total 140 samples were surveyed for this CPA in MP02. The exact number of ICS operating under the CPA is based on fraction of ICS found operating in the sampling survey multiplied by total number of distributed ICS. The verification team has used acceptance sampling for remote surveys (telephonic survey by Local Expert) and carried out the random sampling from the CME's sample records (for MP02) and check (using its own professional judgment) the acceptability of the data for each record in the CME's sample records for the Monitoring parameter $N_{y,i,j}$ which is discussed in details under section E.3.4.3 of this report. CME's monitoring survey (for MP02) is accepted to the verification team. Verification team checked the CME's samples results (reported in the Monitoring forms /25/) along with the following evidences: 1. Remote audit interview records by Local expert. 2. CME household database under the ER sheet /04/. 3. Filled end user agreements /24/. 4. Shipping details of the ICS used by project participating

households /33/.

Footnote 4 of "General guidelines for SSC CDM methodologies" Version 23.1 allows to use the survey results (i.e., MP02) up to 12 months after the survey date in case the requirements of biennial sampling are met, i.e., confidence/precision of 95/10 for the survey results (or 95/5 if specified in the applied methodology).

CME has applied the monitoring survey results conducted for 2nd monitoring period (12/01/2019 to 12/09/2019, hereinafter "MP02"), for the monitoring parameter $N_{y,i,j}$ for the applicable period of MP04 and proposed a deviated monitoring method to apply alternative measurement for the parameters ($N_{y,i,j}$) for the remaining period of MP04.

The applicable paras of the General guidelines for SSC CDM methodologies version 23.1 /14/ are justified in the below table.

Requirements as per "General guidelines for SSC CDM methodologies" Version 23.1 /14/	**Justification**
24. The simplified requirements described under section 4.8.2 below apply to: (a) Small-scale project activities (PAs) and component project activities (CPAs) solely comprising distributed units, to estimate parameter values required by the methodologies. Distributed units, in the context of monitoring surveys, are units of size equal to or below one per cent of Small-Scale CDM threshold (e.g. 150 kW of installed capacity for type I PAs/CPAs, 600 MWh of energy savings for type II PAs/CPAs and 600 tCO2 of emission reductions for type III PAs/CPAs); (b) The parameters may include the fraction of operating/non-operating equipment and other parameters as required by the methodology; (c) The guidelines are also applicable to cases where single sampling plan is adopted for the PoA as per the CDM sampling standard (i.e. a common survey is conducted for a group of CPAs)	(a) Since this CPA (UN Ref. No. 10415-P1-0002-CP1) is small scale and solely comprise distributed units, to estimate parameter values required by the applied methodology. Further the unit size of the distributed units is well below one percent of small-scale CDM threshold (600 MWh of energy savings for type II PAs/CPAs) which has been verified from the previous verifications (MP01 and MP02) ER sheets /08/, /09/. (b) The monitoring parameter ($N_{y,i,j}$) is eligible as per the stated para. (c) This is not applicable since this verification is for a single CPA (UN Ref. No. 10415-P1-0002-CP1).
25. The requirements in this document do not overrule any provisions in the approved methodologies (for example, methodology AMS-III.AR. version 4.0 allows, under certain conditions, project activities for distribution of LED lamps to claim emission reductions for a	Since the monitoring plan of the CPA /15/ and the applied methodology allow for the biennial monitoring for the monitoring parameters ($N_{y,i,j}$), hence the requirement of this para is fulfilled.

		maximum of two years without a survey). The simplified requirements described under section 4.8.2 are applicable only if the applied methodology and the monitoring plan allow for biennial monitoring. If coordinating/managing entities or project participants choose to switch from annual monitoring to biennial monitoring to apply the provisions in the guidelines, the confidence/precision requirements of biennial monitoring stipulated in the applied methodology should be met, i.e. survey results show the confidence/precision of 95/10 (or 95/5 if it is specified in the applied methodology).		
		26. To apply these simplified requirements, PAs/CPAs shall not have more than 24 months gap between consecutive surveys, and shall implement their first survey within 24 months of the implementation of the first unit of the PA/CPA.	Gap between consecutive surveys is not more than 24 months. First survey was conducted in January 2019 and second survey was conducted in October 2019 as verified from the previous verifications (MP01[4] and MP02[5]) /08/, /09/. The next survey is due. The first survey was conducted on January 2019 and the first unit of the CPA was installed in September 2017 (as verified from CPA DD /15/ and previous verifications i.e., MP01 and MP02 /09/, /10/). Therefore, first survey was conducted within 24 months of the implementation of the first unit of the CPA.	
		27. PA/CPAs may apply the result of the surveys for monitoring period up to 12 months after the date of the survey if: (a) The average lifetime of the units is known and is four years or more. It shall also be confirmed by e.g. previous experience with similar technologies or manufacturer or the elements of the project design, in order to assure that the local conditions are unlikely to result in premature failure of the technology; (b) At least 50 per cent of the distributed units were functional in the previous	The verification team confirmed by document review that, • Lifetime of project devices of this CPA is confirmed as 5 years by manufacture from manufacturer specification /05/. Based on the technical/local expertise, verification team confirm that local conditions are unlikely to result in premature failure of the technology. • 94% of distributed project devices were functional in the monitoring survey conducted for MP02 /25/.	

[4] Monitoring period 28/08/2018 to 11/01/2019
[5] Monitoring period 12/01/2019 to 12/09/2019

survey undertaken by PAs/CPAs (this condition is applicable only after the first monitoring survey is concluded)	
Footnote 4: The survey date is the date on which the data collection starts. The survey results may be used for the period 12 months after the survey date, on top of using the results for the period prior to the survey date, resulting in up to 24 months period to which the survey results may be applied to, irrespective of when the monitoring reports are uploaded on the UNFCCC CDM website. In order to apply the survey results for the monitoring period after the survey date, the requirements of biennial sampling should be met i.e. survey results show the confidence/precision of 95/10 (or 95/5 if specified in the applied methodology). In case that the registered monitoring plan has not included biennial option, a post-registration change would be required to include it in the monitoring plan. If the applied version of the methodology does not have an option for biennial sampling but the latest version includes that option, a post-registration change may be requested to the revise the monitoring plan using the latest version of the methodology.	• The monitoring survey for MP02 was conducted from 19/10/2019 to 26/10/2019 as verified from monitoring survey result of MP02 /05/. Hence the survey date is 19/10/2019 as the data collection was started from this date. • The monitoring survey for MP02 was applied for the monitoring period 12/01/2019 to 12/09/2019 i.e., less than a year from the survey date 19/10/2019, hence the same survey can also be applied until 18/10/2020 i.e. 12 months after the survey date. Hence the total period is less than 24 months to which the survey results would be applied. • MP02 Survey result met the requirements of biennial sampling i.e., survey results shows the confidence/precision of 95/10 as verified from the monitoring survey /25/. The results of monitoring survey conducted for MP02 shows precision of 4.45% ($N_{y,i,j}$)

Hence for the monitoring parameters $N_{y,i,j}$, the survey result of MP02 can be applied up to 18/10/2020 which is 12 months from the date of the survey (i.e., 19/10/2019). For the remaining period i.e., from 19/10/2020 to 31/12/2020 Lower Bound values of MP02 survey has been used.

The sample size calculator requires a minimum of 102 (9 samples of S26-13 and 93 samples of S32-13) samples. The calculation for determining the sample size was checked by the verification team from a proper tool (sample size calculator provided as a tool of Guidelines for sampling and surveys for CDM project activities and programmes of activities) and found to be appropriated and consistent with equation in approved PoA-DD and registered CPA-DD. CME conducted monitoring survey for 140 sample households (24 samples of S26-13 and 116 samples of S32-13), which meets the minimum number of samples from the sample size calculator.

The applied methodology allows the monitoring frequency to be biennial when confidence level/precision met 95/10. The relative precision of monitoring survey result of MP02 for N_{mp02} is calculated as 4.45% at 95% confidence level in accordance with proper tool (sample size calculator provided as a tool of Guidelines for sampling and surveys for CDM project activities and programmes of activities), thus

			the verification team concluded that measuring frequency and QA/QC procedures of the registered CPA-DD are satisfied. Under the "Justification for the temporary deviation" /06/, CME has mentioned that: • MP02 involves ICS model S32-13 and same ICS model has been distributed after MP02 and under MP04. Therefore, ICS in MP02 and MP04 are comparable in terms of efficiency and lifetime. • In MP02 ICS model S32-13 were distributed to fuelwood using households in Ayeyarwaddy region. ICS model S32-13 (after MP02 and under MP04) were distributed to fuelwood using households in Ayeyarwaddy region. Therefore, households received ICS in MP02 and MP04 are same in socio-economic conditions. From document review of MP02 ER calculation sheet /10/, the verification team confirmed that previously distributed devices (i.e., on or before MP02) consist around 96% of S32-13 distributed to fuel wood using households in Ayeyarwady region and around 4% of S26-13 to fuel wood using households in Yangon, Ayeyarwady, Bago, Sagaing and Shan region. From the project database provided by CME /04/, the verification team confirmed that all of newly distributed devices after MP02 are S32-13 type and distributed to fuel wood using households in Ayeyarwady region. Further, it was confirmed that efficiency and lifetime in manufacturer specification of S32-13 for newly distributed devices was not changed from MP02. Thus, the verification team concluded that CME's opinion that newly distributed devices are comparable to the previously distributed devices and distributed to households with comparable socio-economic conditions is reasonable. The same is discussed in detail under the validation report of approved PRC (PRC-10415-004) /06/. The verification team crosschecked the lower bound (of 95% confidence interval) of fraction of operating ICS for MP02 i.e., 0.90 and total number of ICS distributed (176,545 till end of MP02) with submitted ER sheet /04/ and confirmed that they are correctly reported to calculate N_{mp02} (158,426) and the results are reproducible in the corresponding ER calculation spreadsheet /04/ for N_{mp02}. Thus, the verification team concluded that N_{mp02} (158,426) is correctly calculated. For N_{mp02} reporting, CME has used lower bound (of 95% confidence interval) of fraction of operating ICS for MP02 i.e., 0.90 which is conservative. N_{mp02} is not directly used for ER calculation /04/ rather fraction of operating ICS is used. **N_{mp02+} is measured in accordance with temporary deviation defined in PRC-10415-004:** As defined in the PRC-10415-004, N_{mp02+} is calculated by the Lower Bound (of 95% confidence interval) of MP02 monitoring survey result for operating fraction multiplied by total number of project devices distributed during till end of MP04. N_{mp02+} = The lower bound of operating fraction of MP02 x No. of project devices distributed till end of MP04 The verification team reviewed project database /04/ and confirmed that total number of distributed project devices (168,481) is correctly applied.

	CME submitted the ER calculation spreadsheet for N_{mp02+} and the verification team confirmed that lower bound of the operating fraction (corresponding to MP02) is calculated using calculation method for proportion parameter in the ER calculation spreadsheet for N_{mp02+} /04/ which is found OK. As a result of checking on ER calculation spreadsheet for N_{mp02+} and document review on project database, the verification team confirmed that, the lower bound of fraction of operating project devices (0.90) is correctly calculated and total number of distributed project devices (168,481) is consistent with the value in project database, and they are correctly applied to calculate N_{mp02+} (151,190). Thus, the verification team concluded that N_{mp02+} is correctly measured and reported. $\mathbf{N_{y,i,j} = N_{mp02} + N_{mp02+}}$ The verification team confirmed that $N_{y,i,j}$ is correctly calculated as 309,616 based on N_{mp02} and N_{mp02+} in accordance with the applied monitoring plan in the included CPA-DD /15/ and approved temporary deviation in PRC /06/. Under the ER sheet /04/, Verification team has found the application of the values correct and in accordance with the applied monitoring plan in the included CPA-DD /15/ and approved PRC (PRC-10415-004) /06/.
Conclusion	4KES confirms that: ・ Monitoring of $N_{y,i,j}$ has been carried out in accordance with the monitoring plan as well as the approved temporary deviation (refer to E.3.2). ・ QA/QC procedures are suitable and have been applied in accordance with the monitoring plan.

Data/Parameter	$\eta_{new,i,j}$
Data Unit	Fraction
Description	Efficiency of the project device of each type i and batch j
Measured/calculated/default	Calculated
Source of data	WBT certificate provided by an appropriate certifying agent recognized by national standard body /08/, Manufacturer specification for life of ICS /05/ and ER calculation sheet /04/ for the loss of efficiency due to aging as per the approved temporary deviation (PRC-10415-004).
Value(s)	

Nmp02	Efficiency	Efficiency
Age Group (days)	S26-13	S32-13
366-730	0.2712	0.3496
731-1095	0.2534	0.3122
1096-1460	0.2356	Not applicable

Nmp02+	Efficiency
Age Group (days)	S32-13
1-365	0.3870
366-730	0.3496

Verification team has checked efficiency calculation from the ER sheet /04/ and

		found OK.
	Means of Verification	The verification team conducted document review and remote interview with CME in order to: ・Review information flows for generating, aggregating and reporting the monitoring parameter; ・Determine whether the data collection procedures are implemented in accordance with the monitoring plan in the included CPA-DD; ・Cross-check between information provided in the MR /02//ER sheet /04/ and data from other sources such as WBT certificate /08/ and Manufacturer specification for life of ICS /05/; ・Identify that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. Furthermore, the verification team assessed whether the value of the parameters are determined in accordance with alternative monitoring arrangement of the temporary deviation in section E.3.2.1.
	Findings	The initial efficiency of project device of type i and batch j (ηnew,i,j) can be determined by sample WBT test which is simplified approach of Data/Parameter table 11 of the applied methodology AMS-II.G (Version 8.0), and loss of efficiency shall be determined annually from a representative sample of each batch and using the actual loss rate that is measured in accordance with (d) of paragraph 25 of the applied methodology AMS-II.G (Version 8.0). Because of the Covid-19 pandemic, CME concluded that it is not possible to conduct WBT for the 4th monitoring period (23/06/2020 to 31/12/2020, hereinafter "MP04") as per the monitoring plan in the included CPA DD for the CPA "Clean Energy Program Supported by Republic of Korea CPA MM02 (UNFCCC Registration Ref. No. 10415-P1-0002-CP1)" and it is uncertain when the situation will be improved. Therefore, CME decided to proceed for PRC (temporary deviation from the registered monitoring plan) for the monitoring parameter ηnew,i,j for the 4th monitoring period (23/06/2020 to 31/12/2020, hereinafter "MP04") in accordance with the para 228 of CDM project standard for programmes of activities version 02 /18/. PRC is already approved (PRC-10415-004). Refer Validation report for the PRC (PRC-10415-004) for more details. The efficiency of project device ($\eta_{new,i,j}$) are denoted as per their type of ICS (S26-13, S32-13) for subscription "i", distributed period (mp02 and mp02+) and their age (1-365 days, 366-730 days, 731-1095 days, 1096-1460 days) for "j". For example, $\eta_{new,S32\text{-}13,(mp02,1\text{-}365)}$ is efficiency of 1-365 days old S32-13 stoves which were distributed till end of MP02. subscription "i" defined the categorized group of ICS as per their age group based on their commissioning date as below:

Category	Description
1-365	1-365 days old ICS, Age, as on last day of the monitoring period
366-730	366-730 days old ICS, Age, as on last day of the monitoring period
731-1095	731-1095 days old ICS, Age, as on last day of the monitoring period
1096-1460	1096-1460 days old ICS, Age, as on last day of the monitoring period

The approved temporary deviation (PRC-10415-004) and justification is mentioned below.

As per monitoring plan of Included CPA	Deviated (alternative) approach	DOE justification

<table>
<tr><td></td><td></td><td>/14/</td><td></td><td></td></tr>
<tr><td></td><td></td><td>Option 3 under heading “Measurement procedures” of data/parameter table 11 in AMS-II.G (version 8.0):

Option 3: However, the following simplified approach may be used, when the efficient cook-stoves are produced by a manufacturer with a good quality management system in place to ensure that the individual equipment produced do not vary beyond the range of acceptance limits (e.g.</td><td>Option 1 under heading “Measurement procedures” of data/parameter table 11 in AMS-II.G (version 8.0):

The efficiency of the project devices shall be based on certification by a national standards body or an appropriate certifying agent recognized by that body.</td><td>Because of the Covid-19 pandemic, CME concluded that it is not possible to conduct WBT for MP04. Therefore, CME is proposing a temporary deviation to apply alternative monitoring measurement to determine the value of parameter which could not be measured by registered monitoring plan.

CME applied alternative measure to set initial efficiency.

The initial efficiency is determined based on option 1 of data/parameter table 11 of AMS-II.G. (version 8.0), a value from certificate /08/ by an appropriate certification agent, Centre of Rural Technology, Nepal (CRT/N) which is based on WBT. CRT/N has a stove test lab called Regional Testing and Knowledge Centre (RTKC) established by the Global Alliance for Clean Cookstoves.
Verification team confirm that WBT certificate /08/ values are correctly applied as initial efficiency. Further, through document review for WBT certificate, it was confirmed that RTCK has been registered with Government of Nepal (GoN) and recognized by Nepal Bureau of Standards and Metrology (NBSM), the standard body of Nepal government. Further it was confirmed that the efficiency of S26-13 and S32-13 in WBT certificate by CRTN are adopted in manufacturer specification.

Thus, the verification team conclude that CME properly set alternative measure with para 25 (a) of applied methodology and determined initial value as per option 1 of data/parameter table 11 of the methodology.

Further, the verification team checked efficiency of WBT certificate[6] /08/ with WBT result of MP02 /07/ for initial efficiency of each model and found that selected values are conservative.

<table>
<tr><th></th><th>Applied values from WBT certificate /08/</th><th>WBT result for 1-365 days old devices conducted in MP02 /07/</th></tr>
<tr><td>S26-13</td><td>0.2890</td><td>0.2962</td></tr>
<tr><td>S32-13</td><td>0.3870</td><td>0.3879</td></tr>
</table>

Hence this alternative approach is in line with the applied methodology and also conservative, hence accepted to the verification team.</td></tr>
</table>

[6] Efficiency of ICS (S26-13 and S32-13) in manufactures specification is adopted from WBT certification issued by Centre for Rural Technology, Nepal

		characteristics such as materials, critical dimensions): (i) Conduct a sample test on three cook stoves with three tests conducted for each stove; (ii) If the standard deviation of the nine test results indicated above is very small and 90/10 precision requirement is met (in this case, the value of the t distribution for 90 percent confidence shall be used instead of Z value), the efficiency determined is acceptable, otherwise more sample		

<table>
<tr><td></td><td></td><td>tests would be required until 90/10 precision is met

Third party certification must be based on WBT protocol</td><td></td><td></td></tr>
<tr><td></td><td></td><td>(ii) Adjusted for the loss of efficiency as per paragraph 25 (d) of the AMS-II.G. ver 08

“Determine the loss in efficiency annually from a representative sample of each batch and use the actual loss rate that is measured”</td><td>Calculate the loss of thermal efficiency from initial efficiency by using AMS-II.G (version 8.0) Para 25 (a)

“A default schedule of linear decrease in efficiency up to the terminal efficiency assumed as 20 per cent shall be applied through the life span of the project device. For example, if the life span of</td><td>CME applied para 25 (a) of AMS-II.G. (version 8.0), a default schedule of linear decrease in efficiency up to the terminal efficiency assumed as 20 percent applied through the life span of the project device as an alternative measurement for loss of efficiency, as clarified from SSC_781. CME has explained that this is the most conservative option to determine the loss of thermal efficiency.

Thermal efficiency drop calculation as per the AMS-II.G. ver 08. Paragraph 25 (a)
<table><tr><th>Model</th><th>Life (years)</th><th>Minimum Thermal Efficiency (Fraction)</th><th>Thermal Efficiency based on WBT Certificate (Fraction) /07/</th><th>Annual Efficiency Drop (Fraction)</th></tr><tr><td>S26-13</td><td>5</td><td>0.20</td><td>0.2890</td><td>0.0178</td></tr><tr><td>S32-13</td><td>5</td><td>0.20</td><td>0.3870</td><td>0.0374</td></tr></table>
<table><tr><th rowspan="2">Age Group (days)</th><th colspan="2">Adjusted Thermal Efficiency as per Para 25 (a) of the Meth</th></tr><tr><th>S26-13</th><th>S32-13</th></tr><tr><td>1-365</td><td>0.2890</td><td>0.3870</td></tr><tr><td>366 - 730</td><td>0.2712</td><td>0.3496</td></tr><tr><td>731 - 1095</td><td>0.2534</td><td>0.3122</td></tr><tr><td>1096 - 1460</td><td>0.2356</td><td>0.2748</td></tr></table>
As per para 25 (a) of AMS-II.G. (version 8.0), the loss of efficiency is mentioned in the above table whereas para 25 (b) of the applied methodology is not to consider any loss of efficiency during crediting period. For option 25(c) and 25(d), new WBT test is required but it is not possible.
Further during MP02, WBT result /07/ showed that the thermal efficiency of 366-730 days old devices (0.2989) was even higher than the thermal efficiency of 1-365</td></tr>
</table>

		project device is five years and project device has an efficiency of 30 per cent at commissioning then a 2 per cent decrease in efficiency every year shall be applied"	days old devices (0.2962) for S26-13. Thus, the verification team agreed to CME's opinion that 25 (a) is the most conservative option and confirmed that the loss of efficiency is properly calculated in accordance with selected option 25(a) of applied methodology. Hence this approach is accepted to the verification team.

As defined in the temporary deviation in PRC-10415-004, initial efficiency is defined based on WBT certificate as per option 1 of Data/Parameter table 11 in the applied methodology and the loss of efficiency is calculated as per para 25(a) of the applied methodology.

The verification team confirmed that the loss of efficiency is correctly calculated by applying linear decrease in efficiency up to the terminal efficiency (20%) through 5 years life span. The verification team confirmed that life span of both ICS type (S26-13 and S32-13) is 5 years from manufacturer specification /05/ and linear decrease is correctly calculated based on 5 years to 20% in ER calculation sheets /04.

The measured efficiency of $\eta_{new,\ S26\text{-}13,\ (mp02,\ 366\text{-}730)}$ (0.2712), $\eta_{new,\ S26\text{-}13,\ (mp02,\ 731\text{-}1095)}$ (0.2534), $\eta_{new,\ S26\text{-}13,\ (mp02,\ 1096\text{-}1460)}$ (0.2356), $\eta_{new,\ S32\text{-}13,\ (mp02,\ 366\text{-}730)}$ (0.3496), $\eta_{new,\ S32\text{-}13,\ (mp02,\ 731\text{-}1095)}$ (0.3122), $\eta_{new,\ S32\text{-}13,\ (mp02+,\ 1\text{-}365)}$ (0.3870) and $\eta_{new,\ S32\text{-}13,\ (mp02+,\ 366\text{-}730)}$ (0.3496) do not fall below 20 percent, thus emission reductions can be claimed.

Thus, the verification team concluded that $\eta_{new,\ S26\text{-}13,\ (mp02,\ 366\text{-}730)}$ (0.2712), $\eta_{new,\ S26\text{-}13,\ (mp02,\ 731\text{-}1095)}$ (0.2534), $\eta_{new,\ S26\text{-}13,\ (mp02,\ 1096\text{-}1460)}$ (0.2356), $\eta_{new,\ S32\text{-}13,\ (mp02,\ 366\text{-}730)}$ (0.3496), $\eta_{new,\ S32\text{-}13,\ (mp02,\ 731\text{-}1095)}$ (0.3122), $\eta_{new,\ S32\text{-}13,\ (mp02+,\ 1\text{-}365)}$ (0.3870) and $\eta_{new,\ S32\text{-}13,\ (mp02+,\ 366\text{-}730)}$ (0.3496) are properly calculated in accordance with the temporary deviation in PRC-10415-004.

Conclusion	4KES confirms that: ・ Monitoring of $\eta_{new,i,j}$ has been carried out in accordance with approved temporary deviation (refer to E.3.2). ・ QA/QC procedures are suitable and have been applied in accordance with the monitoring plan.

Data/Parameter	**Date of commissioning of project device i**
Data Unit	Date
Description	Actual date of commissioning of the project device
Measured/calculated/ default	Measured
Source of data	Project database under the ER sheet /04/
Value(s)	Refer to project database in ER calculation sheet /04/. Date of commissioning of the project ICS is recorded in the end user

	agreement /24/ at the time of the distribution of the ICS to the end user as discussed during the remote audit with CME representative. Verification team checked the distribution date provided under the ER calculation sheet /04/ with the scanned copy of end user agreement /24/ and also from the Local expert telephonic interviews records for sampled 19 households who were subject to DOE assessment sampling survey and no inconsistency was found.
Means of Verification	The verification team conducted document review and performed remote interview with CME in order to: ・Review information flows for generating, aggregating and reporting the monitoring parameters; ・Determine whether the data collection procedures are implemented in accordance with the monitoring plan in the included CPA-DD; ・Cross-check between information provided in the ER calculation sheet and data from other sources such as end-user agreement or monitoring survey result; ・Identify that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.
Findings	CME considered the next date after the date of distribution of ICS as the date of commissioning of ICS as verified from the ER calculation sheet /04/. Further, Verification team checked the distribution date provided under the ER calculation sheet /04/ with the scanned copy of end user agreement /24/ and also from the Local expert telephonic interviews records for sampled 19 households who were subject to DOE assessment sampling survey and no inconsistency was found. The data is recorded from start date of ICS distribution 28/09/2017 to the end of the ICS distribution date 22/12/2020 applicable for this monitoring period. Each distribution was recorded in project database /04/ along with the name of recipient, contact details, location of household at the time of distribution of project devices as required in recording frequency in the registered CPA-DD. Further, the verification team checked by document review that project database as well as electronic copies of data source such as end user agreement and monitoring survey are archived. It was confirmed by CME interview that they will be maintained for at least two years after the end of the final crediting period or the last issuance of CERs, whichever occurs later. Monitoring equipment is not applicable to this parameter. Thus, the monitoring parameter “date of commissioning of project device i" is properly measured in accordance with the applied monitoring plan in the CPA-DD /15/.
Conclusion	4KES confirms that: ・ Monitoring of “date of commissioning of project device i" has been carried out in accordance with the monitoring plan. ・ QA/QC procedures are suitable and have been applied in accordance with the monitoring plan.

Data/Parameter	**Date of commissioning of batch j**
Data Unit	Date
Description	To establish the date of commissioning, the Project Participant may opt to group the devices in “batches” and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch
Measured/calculated/	Each sale was recorded in Project database along with the name of

default	recipient, contact details, location of household (village, district etc)
Source of data	Project database
Value(s)	To establish the date of commissioning project device, the CME has not opted to group the devices in “batches” and but used the actual date of distribution of each project device. Therefore, reporting of this parameter is not applicable.
Means of Verification	This parameter is not subject to verification. 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”.
Findings	N/A
Conclusion	4KES confirms that this parameter is not subject to monitoring.

Data/Parameter	μ_y
Data Unit	Fraction
Description	Adjustment to account for any continued use of pre-project devices during the year y
Measured/calculated/ default	Calculated under the ER sheet /04/
Source of data	ER sheet /04/ and monitoring survey /25/
Value(s)	Project devices for MP04 consist of devices which were distributed in or before MP02 and operating during MP04 (hereinafter “previously distributed devices”) and devices newly distributed after MP02 and operated during MP04 (hereinafter “newly distributed devices”). Hence CME classified the adjustment to account for any continued use of pre-project devices during MP04 where, μ_{mp02} — For project devices distributed in or before MP02 and operating in MP04 μ_{mp02+} — For project devices distributed after MP02 and operating in MP04 Applied values are as below: **Parameter** / **Description** / **Value (fraction)** μ_{mp02} — For project devices distributed in or before MP02 and operating in MP04 — 0.84 (for period - 19/10/2019 to 18/10/2020); 0.78 (for period - 19/10/2020 to 31/12/2020) μ_{mp02+} — For project devices distributed after MP02 and operating in MP04 — 0.78 (lower bound value of MP02 data) Verification team has verified the values from the ER sheet /04/, monitoring survey /25/ and found OK. Under the ER sheet /04/, Verification team has found the application of the values correct and in accordance with the applied monitoring plan in the included CPA-DD /15/ and approved PRC (PRC-10415-004)

		/06/.
	Means of Verification	The verification team conducted document review and performed remote interview with CME in order to: ・Review information flows for generating, aggregating and reporting the monitoring parameters; ・Determine whether the data collection procedures are implemented in accordance with the monitoring plan in the included CPA-DD; ・Cross-check between information provided in the MR and data from other sources such as project database or monitoring survey result; ・Identify that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. Furthermore, the verification team assessed whether the value of the parameter is determined in accordance with alternative monitoring arrangement of the temporary deviation in section E.3.2.1.
	Findings	Monitoring equipment is not applicable for this monitoring period as no monitoring survey has been done during this monitoring period. **μ_{mp02} is measured in accordance with the applied monitoring plan in the included CPA-DD /15/ and temporary deviation defined in PRC-10415-004 /06/:** According to section "B.5.1 Data and parameters to be monitored" of the CPA-DD (version 03) /15/, monitoring of the adjustment to account for any continued use of pre-project device (μ_y) to be conducted at least once every two years (biennial) in accordance with applied methodology AMS-II.G (Version 8.0). Registered monitoring plan selected to monitor those data by monitoring survey. CME conducted monitoring survey to determine μ_y for the previous monitoring periods (MP01 and MP02) however CME could not conduct monitoring survey later on because of the Covid-19 pandemic. Because of the Covid-19 pandemic, CME concluded that it is not possible to conduct monitoring survey for the 4th monitoring period (23/06/2020 to 31/12/2020, hereinafter "MP04") as per the monitoring plan in the included CPA DD for the CPA "Clean Energy Program Supported by Republic of Korea CPA MM02 (UNFCCC Registration Ref. No. 10415-P1-0002-CP1)" and it is uncertain when the situation will be improved. Therefore, CME decided to proceed for PRC (temporary deviation from the registered monitoring plan) for the monitoring parameter μ_y for the 4th monitoring period (23/06/2020 to 31/12/2020, hereinafter "MP04"). PRC (PRC-10415-004) is already approved for the same. As defined in the applied monitoring plan in the CPA-DD, the adjustment to account for any continued use of pre-project devices operating during MP02 was determined by conducting a sampling survey /25/. Total 130 out of 140 samples surveyed for this CPA in MP02 were included in calculation of this parameter (rest 10 ICS have either incorrect address or not found at the registered address. As a result of document review on survey result of MP02, the verification team confirmed that the survey captured the cooking habits of stove usage of households in the project area, including quantification of use of baseline devices, by formulating questions to determine the frequency of usage of both, the project devices and baseline devices as required by selected measurement methods and procedures for μ_{mp02} in the CPA-DD. The verification team has used acceptance sampling for remote surveys (telephonic survey by Local Expert) and carried out the

random sampling from the CME's sample records (for MP02) and check (using its own professional judgment) the acceptability of the data for each record in the CME's sample records for the Monitoring parameter μ_y which is discussed in details under section E.3.4.3 of this report. CME's monitoring survey (for MP02) is accepted to the verification team. Verification team checked the CME's samples results (reported in the Monitoring forms /25/) with the Remote audit interview records by Local expert.

Footnote 4 of "General guidelines for SSC CDM methodologies" Version 23.1 allows to use the survey results (i.e., MP02) up to 12 months after the survey date in case the requirements of biennial sampling are met, i.e., confidence/precision of 95/10 for the survey results (or 95/5 if specified in the applied methodology).

CME has applied the monitoring survey results conducted for 2nd monitoring period (12/01/2019 to 12/09/2019, hereinafter "MP02"), for the monitoring parameter μ_y for the applicable period of MP04 and proposed a deviated monitoring method to apply alternative measurement for the parameter (μ_y) for the remaining period of MP04.

The applicable paras of the General guidelines for SSC CDM methodologies version 23.1 /14/ are justified in the below table.

Requirements as per "General guidelines for SSC CDM methodologies" Version 23.1 /14/	**Justification**
24. The simplified requirements described under section 4.8.2 below apply to: (a) Small-scale project activities (PAs) and component project activities (CPAs) solely comprising distributed units, to estimate parameter values required by the methodologies. Distributed units, in the context of monitoring surveys, are units of size equal to or below one per cent of Small-Scale CDM threshold (e.g. 150 kW of installed capacity for type I PAs/CPAs, 600 MWh of energy savings for type II PAs/CPAs and 600 tCO2 of emission reductions for type III PAs/CPAs); (b) The parameters may include the fraction of operating/non-operating equipment and other parameters as required by the methodology; (c) The guidelines are also applicable to cases where single sampling plan is adopted for the PoA as per the CDM sampling standard (i.e. a common survey is conducted for a group of CPAs)	(a) Since this CPA (UN Ref. No. 10415-P1-0002-CP1) is small scale and solely comprise distributed units, to estimate parameter values required by the applied methodology. Further the unit size of the distributed units is well below one percent of small-scale CDM threshold (600 MWh of energy savings for type II PAs/CPAs) which has been verified from the previous verifications (MP01 and MP02) ER sheets /09/, /10/. (b) The monitoring parameter (μ_y) is eligible as per the stated para. (c) This is not applicable since this verification is for a single CPA (UN Ref. No. 10415-P1-0002-CP1).
25. The requirements in this document do not overrule any	Since the monitoring plan of the CPA /15/ and the applied

		provisions in the approved methodologies (for example, methodology AMS-III.AR. version 4.0 allows, under certain conditions, project activities for distribution of LED lamps to claim emission reductions for a maximum of two years without a survey). The simplified requirements described under section 4.8.2 are applicable only if the applied methodology and the monitoring plan allow for biennial monitoring. If coordinating/managing entities or project participants choose to switch from annual monitoring to biennial monitoring to apply the provisions in the guidelines, the confidence/precision requirements of biennial monitoring stipulated in the applied methodology should be met, i.e. survey results show the confidence/precision of 95/10 (or 95/5 if it is specified in the applied methodology).	methodology allow for the biennial monitoring for the monitoring parameters (μ_y), hence the requirement of this para is fulfilled.
		26. To apply these simplified requirements, PAs/CPAs shall not have more than 24 months gap between consecutive surveys, and shall implement their first survey within 24 months of the implementation of the first unit of the PA/CPA.	Gap between consecutive surveys is not more than 24 months. First survey was conducted in January 2019 and second survey was conducted in October 2019 as verified from the previous verifications (MP01[7] and MP02[8]) /09/, /10/. The next survey is due. The first survey was conducted on January 2019 and the first unit of the CPA was installed in September 2017 (as verified from CPA DD /15/ and previous verifications i.e., MP01 and MP02 /09/, /10/). Therefore, first survey was conducted within 24 months of the implementation of the first unit of the CPA.
		27. PA/CPAs may apply the result of the surveys for monitoring period up to 12 months after the date of the survey if: (a) The average lifetime of the units is known and is four years or more. It shall also be confirmed by e.g. previous experience with similar technologies or manufacturer or	The verification team confirmed by document review that, • Lifetime of project devices of this CPA is confirmed as 5 years by manufacture from manufacturer specification /05/. Based on the technical/local expertise, verification team confirm that local conditions are unlikely to result in premature failure of the technology.

[7] Monitoring period 28/08/2018 to 11/01/2019
[8] Monitoring period 12/01/2019 to 12/09/2019

			the elements of the project design, in order to assure that the local conditions are unlikely to result in premature failure of the technology; (b) At least 50 per cent of the distributed units were functional in the previous survey undertaken by PAs/CPAs (this condition is applicable only after the first monitoring survey is concluded)	• 94% of distributed project devices were functional in the monitoring survey conducted for MP02 /25/.
			Footnote 4: The survey date is the date on which the data collection starts. The survey results may be used for the period 12 months after the survey date, on top of using the results for the period prior to the survey date, resulting in up to 24 months period to which the survey results may be applied to, irrespective of when the monitoring reports are uploaded on the UNFCCC CDM website. In order to apply the survey results for the monitoring period after the survey date, the requirements of biennial sampling should be met i.e. survey results show the confidence/precision of 95/10 (or 95/5 if specified in the applied methodology). In case that the registered monitoring plan has not included biennial option, a post-registration change would be required to include it in the monitoring plan. If the applied version of the methodology does not have an option for biennial sampling but the latest version includes that option, a post-registration change may be requested to the revise the monitoring plan using the latest version of the methodology.	• The monitoring survey for MP02 was conducted from 19/10/2019 to 26/10/2019 as verified from monitoring survey result of MP02 /05/. Hence the survey date is 19/10/2019 as the data collection was started from this date. • The monitoring survey for MP02 was applied for the monitoring period 12/01/2019 to 12/09/2019 i.e., less than a year from the survey date 19/10/2019, hence the same survey can also be applied until 18/10/2020 i.e., 12 months after the survey date. Hence the total period is less than 24 months to which the survey results would be applied. • MP02 Survey result met the requirements of biennial sampling i.e., survey results shows the confidence/precision of 95/10 as verified from the monitoring survey /25/. The results of monitoring survey conducted for MP02 shows precision of 7.70% (μ_y)
			Hence for the monitoring parameter (μ_y), the survey result of MP02 can be applied up to 18/10/2020 which is 12 months from the date of the survey (i.e., 19/10/2019). For the remaining period i.e., from 19/10/2020 to 31/12/2020 Lower Bound values of MP02 survey has been used. With regard to calculation of sample size for MP02 survey, CME used calculator[9] for proportional parameter for MP02 (2nd verification) and total sample size calculated was 133 (10 samples of S26-13 and 123 samples of S32-13). Even though the survey result comes from 130 households (21 samples of S26-13 and 109 samples of S32-13) which is less than the	

[9] Sample size calculator provided as a tool of Guidelines for sampling and surveys for CDM project activities and programmes of activities.

			sample size calculated, the relative precision of monitoring survey result of MP02 is calculated as 7.70% at 95% confidence level in accordance with proper calculation tool. Therefore, the verification team concluded that measuring frequency and QA/QC procedures of the registered CPA-DD are satisfied. CAR-05(04) has been raised in this respect and successfully closed. Refer Appendix 4 of this report for more details. Under the "Justification for the temporary deviation" /06/, CME has mentioned that: • MP02 involves ICS model S32-13 and same ICS model has been distributed after MP02 and under MP04. Therefore, ICS in MP02 and MP04 are comparable in terms of efficiency and lifetime. • In MP02 ICS model S32-13 were distributed to fuelwood using households in Ayeyarwaddy region. ICS model S32-13 (after MP02 and under MP04) were distributed to fuelwood using households in Ayeyarwaddy region. Therefore, households received ICS in MP02 and MP04 are same in socio-economic conditions. From document review of MP02 ER calculation sheet /10/, the verification team confirmed that previously distributed devices (i.e., on or before MP02) consist around 96% of S32-13 distributed to fuel wood using households in Ayeyarwady region and around4% of S26-13 to fuel wood using households in Yangon, Ayeyarwady, Bago, Sagaing and Shan region. From the project database provided by CME /04/, the verification team confirmed that all of newly distributed devices after MP02 are S32-13 type and distributed to fuel wood using households in Ayeyarwady region. Further, it was confirmed that efficiency and lifetime in manufacturer specification of S32-13 for newly distributed devices was not changed from MP02. Thus, the verification team concluded that CME's opinion that newly distributed devices are comparable to the previously distributed devices and distributed to households with comparable socio-economic conditions is reasonable. The same is discussed in detail under the validation report of approved PRC (PRC-10415-004) /06/. The verification team crosschecked μ_{mp02} (0.84 (for period - 19/10/2019 to 18/10/2020) and 0.78 (lower bound of 95% confidence interval for period - 19/10/2020 to 31/12/2020)) with submitted ER sheet /04/ and confirmed that it is correctly calculated and the calculation is reproducible in the corresponding ER calculation sheet /04/ for μ_{mp02}. Thus, the verification team concluded that μ_{mp02} (0.84) is correctly measured. **μ_{mp02+} is measured in accordance with temporary deviation defined in PRC-10415-004:** As defined in the PRC-10415-004, μ_{mp02+} is calculated by the Lower Bound (of 95% confidence interval) of MP02 monitoring survey result. μ_{mp02+} = The lower bound of MP02 (0.78) CME submitted the ER calculation spreadsheet for μ_{mp02+} and the verification team confirmed that lower bound of MP02 survey result is calculated using calculation method for proportion parameter.

	As a result of checking on ER calculation spreadsheet for μ_{mp02+}, the verification team concluded that, μ_{mp02+} (0.78) is correctly calculated. Thus, the verification team concluded that μ_{mp02} and μ_{mp02+} are correctly measured in accordance with the temporary deviation in PRC. Under the ER sheet /04/, Verification team has found the application of the values correct and in accordance with the applied monitoring plan in the included CPA-DD /15/ and approved PRC (PRC-10415-004) /06/.
Conclusion	4KES confirms that: ・ Monitoring of μ_y has been carried out in accordance with the monitoring plan as well as the approved temporary deviation (refer to E.3.2). ・ QA/QC procedures are suitable and have been applied in accordance with the monitoring plan.

Data/Parameter	$N_{d,HH}$
Data Unit	Number
Description	Number of project devices distributed per household
Measured/calculated/ default	Measured
Source of data	Project database under the ER sheet /04/
Value(s)	**ICS Type** / $N_{d,HH}$ S26-13 / 1 S32-13 / 1 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 as discussed during the remote interview. Verification team checked the values under the ER calculation sheet /04/ with the scanned copy of end user agreement /24/ and also from the Local expert telephonic interviews records for sampled 19 households who were subject to DOE assessment sampling survey and no inconsistency was found.
Means of Verification	The verification team conducted document review and performed remote interview with CME in order to: ・Review information flows for generating, aggregating and reporting the monitoring parameters; ・Determine whether the data collection procedures are implemented in accordance with the monitoring plan in the included CPA-DD; ・Cross-check between information provided in the ER calculation sheet and data from other sources such as end-user agreement or monitoring survey result; ・Identify that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.
Findings	CME considered 1 for $N_{d.HH}$, i.e., only one ICS provided to each household. By means of review on project database and CME interview, the verification team confirmed that only one ICS is provided to each household. The verification team reviewed ER calculation sheet and confirmed that only one ICS are considered for ER calculation for all household. The data is recorded from start date of ICS distribution 28/09/2017 to the end of the ICS distribution date 22/12/2020 applicable for this

		monitoring period. Each distribution was recorded in project database /04/ along with the name of recipient, contact details, location of household at the time of distribution of project devices as required in recording frequency in the registered CPA-DD. CME has distributed only one improved stove per household. Therefore, $N_{d,HH}$ is equal to one. The spot checks were regularly conducted by CME through CPA implementers in order to correct the ICS registration database, as appropriate as discussed during the remote interview. Further, Verification team checked the number of ICS provided to each household under the ER calculation sheet /x04 with the scanned copy of end user agreement /24/ and also from the Local expert telephonic interviews records for sampled 19 households who were subject to DOE assessment sampling survey and no inconsistency was found. Monitoring equipment is not applicable to this parameter. Thus, Number of project devices distributed per household is properly measured and recorded in accordance with the applied monitoring plan in the CPA-DD /15/.
	Conclusion	4KES confirms that: ・ Monitoring of $N_{d,HH}$ has been carried out in accordance with the monitoring plan. ・ QA/QC procedures are suitable and have been applied in accordance with the monitoring plan.
Findings	CAR-03 has been raised in this regard and successfully closed. Refer Appendix 4 of this report for more details.	
Conclusion	The monitoring system is in compliance with the information flow for the parameters as mentioned in monitoring plan in validated CPA-DDs/15/ and approved PRC /06/. The monitored data for the parameters has been verified by checking the procedure for information flow and found to be complete and consistent. Based on above assessment on the specific parameters, the 4KES verification team confirms that the monitoring of all parameter to be monitored related to GHG emission reductions in the included CPA-DD has been implemented in accordance with the registered monitoring plan /15/ and the approved temporary deviation from the registered monitoring plan /06/. The responsibilities and authorities for monitoring and reporting are in accordance with the responsibility and authorities stated in the registered monitoring plan /15/ and it was verified with CME interview and documented evidence.	

E.3.4.3. Implementation of sampling plan

Means of verification	**CME's sampling approach**: Sampling approach by the CME was applied for monitoring survey for 2nd monitoring period (12/01/2019 to 12/09/2019) but no monitoring survey for 3rd (13/09/2019 to 22/06/2020) and 4th (23/06/2020 to 31/12/2020) monitoring periods have been conducted due to the Covid-19 pandemic thus, CME has proposed alternative monitoring approach for this 4th monitoring period i.e., 23/06/2020 to 31/12/2020 (including both days). During MP02 (i.e., from 12/01/2019 to 12/09/2019), CME has applied a sampling approach as per approved PoA-DD /20/ and included CPA-DD /15/ and the monitoring survey (for the monitoring parameters $N_{y,i,j}$ and μ_y) for MP02 was conducted from 19/10/2019 to 26/10/2019 as verified from monitoring survey result of MP02 /25/. However due to COVID-19 pandemic, fresh monitoring survey for the 4th monitoring period could not be conducted. CME decided to apply temporary deviated method from registered monitoring plan for the data and parameters ($N_{y,i,j}$ and μ_y) which has non-conforming period. Therefore, the verification team has verified implementation of sampling for 2nd monitoring survey on October 2019 (corresponding to MP02) in the process of this verification and also the approach for the non-conforming period of the relevant parameters ($N_{y,i,j}$ and μ_y) was assessed during CPA PRC validation (refer to relevant PRC validation report: Version 03,

23/07/2021) for PRC-10415-004.

Also for the monitoring of the ICS efficiency, temporarily deviated method has been used from the registered monitoring plan of CPA-DD /15/ during this verification as mentioned in approved PRC-10415-004 and last WBT result (corresponding to MP02) was not applied to the monitoring any further in this verification. Therefore, assessment of implementation for sampling of WBT is no longer mentioned in this section.

A confidence/precision of 95/10 was applied by CME in the sampling survey (corresponding to MP02) for this CPA (CPA 10415- P1-0002-CP1) in accordance with the CPA-DD /15/. The sampling approach undertaken by CME is duly explained under Section E.3 of monitoring report /02/ which is found acceptable. Target population includes all ICS distributed till the end of the 2nd monitoring period. Number of the population is 176,545 HHs and it was verified with the ICS registration database /04/.

The CPA involves distribution of ICS throughout the project area thereby the population is heterogeneous in nature i.e., common technology with similar operating characteristics but dispersed i.e., distribution of ICS is spread across many provinces. Therefore, Stratified Sampling technique was undertaken by the CME for this CPA.
To ensure representativeness of the population, dissimilarity (such as ICS type, age group and provinces in which they are operating) within the included CPA were considered in the sample size calculation which is found OK. The households were selected randomly (by CME) for each relevant monitoring parameter as confirmed during the remote audit and from Screen captures of sample randomization /26/ and are representative of the population.

There were 9 strata made for the sampling and the verification team checked that the ICS of same type, age group and province in which they are operating were grouped in the same strata as per below table.

Stratum No.		1	2	3	4	5	6	7	8	9
Region		Yangon		Ayeyarwady			Bago		Sagaing	Shan
ICS Model		S26-13				S32-13	S26-13			
Age Group (Days)		1-365	366-730	1-365	366-730	1-365	1-365	366-730	366-730	366-730
Sample Frame		14	728	2,566	1,438	169,548	56	297	1,379	519
Sample size for $N_{y,i,j}$	Calculated	1	1	2	1	93	1	1	1	1
	Actual	3	3	3	3	116	3	3	3	3
Sample size for μ_y	Calculated	1	1	2	2	123	1	1	1	1
	Actual	2	3	3	2	109	2	3	3	3

Every ICS was assigned to only one stratum in such a way that no ICS was excluded. CME used the sample size calculator spreadsheet provided as part of “Guidelines for sampling and surveys for CDM project activities and programme of activities” (version 04).

The sample size was determined for each strata for $N_{y,i,j\ j}$ and μ_y (proportional value). It was checked that the outcome of sample size calculation (required and actual samples) was based on the above-mentioned confidence level and precision and presented in the MR.

Regarding sample selection after determining sample size for each parameter, based on stratified sampling method, randomization was performed by CME using MS Excel’s built-in random number generator. It was found by interviewing CME that the expected values of parameters such as standard deviation and proportion were determined by using the CME’s knowledge and experience. The verification team reviewed result of randomization and concluded that the samples are representative of the total population. Based on above document review and interview with CME, it could be concluded that the implementation of survey was considered reliable.

The actual achieved precision was checked by the CME and found within the required precision. The calculation of achieved precision has been checked by the verification team

and found in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities" (version 09.0). It was confirmed from the sample size calculation spreadsheet that the required precision was kept <10% during sample size calculation. The reliability (demonstration of precision achieved after the survey results) is given under the tab "Uy" and "Ny" of the submitted ER sheet /04/ which were also found correct.

Actual precision achieved for MP 02 survey used for this monitoring period

Monitoring Parameter	Actual Precision Achieved	Is required Precision achieved? (< 10%)
$N_{y,i,j}$ Number of project devices of type i and batch j operating during year y	4.45%	Yes
μ_y Adjustment to account for any continued use of pre-project devices during the year y	7.70%	Yes

Based on the verified results, the verification team found that the required precision is met in all the cases and therefore the MP02 survey results were used in the calculation of ERs.

The sampling approach undertaken by CME is duly explained under Section E.3 of monitoring report /02/ which is found acceptable by the verification team.

DOE sampling:

There are total 4 monitoring parameters (as given below) for which sampling has been done by the DOE.

1. $N_{y,i,j}$
2. μ_y
3. Date of commissioning of project device i
4. $N_{d,HH}$

From the above parameters, two parameters ($N_{y,i,j}$ and μ_y) have been monitored by CME during MP02 sampling and recorded in Monitoring survey forms /25/ however the remaining parameters (Date of commissioning of project device i and $N_{d,HH}$) are recorded at the time of distribution of the ICS till the end of MP04.

The verification team has used acceptance sampling for remote surveys as part of this verification in accordance with Para. 28 of "Sampling and surveys for CDM project activities and programmes of activities, version 09.0" /12/ and paragraph 54 of the "Guideline: Sampling and surveys for CDM project activities and programmes of activities, version 04.0" /13/. Verification team carried out the random sampling from the CME's sample records (for $N_{y,i,j}$ and μ_y), CME records (Date of commissioning of project device i and $N_{d,HH}$) and check (using its own professional judgment) the acceptability of the data for each record in the CME's records for the Monitoring parameters. The DOE has determined acceptance sample size based on the "Table. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks" of standard "Sampling and surveys for CDM project activities and programmes of activities" version 09.0.

During the remote telephonic interview by the local expert, a random sampling approach has been used to verify the reported values for the monitored parameters as listed in section E.2 of the MR /02/ and ER Sheet /04/ which are determined through sample survey by CME during MP02 i.e., from 12/01/2019 to 12/09/2019 (including both the days) or during the distribution of devices.
For the determination of DOE's acceptance sample size, verification team has selected the following using its own professional judgment:

1. Acceptable quality level (AQL) - 1%
2. Unacceptable Quality Level (UQL) – 15%
3. Producer risk -5%

4. Consumer risk -20%

Verification team has determined acceptance sample size based on the "Table 2. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks" of standard "Sampling and surveys for CDM project activities and programmes of activities" version 09.0 /12/. From the above factors, the verification team determined the minimum sample size (n) as 19 and acceptance number (c) as 1. The sample size used to verify the reported values for the monitored parameters which are determined through sample survey by CME. The verification team verified the 19 randomly selected samples during phone survey by local expert and filled the DOE survey form to check the acceptability of the data for each record in the CME's records.

The actual number of sample size where the acceptance survey was done given below:

Parameters	Total Population	CME's sample size	Acceptance sample size	Acceptance Number	Sampling method used
Monitoring parameters ($N_{y,i,j}$ and μ_y) as per section E.2 of the MR /02/	The target population includes all ICS using Households (HHs) in the project database (PD), which are end-users of the project technology. This represented total 176,545 HHs till end of MP02.	130 for the monitoring parameter μ_y and 140 for the monitoring parameter $N_{y,i,j}$	19	1	Acceptance Sampling based on random selection of households.
Monitoring parameters (Date of commissioning of project device i and $N_{d,HH}$) as per section E.2 of the MR /02/	The target population includes all ICS using Households (HHs) in the project database (PD), which are end-users of the project technology. This represented total 3,45,026 HHs distributed till end of MP04	Not applicable as these parameters are recorded at the time of distribution of ICS to HHs	19	1	Acceptance Sampling based on random selection of households.

Using acceptance sampling approach, verification team checked the CME's results (reported in the Monitoring forms /25/ and End user agreements /24/) along with the following evidences:

	1. Remote audit interview records by Local expert 2. CME household database under the ER sheet /04/ 3. Shipping details of the ICS used by project participating households /33/ The result of the survey is given below: **Parameters** | **DOE Sample size** | **No of CME's record beyond unacceptable level** | **Accepted** Monitoring parameters (1. $N_{y,i,j}$, 2. μ_y, 3. Date of commissioning of project device i and 4. $N_{d,HH}$) as per section E.2 of the MR /02/ | 19 | 1 | 18, Therefore, the CME's set of records for Monitoring parameters are accepted.
Findings	CAR-04 has been raised in this regard and successfully closed. Refer Appendix 4 of this report for more details.
Conclusion	4KES confirms that CME has provided a complete and transparent description of the sampling activities (conducted for MP02) in the MR with relevant evidence. Verification team confirms that the sampling approach (for MP02) applied by the CME is in accordance with the approved PoA-DD /20/ and the CPA-DD /15/ including the Guidelines: Sampling and surveys for CDM project activities and programmes of activities, Version 04.0 /13/ and Standard: Standard for sampling and surveys for CDM project activities and Programme of Activities, version 09.0 /12/.

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

Means of verification	Monitoring equipments are used for the monitoring of the Monitoring parameter "$\eta_{new,i,j}$" however during this monitoring period MP04 (23/06/2020 to 31/12/2020 (including both days)), CME has applied temporary deviation as mentioned below for which no monitoring equipment is used. According to the registered monitoring plan of CPA-DD /15/, loss in efficiency of project device of type i and batch j ($\eta_{new,i,j}$) shall be determined annually from a representative sample of each batch and using the actual loss rate that is measured in accordance with (d) of paragraph 25 of the applied methodology. CME conducted WBT to determine $\eta_{new,i,j}$ for the previous monitoring periods (MP01 and MP02) however CME could not conduct WBT later on because of the Covid-19 pandemic. Hence, for this monitoring period (i.e., 23/06/2020 to 31/12/2020, MP04), CME has applied temporary deviation for the monitoring parameter $\eta_{new,i,j}$ as mentioned under table 3&4 of the approved temporary deviation (PRC-10415-004) and no monitoring equipment is used for the same. Hence this section is not applicable for this monitoring period (i.e., 23/06/2020 to 31/12/2020, MP04).
Findings	No finding raised.
Conclusion	This section is not applicable for this monitoring period as mentioned above.

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 verification team has checked whether calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan of CPA-DD /15/. The equations applied for the determination of baseline emissions is consistent with

the validated CPA-DD /15/ and applied methodology /11/.

Verification team has reviewed all data, parameters and calculations with respect to calculation of the baseline GHG emissions and checked them against the requirements out of the applied methodology AMS-II.G. (Version 08.0), the approved PoA-DD, CPA-DD and relevant tool applied as well as the approved temporary deviation from the registered monitoring plan.
The verification team also assessed the completeness, quality and appropriateness of the data, parameters and calculations. Furthermore, the verification team assessed whether any assumptions, emission factor or other reference values used by the CME are justified and correctly applied, in line with the requirements.

The following equations were used to determine the baseline emissions as provided in the monitoring report /02/ and applied in the corresponding ER calculation spreadsheets /04/.

As per applied methodology AMS-II.G. version 08.0 /11/; formula to calculate emission reductions (ERs) is:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$ Equation (1)[10]

Where:

i	=	Indices for the situation where more than one type of project device is introduced to replace the pre-project devices[11]
j	=	Indices for the situation where there is more than one batch of project device
ER_y	=	Emission reductions during year *y* in t CO_2e
$ER_{y,i,j}$	=	Emission reductions by project device of type *i and* batch *j* during year *y* in t CO_2e
LE_y	=	Leakage emissions in the year *y*

Where:

$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times u_y \times f_{NRB,y} \times NCV_{biomass} * EF_{projected\ fuel}$ Equation (2)

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)
ER_y	=	Emission reductions by project device of type i and batch j during year y in t CO_2e
$B_{y,savings,i,j}$	=	Quantity of woody biomass that is saved in tonnes per cook stove device of type i and batch j during year y
$N_{y,i,j}$	=	Number of project devices of type i and batch j operating during year y
U_y	=	Adjustment to account for any continued use of pre-project devices during the year y when applying equations 6 and 8 (fraction).

[10] applied methodology i.e. AMS-II.G. Version 08.0

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

	$f_{NRB,y}$ = 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') $EF_{projected\ fuel}$ = 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 To calculate $B_{y,savings,i,j}$ CME applied equation 6 of option 3 of the applied methodology. $$B_{y,savings,i,j} = B_{old,i,j} \times (1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}})$$ Equation (6) 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 $B_{y=1,new,i,survey}$ = Quantity of woody biomass used by project devices in tonnes per device of type i and batch j $\eta_{new,i,j}$ = Efficiency of the device of each type i and batch j implemented as part of the project activity $\eta_{old,i,j}$ = 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 Where equation 9 of the applied methodology is applied for the calculation of $B_{old,I,j}$ $$B_{old,i,j} = (B_{old,HH}/N_{d,HH})$$ Equation (9) 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 $N_{d,HH}$ = Number of project device per household A complete set of data for baseline emission calculations covering the monitoring period has been provided to 4KES and reviewed during verification as explained E.3.4. above. The calculation under MR /02/ and ER sheet /04/ was found correct as well as carried out in accordance with the formulae and methods described in the monitoring methodology AMS-II.G. (version 08.0) /11/, the included CPA-DD /15/ and the approved temporary deviation from the registered monitoring plan /06/. All emission factors, default values and reference values, as applicable, have been correctly justified, explicitly mentioned in the MR and correctly applied. Especially, the values of following parameters are determined in the approved temporary deviation for non-conforming monitoring period: • Number of project devices ($N_{y,i,j}$) • Adjustment to account for any continued use of pre-project devices during the monitoring period ($\mu_{y,i,j}$)

	• Efficiency of the project device ($\eta_{new,i,j}$) Refer to the PRC validation report /06/ for details of assessment for alternative approaches. It was found that the spreadsheets /04/ were made available completely and that all formulae have been correctly implemented and are accessible and traceable. Rounding of digits, where applicable, has been applied correctly and conservatively. All necessary documentation is collected, referenced and aggregated and is easily accessible in spreadsheets. Key input data for calculation of the baseline GHG emissions could be cross-checked via other sources (if applicable). Further details on cross-checks for parameter and the information flow are given in section E.3.4.2 above. The baseline GHG emissions have been found to be 417,640 tCO_2e for the monitoring period.
Findings	CAR-05 has been raised in this regard and successfully closed. Refer Appendix 4 of this report for more details.
Conclusion	The verification team confirms the following: • The calculations of baseline GHG emissions have been carried out in accordance with the equations and methods described in the registered monitoring plan /15/, applied methodology /11/ and the approved temporary deviation from the registered monitoring plan /06/. • Any assumptions used in emission or removal calculations have been justified. • Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the baseline calculation is overall correct. • The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible. • Hence, the baseline emission in the monitoring report for the monitoring period (i.e., 417,640 tCO_2e) is verified to be correct.

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

Means of verification	The verification team has checked, whether project GHG emissions (if any) were determined in accordance with the applied methodology /11/, the monitoring plan in the approved PoA-DD /20/ and included CPA-DD /04/.
Findings	No findings raised.
Conclusion	As per the CPA-DD /15/ and applied methodology /11/, no project emissions is applicable for the CPA. 4KES confirms that the approach with regard to project GHG emissions is correct and thus no project GHG emissions need to be considered in the project based on the applied methodology.

E.3.6.3. Calculation of leakage GHG emissions

Means of verification	The verification team has checked, whether leakage GHG emissions (if any) were determined in accordance with the applied methodology /11/, the monitoring plan in the approved PoA-DD /20/ and included CPA-DD /15/. As per para 42 of the applied methodology /11/ and the CPA-DD /15/, CME has adopted approach C to estimate leakages, a net to gross adjustment factor of 0.95 to account for both leakages, in which case surveys are not required $By,savings,i,j$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. Therefore, $LE_y = B_{y,savings,l,j} \times N_{y,i,j} \times u_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\ fuel} \times (1- 0.95)$ The leakage GHG emissions have been found to be 20,981 tCO_2e for the

	monitoring period.
Findings	No findings raised.
Conclusion	Leakage is accounted for by multiplying with net to gross adjustment factor which is in accordance with the CPA-DD /15/ and hence accepted to the Verification team. Verification team conclude that there is no leakage emission for this monitoring period.

E.3.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	The verification team has checked whether calculations of GHG emission reduction have been carried out in accordance with the formulae and methods described in the registered monitoring plan /15/. Means of verification in respect of baseline GHG emissions, project GHG emissions and leakage GHG emissions that form the basis for calculation of the GHG emission reductions are stated in detail in sections E.3.6.1., E.3.6.2. and E.3.6.3. above. Section F.4 of MR demonstrate the summary of GHG emission reductions for the monitoring period and calculated according to the applied methodology as follows: $ER_y = \sum\sum ER_{y,i,j} - LE_y$ Equation (1) The calculation was found to be correct as well as carried out in accordance with the formulae and methods described in the monitoring methodology AMS-II.G. (Version 8.0), the approved PoA-DD and the included CPA-DD. The ER calculation sheet /02/ and monitoring report /04/ is verified to check the calculation.
Findings	No findings raised.
Conclusion	The verification team confirms the following: • The emission reduction value reported (i.e., 396,659 tCO_2e) is verified to be correct. • The summary table in the MR has been filled correctly and the values are in line with the related emissions reduction spreadsheet. Since the complete monitoring period falls after 31/12/2012, the complete emission reductions are correctly reported under the respective column in the MR.

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**
Title: Clean Energy Program Supported by Republic of Korea CPA MM 02 **UNFCCC reference no.:** 10415-P1-0002-CP1	417,640.00	-	20,981.00	-	396,659.00	396,659.00
Total	**417,640.00**	**-**	**20,981.00**	**-**	**396,659.00**	**396,659.00**

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 whether the MR includes a comparison of actual GHG emission reduction values of the monitoring period with the estimations in the validated CPA-DD /15/. Section F.5 of the MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the CPA-DD /15/. **Estimated Emission Reduction as per CPA-DD:** 454,627 tCO_2e /15/ **Actual Emission Reduction for the Monitoring Period** 396,659 tCO_2e /02/ In summary, verification team confirms that the actual emission reduction is lower than the estimate of the CPA-DD /15/ for the current monitoring period.
Findings	No finding raised.
Conclusion	The estimated emission reduction as per CPA-DD and the actual emission reduction achieved for the monitoring period are correctly calculated and reported in the section F.5 of MR /02/. The actual achieved emission reduction for CPA is less than the CPA-DD /15/ estimation. Hence no justification is required.

Title and UNFCCC reference number of the CPA	Actual values achieved by the CPAs during this monitoring period	Value estimated in ex ante calculation in the included CPA-DD(s)
Title: Clean Energy Program Supported by Republic of Korea CPA MM 02 **UNFCCC reference no.:** 10415-P1-0002-CP1	396,659 tCO_2e	454,627 tCO_2e
Total	**396,659 tCO_2e**	**454,627 tCO_2e**

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

Means of verification	The actual achieved emission reduction for the CPA (Title: Clean Energy Program Supported by Republic of Korea CPA MM 02, UNFCCC reference no.: 10415-P1-0002-CP1) during this monitoring period is less than the estimated amount based on the ex-ante estimation in the CPA-DD /15/.
Findings	No finding raised.
Conclusion	The actual achieved emission reduction for the CPA (Title: Clean Energy Program Supported by Republic of Korea CPA MM 02, UNFCCC reference no.: 10415-P1-0002-CP1) during this monitoring period is less than the estimated amount based on the ex-ante estimation in the CPA-DD /15/.

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

Means of verification	The CME has neither monitored sustainable development co-benefits of the programme activity nor requested the DOE to verify them, the section is therefore not applicable in this monitoring period.
Findings	Not applicable to the proposed programme of activity
Conclusion	Not applicable to the proposed programme of activity

E.3.8. Global stakeholder consultation

Means of verification	Not applicable for 4th monitoring period
Findings	Not applicable for 4th monitoring period
Conclusion	Not applicable for 4th monitoring period

SECTION F. Internal quality control

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The draft verification report prepared by team leader is reviewed by an independent technical reviewer before requesting for issuance to confirm the internal procedures established by 4KES are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements. The technical review is conducted by the technical reviewer qualified as per the 4KES procedures established for the qualification of CDM personnel as per EB guidelines.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Head of the DOE. The technical reviewer approves the final version of the report.

The final approval is authorized by the Director, 4KES once the report is approved by the Head/DOE Manager.

SECTION G. Verification opinion

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The verification team confirms that the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters have been cross checked with the emission reduction sheet and monitoring report. During the course of verification and remote audit, the data submitted by CME was cross verified with the values mentioned in the emission reduction sheet /04/ and monitoring report /02/. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the approved PoA-DD & included CPA-DD.

Evidences (Documents/remote audit interview) referred for verification of individual monitoring parameters and fixed parameters are defined in section E.3.4.1 and E.3.4.2 above. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the PoA has resulted in 396,659 tCO_2e emission reductions during monitoring period 23/06/2020 to 31/12/2020 (first and last days are included).

SECTION H. Certification statement

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4K Earth Science Private Limited has been contracted by 'ECOEYE Co., LTD' to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the CDM PoA "Clean Energy Program Supported by Republic of Korea", UNFCCC Reference Number 10415 for the monitoring period 23/06/2020 to 31/12/2020 (including both dates) in the Monitoring Report Version 01 (first version) dated 27/04/2021.

The verification is based on the approved revised PoA-DD /20/ & CPA-DD /15/ and the monitoring report for this PoA. Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board.

'ECOEYE Co., LTD' is the coordinating/Managing Entity and CPA Implementer for this CPA "Clean Energy Program Supported by Republic of Korea CPA MM 02" UNFCCC Ref. No. 10415-P1-0002-CP1 and it is responsible for inclusion of CPAs under this PoA. 'ECOEYE Co., LTD' is also responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the PoA/CPA. The calculation and determination of GHG emission reductions from the PoA is the responsibility of the management of the 'ECOEYE Co., LTD'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 1.2 dated 17/09/2021.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the PoA for the monitoring period

23/06/2020 to 31/12/2020 (including both dates) based on the reported emission reductions in the Final Monitoring Report Version 1.2 dated 17/09/2021 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, 4K Earth Science Private Limited planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.
4K Earth Science Private Limited confirms the following;

Reporting period: 23/06/2020 to 31/12/2020 (including both dates)

Verified and certified emission in the above reporting period:

Title and UNFCCC reference number of the CPA	**Baseline emissions (BE)** **(tCO_2e)**	**Project emissions (PE)** **(tCO_2e)**	**Leakage emissions (LE)** **(tCO_2e)**	**Certified emission reductions (CERs)** **(tCO_2e)**
Title: Clean Energy Program Supported by Republic of Korea CPA MM 02 **UNFCCC reference no.:** 10415-P1-0002-CP1	417,640.00	-	20,981.00	396,659.00
Total	**417,640.00**	**-**	**20,981.00**	**396,659.00**

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CERs	Certified Emission Reductions
CL	Clarification Request
CO_2e	Carbon dioxide equivalent
COP	Conference of Parties
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
kWh	Kilo Watt Hour
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
MWh	Mega Watt Hour
PE	Project Emissions
PDD	Project Design Document
PS	Project Standard
PCP	Project Cycle Procedure
PP	Project Participant
QA/QC	Quality Assurance/Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard
4KES	4K Earth Science Private Limited
MP01	Monitoring period (28 Aug 2018 - 11 Jan 2019)
MP02	Monitoring period (12 Jan 2019 - 12 Sep 2019)
MP03	Monitoring period (13 Sep 2019 - 22 Jun 2020)
MP04	Monitoring period (23 Jun 2020 - 31 Dec 2020)

Appendix 2. Competence of team members and technical reviewers

Certificate of Competence		
Name	☒ Mr. ☐ Ms.	**Chetan Swaroop Sharma**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*
Appointed to work as:		

	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	27-04-2021					

Authorized to work as Technical Expert for:

Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy distribution	2.1	Energy distribution
	Energy demand	3.1	Energy demand
	Waste handling and disposal	13.1	Solid waste and wastewater
	Waste handling and disposal	13.2	Manure

Authorized to work as Local Expert for:

Country/Countries	India

Compliance check by: Anand S. R.

Certificate of Competence

Name	☒ Mr. ☐ Ms.	**ZAW ZAW HAN**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*

Appointed to work as:

	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	-	-	-	-	-	-
Appointed Date	24-11-2020					

Authorized to work as Technical Expert for:

Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope

Authorized to work as Local Expert for:

Country/Countries	Myanmar

Compliance check by: Anand S. R.

Certificate of Competence

Name	☐ Mr. ☒ Ms.	**Indumathi .C**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*

Appointed to work as:

	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	27-04-2021					

Authorized to work as Technical Expert for:

Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope
	Energy industries (renewable - /	1.1	Thermal energy generation

	non-renewable sources)		
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy demand	3.1	Energy demand
	Waste handling and disposal	13.1	Solid waste and wastewater
	Waste handling and disposal	13.2	Manure
Authorized to work as Local Expert for:			
Country/Countries	India		
Compliance check by: Anand S. R.			

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	CME	Hosted Monitoring Report	Version 1.0, dated 27/04/2021	CME
2.	CME	Final Monitoring Report	Version 1.2, dated 17/09/2021	CME
3.	CME	**Draft ER calculation sheets for the CPA** PoA 10415 MP04 ER Summary 27042021 PoA 10415 MP04 Nmp02 ER Cal 27042021 PoA 10415 MP04 Nmp02+ ER Cal 27042021	Corresponding to hosted MR version 1.0	CME
4.	CME	**Final ER calculation sheets for the CPA** PoA 10415 MP04 ER Summary 17082021 PoA 10415 MP04 Nmp02 ER Cal 17082021 PoA 10415 MP04 Nmp02+ ER Cal 17082021	Corresponding to Final MR version 1.2	CME
5.	Shenzhou Huimei International Trad Co., LTD	Manufacture Specification for S26 13 Manufacture Specification for S32 13	-	CME
6.	CME 4K Earth Science Private Limited	Justification for temporary deviation Validation report for PRC (UNFCCC Ref. No. PRC-10415-004, approved on 05/09/2021) Link: https://cdm.unfccc.int/CPAPostRegChanges/DB/prcp928115963/view	Dated 23/07/2021 Version 03, dated 23/07/2021	Publicly available
7.	Forest research institute, Myanmar	WBT conducted for monitoring period 02 i.e. from 12/01/2019 to 12/09/2019	13/11/2019	CME
8.	Cetre for Rural Technology, Nepal	WBT certification included in manufacture specification: S26 13 WBT certification included in manufacture specification: S32 13	23/01/2017 30/10/2018	CME
9.	CME	Monitoring Report (MP01) for monitoring period 28/08/2018 – 11/01/2019 and corresponding ER	Ver. 4.0 (18/06/2019)	Publicly

	LGAI Technological Center, S.A. (Applus+ Certification)	sheet Verification Report (MP01) for monitoring period 28/08/2018 – 11/01/2019 https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/BQ0WHAOXJLK25SCPVF4GZ97ER6MD1N/view	Ver. 3.1 (24/06/2019)	available
10.	CME LGAI Technological Center, S.A. (Applus+ Certification)	Monitoring Report (MP02) for monitoring period 12/01/2019 to 12/09/2019 and corresponding ER sheet Verification report (MP02) for Monitoring period 12/01/2019 to 12/09/2019 https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/BQ0WHAOXJLK25SCPVF4GZ97ER6MD1N/view	Ver. 2.0 (29/01/2020) Ver.1.1 (20/02/2020)	Publicly available
11.	UNFCCC	AMS-II.G.	Version 8.0	Publicly available
12.	UNFCCC	Standard: Sampling and surveys for CDM project activities and programmes of activities	Version 09.0	Publicly available
13.	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programmes of activities	Version 04.0	Publicly available
14.	UNFCCC	General guidelines for SSC CDM methodologies	Version 23.1	Publicly available
15.	CME Earthood Services Private Ltd.	CPA-DD: Clean Energy Program Supported by Republic of Korea CPA MM 02 (CPA 10415-P1-0002-CP1) Validation Report for CPA-DD (CPA 10415-P1-0002-CP1)	Version 3.0, dated 26/12/2018 Version 2.0, dated 26/12/2018	Publicly available
16.	UNFCCC	SSC_781: Clarification on the validity and applicability of monitoring survey results under AMS-II.G.	-	Publicly available
17.	UNFCCC	SSC_804: Clarification on the use of the lower bound approach to determine efficiency drops under AMS-II.G.	-	Publicly available
18.	UNFCCC	CDM Validation and Verification Standard for programmes of activities CDM Project Standard for programmes of activities CDM project cycle procedure for programmes of activities	Version 02.0 Version 02.0 Version 02.0	Publicly available
19.	UNFCCC	Meeting report: CDM Executive Board 106th Meeting	-	Publicly available
20.	CME Earthood Services Private Ltd.	Approved revised PoA-DD Validation Report for PRC https://cdm.unfccc.int/PRCContainer/DB/prcp575253602/view	Version 2.0, dated 25/09/2018 Version 3.0, dated 12/11/2018	Publicly available

21.	UNFCCC	Glossary "CDM terms"	Version 10.0	Publicly available
22.	UNFCCC	Guidelines for Application of materiality in verifications	version 2.0	Publicly available
23.	UNFCCC	MR filling guideline "CDM-PoA-MR-FORM Monitoring report form for CDM programme of activities"	Version 04.0	Publicly available
24.	CME	Sample copies of ICS End User Agreement signed by the ICS User at the time of Distribution of ICS	-	CME
25.	CME	Result of Monitoring Survey conducted for monitoring period 02 i.e. from 12/01/2019 to 12/09/2019 Scanned copy of filled CME monitoring survey questionnaire corresponding to all the monitoring parameters corresponding to the monitoring period 02 i.e. from 12/01/2019 to 12/09/2019 Survey pictures	Conducted from 19/10/2019 to 26/10/2019	CME
26.	CME	CME Selection of household samples in project technologies: Screen captures of sample randomization corresponding to the monitoring period 02 i.e. from 12/01/2019 to 12/09/2019	-	CME
27.	CME	Training attendance list Pictures of trainings CPA MM02 MP02 Survey Training PPT	03/10/2019 and 04/10/2019	CME
28.	CME	Project Cost Information Sheet – Myanmar PoA CEP	-	CME
29.	CME	Clarification of Serial Number for ECOEYE ICS	-	CME
30.	CME	Contract agreement between CME and the Local partner (ASDO, Myanmar)	25/04/2018	CME
31.	CME	CDM operating manual	-	CME
32.	CME	Organizational structure	-	CME
33.	CME	Invoices/shipping details of the stoves	-	CME
34.	Global Alliance for Clean Cookstoves	Water Boling Test Protocol	Version 4.2.3 19/03/2014	CME
35.	CME	Excel screenshots to explain the discrepancy of distributed ICS till end of MP02 (from 12/01/2019 to 12/09/2019)	-	CME
36.	KBS Certification Services Private Limited	PoA Validation report https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/BQ0WHAOXJLK25SCPVF4GZ97ER6MD1N/view	-	Publicly available

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:** 30/06/2021

Description of FAR	
DOE involved in next periodic verification of the PoA must ensure that the approach for calculating fNRB is same for all CPAs under this PoA.	
CME response	**Date:** 30/07/2021
This monitoring period involves only one CPA, reference number 10415-P1-0002-CP1. The approach for calculating fNRB is as per the applied meth and described in the Appendix 3 of the registered CPA-DD.	
Documentation provided by the CME	
Not required	
DOE assessment	**Date:** 28/08/2021
As only single CPA (ref.no. 10415-P1-0002-CP1) is considered for this verification, this FAR from previous verifications is not relevant to this verification and it is being carry forwarded to next verification. This FAR (ID 01) is converted to FAR ID 02 in table 4 below.	

Table 2. CLs from this verification

CL ID	01	Section no.	E.3.1	Date: 30/06/2021
Description of CL				
As per the submitted Post registration change (**PRC-10415-004**) /06/ for this CPA "Clean Energy Program Supported by Republic of Korea CPA MM 02", no sampling survey has been conducted corresponding to this monitoring period (23 Jun 2020 - 31 Dec 2020) and the results of the sampling survey conducted for MP02 (12 Jan 2019 - 12 Sep 2019) have been used for the ER calculation. As per the ER sheet of MP02 (https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss547289295/view) /10/, Number of ICS distributed is 1,75,015 however as per the ER sheet submitted corresponding to MP04/03/, the number of distributed devices till end of MP02 is mentioned as 1,76,561. CME need to clarify the discrepancy.				
CME response				**Date:** 17/8/2021
The discrepancy is due to the counting of ICS in 2nd MP ER sheet. In this issuance i.e., MP04 the number of ICSs are properly included in ER calculation: • The CME correctly counted 1,534 ICSs in Ayeyarwaddy (ASDO17) region for this monitoring period which were erroneously uncounted in the MR of 2nd MP even though they were registered in project database at 2nd verification; • 4 ICSs with unrecognized serial number have been excluded from the total number of ICSs. Therefore, in MP04 under Nmp02, total number of ICS = 175,015 + 1534 - 4 = 176,545				
Documentation provided by the CME				
Screenshots to explain the discrepancy; Revised ER sheets and MR				

DOE assessment	Date: 28/08/2021

Verification team has checked the ER sheet /10/ for MP 02 (Monitoring period 12 Jan 2019 - 12 Sep 2019) and the ER sheet for MP04 (23 Jun 2020 - 31 Dec 2020) /04/ and found the CME justification convincing. In the MP02 ER sheet /10/, 1534 ICS were not counted (excel formula error) however they were included in the database. Now the CME has counted them and included. Also 4 ICS with unrecognized serial number have been removed by the CME. Hence the total number of distributed devices till end of MP02 are 176,545 (=175,015 + 1534 - 4) which is found OK. CME has submitted the excel screenshots to explain the discrepancy /35/ which is checked by the verification team and found OK.

Under tab “Ayeyarwaddy” of ER sheet /10/ for MP 02 (Monitoring period 12 Jan 2019 - 12 Sep 2019), ICS for S32-13 is 168088 however it is 169622 as per below screenshot.

Age	ICS S32-13	Duplicate	Total	ICS S26-13	Duplicate	Total
1-365	168088	70	168018	2566	0	2566
366-730	0	0	0	1444	6	1438
Sub Total	168088	70	168018	4010	6	4004
Total	1,72,022					

Under tab “ASDO 17 (1-365)” of ER sheet /10/ for MP 02 (Monitoring period 12 Jan 2019 - 12 Sep 2019).

169619	17	9984	ASDO	Daw Khin Aye Kyi	Ayeyarwaddy	Zalun
169620	17	9985	ASDO	Daw Mar Mar Lwin	Ayeyarwaddy	Zalun
169621	17	9986	ASDO	Daw Ah Mar Khin	Ayeyarwaddy	Zalun
169622	17	9987	ASDO	Daw Thidar	Ayeyarwaddy	Zalun

Hence this CL is closed.

Table 3. CARs from this verification

CAR ID	01	Section no.	E.1.1	Date: 30/06/2021
Description of CAR				
Under section E.2 of the Monitoring report /01/, the table used for the monitoring parameters have been altered and are not as per the MR filling guideline.				
CME response				**Date:** 17/08/2021
The monitoring parameters have been corrected as per the MR filling guideline.				
Documentation provided by the CME				
Revised MR				
DOE assessment				**Date:** 28/08/2021
Corrections have been done in the revised MR /02/ and found OK. Now the monitoring parameter tables under section E.2 of the MR /02/ is consistent with the MR template /23/. Hence this CAR is closed.				

CAR ID	02	Section no.	E.3.1	Date: 30/06/2021
Description of CAR				
Under section C.1 of the Monitoring report /01/, Verification team has found the following. 1. As per the submitted Emission reduction sheet/03/, there is no age group 1-365 for ICS type S32 13 for this monitoring period (23 Jun 2020 - 31 Dec 2020) however table 2 (Under section C.1 of the Monitoring report) has mentioned the same. 2. Under table 2 (Under section C.1 of the Monitoring report), lower bound value of the “annual energy savings per ICS in MWh” has been mentioned however Lower bound calculation is not applicable for annual energy saving as per the submitted ER sheet. 3. The mentioned date (i.e. 30/09/2017) for “Distribution date of first ICS included in this monitoring period” (Under table “Table 4: CPA Details”) is not consistent with the submitted ER sheet /03/.				
CME response				**Date:** 17/08/2021

1. Age group 1-365 for ICS type S32-13 is removed from the Table 2; 2. Lower bound value of the “annual energy savings per ICS in MWh” has been removed; 3. 28/09/2017 is the “Distribution date of first ICS included in this monitoring period”. The editorial error has been corrected.
Documentation provided by the CME
Revised MR
DOE assessment **Date:** 28/08/2021
1. Correction has been done in the revised MR /02/ and found OK. Hence this part of CAR is closed. 2. Correction has been done in the revised MR /02/ and found OK. Hence this part of CAR is closed. 3. Correction has been done in the revised MR /02/ and found OK. Hence this part of CAR is closed.

CAR ID	03	**Section no.**	E.3.4.2	**Date:** 30/06/2021
Description of CAR				
For this monitoring period (23 Jun 2020 - 31 Dec 2020), CME has submitted a Post registration change (**PRC-10415-004**) for this CPA “Clean Energy Program Supported by Republic of Korea CPA MM 02” due to the temporary deviation from the registered monitoring plan in the CPA-DD however the submitted Monitoring report /01/ is not consistent with the submitted PRC.				
CME response				**Date:** 17/08/2021
The MR has been edited and now it is consistent with the PRC request				
Documentation provided by the CME				
Revised MR				
DOE assessment				**Date:** 28/08/2021
Correction has been done in the revised MR /02/ and found OK. Hence this CAR is closed.				

CAR ID	04	**Section no.**	E.3.4.3	**Date:** 30/06/2021
Description of CAR				
As per the submitted Post registration change (**PRC-10415-004**) for this CPA “Clean Energy Program Supported by Republic of Korea CPA MM 02”, no sampling survey has been conducted corresponding to this monitoring period (23 Jun 2020 - 31 Dec 2020) and the results of the sampling survey conducted for MP02 (12 Jan 2019 - 12 Sep 2019) have been used for the ER calculation. Under section E.3 of the Monitoring report /01/, CME need to describe the results of the sampling survey conducted during MP02 (12 Jan 2019 - 12 Sep 2019).				
CME response				**Date:** 17/08/2021
The results of the sampling survey conducted during MP02 (12 Jan 2019 - 12 Sep 2019) has been added in the section E.3.				
Documentation provided by the CME				
Revised MR				
DOE assessment				**Date:** 28/08/2021
Corrections have been done in the revised MR /02/ and found OK. Under section E.3 of the Monitoring report /02x/, CME has provided the MP02 (12 Jan 2019 - 12 Sep 2019) survey results which are found consistent with the submitted ER sheet /04/. Hence this CAR is closed.				

CAR ID	05	**Section no.**	E.3.6.1	**Date:** 30/06/2021
Description of CAR				

Under the submitted ER sheet /03/, Verification team has found the following. 1. The calculated final baseline emissions corresponding to this monitoring period (23 Jun 2020 - 31 Dec 2020) have been round up which is not correct. 2. As per the submitted Post registration change (**PRC-10415-004**) for this CPA "Clean Energy Program Supported by Republic of Korea CPA MM 02", no sampling survey has been conducted corresponding to this monitoring period (23 Jun 2020 - 31 Dec 2020) and the results of the sampling survey conducted for MP02 (12 Jan 2019 - 12 Sep 2019) have been used for the ER calculation. Under the tab "Core Data" of submitted ER sheet /03/, values of the Monitoring parameters (Ny,i,j and μy) have been typed rather than directly sourced from the tabs "Ny" and "μy" where the values of Ny,i,j and μy have been calculated from MP02 (12 Jan 2019 - 12 Sep 2019) survey data. 3. Under the tab "Ny" and "μy" (where the values of Ny,i,j and μy have been calculated from MP02 (12 Jan 2019 - 12 Sep 2019) survey data), typed values of the MP02 survey data have been used rather than directly sourcing from the corresponding tab of MP02 survey data. 4. Under the tab "μy" (where the value μy has been calculated from MP02 (12 Jan 2019 - 12 Sep 2019) survey data), the sample size required (for ICS type S32-13) to meet 95/10 was 123 however 109 samples were selected. 5. The age group of ICS selected under tab "SG YGN (1096-1460)" is not within the range defined i.e. age 1096-1460.
CME response **Date:** 17/08/2021
1. The calculated final baseline emissions corresponding to this monitoring period (23 Jun 2020 - 31 Dec 2020) have been corrected and round down; 2. (Ny,i,j and μy) have been linked with the source; 3. Values are linked with the source; 4. Precision has been met; 5. The age group has been corrected.
Documentation provided by the CME
Revised ER sheets
DOE assessment **Date:** 28/08/2021
1. Corrections have been done in the revised ER Sheet /04/ and found OK. Hence this part of CAR is closed. 2. Corrections have been done in the revised ER Sheet /04/ and found OK. Hence this part of CAR is closed. 3. Corrections have been done in the revised ER Sheet /04/ and found OK. Hence this part of CAR is closed. 4. Clarification provided by the CME is found OK. Verification team has verified the ER sheet /04/ and found that even though the samples selected i.e. 109 are less than the required i.e. 123 however the precision has been checked by the CME from the survey results and found achieved precision as 7.70% which is less than 10%, hence survey results are accepted to the verification team. Hence this part of CAR is closed. 5. Corrections have been done in the revised ER Sheet /04/ and found OK. Hence this part of CAR is closed.

Table 4. FARs from this verification

FAR ID	02	**Section No.**	E.1.2	**Date:** 28/08/2021
Description of FAR				
DOE involved in next periodic verification of the PoA must ensure that the approach for calculating fNRB is same for all CPAs under this PoA.				
CME response				**Date:** DD/MM/YYYY
Documentation provided by the CME				
DOE assessment				**Date:** DD/MM/YYYY

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Document information

Version	*Date*	*Description*
04.0	6 April 2021	Revision to: • Reflect the "Clarification: Regulatory requirements under temporary measures for post-2020 cases" (CDM-EB109-A01-CLAR).
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for programmes of activities" (CDM-EB93-A08-STAN); • Make structural and editorial improvements.
02.0	29 December 2017	Revision to align with the requirements of the "CDM validation and verification standard for programme of activities" (version 01.0).
01.0	5 June 2015	Initial publication.

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