



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

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

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	9626: DelAgua Public Health Program in Eastern Africa	
Version number(s) of the PoA-DD(s) to which this report applies	4.4	
Version number of the verification and certification report	2.0	
Completion date of the verification and certification report	07/08/2020	
Monitoring period number and duration of this monitoring period	Monitoring period number: 3 Monitoring period duration: 15/09/2015-31/12/2018 (Both days are included)	
Number and version number of the monitoring report to which this report applies	Monitoring report number: 1 Monitoring report version: 2.4	
Coordinating/managing entity (CME)	DelAgua Health Rwanda Limited	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	Rwanda	Yes
Applied methodologies and standardized baselines	AMS-III.AV. Low greenhouse gas emitting safe drinking water purification systems, Version 04 AMS II.G, Energy efficiency measures in thermal applications of non-renewable biomass, Version 07	
Mandatory sectoral scopes	Sectoral Scope – 3. Energy Demand	
Conditional sectoral scopes, if applicable	NA	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	1,243,488 tCO ₂ e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	735,623 tCO ₂ e	
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited E-0066	

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



Dr. Kaviraj Singh
Managing Director

SECTION A. Executive summary

DelAgua Health Rwanda Limited is the coordinating/managing entity (CME) for the registered PoA 9626: DelAgua Public Health Program in Rwanda. The registered PoA aimed at disseminating high-efficiency cookstoves and/or point of use water filters to households, to overcome health issues in Rwanda. These technologies replace the traditional stoves used to procure drinking water, thus reducing the GHG emissions.

In absence of the PoA, boiling water using fossil fuels/non-renewable woody biomass would have been the means of availing safe drinking water and cooking. The project technology provides safe drinking water without the use of non-renewable biomass/ fossil fuel, and more efficient family cookstove thus leading to a reduction in Green-house gas (GHG) emissions attributed to boiling of water and cooking in the baseline. This verification covers implemented CPAs 9626-P1-0001-CP1 to 9626-P1-0016-CP1 (16 CPAs).

The verification team confirms that the total emission reductions achieved under this monitoring period 15/09/2015 to 31/12/2018 (inclusive of both days) are 735,623 tCO₂e.

Scope of verification:

The verification is an independent and objective review, of ex-post determination of the monitored reductions in GHG emissions, by the DOE. The verification includes the implementation and operation of the PoA as set out in the revised approved PoA-DD & CPA-DDs viz., 9626-P1-0001-CP1 to 9626-P1-0016-CP1 (16 CPAs) in the monitoring period.

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

- (i) The approved methodology AMS-III.AV. ver.4 Low greenhouse gas emitting safe drinking water production systems/7/ and AMS II.G, Energy efficiency measures in thermal applications of non-renewable biomass, Version 07 /6/ applied in the PoA-DD/1/ & CPA-DDs/2/.
- (ii) The registered and revised approved PoA-DD & CPA-DDs and monitoring plan/1,2/
- (iii) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (iv) The CDM Validation and Verification Standard (VVS) for PoA version 2.0/5/
- (v) The CDM Project Standard (PS) /4/ and Project Cycle Procedure (PCP) for PoA version 2.0 /3/
- (vi) Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions

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

Verification Process:

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

- a) Contract with CME and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report)
- b) Completeness check of Monitoring Report
- c) Publication of Monitoring Report at UNFCCC website
- d) Desk review (refer Section D.1 of this report) of Monitoring Report and corresponding ER sheet by verification team and planning of remote audit (including sampling approach (refer Section D.4 of this report) to be applied)
- e) On-site Inspection (refer Section D.2 of this report) (physical implementation and interview with relevant stakeholders) by verification team consistent of Team Leader and all Technical Experts, as a minimum
- f) Follow up activities e.g., Physical site inspection, interviews (refer Section D.3 of this report)

- g) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section D.5 of this report)
- h) Independent technical review (refer Section F of this report) of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidence)
- i) Reporting and closure of TR comments/findings (refer Section D.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section G and H of this report).
- j) Issuance of final verification report to contracted CME (or authorized representatives) and submission of a request for issuance, as appropriate.

Verification Conclusion:

Based on the outcome of the verification process of the registered/revised approved PoA “DelAgua Public Health Program in Eastern Africa” and its 16 CPAs (**9626-P1-0001-CP1 to 9626-P1-0016-CP1**) for the monitoring period **15/09/2015-31/12/2018** (including both dates) we confirm that the implementation of referenced registered/revised approved PoA and CPAs is complying with applicable CDM rules and regulations as stated in the Monitoring Report (final) Version 2.4 dated 06/08/2020 /8/. The GHG emission reductions were calculated correctly based on the approved baseline and monitoring methodologies AMS-III.AV. ver.4 Low greenhouse gas emitting safe drinking water production systems/7/ and AMS II.G, Energy efficiency measures in thermal applications of non-renewable biomass, Version 07/6/ and the monitoring plan contained in the revised approved PoA-DD/1/.

Earthood Services Private Limited can certify that the emission reductions from the registered CDM PoA UN#9626 “DelAgua Public Health Program in Eastern Africa” in Rwanda during the period **15/09/2015-31/12/2018** (including both days) amount to **735,623 tCO₂e**. Therefore, this is being submitted for a request for issuance, as per UNFCCC procedures

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
2.	Verifier	IR	Shresth	Gaurav	Central Office	Y	Y	Y	Y
3.	Technical Expert	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
4.	Methodology Expert	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
5.	Local Expert	EI	Uwimana	Olivier	Central Office	Y	Y	N	N

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	IR	Gautam	Ashok	Central Office
2.	Expert to TR	IR	Gautam	Ashok	Central Office
3.	Approver	IR	Singh	Kaviraj	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.	Observational error by monitoring survey staff of CME/CPA implementer while recording the responses of users in relation to survey parameters	High	The survey is conducted for representative samples of population, which may impact the population significantly. Surveyors may be unsupervised at the site.	Verification team randomly selected the samples from CME surveyed sampled households. The end users were interviewed by DOE during on-site audit survey observations to confirm the information recorded in the database. The verification team interviewed the monitoring staff and checked their training records.
2.	Calculation Errors	Med	The process in manual and therefore there is potential risk of errors / omissions/misstatements.	All calculations were checked by verification team with respect to applicable requirements under various documents viz., methodology/6,7/, registered PoA DD/1/, CPA DDs/2/ etc.

C.2. Consideration of materiality in conducting the verification

In accordance with CDM VVS for PoAs, Version 02.0/5/ the prescribed thresholds for materiality for CDM PoAs are as under.

Type of PoA	PoAs comprising large-scale CPAs			PoAs comprising only small-scale CPAs	PoAs comprising only micro-scale CPAs
Emission Reductions (tCO ₂ e)/year	500,000 or more	300,001 to 499,999	300,000 or less		
Materiality Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The applicable materiality threshold is 10% as PoA comprises only micro-scale CPAs.

Particulars / Monitoring Report	MR Version (Public)	MR Version (Revised/Final)
Emission Reductions Achieved (tCO ₂ e) in this monitoring period	994,875	735,623
Applicable Threshold (%) as per CDM VVS for PoAs Version 02.0	10.0%	10.0% ¹

The verification team has identified the impact of errors observed and those have been corrected by CME during verification for all monitoring parameter at an individual and aggregate level

Monitored Parameter (Symbol / Description)	Reportin g Frequenc y	Number of Discrete Data* (Total) Total (100%)	Sample selected for verificati on Sample (100%)	Type of error identifi ed	Impact on ERs	
					ERs impacted (Sample)	ERs impacted (Population based on extrapolatio n)
9626-P1-0001-CP1 to 9626-P1-0016-CP1						

¹ All the CPAs are solely composed of micro-scale CDM units.

Parameter common to water filters and cookstove						
$n_{WB}; n_{old}$	Continuously	1	1	None	NA	NA
$\mu_{y,i,j}$	Annually	For HH survey: Group 1: Survey 1: 162 Survey 2: 310 Survey 3:170 Group 2: Survey 1: 162 Survey 2: 346 Survey 3:101 For Downtime Survey: Dry Group 1: Survey 1: 162 Survey 2: 310 Survey 3:170 Group 2: Survey 1: 162 Survey 2: 346 Survey 3: 101 Wet Group 1: Survey 1: 162 Survey 2: 310 Survey 3:170 Group 2: Survey 1: 162 Survey 2: 346 Survey 3: 101	48 (based on acceptance sampling)	None	NA	NA
$N_{y,i}$	Continuously	No. of units: Group1: 100567 filters 100567 stoves Group2: 195227 stoves For HH survey: Group 1: Survey 1: 162 Survey 2: 310 Survey 3:170 Group 2: Survey 1: 162 Survey 2: 346 Survey 3:101	Entire sales database was checked for the information. And 48 (based on acceptance sampling)	Individual error	The inconsistency of the total numbers of installations considered has been corrected.	No extrapolation is required.
HH size	Annually	Group 1: Survey 1: 129 Survey 2: 215 Survey 3:125 Group 2: Survey 1: 161	48(based on acceptance sampling)	None	NA	NA

		Survey 2: 344 Survey 3: 97				
Baseline systems	Continuously	Group 1: Survey 1: 162 Survey 2: 310 Survey 3: 170 Group 2: Survey 1: 162 Survey 2: 346 Survey 3: 101	48(based on acceptance sampling)	None	NA	NA
<u>Parameters for Water filters(9626-P1-0001-CP1 to 9626-P1-0007-CP1):</u>						
QPW _y	Annually	Dry: Survey 1:161 Survey 2: 208 Survey 3: 124 Wet: Survey 1: 162 Survey 2: 210 Survey 3: 123	24(based on acceptance sampling)	There were errors in calculation which have been corrected.	All the errors have been corrected*	No extrapolation is required as 100% values checked and corrected.
Water Quality _i	Annually	1	1	None	NA	NA
SDW _{frac}	Annually	Group 1 Survey 1: 162 Survey 2: 310 Survey 3: 170	24(based on acceptance sampling)	None	NA	NA
<u>Parameters Used exclusively for cookstoves(9626-P1-0001-CP1 to 9626-P1-0016-CP1):</u>						
$\eta_{new,i,j}$	Annually	Third party test results: Group 1: 3 Group 2: 3 Pot skirt usage: Group 1: Survey 1: 153 Survey 2: 257 Survey 3: 154 Group 2: Survey 1: 160 Survey 2: 314 Survey 3: 96	6(100% data was checked) And 48(based on acceptance sampling)	None	NA	NA
Life Span	Annually	1	1	None	NA	NA
Date of commissioning of batch j	Once per verification	Group 1: 7 Group 2: 16	23(100% dates were checked)	None	NA	NA
Date of commissioning of batch j	Once per verification	Group 1: 7 Group 2: 16	23(100% dates were checked)	None	NA	NA

The total ERs have reduced from the published MR as a temporary deviation was identified during the verification and application of conservative values have resulted in the reduction of total ERs being claimed for the period. The detailed assessment of the temporary deviation is explained in the CPA PRC validation report/25/.

SECTION D. Means of verification**D.1. Desk/document review**

A desk review was conducted by the verification team that included:

- A review of data and information provided for its completeness.
- A review of registered monitoring plan, monitoring methodologies including applicable tools, standards and the applicable applied standardized baselines.

All the documents reviewed during the verification process are listed in Appendix 3 of VCR.

D.2. On-site inspection

Duration of on-site inspection: 02/03/2020 to 06/03/2020				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting	Kigali,Rwanda	02/03/2020	Deepika Mahala& Gaurav Shresth
2.	Physical site visit: Households visited (implementation of PoA)	Kigali,Rwanda	03/03/2020	Deepika Mahala& Gaurav Shresth
3.	Review of information flows for generating, aggregating and reporting the monitoring parameters	Kigali,Rwanda	03/03/2020-05/03/2020	Deepika Mahala& Gaurav Shresth
4.	Cross check between information provided in the monitoring report and data from other sources such as test reports, inventories, purchase records or similar data sources;	Kigali,Rwanda	05/03/2020	Deepika Mahala& Gaurav Shresth
5.	Documents review, discussion with CME representatives regarding monitoring process, stove distribution process, stove efficiency test and sampling.	Kigali,Rwanda	05/03/2020	Deepika Mahala& Gaurav Shresth
6.	Closing meeting and discussion on observed issues.	Kigali,Rwanda	06/03/2020	Deepika Mahala& Gaurav Shresth

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Silon	Kyle	Del Agua	02/03/2020 - 06/03/2020	Project Implementation, ER calculation and Management system, Monitoring report	Deepika Mahala
2.	Beaumont	James	Del Agua	20/03/2020	Monitoring report	Deepika Mahala
3.	Nyirimana	Bruno	Del Agua	02/03/2020 - 06/03/2020	Monitoring Survey	Deepika Mahala
4.	Murenzi	Kharim	Del Agua	02/03/2020 - 06/03/2020	Monitoring Survey	Deepika Mahala, Gaurav Shrestha
5.	Nyirahene	Anathalie	End user	03/03/2020	DOE verification sample	Deepika Mahala

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6.	Kamparampaka	Ildephons e	End user	03/03/2020	DOE verification sample	Deepika Mahala
7.	Tuyisenge	Sylver	End user	03/03/2020	DOE verification sample	Deepika Mahala
8.	Nzabonimpa	Alfred	End user	03/03/2020	DOE verification sample	Deepika Mahala
9.	Nkurunziza	Ildephons e	End user	03/03/2020	DOE verification sample	Deepika Mahala
10.	Kanyanzira	Fidele	End user	03/03/2020	DOE verification sample	Deepika Mahala
11.	Habiyaremye	Nicodem	End user	03/03/2020	DOE verification sample	Deepika Mahala
12.	Ntakibabaza	Sarah	End user	03/03/2020	DOE verification sample	Deepika Mahala
13.	Karubera	Triphonie	End user	04/03/2020	DOE verification sample	Deepika Mahala
14.	Twagiramungu	Andre	End user	04/03/2020	DOE verification sample	Deepika Mahala
15.	Murerere	Anthere	End user	04/03/2020	DOE verification sample	Deepika Mahala
16.	Uzamuranga	Esperance	End user	04/03/2020	DOE verification sample	Deepika Mahala
17.	Nzahumunyurwa	Bernard	End user	04/03/2020	DOE verification sample	Deepika Mahala
18.	Nyirabazimaziki	Beatrice	End user	04/03/2020	DOE verification sample	Deepika Mahala
19.	Habimana	Jean pierre	End user	04/03/2020	DOE verification sample	Deepika Mahala
20.	Nzabakiramo	Alphonsi	End user	04/03/2020	DOE verification sample	Deepika Mahala
21.	Murorukwere	Epiphanie	End user	05/03/2020	DOE verification sample	Deepika Mahala
22.	Nyirabazombanza	Marie	End user	05/03/2020	DOE verification sample	Deepika Mahala
23.	Nzabanita	Julienne	End user	05/03/2020	DOE verification sample	Deepika Mahala
24.	Munyakaragwe	Cecile	End user	05/03/2020	DOE verification sample	Deepika Mahala
25.	Rwabasuku	Marcele	End user	05/03/2020	DOE verification sample	Deepika Mahala
26.	Mishakimama	Perus	End user	05/03/2020	DOE verification	Deepika Mahala

					sample	
27.	Umuhiza	Janviere	End user	05/03/2020	DOE verification sample	Deepika Mahala
28.	Bugenimana	Xaverine	End user	05/03/2020	DOE verification sample	Deepika Mahala
29.	Rukebesha	Bosco	End user	03/03/2020	DOE verification sample	Gaurav Shresth
30.	Mudaheranwa	Faustin	End user	03/03/2020	DOE verification sample	Gaurav Shresth
31.	Nyirangabe	Eugenie	End user	03/03/2020	DOE verification sample	Gaurav Shresth
32.	Rurangwa	Mathias	End user	03/03/2020	DOE verification sample	Gaurav Shresth
33.	Nyiranshuti	Beatrice	End user	03/03/2020	DOE verification sample	Gaurav Shresth
34.	Mukamudenge	Annonciat ha	End user	03/03/2020	DOE verification sample	Gaurav Shresth
35.	Murekatete	Jeanine	End user	03/03/2020	DOE verification sample	Gaurav Shresth
36.	Kagimbangabo	Hassan	End user	03/03/2020	DOE verification sample	Gaurav Shresth
37.	Mukankuranga	Athanasie	End user	04/03/2020	DOE verification sample	Gaurav Shresth
38.	Mushumba	Emmanuel	End user	04/03/2020	DOE verification sample	Gaurav Shresth
39.	Kayitesi	Vestina	End user	04/03/2020	DOE verification sample	Gaurav Shresth
40.	Sinzabatira	Joseph	End user	04/03/2020	DOE verification sample	Gaurav Shresth
41.	Sebushumba	Jean pierre	End user	04/03/2020	DOE verification sample	Gaurav Shresth
42.	Mukagatare	Genesta	End user	04/03/2020	DOE verification sample	Gaurav Shresth
43.	Ngaboziranga	Oscar	End user	04/03/2020	DOE verification sample	Gaurav Shresth
44.	Mukeshimana	Vestina	End user	04/03/2020	DOE verification sample	Gaurav Shresth
45.	Dufitumukiza	Vianney	End user	05/03/2020	DOE verification sample	Gaurav Shresth
46.	Muvunandinda	Fidèle	End user	05/03/2020	DOE verification sample	Gaurav Shresth
47.	Mukanyonga	Venantie	End user	05/03/2020	DOE	Gaurav Shresth

					verification sample	
48.	Nyirambumba	Maren	End user	05/03/2020	DOE verification sample	Gaurav Shresth
49.	Nsengiyumvs	Saveri	End user	05/03/2020	DOE verification sample	Gaurav Shresth
50.	Namwitakuze	Vestine	End user	05/03/2020	DOE verification sample	Gaurav Shresth
51.	Mukamuhozi	Agnes	End user	05/03/2020	DOE verification sample	Gaurav Shresth
52.	Kabano	Cyprien	End user	05/03/2020	DOE verification sample	Gaurav Shresth

D.4. Sampling approach

CME Sampling Approach

The CME has divided the population into two groups: group 1 and group 2 and applied simple random sampling. A single sampling plan was carried out within each group in this monitoring period. The CME has applied simple random sampling and has followed single sampling plan was implemented for all the CPAs. 95/10 confidence precision was mainly applied by CME in the sampling. The confidence and precision level applied by the CME meet the methodological requirements. The sampling approach undertaken by CME is duly explained under Section E.3 of the monitoring report.

DOE's sampling approach:

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

As per para 39 of "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 8,"/11/ A DOE may select a different sample size than the one indicated in paragraph 31, either by choosing a different value for the consumer risk and producer risk (e.g. 20% for the consumer risk) when applying acceptance sampling or by using another approach, if any of the following conditions apply:

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

In case of the current verification, the PoA is located in a least developed country i.e. Rwanda, which has been confirmed through UNFCCC website (http://unfccc.int/cooperation_and_support/ldc/items/3097.php / http://unfccc.int/resource/docs/publications/ldc_brochure2009.pdf), thus meeting the requirement of para 39(c). Hence DOE has considered 8 as sample size for each sampling frame. The verification team has selected the sample size as 8 HHs (from each sampling frame) for the purpose of physical on-site inspection / household visit to check the acceptability of CME's sampling results or otherwise.

There are two sampling frames in the project group 1 and group 2 and there are three monitoring results from the survey conducted in the following period:

- 1) Survey 1 Group 1: (09/09/2016 – 25/10/2016 & 25/09/2017 – 28/09/2017)
- 2) Survey 1 Group 2: (09/08/2016 - 25/10/2016 & 25/09/2017 – 16/10/2017)

- 3) Survey 2 Group 1: (18/06/2018 – 13/09/2018)
 4) Survey 2 Group 2: (18/06/2018 – 24/09/2018)
 5) Survey 3 Group 1: (01/01/2019 – 22/01/2019)
 6) Survey 3 Group 2: (01/01/2019 – 22/01/2019)

The DOE has picked 8 samples from each group from each survey result sheets. In total, 48 samples have been checked by the verification team. Since all Group 1 households had filters and cookstoves, the households visited had both ICS and water purifier. Thus, in total (Group 1 and Group 2), 48 ICSs were checked and 24 water purifiers were checked.

DOE Sample Size:

CPA Ref No.	AQL	UQL	Producer Risk	Consumer Risk	Sample Size; Min	Acceptance No.
CPA 01- CPA 16	0.5%	20%	5%	20%	8	0

Considering the above input values, a sample size of 8 was required as per Table 1 in the referred Standard for the monitoring period. The team leader visited 48 available samples of the ICS model (8 from each survey result presented to the DOE). The samples were chosen randomly (using website www.randomizer.org) out of CME's monitored samples (as part of the monitoring survey). All the households had the same answer as reported in the monitoring survey sheet. thus, no discrepancy was observed. Accordingly, Acceptance number (c) thus determined for the sample size is 0 and a sample size of 8 (each frame) meets the criteria in line with "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 8,"/11/.

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	-	-	-
Remaining forward action requests from validation and/or previous verifications	-	-	FAR#01 FAR#02 FAR#03
CPAs considered for verification and covered in this report	-	-	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	CL#01	-	-
Post-registration changes	-	-	-
• Corrections	-	-	-
• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents ²	-	-	-
• Changes to the programme design	-	-	-
• Addition of CPA inclusion template	-	-	-
• Change of coordinating/managing entity	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
Component project activities	-	-	-
Compliance of the CPA implementation with the included CPA design document	-	-	-
Post-registration changes	-	-	-

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).

• Temporary deviations from registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	-	-	-
• Corrections	-	-	-
• Changes to the start date-of the crediting period	-	-	-
• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	-	-	-
• Changes to the project design	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
Compliance of the registered monitoring plan with applied methodologies and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
• Data and parameters fixed ex ante or at renewal of crediting period	-	-	-
• Data and parameters monitored	-	CAR#01 CAR#02 CAR#03	-
• Implementation of sampling plan	-	CAR#04	FAR#01 FAR#02 FAR#03
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	-	-	-
• Calculation of project GHG emissions or actual net GHG removals by sinks	-	-	-
• Calculation of leakage GHG emissions	-	-	-
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	-	-	-
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	-	-	-
• Remarks on difference from estimated value in included CPA	-	-	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	01	04	03

SECTION E. Verification findings

E.1. General

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

Means of verification	The monitoring report is prepared using the correct and latest template available on UN-webpage for PoA i.e. CDM-PoA-MR-FORM Version 03.0/19/. The verification team confirms that the monitoring report has been appropriately prepared using the latest applicable monitoring report form/19/, and that all sections are completed.
Findings	No findings were raised.

Conclusion	The latest version of MR has been used and all the guidelines of the template have been followed by the CME to prepare the monitoring report.
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E.1.2. Remaining forward action requests from validation and/or previous verifications

Following FARs were raised and resolved during the current assessment:

1. There was one FAR (listed as FAR#01) raised during the previous verification (CPA-1 to CPA 7)/18/ because at the time of previous verification there was no documentation of seasonality of use of water filter in the survey. Therefore, the DOE raised the FAR#01. Based on the response of the CME and the survey questionnaire/64/ and survey sheets/55-60/ shared by CME, the seasonality of use of water filter has been taken into account.
2. FAR#02 was also raised during the previous verification/18/ as there was no documentation of physical check of tap, to confirm whether the water comes out of the tap or not. Therefore, the DOE raised the FAR#02. Based on the response of the CME and the survey questionnaire/64/ and survey sheets/55-60/ shared by CME, it was confirmed that this check has been documented.
3. FAR#03 was also raised during the previous verification/18/ as there was training exercise part way through the monitoring process and few monitoring surveys were conducted prior to the training and remaining were conducted after the training was imparted. So, to ensure that from next verification trainings were conducted prior to the start of the monitoring activities. This issue was addressed by checking the training evidences/61/ shared by CME, it was confirmed that the training was imparted before the monitoring activities had begun.

Please refer to Appendix 4 for more details.

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)
DelAgua Rwanda Public Health Program: Rubavu District, Western Province, Republic of Rwanda. 9626-P1-0001-CP1	Yes	21/11/2013	Version 4.4	Yes
DelAgua Rwanda Public Health Program: CPA002, Ubedehe 1& 2 in Karongi District in the Western Province of the Republic of Rwanda 9626-P1-0002-CP1	Yes	15/09/2014	Version 4.4	Yes
DelAgua Rwanda Public Health Program: CPA003, Ubedehe 1& 2 in Ngororero District in the Western Province of the Republic of Rwanda 9626-P1-0003-CP1	Yes	15/09/2014	Version 4.4	Yes

DelAgua Rwanda Public Health Program: CPA004, Ubedehe 1& 2 in Nyabihu District in the Western Province of the Republic of Rwanda 9626-P1-0004- CP1	Yes	15/09/2014	Version 4.4	Yes
DelAgua Rwanda Public Health Program: CPA005, Ubedehe 1& 2 in Nyamasheke District in the Western Province of the Republic of Rwanda 9626-P1-0005- CP1	Yes	15/09/2014	Version 4.4	Yes
DelAgua Rwanda Public Health Program: CPA006, Ubedehe 1& 2 in Rutsiro District in the Western Province of the Republic of Rwanda 9626-P1-0006- CP1	Yes	15/09/2014	Version 4.4	Yes
DelAgua Rwanda Public Health Program: CPA007, Ubedehe 1& 2 in Rusizi District in the Western Province of the Republic of Rwanda 9626-P1-0007- CP1	Yes	15/09/2014	Version 4.4	Yes
DelAgua Rwanda Public Health Program: CPA008- BUGESERA District in the Eastern Province of the Republic of Rwanda 9626-P1-0008- CP1	Yes	19/04/2016	Version 4.4	No

DelAgua Rwanda Public Health Program: CPA009- BURERA District in the Northern Province of the Republic of Rwanda 9626-P1-0009- CP1	Yes	19/04/2016	Version 4.4	No
DelAgua Rwanda Public Health Program: CPA010- GATSIBO District in the Eastern Province of the Republic of Rwanda 9626-P1-0010- CP1	Yes	19/04/2016	Version 4.4	No
DelAgua Rwanda Public Health Program: CPA011- RULINDO District in the Northern Province of the Republic of Rwanda 9626-P1-0011- CP1	Yes	19/04/2016	Version 4.4	No
DelAgua Rwanda Public Health Program: CPA012- KAYONZA District in the Eastern Province of the Republic of Rwanda 9626-P1-0012- CP1	Yes	19/04/2016	Version 4.4	No
DelAgua Rwanda Public Health Program: CPA013- KIREHE District in the Eastern Province of the Republic of Rwanda 9626-P1-0013- CP1	Yes	19/04/2016	Version 4.4	No
DelAgua Rwanda Public Health Program: CPA014- NGOMA District in the Eastern Province of the Republic of Rwanda 9626-P1-0014- CP1	Yes	19/04/2016	Version 4.4	No

DelAgua Rwanda Public Health Program: CPA015- NYAGATARE District in the Eastern Province of the Republic of Rwanda 9626-P1-0015- CP1	Yes	19/04/2016	Version 4.4	No
DelAgua Rwanda Public Health Program: CPA016- RWAMAGANA District in the Eastern Province of the Republic of Rwanda 9626-P1-0016- CP1	Yes	19/04/2016	Version 4.4	No

E.2. Programme of activities

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

Means of verification

The registered PoA involves the distribution of combination of two technologies: the LifeStraw® water filter and the Dura high efficiency cookstove in Rwanda as checked from the PoA DD/1/. There were 16 CPAs (9626-P1-001-CP1 and 9626-P1-0016-CP1) included under the PoA (at the end date of the current monitoring period) and all of these have been considered during the current verification.

The coordinating and managing entity of the PoA is DelAgua Health Rwanda Limited. The CPA Implementer of the CPAs is also DelAgua Health Rwanda Limited. The supplier of the stove is ECOZOOM. The roles and responsibilities were checked from the supplier’s agreement/21/.

In absence of the project activity, the water would have been boiled using non-renewable biomass/fossil fuels leading to release of GHG emissions in the baseline. The implementation of the technology helps in replacing the non-renewable biomass / fossil fuel for boiling with the WPS reducing amount of equivalent GHG emissions.

The CPAs of PoA involves dissemination of the following project technologies:

1. Water Purification Systems

Model name	Life Straw Family 2.0 System	MOV
Capacity	18,000 litres of water	Section A.3. of PoA DD
Life Span	2 years	Section A.3. of PoA DD

2. Improved Cookstove systems:

Model name	Dura	
Stove top	Cast Iron, Diameter 32cm	Manufacturer’s Specification/14/
Stove body	0.5mm cold rolled steel with painting	Manufacturer’s Specification/14/
Combustion Chamber	Ceramic and FeCrAl	Manufacturer’s Specification/14/
Grate Mouth	1mm cold rolled steel	Manufacturer’s Specification/14/

Pot Skirt	201 stainless steel	Manufacturer's Specification/14/
Fuel shelf	Rebar	Manufacturer's Specification/14/
Handle	Silicone handle	Manufacturer's Specification/14/
Words at back	Not for Sale	Manufacturer's Specification/14/
Life Span	5 years	PoA DD, section/1/ I.7.1.
Efficiency	44.9% with pot skirt 40.9% without pot skirt	PoA DD, section I.7.1./1/ and CREEC report/35/

The specification for the project technology provided meets the eligibility requirements of the PoA-DD page 3/1/. The details were verified from the manufacturer specification of water filter/13/ and stove /14/ shared by the CME. During the on-site visit, the installations of the project technologies claimed by the CME were checked and found to be in-line with the technical description provided in the PoA-DD/1/ and Monitoring report/8/.

Also, the verification team confirmed the implementation status of the project activity through on-site inspection and interviewing the CME, CPA implementer, Monitoring personnel and end user as defined in the registered PoA DD/1/, and MR/8/.

The project location and coordinates shared by CME were verified using phone app get-geocoordinates and it was confirmed that the location is in-line with the registered PoA-DD/1/. Thus, it was confirmed that the implementation of all CPAs is within the geographical boundary of PoA as mentioned in PoA DD/1/.

The project technologies deployed under each CPA as per the district is verified as follows:

CPA- Reference Number	Group 1		Group 2
	Stoves	Filters	Stoves
CPA001 - Rubavu	10537	10537	7,295
CPA002 - Karongi	14482	14482	4,303
CPA003 - Ngororero	17866	17866	5,031
CPA004 - Nyabihu	10671	10671	3,042
CPA005 - Nyamasheke	13959	13959	5,801
CPA006 - Rutsiro	16765	16765	6,111
CPA007 - Rusizi	16287	16287	7,353
CPA008 - Bugesera	0	0	23,637
CPA009 - Burera	0	0	22,049
CPA010 - Gatsibo	0	0	21,786
CPA011 - Rulindo	0	0	15,066
CPA012 - Kayonza	0	0	13,394
CPA013 - Kirehe	0	0	13,955
CPA014 - Ngoma	0	0	15,515
CPA015 - Nyagatare	0	0	15,724
CPA016 - Rwamagana	0	0	15,165
Total	100,567	100,567	195,227

The verification team can confirm that the quantity, specification and target group of the project technology is consistent with the PoA DD/1/ and respective CPA DDs/2/.

The verification team visited 48 households during the on site visit; It was observed that each technology was assigned a unique barcode. The unique barcodes on each technology visited during the onsite assessment, personal information of HH and installation date was checked, and cross checked with the information in the Household survey list/distribution records /12/ available with the CME. The operation of the deployed technology was confirmed through interviews of owners/representatives during the site visit.

Further based on physical observations and interview conducted during the site visit the verification team found that:

- The CPA(s) are implemented within the boundary of the PoA as described in the revised approved PoA DD/1/
- The CME is the same as that mentioned in revised approved PoA DD /1/
- The implementation and operation of the project activity has been conducted in accordance with the description contained in the revised approved PoA DD /1/ and revised approved CPA-DDs/2/.
- All physical features of the CPA proposed in the revised approved CPA-DDs/2/ are in place.
- The project participants/CPA implementer has operated the CPAs as per the revised approved CPA-DDs/2/.

The emission reductions being claimed during this monitoring period is less than the estimated emission reductions in the revised approved CPA-DDs/2/. It is noteworthy that emission reductions are being claimed only for cookstoves (ICS). For water purification system, the temporary deviation has been sought and zero emission reductions have been claimed. Please refer CPA PRC report/25/ for the detailed assessment of temporary deviation, which is approved.

The exact figures(both stoves and water purifiers) are given in the table below:

CPA UNFCCC reference number	Amount achieved during this Monitoring period (t CO ₂ e)	Amount estimated ex ante (t CO ₂ e)
9626- P1-0001-CP1	45,701	51,364
9626- P1-0002-CP1	49,589	66,889
9626- P1-0003-CP1	60,691	83,672
9626- P1-0004-CP1	36,965	48,885
9626- P1-0005-CP1	51,893	51,364
9626- P1-0006-CP1	60,084	82,290
9626- P1-0007-CP1	61,879	74,247
9626- P1-0008-CP1	54,677	118,757
9626- P1-0009-CP1	50,810	109,791
9626- P1-0010-CP1	54,120	105,857
9626- P1-0011-CP1	36,091	85,149
9626- P1-0012-CP1	31,752	66,631
9626- P1-0013-CP1	32,114	68,285
9626- P1-0014-CP1	36,474	78,336
9626- P1-0015-CP1	37,493	75,982
9626- P1-0016-CP1	35,290	75,973
Total	735,623	1,243,488

	The comparison of achieved ERs with ex-ante emission reductions is assessed technology-wise under section E.3.7.4. and E.4.7.4 of this report. The information (including data and variables) as mentioned in the MR/8/ is found to be in line with the details provided in the PoA-DD/1/. The verification team found the project description contained in the revised approved PoA-DD/1/ to be complete and accurate. The monitoring report was compared and verified against the PoA-DD/1/ and was found in line with it.
Findings	No findings were raised
Conclusion	The verification team confirms that the physical features (technology) of the implementation were in accordance with the revised approved PoA-DD/1/. • The distribution of technology (water filter and/or Dura efficiency stove) is completed and is within the estimated quantity given in the respective CPA-DDs/2/ for some of the CPAs. • The actual operation is in line to the respective revised approved CPA-DDs/2/, which is further explained under Section E.3 of this report. • The total number of ERs achieved for 16 CPAs are less than the estimated ERs for the same period. The technology wise comparison is shown under section E.3.7.4. and E.4.7.4. of this report. • The difference in emission reductions achieved for each specific case CPA DD in comparison to the estimated quantity in the revised approved CPA-DDs/2/ are justified in detail under section E.3.6.5 and E.3.6.6 of this report. The emission reductions achieved during the current monitoring period (15/09/2015-31/12/2018) are 735,623 tCO₂e.

E.2.2. Implementation and operation of the management system

Means of verification	The verification team through interviewing the CME, CPA Implementer, Monitoring Personnel and End-users and reviewing the selected samples assessed the management systems in place to implement the monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system through physical inspection. The roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system have been provided in the MR /8/ and were verified through interviews with the local staff The CME maintains a database which records following information: • Unique identification number • Installation date • First and last name • Contact details of user (where available) • Baseline cooking fuel source • Baseline stove type • Date of replacement of filter and/or stove units • Monitored parameters The information was earlier recorded through data collection App 'Do Forms'. The data collected was uploaded on Do Forms server. The CME used to download the data from the server to excel sheet for Excel sheet. The App has been replaced by another smart-phone based app 'World App' now. The data is still transferred to server and then transferred to in excel sheets for ER calculation in same way. All the information is transferred to system software by the CME which was checked by interviewing the monitoring personnel to confirm that the management system is in place. The unique ID code is engraved on the systems. The unique IDs of the WPS were checked for all the sampled systems surveyed during site visit survey to ensure that no number is repeating in the database and the same system is not credited in any other CPA either, thus avoiding the double counting.
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	The CME has also established a call-center so that households can notify DelAgua when technologies need to be repaired or replaced. The end users interviewed during the site visit confirmed that they were informed of this during the initial distribution and made aware of it again during follow-up visits. For data survey, a monitoring team has been organized by the CME consisting of trained monitoring staff, who conducted Usage surveys. The monitoring manager at the CME is responsible for QA/QC of the data, analysis and reporting in the monitoring report. QA/QC procedures were found being followed during the remote site visit. Monitoring team staff were interviewed by the verification team regarding the monitoring procedures. The staff explained the complete procedure followed for filling the monitoring survey form. The verification team also checked training records of the monitoring & data recording personnel/61/. Thus, it can be confirmed that the Implementation and operation of the management system have been done in line with the revised approved PoA DD/1/ and CPA DDs/2/.
Findings	CL#01 was raised and resolved.
Conclusion	The verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.

E.2.3. Post-registration changes

E.2.3.1. Corrections

Following post-registration changes were captured in the revised approved PoA-DD version 4.4 /1/:

1. The name of the distributed stove has been changed from EcoZoom Dura to Dura efficiency, as the partner of the project has changed. There has been no impact of this change on emission reduction associated with the disseminated stove as confirmed from the manufacturer declaration shared by CME/13/.
2. Section wise update in the PoA-DD due to the PoA-DD template update:
 - i. Sustainable development Discussion under section A.1
 - ii. Update in the section number of Baseline scenario

The changes are reflected in PoA-DD version 4.4 dated 12/06/2020 and PRC validation report/22/. The changes were approved by CDM EB on 16/07/2020 and the PRC reference number is PRC-9626-005/23/.

E.2.3.2. Inclusion of a monitoring plan

N/A

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

- I. CDM-EB approved a permanent change to the PoA-DD (PRC-9626-002) on 01/06/2017. All the changes approved were presented in the PoA-DD version 3.0 and include the application of AMS-II.G Version 7.0.
- II. Following changes were made in the revised approved PoA-DD version 4.4 :
 - i. Correction to water quality monitoring & update to parameter
 - ii. Update to the emission reduction equation 2 of water filter
 - iii. Change in the sampling plan
 - iv. Update in the stove efficiency parameter
 - v. Update in the Life Span Parameter

All the changes listed above have been elaborately discussed in the PRC validation report/22/ and the changes are reflected in PoA-DD version 4.4 dated 12/06/2020 /1/. The changes were approved by CDM EB on 16/07/2020 and the PRC reference number is PRC-9626-005/23/.

E.2.3.4. Changes to the programme design

Following changes were made in the revised approved PoA-DD version 4.4:

- I. The rated capacity of the deployed stove was found to be changed from the initial efficiency value of 38.1% to 44.9%. The efficiency test for the stove was conducted in August, 2018 by CREEC which thereafter informed about the update in the stove efficiency.

II. Following changes were proposed to the eligibility criteria:

- i. Update in the eligibility criteria 17&23
- ii. Update in the eligibility criteria 18 & 24

All the changes listed above have been elaborately discussed in the PRC validation report/22/ and the changes are reflected in PoA-DD version 4.4 dated 12/06/2020 /1/.

The changes were approved by CDM EB on 16/07/2020 and the PRC reference number is PRC-9626-005/23/.

E.2.3.5. Addition of CPA inclusion template

N/A

E.2.3.6. Change of coordination/managing entity

N/A

E.2.3.7. Changes specific to afforestation and reforestation activities

N/A

E.3. Component project activities

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

Means of verification	<u>Cookstoves:</u> The CPAs involve the distribution and installation of high efficiency biomass stoves and water purifier to the households of Rwanda. There were two technologies which were distributed under the CPAs. The other technology i.e, water filter is discussed from E.4. section onwards of this report. This section (E.3) contains the assessment of cookstoves (ICS) only. The distributions were done in 2 groups depending upon the following factors: i. Time period during which the technologies were distributed. a. Group 1- distribution took place in 2014 b. Group 2- distribution took place in 2016 ii. Combination of technologies distributed to households a. Group 1- stove and water filter b. Group 2- only stoves The same has been confirmed during onsite assessment and from the installation database/12/. The product is disseminated in residential households of the area. The current verification which includes verification of 16 CPAs viz. 9626-P1-0001-CP1 to 9626-P1-0016-CP1. The implementation status of the deployed stoves has been checked during onsite assessment. The technologies have been physically verified on sampling basis. Dura High-efficiency cookstove have been installed by the CME as observed during onsite assessment, which is in line to the PoA DD/1/. The CPAs of PoA involve dissemination of improved household cookstoves and point of use water filter. The technology is already discussed under section E.2.1 of this report. The verification team confirms that systems distributed under the CPAs are same as the PoA. The model of cookstove has also been verified during the on-site inspection of sample verifications in order to assess that the physical features of the stoves as available in revised approved CPA-DDs/2/. The specification for the technology deployed provided meets the eligibility requirements of the PoA-DD page 4/1/. The details were verified from the manufacturer specification of stove/14/ provided by the CME. During the on-site visit the installation of cookstoves claimed by the CME was checked and found to be in-line with the technical description provided in the PoA-DD/1/ and Monitoring
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report/8/.

DelAgua Health Rwanda Limited is the CME for the implementation of the CPAs and is also responsible for coordinating and managing the implementation of each element of the monitoring plan. The monitoring period in this monitoring report is from 15/09/2015-31/12/2018. The details of each CPA are as follows:

CPA Ref.	Inclusion date	Crediting period start date	Deployed technology(s)	Total HHs	
				Group 1 (Stoves and filters)	Group 2 (Stoves only)
9626-P1-0001-CP1	21/11/2013	15/09/2014	Dura efficiency Cookstove	10,537	7,295
9626-P1-0002-CP1	15/09/2014	15/09/2014	Dura efficiency Cookstove	14,482	4,303
9626-P1-0003-CP1	15/09/2014	15/09/2014	Dura efficiency Cookstove	17,866	5,031
9626-P1-0004-CP1	15/09/2014	15/09/2014	Dura efficiency Cookstove	10,671	3,042
9626-P1-0005-CP1	15/09/2014	15/09/2014	Dura efficiency Cookstove	13,959	5,801
9626-P1-0006-CP1	15/09/2014	15/09/2014	Dura efficiency Cookstove	16,765	6,111
9626-P1-0007-CP1	15/09/2014	15/09/2014	Dura efficiency Cookstove	16,287	7,353
9626-P1-0008-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	23,637
9626-P1-0009-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	22,049
9626-P1-0010-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	21,786
9626-P1-0011-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	15,066
9626-P1-0012-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	13,394
9626-P1-0013-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	13,955
9626-P1-0014-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	15,515
9626-P1-0015-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	15,724
9626-P1-0016-CP1	19/04/2016	19/04/2016	Dura efficiency Cookstove	0	15,165
Total				100,567 ICS	195,227 ICS

	The reference number, inclusion date of each CPA and crediting period start date of each CPA have been checked and verified from the UN website/26/ and installation database/12/, CPA DDs/2/ the details are found correct and consistent. The cookstoves are distributed across Rwanda. The location where the technologies were distributed was verified during the onsite visit (through get-geocoordinates app) and found to be within Rwanda as stated in PoA-DD/1/ and CPA-DDs/2/. The type of technology/s deployed and the number of devices sold is verified from installation database/12/. The monitoring procedures are in place and the CME has operated the PoA & CPAs as per the revised approved PoA-DD/1/ and revised approved CPA-DDs/2/. The period for which the monitoring procedures were not followed, the temporary deviation has been sought, which is approved. Please see section E.3.2. of this report. Each of the independent subsystems/measures included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the applied methodologies (i.e. not exceeding 180 GWh for SSC type II methodologies) thus fulfilling the additionality criteria stated in the CPA DDs /2/ and PoA DD /1/ and Tool 19: Demonstration of additionality of microscale project activities/29/.
Findings	CAR#01 and CAR#03 were raised and resolved satisfactorily.
Conclusion	• The verification team is in opinion that physical features of the CPAs have been implemented in accordance with the revised approved CPA-DDs/2/. • No specific monitoring equipment had to be installed according to the monitoring plan. • It is also confirmed, through the physical site visit and review of the supporting documentation that physical features of the component CPAs have been implemented in accordance with the revised approved CPA-DDs/2/. • The CPAs were also found to be completely operational in line with the revised approved CPA-DDs/2/. • The information provided in the relevant sections of the monitoring report appropriately describe the implementation and operational status of the PoA

E.3.2. Post-registration changes

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

The CME was not able to follow the monitoring plan during the current monitoring period. Thus, the CME had sought for temporary deviation for 15/09/2015 to 31/12/2018. The changes are elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/.

The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.3.2.2. Corrections

Following changes were proposed to the CPAs and are captured in the CPA-DDs version 4.4.:

- Correction to water quality monitoring & update to parameter
- Update to the emission reduction equation 2 of water filter
- Change in the sampling plan
- Update in the stove efficiency parameter
- Update in the Life Span Parameter

These changes were found to be permanent changes so in-line to para 227 of PS for PoA/4/ the request for the proposed changes were submitted via prior approval tracked to CDM EB.

All the changes listed above have been elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/.

The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

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

N/A

E.3.2.4. Inclusion of a monitoring plan

N/A

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

Following changes were proposed to the CPAs and are captured in the CPA-DDs version 4.4:

- Correction to water quality monitoring & update to parameter
- Update to the emission reduction equation 2 of water filter
- Change in the sampling plan
- Update in the stove efficiency parameter
- Update in the Life Span Parameter

These changes were found to be permanent changes so in-line to para 227 of PS for PoA/4/ the request for the proposed changes were submitted via prior approval tracked to CDM EB.

All the changes listed above have been elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/. The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.3.2.6. Changes to the project design

Following changes were proposed to the CPAs and are captured in the CPA-DDs version 4.4:

- A. The rated capacity of the deployed stove was found to be changed from the initial efficiency value of 38.1% to 44.9%. The efficiency test for the stove was conducted in August, 2018 by CREEC which thereafter informed about the update in the stove efficiency.
- B. Following changes were proposed to the eligibility criteria:
 - Update in the eligibility criteria 17&23
 - Update in the eligibility criteria 18 & 24

These changes were found to be permanent changes so in-line to para 227 of PS for PoA/4/ the request for the proposed changes were submitted via prior approval tracked to CDM EB.

All the changes listed above have been elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/. The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.3.3. Changes specific to afforestation and reforestation activities

N/A

E.3.4. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	The monitoring plan as contained in respective CPA DDs/2/ were reviewed against the monitoring requirements of the applied methodologies AMS-II.G. version 07 /6/ as well as PoA DD/1/ regarding the technology involved. The monitoring plan was revised as a part of PRC. Since the plan could not be followed for the current monitoring period, a temporary deviation was sought, which was approved. Please refer section E.3.2. above for the details of the PRC.
Findings	CAR#01 was raised and resolved.
Conclusion	The monitoring plan was not in line with to the approved methodology AMS-II.G. version 7.0/6/, thus it has been revised as through PoA and CPA PRC. Please refer CPA PRC report/25/ for the detailed assessment of the PRC. The revised plan is in line with the applied methodology /7/.

E.3.5. Compliance of monitoring activities with the registered monitoring plan**E.3.5.1. Data and parameters fixed ex ante or at renewal of crediting period**

Emission factor for the projected fossil fuel consumption in the baseline, when NRB is displaced, tCO_2/TJ , $EF_{projected_fossilfuel}$

Means of verification	The value of this parameter is 81.6 as checked from the revised approved CPA DDs/2/, the revised approved PoA-DD/1/ and ER calculation sheet/9, 41-48/. The projected fuel is non-renewable biomass. The value is sourced from the applied methodologies/6,7/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Leakage factor applied to account for increase in NRB use outside the project boundary, Fraction, LF

Means of verification	The value of this parameter is 0.95 as checked from the revised approved CPA DDs/2/, the revised approved PoA-DD/1/ and ER calculation sheet/9, 41-48/. The value is sourced from the applied methodologies/6,7/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Fraction of biomass used in the absence of the project activity in year y that can be established as non-renewable biomass, %, f_{NRB}

Means of verification	The value for Rwanda is 0.98. This is a default value of the fraction of non-renewable biomass approved by CDM EB and accepted by the host country DNA as available on the UNFCCC website/27/. The value of this parameter was found to be consistent with the revised approved PoA-DD/1/ and revised approved CPA-DDs/2/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Annual quantity of woody biomass used in pre-project scenario, per device, t /year, $B_{old,i,j}$

Means of verification	The value for this parameter is calculated by $B_{old,i,j,pp} * HH_{size}$ and default value of 0.5 tonnes/capita per year is applied to $B_{old,i,j,pp}$ prior to adjustment for cross-effects. The HH size will be monitored and thus the final value would vary depending on the HH size. The approach for the calculation of the parameter value was found to be in-line with the revised and accepted PoA-DD /1/ and CPA-DDs/2/
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

E.3.5.2. Data and parameters monitored

Efficiency of pre - project device, %, η_{wb} ; η_{old}

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Once at the time of distribution
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/ and applied methodologies/6,7/.

	(Yes / No)	
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	As per the PRC 9626-002, the value is being established prior to the start of implementation and surveys will be used to determine the type of baseline device used in households and the amount of woody biomass consumed by each device. The CME had conducted baseline survey and determined for all the CPAs. The applied methodology gives 0.1 default Efficiency of pre - project device, which is a three stone fire using firewood (not charcoal) , or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Thus, for all the end users (each installation) the baseline stove is noted, and 0.1 or 0.2 value is applied based on the above definition. An average of all these values is used for the calculation of parameter. The verified value of the parameter is 10.26% as verified from the baseline calculation sheet/39/. The value is correctly applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other available data?	The verification team randomly selected 48 samples(ICSSs) for DOE's field survey and via on-site interview found out the baseline stove of all the houses visited were traditional three stone stove. The same is mentioned in the baseline efficiency calculation sheet, thus the result was consistent with the CME's sample survey result/39/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues
Findings	CAR#03 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied)	

and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/.

Number of days of utilization of the project device i and batch j during the year y, Days, $\mu_{y,i,j}$

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/6,7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is determined from the database by taking an average of operating period for all the similar units as per the registered monitoring plan/1,2/. The average number is then discounted for two factors: • The number of days that stoves were not working determined during downtime survey³ • The continued usage of the baseline stove determined through household survey⁴ The values have been verified from down time survey sheet and household survey sheets/49-60/. Please refer to Appendix 5(Table 6) of this report to see the comparative analysis of the values and the verified applied values. The value is correctly applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other available data?	The survey results/49-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 48 samples for DOE's field survey. During the survey the team confirmed if stoves are working or not and baseline stove is still in use in the households visited. The result was consistent with CME's sample survey result/49-60/.

³ Downtime survey is a separate survey just to determine the number of days that stoves & filters were not working

⁴ Household survey is a common annual survey conducted to determine BS, Water quality monitoring, SDWfrac, QPW, Ny.i,j, continued usage of baseline, % use of pot skirt.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure is in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	No findings were raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation has been sought for the period when the monitoring plan has not been followed. Please refer to CPA PRC report/25/.	

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

Means of verification	Criteria/Requirements	Assessment/Observation																
	Measuring /Reading /Recording frequency	Continuously																
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/ and applied methodology/6/.																
	Monitoring equipment	Not applicable																
	Calibration frequency /interval:	Not applicable																
	How were the values in the monitoring report verified?	The parameter is calculated by continuously recording the number of technologies distributed in the database and discounted for its operational rate. The no of units distributed has been verified from the distribution records shared by CME/12/ and the operational rate has been checked from the household surveys/53-60/. The number of stoves is: <table><tr><th>District</th><th>Group 1</th><th>Group 2</th></tr><tr><td>CPA001 - Rubavu</td><td>10,537</td><td>7,295</td></tr><tr><td>CPA002 - Karongi</td><td>14,482</td><td>4,303</td></tr><tr><td>CPA003 - Ngororero</td><td>17866</td><td>5,031</td></tr><tr><td>CPA004 - Nyabihu</td><td>10,671</td><td>3,042</td></tr></table>			District	Group 1	Group 2	CPA001 - Rubavu	10,537	7,295	CPA002 - Karongi	14,482	4,303	CPA003 - Ngororero	17866	5,031	CPA004 - Nyabihu	10,671
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CPA003 - Ngororero	17866	5,031																
CPA004 - Nyabihu	10,671	3,042																

		CPA005 - Nyamasheke	13,959	5,801	
		CPA006 - Rutsiro	16,765	6,111	
		CPA007 - Rusizi	16,287	7,353	
		CPA008 - Bugesera	0	23,637	
		CPA009 - Burera	0	22,049	
		CPA010 - Gatsibo	0	21,786	
		CPA011 - Rulindo	0	15,066	
		CPA012 - Kayonza	0	13,394	
		CPA013 - Kirehe	0	13,955	
		CPA014 - Ngoma	0	15,515	
		CPA015 - Nyagatare	0	15,724	
		CPA016 - Rwamagana	0	15,165	
		Total	100,567	195,227	
		Please refer to Appendix 5(Table 7) of this report to see the comparative analysis of the values of operational check factor which has been applied in the ER sheet to get the final value of this parameter. The value is correctly calculated and applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.			
		If applicable, has the reported data been cross-checked with other available data?	The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 48 samples for DOE's field survey. During the survey the team confirmed if stoves are working in the households visited. The result was consistent with the CME's sample survey result/53-60/.		
		Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.		
		In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.		

Findings	CAR#01 was raised and resolved.
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation has been sought for the period when the monitoring plan has not been followed. Please refer to CPA PRC report/25/.

Number of persons that utilize each of the functional project appliances, number of people, HH_{size}

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/6/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is determined through HH survey as per the registered monitoring plan/1,2/ The values have been verified from HH survey conducted by CME/53-60/. The values of the parameter determined in survey 1, survey 2, survey 3, survey0(MP1) and survey 0(MP2) were checked and found to meet the sampling requirements/53-60/. Please refer to Appendix 5(Table 5) of this report to see the comparative analysis of the values and the verified applied values. The value is correctly calculated and applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other available data?	The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 48 samples for DOE's field survey. During the survey, the team confirmed the numbers of persons that are using the function project appliance. The result was consistent with the CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	No findings were raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation has been sought for the period when the monitoring plan has not been followed. Please refer to CPA PRC report/25/.	

Fraction of population for which the baseline fuel displaced is biomass, Fraction, Baseline System(BS)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Recorded once at the time of distribution.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodologies/6/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is recorded at initial distribution and then confirmed during the first household visit as per the registered monitoring plan The values have been verified from HH survey conducted by CME/53-60/. The values of the parameter determined in survey 1, survey 2, survey 3, survey0(MP1) and survey 0(MP2) were checked and found to meet the sampling requirements/53-60/. Please refer to Appendix 5 (Table 5) of this report to see the comparative analysis of the values and the verified applied values. The value is correctly calculated and applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other available data?	The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 48 samples for DOE's field survey. During the survey, the team confirmed the baseline fuel replaced for each

		household visited. The result was consistent with the CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6,7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation has been sought for the period when the monitoring was not followed.	

Efficiency of the device of each type *i* and batch *j* implemented as part of the project activity, Fraction, $\eta_{\text{new},i,j}$

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/6/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The efficiency of each group has been calculated as an average of efficiency of each tested stove. Actual efficiency based on the WBTs conducted by the 3rd party lab certified by the Centre for Research in Energy and Energy Conservation (CREEC)/33-35/. The final applied value for the deviation period has been calculated by taking a weighted average of the two value over the percentage usage of skirt being in use (named as '% usage skirt' and '% usage no skirt'). So, the formula for the final value of the parameter is: $\eta_{\text{new}}(\text{skirt}) * (\% \text{ usage skirt}) + \eta_{\text{new}}(\text{without skirt}) * (\% \text{ usage without skirt}) / (\% \text{ usage skirt}) + (\% \text{ usage without skirt})$ The % usage skirt is determined through HH surveys/53-60/. The

		values were checked from the HH survey sheets/53-60/. The CME has not monitored the parameter as per the registered monitored plan and applied temporary deviation. Please refer the CPA PRC report/25/ for the detailed assessment. The assessment team has checked the WBT results /33-35/ and also interviewed the monitoring personnel and found that the WBT was carried out in line with WBT protocol/65/ by CREEC/23/. Please refer to Appendix 5 of this report to see the comparative analysis of the values and the verified applied values. Verified values are listed under Table 5 of Appendix 5.
	If applicable, has the reported data been cross-checked with other available data?	The verification team randomly selected 48 samples for DOE's field survey. During the survey, the team asked all the households if stove with the skirt or not and if they are using it without the skirt then how many times in a week do they do so. The result was consistent with the CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation has been sought for the period when the monitoring was not followed.	

The operating lifetime of the project device, Number of years, Life Span

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Fixed and recorded at the time of commissioning/distribution
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/6/.
	Monitoring equipment	Not applicable

	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The values have been verified from the manufacture's email provided by CME/83/ and CPA DDs/2/. The ER sheet claim only for the stoves with age less than 5years. Since the distribution started in 2014 as checked from the installation database/12/ and the monitoring period end date is 31/12/2018, thus, all the stoves distributed in 2014 and 2016 have been considered for the calculation of emission reductions/9, 41-48/. The value applied is 5 years.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Not Applicable
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues
Findings	CAR#01 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/.	

Date of distribution , Date, Date of commissioning of batch j

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/2/ and applied methodology/12/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable

	How were the values in the monitoring report verified?	The date of the distribution for each CPA was verified from the installation database/12/ which mentions the date of commissioning of each CPA. The date for each CPA was found to be following: <table border="1"> <thead> <tr> <th>CPA</th><th>Group 1</th><th>Group 2</th></tr> </thead> <tbody> <tr><td>CPA001</td><td>04/11/2014</td><td>17/03/2016</td></tr> <tr><td>CPA002</td><td>12/11/2014</td><td>02/04/2016</td></tr> <tr><td>CPA003</td><td>09/11/2014</td><td>20/03/2016</td></tr> <tr><td>CPA004</td><td>11/11/2014</td><td>23/05/2016</td></tr> <tr><td>CPA005</td><td>17/11/2014</td><td>03/03/2016</td></tr> <tr><td>CPA006</td><td>09/11/2014</td><td>21/04/2016</td></tr> <tr><td>CPA007</td><td>12/11/2014</td><td>20/03/2016</td></tr> <tr><td>CPA008</td><td>-</td><td>28/04/2016</td></tr> <tr><td>CPA009</td><td>-</td><td>18/03/2016</td></tr> <tr><td>CPA010</td><td>-</td><td>08/06/2016</td></tr> <tr><td>CPA011</td><td>-</td><td>09/03/2016</td></tr> <tr><td>CPA012</td><td>-</td><td>10/03/2016</td></tr> <tr><td>CPA013</td><td>-</td><td>07/05/2016</td></tr> <tr><td>CPA014</td><td>-</td><td>17/03/2016</td></tr> <tr><td>CPA015</td><td>-</td><td>06/03/2016</td></tr> <tr><td>CPA016</td><td>-</td><td>21/03/2016</td></tr> </tbody> </table>	CPA	Group 1	Group 2	CPA001	04/11/2014	17/03/2016	CPA002	12/11/2014	02/04/2016	CPA003	09/11/2014	20/03/2016	CPA004	11/11/2014	23/05/2016	CPA005	17/11/2014	03/03/2016	CPA006	09/11/2014	21/04/2016	CPA007	12/11/2014	20/03/2016	CPA008	-	28/04/2016	CPA009	-	18/03/2016	CPA010	-	08/06/2016	CPA011	-	09/03/2016	CPA012	-	10/03/2016	CPA013	-	07/05/2016	CPA014	-	17/03/2016	CPA015	-	06/03/2016	CPA016	-	21/03/2016
	CPA	Group 1	Group 2																																																		
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CPA006	09/11/2014	21/04/2016																																																			
CPA007	12/11/2014	20/03/2016																																																			
CPA008	-	28/04/2016																																																			
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CPA015	-	06/03/2016																																																			
CPA016	-	21/03/2016																																																			
If applicable, has the reported data been cross-checked with other available data?	Not Applicable																																																				
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Not Applicable																																																				
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues																																																				
Findings	No findings were raised.																																																				
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6,7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/.																																																				

Actual date of commissioning of the project device, Date, Date of commissioning of project stove device i

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/6/.																																																			
	Monitoring equipment	Not applicable																																																			
	Calibration frequency /interval:	Not applicable																																																			
	How were the values in the monitoring report verified?	The date of the distribution for each CPA was verified from the installation database/12/ which mentions the date of commissioning of each CPA. The date for each CPA was found to be following: <table border="1"> <thead> <tr> <th>CPA</th> <th>Group 1</th> <th>Group 2</th> </tr> </thead> <tbody> <tr><td>CPA001</td><td>04/11/2014</td><td>17/03/2016</td></tr> <tr><td>CPA002</td><td>12/11/2014</td><td>02/04/2016</td></tr> <tr><td>CPA003</td><td>09/11/2014</td><td>20/03/2016</td></tr> <tr><td>CPA004</td><td>11/11/2014</td><td>23/05/2016</td></tr> <tr><td>CPA005</td><td>17/11/2014</td><td>03/03/2016</td></tr> <tr><td>CPA006</td><td>09/11/2014</td><td>21/04/2016</td></tr> <tr><td>CPA007</td><td>12/11/2014</td><td>20/03/2016</td></tr> <tr><td>CPA008</td><td>-</td><td>28/04/2016</td></tr> <tr><td>CPA009</td><td>-</td><td>18/03/2016</td></tr> <tr><td>CPA010</td><td>-</td><td>08/06/2016</td></tr> <tr><td>CPA011</td><td>-</td><td>09/03/2016</td></tr> <tr><td>CPA012</td><td>-</td><td>10/03/2016</td></tr> <tr><td>CPA013</td><td>-</td><td>07/05/2016</td></tr> <tr><td>CPA014</td><td>-</td><td>17/03/2016</td></tr> <tr><td>CPA015</td><td>-</td><td>06/03/2016</td></tr> <tr><td>CPA016</td><td>-</td><td>21/03/2016</td></tr> </tbody> </table>	CPA	Group 1	Group 2	CPA001	04/11/2014	17/03/2016	CPA002	12/11/2014	02/04/2016	CPA003	09/11/2014	20/03/2016	CPA004	11/11/2014	23/05/2016	CPA005	17/11/2014	03/03/2016	CPA006	09/11/2014	21/04/2016	CPA007	12/11/2014	20/03/2016	CPA008	-	28/04/2016	CPA009	-	18/03/2016	CPA010	-	08/06/2016	CPA011	-	09/03/2016	CPA012	-	10/03/2016	CPA013	-	07/05/2016	CPA014	-	17/03/2016	CPA015	-	06/03/2016	CPA016	-	21/03/2016
	CPA	Group 1	Group 2																																																		
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CPA006	09/11/2014	21/04/2016																																																			
CPA007	12/11/2014	20/03/2016																																																			
CPA008	-	28/04/2016																																																			
CPA009	-	18/03/2016																																																			
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CPA014	-	17/03/2016																																																			
CPA015	-	06/03/2016																																																			
CPA016	-	21/03/2016																																																			
If applicable, has the reported data been cross-checked with other available data?	Not applicable																																																				
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Not Applicable																																																				
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues																																																				
Findings	No findings were raised.																																																				
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/.																																																				

E.3.5.3. Implementation of sampling plan

Means of verification	The assessment of CME's sampling is discussed below: The CME has applied single sampling plan for all the 16 CPAs. According to Sampling and Survey standards,' version 8.0/11/, the sampling plan applied by the CME for the following CPAs are found to be appropriate. As per the sampling plan stated in the PoA DD/1/, a minimum 95% confidence interval and a 10% margin of error requirement are achieved for the sampled parameters. Since, the sampling has been done across the CPAs all the CPAs have microscale CDM units, the CME has taken 95/10 as the confidence precision levels which is found to be in line with the registered monitoring plan/1,2/. Target Population and Sampling Frame- As per page 45 of revised PoA-DD/1/ the target population is the end-users who have received project technologies under a CPA within the PoA that share the following characteristics: - Region (country) 1. For Group 1: Beneficiary HHs were located in the 7 districts of Rwanda's Western Province 2. For Group 2: Beneficiary HHs were located in all CPAs - Combination of project technology. 1. For Group 1: All beneficiary HHs received a stove and a filter 2. For Group 2: All beneficiary HHs received a stove - Model of project technology 1. For Group 1: All beneficiary HHs received a Vestergaard Lifestraw Family, 2.0, and a Dura coosktove. 2. For Group 2: All beneficiary HHs received a Dura cookstove - Installation year (by technology) 1. For Group 1: All technologies were installed between 15 September 2014 and 12 December 2014 2. For Group 2: All technologies were installed between 15 January 2016 and 1 December 2016 - Target group – All technologies were distributed to Households. - Socioeconomic level -All technologies were distributed to Ubedehe 1 & 2 households. Sampling Method- The method used in sampling was Simple random sampling within each group. Sample Size for Parameter of Interest: The sampling is applied to the following monitoring parameters: 1. $N_{new,i,j}$ 2. BS 3. $\mu_{y,i,j}$ 4. $N_{y,i,j}$ 5. HH_{size} The sample size is chosen using the equation inline to CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities/10/. In this regard, sample size calculation spreadsheet /40/ was checked and found correct as per the registered monitoring plan. The complete details are given in E.3 section of Monitoring Report/8/. Implementation of Sampling Survey and Field Test Records: Based on interviews with the CME and surveyors during the on-site audit, in addition to simply asking this question to the end users, the surveyors were also trained to evaluate to results of sampling. Therefore, the implementation of surveys and tests was considered reliable. Please refer to Table 1 and Table 2 in Appendix 5 of this report for the dates of
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	surveys. Reliability and precision calculation: The verification team has verified the ER calculation spreadsheet /9, 41-48/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under “Standard for sampling and surveys for CDM project activities and Programme of Activities” /11/ and confirms that the calculation of achieved reliability was done correctly. . In cases where survey results indicate that 90/10 precision or 95/10 precision is not achieved, the lower bound of the 90 per cent or 95 per cent confidence interval of the parameter value has been applied as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision in line with para 36 of the applied methodology/6/. All parameters of interest are included in the ER spreadsheet/9, 41-48/ for the revised approved CPAs. These were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER calculation sheets /9, 41-48/ corresponding to final Monitoring Report /8/, which were also found correct. The CME has sought temporary deviation for the period where the monitoring has not been done in line with the sampling plan. Please see the CPA PRC report/25/ for detailed assessment of temporary deviation.
Findings	FAR#01, FAR#02 and FAR#03 were raised and resolved.
Conclusion	The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD /1/.

E.3.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	No monitoring equipment is required as outlined in the revised approved CPA-DDs/2/ and revised approved PoA-DD/1/.
Findings	No findings.
Conclusion	The verification team has determined that no monitoring equipment has been used by the CME that requires calibration. Furthermore, there is no requirement of calibration in the revised approved CPA-DDs/2/. This was in accordance with the accepted monitoring plan and the applied monitoring methodologies/6,7/.

E.3.7. Assessment of data and calculation of emission reductions or net removals

E.3.7.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The following equations were used to determine the baseline emissions as provided in the monitoring report /8/ and applied in the corresponding ER calculations sheet /9, 41-48/. The expressions used were found consistent with the revised approved PoA DD /1/, CPA DDs /2/ and AMS II.G Version 07/6/:	
	$ER_y = \sum_i \sum_j ER_{y,i,j} - LEC_y - LE_y$	
	Where,	
	i	Indices for the situation where more than one type of project device is introduced to replace the pre-project devices
	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 ₂ e
	$ER_{y,i,j}$	Emission reductions by project device of type i and batch j during year y in t CO ₂ e
	LEC_y	Leakage emissions from charcoal

	production in year y
$ER_{y,i,j} = (B_{y,savings,i,j,ce} \times N_{y,i,j,ce} \times LF) \times \frac{\mu_{y,i,j}}{365} \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected,fossil fuel}$	
ce	Index to identify whether cross-effects is accounted for (ce= 1 if cross-effects is accounted for; ce=0 otherwise)
$B_{y,savings,i,j,ce}$	Quantity of woody biomass that is saved in tonnes per cook stove device of type <i>i</i> and batch <i>j</i> during year <i>y</i>
$f_{NRB,y}$	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')
$EF_{projected,fossil fuel}$	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
$N_{y,i,j,ce}$	Number of project devices of type <i>i</i> and batch <i>j</i> operating during year <i>y</i> ,
$\mu_{y,i,j}$	Number of days of utilization of the project device <i>i</i> and batch <i>j</i> during the year <i>y</i> .
LF	Leakage factor, to account for increase in NRB use outside the project boundary
$B_{y,savings}$ have been determined opting option 2 (WBT) as described below: $B_{y,savings,i,j,ce} = B_{old,i,j,ce} \times (1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}})$ The verification team has checked that the calculation for all CPAs (9626-P1-0001-CP1 to 9626-P1-0016-CP1) have also been done in the 'ERs Sheet' /9, 41-48/ in the same manner and it was found that calculations have been done inline to the PoA DD/02/ and in accordance to the applied methodologies/6/. All the parameters are assessed in detail under section E.3.4. of this report. The total number of ERs achieved (on account of ICS installation) during the current monitoring period were 735,623 tCO₂e.	
Findings	No findings were raised
Conclusion	The verification team confirms that

	a) The complete data was available and is duly reported; b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter above; c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed; d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied. e) There is no pro-rata approach applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.
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E.3.7.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The PoA-DD/1/, CPA DDs/2/ and applied monitoring methodologies/6/ do not prescribe any project emission to be considered.
Findings	No findings raised.
Conclusion	No project emissions were calculated, and the approach used is found to be correct.

E.3.7.3. Calculation of leakage GHG emissions

Means of verification	The PoA DD/1/, CPA DDs/2/ and applied monitoring methodologies/6/ do not prescribe any leakage emissions to be considered. However, the leakage adjustment factor that is required to adjust the baseline emissions has been duly accounted in emission reduction calculations.
Findings	No findings raised.
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) were required in accordance with the methodology AMS-II G, version 07/6/.

E.3.7.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	As elaborated above, the entire emission reductions from the PoA were based on baseline emissions. The calculations presented in this regard in the final monitoring report /8/ and corresponding ER calculations sheet /9, 41-48/ were found appropriate and comply with the provisions prescribed in the registered monitoring plan of respective CPA-DDs/2/, PoA-DD/1/ and applied methodology/6/. The verification team confirms that from the remote audit survey where all the evidence and records that validated the stated figures were checked and found acceptable.
Findings	No findings were raised
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 of this report); c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed; d) The total number of ERs achieved (on account of ICS installation) during the current monitoring period were 735,623 tCO₂e.

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
DelAgua Rwanda Public Health Program: Rubavu District, Western Province, Republic of Rwanda. 9626-P1-0001-CP1	45,701	0	0	0	45,701	45,701
DelAgua Rwanda Public Health Program: CPA002, Ubudehe 1& 2 in Karongi District in the Western Province of the Republic of Rwanda 9626-P1-0002-CP1	49,589	0	0	0	49,589	49,589
DelAgua Rwanda Public Health Program: CPA003, Ubudehe 1& 2 in Ngororero District in the Western Province of the Republic of Rwanda 9626-P1-0003-CP1	60,691	0	0	0	60,691	60,691
DelAgua Rwanda Public Health Program: CPA004, Ubudehe 1& 2 in Nyabihu District in the Western Province of the Republic of Rwanda 9626-P1-0004-CP1	36,965	0	0	0	36,965	36,965
DelAgua Rwanda Public Health Program: CPA005, Ubudehe 1& 2 in Nyamasheke District in the Western Province of the Republic of Rwanda 9626-P1-0005-CP1	51,893	0	0	0	51,893	51,893
DelAgua Rwanda Public Health Program: CPA006, Ubudehe 1& 2 in Rutsiro District in the Western Province of the Republic of Rwanda 9626-P1-0006-CP1	60,084	0	0	0	60,084	60,084
DelAgua Rwanda Public Health Program: CPA007, Ubudehe 1& 2 in Rusizi District in the Western Province of the Republic of Rwanda 9626-P1-0007-CP1	61,879	0	0	0	61,879	61,879

DelAgua Rwanda Public Health Program: CPA008- BUGESERA District in the Eastern Province of the Republic of Rwanda 9626-P1-0008-CP1	54,677	0	0	0	54,677	54,677
DelAgua Rwanda Public Health Program: CPA009- BURERA District in the Northern Province of the Republic of Rwanda 9626-P1-0009-CP1	50,810	0	0	0	50,810	50,810
DelAgua Rwanda Public Health Program: CPA010- GATSIBO District in the Eastern Province of the Republic of Rwanda 9626-P1-0010-CP1	54,120	0	0	0	54,120	54,120
DelAgua Rwanda Public Health Program: CPA011- RULINDO District in the Northern Province of the Republic of Rwanda 9626-P1-0011-CP1	36,091	0	0	0	36,091	36,091
DelAgua Rwanda Public Health Program: CPA012- KAYONZA District in the Eastern Province of the Republic of Rwanda 9626-P1-0012-CP1	31,752	0	0	0	31,752	31,752
DelAgua Rwanda Public Health Program: CPA013- KIREHE District in the Eastern Province of the Republic of Rwanda 9626-P1-0013-CP1	32,114	0	0	0	32,114	32,114
DelAgua Rwanda Public Health Program: CPA014- NGOMA District in the Eastern Province of the Republic of Rwanda 9626-P1-0014-CP1	36,474	0	0	0	36,474	36,474
DelAgua Rwanda Public Health Program: CPA015- NYAGATARE District in the Eastern Province of the Republic of Rwanda 9626-P1-0015-CP1	37,493	0	0	0	37,493	37,493

DelAgua Rwanda Public Health Program: CPA016- RWAMAGANA District in the Eastern Province of the Republic of Rwanda 9626-P1-0016-CP1	35,290	0	0	0	35,290	35,290
Total	735,623	0	0	0	735,623	735,623

E.3.7.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	Earthood Services Private Limited is able to certify that the emission reductions from the CDM project activity 9626 "DelAgua Public Health Program in Eastern Africa" in Rwanda for the monitoring period 15/09/2015-31/12/2018 (including both days) amount to 735,623 tCO₂(only on account of ICSs). Verified and certified emission reductions as per commitment period: <table> <tr> <td>Commitment period</td><td>Amount</td></tr> <tr> <td>Upto 31/12/2012 (1st commitment period)</td><td>0 tCO₂e</td></tr> <tr> <td>From 01/01/2013</td><td>735,623 tCO₂</td></tr> </table>	Commitment period	Amount	Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e	From 01/01/2013	735,623 tCO ₂
Commitment period	Amount						
Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e						
From 01/01/2013	735,623 tCO ₂						
Findings	No findings were raised						
Conclusion	The actual ERs achieved in included CPAs are not higher than the estimated quantity of ERs in the CPA-DDs/2/. Accordingly, it was accepted by the verification team.						

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)
9626-P1-0001-CP1	45,701	51,364
9626- P1-0002-CP1	49,589	66,889
9626- P1-0003-CP1	60,691	83,672
9626- P1-0004-CP1	36,965	48,885
9626- P1-0005-CP1	51,893	51,364
9626- P1-0006-CP1	60,084	82,290
9626- P1-0007-CP1	61,879	74,247
9626- P1-0008-CP1	54,677	118,757
9626- P1-0009-CP1	50,810	109,791
9626- P1-0010-CP1	54,120	105,857
9626- P1-0011-CP1	36,091	85,149
9626- P1-0012-CP1	31,752	66,631
9626- P1-0013-CP1	32,114	68,285
9626- P1-0014-CP1	36,474	78,336
9626- P1-0015-CP1	37,493	75,982
9626- P1-0016-CP1	35,290	75,973
Total	735,623	1,243,488

E.3.7.6. Remarks on difference from estimated value in included CPA

Means of verification	As verified and evident from the Monitoring Report /8/ and corresponding ER calculations sheet /9, 41-48/, the actual emission reductions achieved for project ICSs for the CPAs under this verification in the current monitoring period were found less than the estimated quantity in the CPA-DDs/2/ for the comparable period. Considering there is no increase in ERs no further verification effort was put in. The quantitative details of actual values of achieved ERs for the CPA and value
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	estimated in the CPA- DDs/2/ is presented in the next table.
Findings	No findings were raised.
Conclusion	The actual emission reductions achieved in any of specific CPAs are not higher than the estimated quantity of ERs in the CPA-DDs/2/. Accordingly, it was accepted by the verification team.

E.3.8. Assessment of reported sustainable development co-benefits

Means of verification	The coordinating/managing entity did not identify and establish the monitoring of the sustainable development benefits of the registered CDM PoA /1/ and no such document was developed and published on the UNFCCC CDM website. Therefore, the assessment is not required.
Findings	No findings were raised
Conclusion	The CME is not required to monitor the sustainable development benefits of the registered CDM PoA.

E.3.9. Global stakeholder consultation

Means of verification	The global stakeholder consultation was not found applicable because period under verification is third monitoring period.
Findings	No findings were raised
Conclusion	The requirement is applicable for situations when global stakeholder consultation was carried out after the publication of first monitoring report. Therefore, this was not found applicable.

E.4. Component project activities

E.4.1. Compliance of the CPA implementation with the included CPA design document

Means of verification	<u>Water Purifiers</u> The CPAs involve the distribution and installation of household scale point of use water filters designed to address microbiological contamination to World Health Organization Standards, and/or high efficiency biomass stoves to the households of Rwanda. There were two technologies which were distributed under the CPAs. As technologies are very different. Section E.4. onwards only water purification has been assessed. The assessment of ICSs has already been discussed from section E.3. to E.3.9. above. The distributions were done in 2 groups depending upon the following factors: - Time period during which the technologies were distributed. - Group 1- distribution took place in 2014 - Group 2- distribution took place in 2016 - Combination of technologies distributed to households - Group 1- stove and filter - Group 2- only stoves Thus, the water purification systems are only distributed under Group1. The same has been confirmed during the onsite assessment and also from the installation database/12/. The product is disseminated in residential households of the area. The current verification which includes verification of 16 CPAs viz. 9626-P1-0001-CP1 to 9626-P1-0016-CP1. The implementation status of the deployed technologies (water filters) has been checked during the onsite assessment. The technology has been physically verified on a sampling basis. Life straw Family 2.0 system type model of water filters have been installed by the CME as observed during the onsite assessment, which is in line to the PoA DD/1/. CPAs (9626-P1-0001-CP1 to 9626-P1-0007-CP1) of PoA involve dissemination of point of use water filters. The technology is already discussed under section A.3. of this report. The verification team confirms that systems distributed under the CPAs are same as the PoA. The models of water filter have also been verified during the on-site inspection of sample verifications in order to assess that the physical features of the system as available in revised approved CPA-DDs/2/. The specification for the technology deployed provided meets the eligibility requirements of
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the PoA-DD page 4/1/. The details were verified from the manufacturer specification of water filter /13/ provided by the CME.

During the on-site visit, the installation of water filter claimed by the CME was checked and found to be in-line with the technical description provided in the PoA-DD/1/ and Monitoring report/8/.

DelAgua Health Rwanda Limited is the CME for the implementation of the CPAs and is also responsible for coordinating and managing the implementation of each element of the monitoring plan. The monitoring period in this monitoring report is from 15/09/2015-31/12/2018. The details of each CPA are as follows:

CPA Ref.	Inclusion date	Crediting period start date	Deployed technology(s)	Total HHs	
				Group 1 (Stoves and filters)	Group 2 (Stoves only)
9626-P1-0001-CP1	21/11/2013	15/09/2014	Life straw Family 2.0 Water filter	10,537	0
9626-P1-0002-CP1	15/09/2014	15/09/2014	Life straw Family 2.0 Water filter	14,482	0
9626-P1-0003-CP1	15/09/2014	15/09/2014	Life straw Family 2.0 Water filter	17,866	0
9626-P1-0004-CP1	15/09/2014	15/09/2014	Life straw Family 2.0 Water filter	10,671	0
9626-P1-0005-CP1	15/09/2014	15/09/2014	Life straw Family 2.0 Water filter	13,959	0
9626-P1-0006-CP1	15/09/2014	15/09/2014	Life straw Family 2.0 Water filter	16,765	0
9626-P1-0007-CP1	15/09/2014	15/09/2014	Life straw Family 2.0 Water filter	16,287	0
9626-P1-0008-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0009-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0010-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0011-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0012-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0013-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0014-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0015-CP1	19/04/2016	19/04/2016	No water filter	0	0
9626-P1-0016-CP1	19/04/2016	19/04/2016	No water filter	0	0
Total				100,567 WPS	0 WPS

The reference number, inclusion date of each CPA and crediting period start date of each CPA have been checked and verified from the UN website/26/ and installation database/12/, CPA DDs/2/ the details are found correct and consistent.

The water filters are distributed across Rwanda. The location where the technology was distributed was verified during the onsite visit (through get-geocoordinates app) and found to be within Rwanda as stated in PoA-DD/1/ and CPA-DDs/2/. The type of technology/s deployed and the number of devices sold is verified from installation database/12/.

	The monitoring procedures are in place and the CME has operated the PoA & CPAs as per the revised approved PoA-DD/1/ and revised approved CPA-DDs/2/. The period for which the monitoring procedures were not followed, the temporary deviation has been sought. Please see section E.4.2. of this report. Each of the independent subsystems/measures included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the applied methodologies (i.e. not exceeding 60 kilo tonnes of CO₂e for SSC type III methodology) thus fulfilling the additionality criteria stated in the CPA DDs /2/ and PoA DD /1/ and Tool 19: Demonstration of additionality of microscale project activities/29/.
Findings	CAR#1 and CAR#03 were raised and resolved.
Conclusion	• The verification team is in opinion that physical features of the CPAs have been implemented in accordance with the revised approved CPA-DDs/2/. • No specific monitoring equipment had to be installed according to the monitoring plan. • It is also confirmed, through the physical site visit and review of the supporting documentation that physical features of the component CPAs have been implemented in accordance with the revised approved CPA-DDs/2/. • The CPAs were also found to be completely operational in line with the revised approved CPA-DDs/2/. • The information provided in the relevant sections of the monitoring report appropriately describe the implementation and operational status of the PoA

E.4.2. Post-registration changes

E.4.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

The CME was not able to follow the monitoring plan during the current monitoring period. Thus, the CME had sought for temporary deviation for 15/09/2015 to 31/12/2018. The changes are elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/.

The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.4.2.2. Corrections

Following changes were proposed to the CPAs and are captured in the CPA-DDs version 4.4.:

- Correction to water quality monitoring & update to parameter
- Update to the emission reduction equation 2 of water filter
- Change in the sampling plan
- Update in the stove efficiency parameter
- Update in the Life Span Parameter

These changes were found to be permanent changes so in-line to para 227 of PS for PoA/4/ the request for the proposed changes were submitted via prior approval tracked to CDM EB.

All the changes listed above have been elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/.

The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.4.2.3. Changes to the start-date of the crediting period

N/A

E.4.2.4. Inclusion of a monitoring plan

N/A

E.4.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

Following changes were proposed to the CPAs and are captured in the CPA-DDs version 4.4:

- Correction to water quality monitoring & update to parameter
- Update to the emission reduction equation 2 of water filter
- Change in the sampling plan
- Update in the stove efficiency parameter
- Update in the Life Span Parameter

These changes were found to be permanent changes so in-line to para 227 of PS for PoA/4/ the request for the proposed changes were submitted via prior approval tracked to CDM EB.

All the changes listed above have been elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/. The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.4.2.6. Changes to the project design

Following changes were proposed to the CPAs and are captured in the CPA-DDs version 4.4:

- C. The rated capacity of the deployed stove was found to be changed from the initial efficiency value of 38.1% to 44.9%. The efficiency test for the stove was conducted in August 2018 by CREEC which thereafter informed about the update in the stove efficiency.
- D. Following changes were proposed to the eligibility criteria:
 - Update in the eligibility criteria 17&23
 - Update in the eligibility criteria 18 & 24

These changes were found to be permanent changes so in-line to para 227 of PS for PoA/4/ the request for the proposed changes were submitted via prior approval tracked to CDM EB.

All the changes listed above have been elaborately discussed in the PRC validation report/25/ and the changes are reflected in CPA-DDs/2/. The changes were approved by CDM EB on 23/07/2020 and the PRC reference number is PRC-9626-006 to PRC 9626-021/66-82/.

E.4.3. Changes specific to afforestation and reforestation activities

N/A

E.4.4. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	The monitoring plan as contained in respective CPA DDs/2/ were reviewed against the monitoring requirements of the applied methodology AMS-III.A.V. Version 4.0 /7/ as well as PoA DD/1/ regarding the technology involved. The monitoring plan was revised as a part of PRC as it was not in compliance with the applied methodology AMS.III. A.V. version 4.0/7/. Since the plan could not be followed for the current monitoring period, a temporary deviation has been sought. Please refer section E.4.2. above for the details of the PRC.
Findings	CAR#01 was raised and resolved.
Conclusion	The monitoring plan was not in line with to the approved methodology AMS-III.A.V Version 4.0/7/, thus it has been revised as through PoA and CPA PRC. Please refer CPA PRC report/25/ for the detailed assessment of the PRC. The revised plan is in line with the applied methodology/7/.

E.4.5. Compliance of monitoring activities with the registered monitoring plan

E.4.5.1. Data and parameters fixed ex ante or at renewal of crediting period

Emission factor for the projected fossil fuel consumption in the baseline, when NRB is displaced, tCO₂/TJ, EF_{projected fossilfuel}

Means of verification	The value of this parameter is 81.6 as checked from the revised approved CPA DDs/2/, the revised approved PoA-DD/1/ and ER calculation sheet/9, 41-48/. The projected fuel is non-renewable biomass. The value is sourced from the applied methodology/7/ and found to be correct.
Findings	No findings were raised.

Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.
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Leakage factor applied to account for increase in NRB use outside the project boundary, Fraction, LF

Means of verification	The value of this parameter is 0.95 as checked from the revised approved CPA DDs/2/, the revised approved PoA-DD/1/ and ER calculation sheet/9, 41-48/. The value is sourced from the applied methodology/7/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Fraction of biomass used in the absence of the project activity in year y that can be established as non-renewable biomass, %, f_{NRB}

Means of verification	The value for Rwanda is 0.98. This is a default value of fraction of non-renewable biomass approved by CDM EB and accepted by the host country DNA as available on the UNFCCC website/27/. The value of this parameter was found to be consistent with the revised approved PoA-DD/1/ and revised approved CPA-DDs/2/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Emission factor for the projected fossil fuel consumption in the baseline, when NRB is displaced, tCO_2/TJ , $EF_{projected_fossilfuel}$

Means of verification	The value of this parameter is 71.9 as checked from the revised approved CPA DDs/2/, the revised approved PoA-DD/1/ and ER calculation sheet/9, 41-48/. This is different from the first parameter listed above as the projected fuel is kerosene. The value is sourced from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 2.2/30/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Specific heat of water, (kJ/L °C), WH

Means of verification	The value of this parameter considered is 4.186 kJ/L °C. This was checked with the revised approved PoA-DD/1/ and revised CPA-DDs/2/. The value applied is a default value sourced from the applied methodology /7/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Initial temperature of water, °C, T_i

Means of verification	The value of this parameter considered is 20 °C. This was checked with the revised approved PoA-DD/1/ and revised CPA-DDs/2/. The value applied is a default value sourced from the applied methodology /7/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Final temperature of water, °C, T_f

Means of verification	The value of this parameter considered is 100 °C. This was checked with the revised approved PoA-DD/1/ and revised CPA-DDs/2/. The value applied is a default value sourced from the applied methodology /7/ and found to be correct.
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction

	calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.
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Latent heat of water evaporation, kJ/L, WHE

Means of verification	The value of this parameter considered is 2260 kJ/L. This was checked with the revised approved PoA-DD/1/ and revised CPA-DDs/2/..The value applied is a default value sourced from the applied methodology /7/ and found to be correct.
Findings	No Findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

The proportion of total population for which the common practice of water boiling is or would have been water boiling, Fraction, Xboil

Means of verification	The value of 100% has been applied as all the CPAs were found to belong to Case-1. This was checked with the revised approved PoA-DD/1/ and revised CPA-DDs/2/. The value applied is a default value sourced from the applied methodology /7/ and found to be correct
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

Proportion of the CPA population that uses an improved drinking-water source, Fraction, IMP_{frac}

Means of verification	The value of 18.9% has been applied as all the CPAs fall under the category Case-1. The value has been sourced from the baseline water quality study conducted independently by the London School of Hygiene and Tropical Medicine in September and October 2012/38/ and has been fixed at the time of inclusion of first CPA. The applied value was checked with the revised approved PoA-DD/1/ and revised CPA-DDs/2/ and was found to be correct
Findings	No findings were raised.
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

CPAs fall under Case 1 if they are implemented in rural or urban areas and the proportion of the populations using an improved drinking-water source is equal to or less than 60% If the CPA does not fall under Case1, it is Case 2, Case 1/Case 2

Means of verification	The CPAs located in Rwanda fall under Case 1. It was checked from CPA DDs/2/ and from the baseline water quality study conducted independently by the London School of Hygiene and Tropical Medicine in September and October 2012 which states that only 18.9% of the Rwanda population has access to clean drinking water, hence Case 1 is applied.
Findings	No findings were raised
Conclusion	The value in the monitoring report/8/ and corresponding emission reduction calculations spreadsheet/9, 41-48/ are consistent with the revised approved PoA-DD/1/ & CPA DDs/2/. The applied value is correct and justified.

E.4.5.2. Data and parameters monitored**Efficiency of pre - project device, %, η_{wb} ; η_{old}**

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Once at the time of distribution

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	As per the PRC 9626-002, the value is being established prior to the start of implementation and surveys will be used to determine the type of baseline device used in households and the amount of woody biomass consumed by each device. The CME had conducted baseline survey and determined for all the CPAs. The applied methodology gives 0.1 default Efficiency of pre - project device, which is a three stone fire using firewood (not charcoal) , or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Thus, for all the end users (each installation) the baseline stove is noted, and 0.1 or 0.2 value is applied based on the above definition. An average of all these values is used for the calculation of parameter. The verified value of the parameter is 10.26% as verified from the baseline calculation sheet/39/. The value is correctly applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other available data?	The verification team randomly selected 48 samples for DOE's field survey and via on-site interview found out the baseline stove of all the houses visited were traditional three stone stove which was used to boil water and get clean drinking water. The same is mentioned in the baseline efficiency calculation sheet, thus the result was consistent with the CME's sample survey result/39/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project	No such issues	

	Standard?	
Findings	CAR#03 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6,7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/.	

Number of days of utilization of the project device i and batch j during the year y, Days, $\mu_{y,i,j}$

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is determined from the database by taking an average of operating period for all the similar units as per the registered monitoring plan/1,2/. The average number is then discounted for two factors: • The number of days that filters were not working determined during downtime survey⁵ • The continued usage of the baseline stove determined through household survey⁶ The values have been verified from down time survey sheet and household survey sheets/49-60/. Please refer to Appendix 5(Table 5) of this report to see the comparative analysis of the values. The parameter has not been used in ER calculation as a temporary deviation has been sought for not monitoring all the parameters for water filters.
	If applicable, has the reported data been cross-checked with other	The survey results/49-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The

⁵ Downtime survey is a separate survey just to determine the number of days that stoves & filters were not working

⁶ Household survey is a common annual survey conducted to determine BS, Water quality monitoring, SDWfrac, QPW, Ny.i,j, continued usage of baseline, % use of pot skirt.

	available data?	results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 24 samples for DOE's field survey. During the survey, the team confirmed if filters are working or not and baseline stove is still in use in the households visited. The result was consistent with CME's sample survey result/49-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#1 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation was taken for the period when monitoring plan was not followed. Please refer to CPA PRC report/25/.	

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

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Continuously
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is calculated by continuously recording the number of technologies distributed in the database and discounted for its operational rate. The number of units distributed has been verified from the distribution records shared by CME/12/ and the operational rate has been checked from the household surveys/53-60/. Please refer to Appendix 5(Table 8) of this report to see the comparative analysis of the values.

			The parameter has not been used in ER calculation as a temporary deviation has been sought for not monitoring all the parameters for water filters.
	If applicable, has the reported data been cross-checked with other available data?		The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 48 samples for DOE's field survey. During the survey, the team confirmed if filters are working in the households visited. The result was consistent with CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?		Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?		Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 was raised and resolved.		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/.		

Number of persons that utilize each of the functional project appliances, number of people, HH_{size}

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is determined through HH survey as per the registered monitoring plan/1,2/
		The values have been verified from HH survey conducted by CME/53-60/. The values of the parameter determined in survey 1, survey 2, survey 3, survey0(MP1) and survey 0(MP2) were checked

		and found to meet the sampling requirements/53-60/. Please refer to Appendix 5 (Table 5) of this report to see the comparative analysis of the values and the verified applied values. The values are not used in ERs calculation from water purifier as a temporary deviation has been sought for the entire monitoring period. Please see CPA PRC report/25/. The value is correctly calculated and applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other available data?	The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 24 samples for DOE's field survey. During the survey, the team confirmed the numbers of persons that are using the function project appliance. The result was consistent with CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure is in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 was raised and resolved.	
Conclusion	Temporary deviation has been sought for the period when the monitoring was not followed. No ERs have been claimed from water purification systems. Please refer to CPA PRC report/25/.	

Fraction of population for which the baseline fuel displaced is biomass, Fraction, Baseline System(BS)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Recorded once at the time of distribution.
	Is measuring and reporting frequency in accordance with the monitoring plan and	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/7/.

	monitoring methodology? (Yes / No)	
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is recorded at initial distribution and then confirmed during first household visit as per the registered monitoring plan The values have been verified from HH survey conducted by CME/53-60/. The values of the parameter determined in survey 1, survey 2, survey 3, survey0(MP1) and survey 0(MP2) were checked and found to meet the sampling requirements/53-60/. Please refer to Appendix 5(Table 5) of this report to see the comparative analysis of the values and the verified applied values. The value is correctly calculated and applied in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross- checked with other available data?	The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 48 samples for DOE's field survey. During the survey, the team confirmed the baseline fuel replaced for each household visited. The result was consistent with CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure is in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.	
Findings	CAR#01 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1,2/ (as per measurement methods and procedures to be applied) and applied methodology/6,7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1,2/. Temporary deviation has been sought for the period when the monitoring was not followed.	

Quantity of purified water in year y, Litres, QPW_y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is determined by the end users how much water do they filter per day in the wet and dry season as per the registered monitoring plan The values have been verified from HH survey conducted by CME/53-60/. The values of the parameter determined in survey 1, survey 2, survey 3, survey0(MP1) and survey 0(MP2) were checked and found to meet the sampling requirements/53-60/. However, the CME has failed to monitor another parameter (used in water purification ER calculation) listed below 'water quality' parameter due non-compliance of the monitoring plan with the applied methodology/13/. The CME has proposed to follow para 228(b) of PS for PoA/4/ and apply 0 value of this parameter and claim 0 ERs for the entire monitoring period for all the water filters. Thus, this parameter is only used for cross effect calculation. As an alternative approach CME has applied the highest value of the survey 1, survey2, survey 3, survey 0(MP1) and survey 0(MP2) for the period where the deviation is sought. The higher value of the parameter in the cross-effect calculation means more water is being treated through WPS instead of boiling on improved cookstove, thus leading to less amount of biomass being saved in improved cookstove. Thus, it gives a lower ER. Therefore, application of higher value of the parameter is cross effect calculation was found to be correct. Please refer to Appendix 5(Table 5) of this report to see the comparative analysis of the values and the verified applied values The value is correctly calculated and applied for cross effect calculation in the ER sheet/9, 41-48/ and consistently reported in the MR/8/.
	If applicable, has the reported data been cross-checked with other	The survey results/53-60/, assumptions and distribution records/12/ were checked by the verification team and were found acceptable. The

	available data?	results are reproducible in the corresponding ER sheet/9, 41-48/ of final Monitoring Report/8/. The verification team randomly selected 24 samples for DOE's field survey (as only group1 houses had filters distributed under it). During the survey, the team asked all the households "how much water do they filter per day in the wet and dry season". The result was consistent with CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure is in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 was raised and resolved.	
Conclusion	Temporary deviation has been sought for the period when the monitoring was not followed. No ERs have been claimed from water purification systems. Please refer to CPA PRC report/25/.	

Water Quality Monitoring, Fraction

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The parameter is monitored through demonstration based on laboratory testing or official notifications (for example notifications from the national authority on health) that the application of the project technology/equipment achieves compliance either with: (i) at a minimum the performance target as per "Evaluating household water treatment options: Health based targets and microbiological performance specifications" (WHO, 2011); or (ii) an applicable national standard or guideline as per

		revised CPA DDs/2/ and applied methodology/7/. The CME has failed to monitor water quality parameter due non-compliance of the monitoring plan with the applied methodology/7/. The CME has proposed to follow para 228(b) of PS for PoA/4/ and apply 0 value of this parameter and claim 0 ERs for the entire monitoring period for all the water filters. The complete assessment of temporary deviation is mentioned in the CPA PRC report/25/.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 was raised and resolved.	
Conclusion	Temporary deviation has been sought for the period when the monitoring was not followed. 0 ERs have been claimed from water purification systems. Please refer to CPA PRC report/25/.	

Proportion of CPA population served by a public distribution network of safe drinking water, Fraction, SDW_{frac}

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Calculated Annually.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The measuring and reporting frequency are in line to CDM PoA DD/1/, CPA DDs/2/ and applied methodology/7/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable

	How were the values in the monitoring report verified?	The parameter is determined through surveys by identifying the proportion of CPA population who have access to safe drinking water (SDW) registered monitoring plan/2/. The values have been verified from HH survey conducted by CME/53-60/. The values of the parameter determined in survey 1, survey 2, survey 3, survey0(MP1) and survey 0(MP2) were checked and found to meet the sampling requirements/53-60/. However, the CME has failed to monitor another parameter (used in water purification ER calculation) listed above, 'water quality' parameter due non-compliance of the monitoring plan with the applied methodology/7/. The CME has proposed to follow para 228(b) of PS for PoA /4/ and apply 0 value of this parameter and claim 0 ERs for the entire monitoring period for all the water filters. Thus, this parameter has not used this parameter for the ER calculation. The ER sheet/9, 41-48/ and the MR/8/ and found to consistently report that no ERs have been claimed for water filters.
	If applicable, has the reported data been cross-checked with other available data?	The verification team randomly selected 24 samples for DOE's field survey (as only group1 houses had filters distributed under it). During the survey, the team asked all the households if they have access to safe drinking water. The result was consistent with CME's sample survey result/53-60/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure is in place, internal checks have been done by the CPA implementer and established during the onsite assessment.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Yes. The detailed assessment of the temporary deviation is presented in the CPA PRC validation report/25/.
Findings	CAR#01 was raised and resolved.	
Conclusion	Temporary deviation has been sought for the period when the monitoring was not followed. 0 ERs have been claimed from water purification systems. Please refer CPA PRC report/25/.	

E.4.5.3. Implementation of sampling plan

Means of verification	The assessment of CME's sampling is discussed below: The CME has applied single sampling plan for all the 16 CPAs. According to
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Sampling and Survey standards,' version 8.0/11/, the sampling plan applied by the CME for the following CPAs are found to be appropriate. As per the sampling plan stated in the PoA DD/1/, a minimum 95% confidence interval and a 10% margin of error requirement is achieved for the sampled parameters. Since the sampling has been done across the CPAs all the CPAs have microscale CDM units, the CME has taken 95/10 as the confidence precision levels which is found to be in line with the registered monitoring plan/1,2/.

Target Population and Sampling Frame-

As per page 45 of revised PoA-DD/1/ the target population is the end-users who have received project technologies under a CPA within the PoA that share the following characteristics:

- Region (country)
 1. For Group 1: Beneficiary HHs were located in the 7 districts of Rwanda's Western Province
 2. For Group 2: Beneficiary HHs were located in all CPAs
- Combination of project technology.
 1. For Group 1: All beneficiary HHs received a stove and a filter
 2. For Group 2: All beneficiary HHs received a stove
- Model of project technology
 1. For Group 1: All beneficiary HHs received a Vestergaard Lifestraw Family, 2.0, and a Dura coosktove.
 2. For Group 2: All beneficiary HHs received a Dura cookstove
- Installation year (by technology)
 1. For Group 1: All technologies were installed between 15 September 2014 and 12 December 2014
 2. For Group 2: All technologies were installed between 15 January 2016 and 1 December 2016
- Target group – All technologies were distributed to Households.
- Socioeconomic level -All technologies were distributed to Ubedehe 1 & 2 households.

Sampling Method- The method used in sampling was Simple random sampling within each group.

Sample Size for Parameter of Interest: The sampling is applied to the following monitoring parameters:

1. $N_{new,i,j}$
2. QPW, hh, day
3. BS
4. SDW_{frac}
5. $\mu_{y,i,j}$
6. $N_{y,i,j}$
7. HH_{size}
8. Water Quality Monitoring

The sample size is chosen using the equation inline to CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities/10/.

In this regard, sample size calculation spreadsheet /40/ was checked and found correct as per registered monitoring plan. The complete details are given in E.3 section of Monitoring Report/8/.

Implementation of Sampling Survey and Field Test Records:

Based on interviews with the CME and surveyors during the on-site audit, in addition to simply asking this question to the end users, the surveyors were also trained to evaluate to results of sampling. Therefore, the implementation of surveys and tests was considered reliable.

Please refer to Table 1 and Table 2 in Appendix 5 of this report for the dates of

	surveys. Reliability and precision calculation: The verification team has verified the ER calculation spreadsheet /9, 41-48/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under “Standard for sampling and surveys for CDM project activities and Programme of Activities” /11/ and confirms that the calculation of achieved reliability was done correctly. All parameters of interest are included in the ER spreadsheet/9, 41-48/ for the revised approved CPAs. These were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER calculation sheets /9, 41-48/ corresponding to final Monitoring Report /8/, which were also found correct. The CME has sought temporary deviation for the period where the monitoring has not been done in line with the sampling plan. Please see the CPA PRC report/25/ for a detailed assessment of temporary deviation.
Findings	FAR#01, FAR#02 and FAR#03 were raised and resolved.
Conclusion	The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD /1/.

E.4.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	No monitoring equipment is required as outlined in the revised approved CPA-DDs/2/ and revised approved PoA-DD/1/.
Findings	No findings.
Conclusion	The verification team has determined that no monitoring equipment has been used by the CME that requires calibration. Furthermore, there is no requirement of calibration in the revised approved CPA-DDs/2/. This was in accordance with the accepted monitoring plan and the applied monitoring methodologies/6,7/.

E.4.7. Assessment of data and calculation of emission reductions or net removals

E.4.7.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The following equations were used to determine the baseline emissions as provided in the monitoring report /8/ and applied in the corresponding ER calculations sheet /9, 41-48/. The expressions used were found consistent with the revised approved PoA DD /1/, CPA DDs /2/ and the applied methodology AMSIII.AV, version 04 /7/:	
	Emissions reductions will be calculated as:	
	$ER_{y,water_treatment} = (BE_{y,i} - PE_{y,i} - L_{y,i}) * N_{y,i}$ EQUATION (4)	
	Where:	
	i	Indices for the situation where more than one type of project device is introduced to replace the pre-project devices
	j	Indices for the situation where there is more than one batch of project device
	$ER_{y,water_treatment}$	Emission reductions during year y in t CO ₂ e
	$BE_{y,i}$	Emission reductions by project device of type i and batch j during year y in t CO ₂ e
$LEC_{y,i}$	Leakage emissions from charcoal production in year y	
$PE_{y,i}$	Project emissions per filter in year y (t CO ₂ /y)	
$N_{y,i}$	Total number of water filters distributed in year y (t	

	CO2/y)
$LE_{y,i}$	Leakage emissions per filter in year y (t CO2/y)

Further, the baseline emissions are calculated from the following formula:

$$BE_{y,water_treatment} = BE_{y,i} * N_{y,i} \quad \text{EQUATION (1)}$$

Where:

$BE_{y,water_treatment}$	Baseline emissions during the year y in tCO ₂ e
$BE_{y,i}$	Baseline emissions per water filter of type i,
$N_{y,i}$	Number of project devices of type i operating in year y

Formula for baseline emissions per water filter of type i, is :

$$BE_{y,i} = QPW_y * SEC * f_{NRB,y} * EF_{projected_fossilfuel} * 10^{-9} * (1 - SDW_{frac}) * X_{BOIL} * BS * \mu_{y,i} / 365 * WQ$$

Where:

$BE_{y,i}$	Baseline emissions from filters of type i during the year y in (tCO ₂ e).
QPW_y	Quantity of purified water as established in year y (litres), capped at 5.5 lppd.
SEC	Specific energy consumption required to boil one litre of water (kJ/L). <i>Calculated below.</i>
$f_{NRB,y}$	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non renewable as per the relevant provisions of AMS-I.E "Switch from Non-Renewable Biomass for Thermal Applications by the User".
$EF_{projected_fossil\ fuel}$	Emission factor as per AMS-I.E procedures when NRB is displaced or the emission factor of the fossil fuel substituted (tCO ₂ /TJ).
SDW_{frac}	Proportion of CPA population served by public safe drinking water distribution system
X_{boil}	The proportion of total population for which the common practice of water boiling is or would have been water boiling.
BS	Fraction of population for which the baseline fuel displaced is biomass
$\mu_{y,i}$	Number of days of utilization of the project device i during year y
WQ	Fraction of devices that delivery safe drinking water, monitored

Specific energy consumption required to boil one litre of water is calculated from the following formula:

$$SEC = [WH * (T_f - T_i) + 0.01 * WHE] / \eta_{wb} \quad \text{EQUATION (3)}$$

Where:

WH	Specific heat of water (kJ/L °C). <i>The default value of 4.186 kJ/L °C is used.</i>
T_f	Final temperature (°C). <i>The default value of 100 °C5 is used.</i>
T_i	Initial temperature of water (°C). <i>A default value of 20 °C will be used.</i>
WHE	Latent heat of water evaporation (kJ/L). <i>The default value of 2260 kJ/L will be used.</i>
η_{wb}	Efficiency of the water boiling systems being replaced. <i>Determined at the CPA level</i>

	The verification team has checked that the calculation for all CPAs (9626-P1-0001-CP1 to 9626-P1-0007-CP1)⁷ have also been done in the 'ERs Sheet' /19/ in the same manner and it was found that calculations have been done inline to the PoA DD/02/ and in accordance to the applied methodologies/11,12/. All the parameters are assessed in detail under section E.4.4. of this report. The total number of ERs achieved (on account of water purifiers installation) during the current monitoring period were 0 tCO₂e.
Findings	No findings were raised
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter above; c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed; d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied. e) There is no pro-rata approach applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.

E.4.7.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The PoA-DD/1/, CPA DDs/2/ and applied monitoring methodology/7/ does not prescribe any project emission to be considered.
Findings	No findings raised.
Conclusion	No project emissions were calculated, and the approach used is found to be correct.

E.4.7.3. Calculation of leakage GHG emissions

Means of verification	The PoA DD/1/, CPA DDs/2/ and applied monitoring methodology/7/ does not prescribe any leakage emissions to be considered. However, the leakage adjustment factor that is required to adjust the baseline emissions has been duly accounted in emission reduction calculations.
Findings	No findings raised.
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) were required in accordance with the methodology/7/.

E.4.7.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	As elaborated above, the entire emission reductions from the PoA were based on baseline emissions. The calculations presented in this regard in the final monitoring report /8/ and corresponding ER calculations sheet /9, 41-48/ were found appropriate and complying with the provisions prescribed in the registered monitoring plan of respective CPA-DDs/2/, PoA-DD/1/ and applied methodology/7/. The verification team confirms that from the remote audit survey where all the evidence and records that validated the stated figures were checked and found acceptable.
Findings	No findings were raised
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 of this report);

⁷ 9626-P1-0008-CP1 to 9626-P1-0016-CP1 do not have water filters disseminated under it.

c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed;

d) The total number of ERs achieved (on account of water purifiers installation) during the current monitoring period were 0 tCO₂e.

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
DelAgua Rwanda Public Health Program: Rubavu District, Western Province, Republic of Rwanda. 9626-P1-0001-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA002, Ubedehe 1& 2 in Karongi District in the Western Province of the Republic of Rwanda 9626-P1-0002-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA003, Ubedehe 1& 2 in Ngororero District in the Western Province of the Republic of Rwanda 9626-P1-0003-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA004, Ubedehe 1& 2 in Nyabihu District in the Western Province of the Republic of Rwanda 9626-P1-0004-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA005, Ubedehe 1& 2 in Nyamasheke District in the Western Province of the Republic of Rwanda 9626-P1-0005-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA006, Ubedehe 1& 2 in Rutsiro District in the Western Province of the Republic of Rwanda 9626-P1-0006-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA007, Ubedehe 1& 2 in Rusizi District in the Western Province of the Republic of Rwanda 9626-P1-0007-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA008- BUGESERA District in the Eastern Province of the Republic of Rwanda 9626-P1-0008-CP1	0	0	0	0	0	0

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DelAgua Rwanda Public Health Program: CPA009- BURERA District in the Northern Province of the Republic of Rwanda 9626-P1-0009-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA010- GATSIBO District in the Eastern Province of the Republic of Rwanda 9626-P1-0010-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA011- RULINDO District in the Northern Province of the Republic of Rwanda 9626-P1-0011-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA012- KAYONZA District in the Eastern Province of the Republic of Rwanda 9626-P1-0012-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA013- KIREHE District in the Eastern Province of the Republic of Rwanda 9626-P1-0013-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA014- NGOMA District in the Eastern Province of the Republic of Rwanda 9626-P1-0014-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA015- NYAGATARE District in the Eastern Province of the Republic of Rwanda 9626-P1-0015-CP1	0	0	0	0	0	0
DelAgua Rwanda Public Health Program: CPA016- RWAMAGANA District in the Eastern Province of the Republic of Rwanda 9626-P1-0016-CP1	0	0	0	0	0	0
Total	0	0	0	0	0	0

E.4.7.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	Earthood Services Private Limited is able to certify that the emission reductions from the CDM project activity 9626 “DelAgua Public Health Program in Eastern Africa” in Rwanda for the monitoring period 15/09/2015-31/12/2018 (including both days) amount to 0 tCO₂(accounting only from water purification systems). Verified and certified emission reductions as per commitment period: <table> <tr> <td>Commitment period</td><td>Amount</td></tr> <tr> <td>Upto 31/12/2012 (1st commitment period)</td><td>0 tCO₂e</td></tr> <tr> <td>From 01/01/2013</td><td>0 tCO₂</td></tr> </table>	Commitment period	Amount	Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e	From 01/01/2013	0 tCO ₂
Commitment period	Amount						
Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e						
From 01/01/2013	0 tCO ₂						
Findings	No findings were raised						
Conclusion	Not Applicable.						

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)
9626-P1-0001-CP1	0	0
9626- P1-0002-CP1	0	0
9626- P1-0003-CP1	0	0
9626- P1-0004-CP1	0	0
9626- P1-0005-CP1	0	0
9626- P1-0006-CP1	0	0
9626- P1-0007-CP1	0	0
9626- P1-0008-CP1	⁸	-
9626- P1-0009-CP1	-	-
9626- P1-0010-CP1	-	-
9626- P1-0011-CP1	-	-
9626- P1-0012-CP1	-	-
9626- P1-0013-CP1	-	-
9626- P1-0014-CP1	-	-
9626- P1-0015-CP1	-	-
9626- P1-0016-CP1	-	-
Total	0	0

E.4.7.6. Remarks on difference from estimated value in included CPA

Means of verification	The CME has temporary deviation for the entire monitoring period and considered Emission reductions from water purification as 0. Thus, estimated emission reduction have also been considered 0.
Findings	No findings were raised
Conclusion	Not Applicable

E.4.8. Assessment of reported sustainable development co-benefits

Means of verification	The coordinating/managing entity did not identify and establish the monitoring of the sustainable development benefits of the registered CDM PoA /1/ and no such document was developed and published on the UNFCCC CDM website. Therefore, further assessment is not required.
Findings	No findings.
Conclusion	The CME is not required to monitor the sustainable development benefits of the registered CDM PoA.

E.4.9. Global stakeholder consultation

Means of verification	The global stakeholder consultation was not found applicable because period under verification is third monitoring period.
Findings	No findings.
Conclusion	The requirement is applicable for situations when global stakeholder consultation was carried out after the publication of the first monitoring report. Therefore, this was not found applicable.

SECTION F. Internal quality control

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

⁸ The water purifiers are disseminated only in 9626-P1-0001-CP1 to 9626-P1-0007-CP1. Thus 0 value of ERs have been considered only for these CPAs. For, the rest CPAs, the value is not applicable.

possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team.

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

SECTION G. Verification opinion

Earthood Services Private Limited (ESPL), contracted by DelAgua Health Rwanda Limited (the CME for the PoA), has performed an independent verification of the emission reductions for the registered CDM PoA 9626 “DelAgua Public Health Program in Eastern Africa” in Rwanda for the monitoring period **15/09/2015-31/12/2018** (including both dates) as reported in the Monitoring Report (final) Version 2.4 dated 06/08/2020. The CME is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

This verification report is for the CPAs (9626-P1-0001-CP1 to 9626-P1-0016-CP1) which were included at the UNFCCC webpage at the end of the current monitoring period. A single monitoring report has been prepared by the CME for the same in which implementation of all referred CPAs along with monitoring results is included.

ESPL confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. This verification report has been prepared using the latest available template specified by UNFCCC and complies with the instructions to follow as per CDM VVS for PoA Version 2.

The verification activities were conducted in accordance with ESPL's CDM Quality Manual System. The verification process has resulted in conclusion that the included CPAs confirm to the registered PoA DD as well as comply with applicable CDM rules and regulations and in accordance with applied monitoring methodologies, AMS II.G Version 7.0 and AMS-III.A.V Version 4.0.

As a result, it is confirmed that the emission reductions from the CDM PoA 9626 “DelAgua Public Health Program in Eastern Africa” in Rwanda are correctly reported in the Monitoring Report (final) Version 2.4 dated 06/08/2020 and corresponding ER sheets for the monitoring period **15/09/2015-31/12/2018** (including both dates) amount as **735,623 tCO₂e**. Therefore, this will be submitted as part of request for issuance as per CDM PCP for PoA, Version 2.

SECTION H. Certification statement

Earthood Services Private Limited (ESPL), contracted by DelAgua Health Rwanda Limited (the CME for the PoA), has performed the third independent verification of the emission reductions for the registered CDM PoA 9626 “DelAgua Public Health Program in Eastern Africa” in Rwanda for the monitoring period 15/09/2015-31/12/2018 (both days included) as reported in the Monitoring Report Version 2.4 dated 06/08/2020.

The verification is based on the registered PoA-DD/1/, CPA-DDs/2/ and the monitoring report for this project. 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.

The management of the DelAgua Health Rwanda Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report Version 2.4 dated 06/08/2020. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 2.4 dated 06/08/2020.

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 project for the monitoring period **15/09/2015** up to **31/12/2018** (including both dates) based on the reported emission reductions in the Final Monitoring Report Version 2.4 dated 06/08/2020 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, ESPL 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.

ESPL confirms the following:

Reporting period: From **15/09/2015 up to 31/12/2018** (including both dates)

Verified and certified emission in the above reporting period:

	Amount	Unit
Certified emission reductions (CERs)	735,623	tCO ₂ e

Appendix 1. Abbreviations

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

Appendix 2. Competence of team members and technical reviewers

Competence Statement	
Name	Deepika Mahala
Country	India
Education	M. Sc. (Environmental Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU
Experience	3 Years +
Field	Climate Change
Approved Roles	
Team Leader	YES
Validator	YES
Verifier	YES
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G

Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shreya Garg	Date	14/09/2018
Approved by	Anshika Gupta	Date	14/09/2018

Name	Gaurav Shresth		
Education	B.Tech (Mechanical Engineering) M.E. (Thermal Engineering)		
Experience	4+ years		
Field	Mechanical and thermal engineering		
Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Shreya Garg	Date	28/01/2020
Approved by	Anshika Gupta	Date	28/01/2020

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AMS III.AR, AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0009, AM0034, AMS.I.B, ACM0003		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shreya Garg	Date	25/05/2020

Approved by	Kaviraj Singh	Date	25/05/2020
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Competence Statement			
Name	Olivier Uwimana		
Education	Bachelor's in Applied Mathematics		
Experience	4+ years		
Field	Statistics		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Yes (Rwanda)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Shreya Garg	Date	19/08/2019
Approved by	Anshika Gupta	Date	19/08/2019

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	CME	Registered PoA DD Revised approved PoA DD Revised approved PoA DD	Version 2.4, 11/11/2013 Version 3.0, 14/11/2016 Version 4.4, 12/06/2020	Other
2.	CME	Registered CPA DDs for CPA 01 (9629-P1-0001-CP1) to CPA 07 (9629-P1-0007-CP1) Registered CPA DD for CPA 08(9626-P1-0008-CP1) to CPA16 (9626-P1-0016-CP1) Revised Approved CPA DDs for CPA 01 to CPA 16	Version 3.0 14/11/2016 Version 3.0 14/11/2016 Version 4.4 Dated 16/06/2020	Other
3.	UNFCCC	Procedure: CDM PCP for PoA	Version 2.0	Other
4.	UNFCCC	Standard: CDM PS for PoA	Version 2.0	Other
5.	UNFCCC	Standard: CDM VVS for PoA	Version 2.0	Other
6.	UNFCCC	AMS-II.G.	Version 7.0	Other
7.	UNFCCC	AMS-III.AV.	Version 4.0	Other
8.	DelAgua Health Rwanda Limited	Monitoring Report (Draft) Monitoring Report(Final)	Version 1.0 dated 29/01/2020 Version 2.4 dated 06/08/2020	CME
9.	DelAgua Health	ER sheet (Final)	Corresponding to the	CME

	Rwanda Limited	a) MP3 b) MP3a_Summary c) MP3b_Summary d) MP3c_Summary e) MP3d_Summary	current monitoring period and pertaining to MR version 2.4	
10.	UNFCCC	General Guidelines for Sampling and Surveys For Small-Scale CDM Project Activities	Version 1.0	Other
11.	UNFCCC	Standard: Sampling and Surveys for CDM Project Activities and Programme of Activities	Version 8.0	Other
12.	CME	Installation database-PHASE 2 MASTER HOUSEHOLD LIST Phase 3 HH list Phase 2c and 3a HH List	2014 2016	CME
13.	Vestergaard	Manufacturer specification- WPS Family Life Straw Family 2.0 water filter	-	CME
14.	Shengzhaou Huimei International Trade Co. Ltd. (now ZHEJIANG HUIWENMEI STOVE CO. LTD)	Manufacturer specification-ICS EcoZoom DURA	-	CME
15.	CME	Monitoring Report for First Monitoring Period	31/08/2015	Other
16.	ERM	Verification and certification report for First Monitoring Period	03/09/2015	Other
17.	CME	Monitoring Report for Second Monitoring Period	24/11/2015	Other
18.	ERM	Verification and certification report for Second Monitoring Period	24/11/2015	Other
19.	UNFCCC	CDM-POA-MR-FORM		
20.	DeLaqua Health Rwanda Limited	CPA start date evidence	Various	CME
21.	Delagua and EcoZoom Manufacturer	Supply Agreement for project stoves	06/03/2014	CME
22.	ESPL	PoA-PRC Validation report	Version 3.2 Dated 12/06/2020	Other
23.	UNFCCC	PRC 9626-005 PoA PRC approval: https://cdm.unfccc.int/PRCContent/DB/prcp350067410/view	16/06/2020	Other
24.	UNFCCC	PRC 9626-002 PoA PRC approval: https://cdm.unfccc.int/PRCContent/DB/prcp952048084/view	01/06/2017	Other
25.	ESPL	CPA-PRC report	Version 2.1 17/06/2020	Other
26.	UNFCCC	PoA Webpage: https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/RVUJL2DM	-	Other

		Z7HBKC1PEG4O8NA0WSI6TX/view		
27	UNFCCC	fNRB Value: https://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf	-	Other
28	UNFCCC	Tool 21: Demonstration of additionality of small-scale project activities	Version 12.0	Other
29	UNFCCC	Tool 19: Demonstration of additionality of microscale project activities	Version 8.0	Other
30	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 2.2	2006	Other
31	CME	WBT calculation sheet for the Second Monitoring Period WBT calculation sheet for the Third Monitoring Period	-	CME
32	CREEC	WBT result- BTR2018050	27/08/2019	CME
33	Centre for Research in Energy Efficiency and Conservation (CREEC)	WBT result- BTR2018070	17/10/2018	CME
34	Centre for Research in Energy Efficiency and Conservation (CREEC)	WBT result- BTR2019007	22/02/2019	CME
35	CREEC	WBT result- BTR2018050- New stove (Pot with skirt) BTR2020009- New stove (Pot without skirt)	14/04/2019 23/02/2020	CME
36	Shengzhaou Huimei International Trade Co. Ltd. (now ZHEJIANG HUIWENMEI STOVE CO. LTD)	Pilot stove	-	CME
37	Approvecho Research Centre	Water Boiling Test – EcoZoom Dura Stove	12/05/2012	CME
38	DelAgua Health Rwanda Limited	London School of Hygiene and Tropical Medicine in September and October 2012	2012	CME
39	DelAgua Health Rwanda Limited	Baseline efficiency survey sheets	-	CME
40	DelAgua Health Rwanda Limited	Sample size estimate 3a Sample size estimate 3b Sample size estimate 3c	-	CME
41	DelAgua	Period A ER calculation sheet for Group1 titled “MP3a Calcs_Group1”	Pertaining to MR version 2.4	CME
42	DelAgua	Period A ER calculation sheet for Group2 titled “MP3a Calcs_Group2”	Pertaining to MR version 2.4	CME
43.	DelAgua	Period B ER calculation sheet for	Pertaining to MR	CME

		Group1 titled "MP3b Calcs_Group1"	version 2.4	
44.	DelAgua	Period B ER calculation sheet for Group2 titled "MP3b Calcs_Group2"	Pertaining to MR version 2.4	CME
45.	DelAgua	Period C ER calculation sheet for Group1 titled "MP3c Calcs_Group1"	Pertaining to MR version 2.4	CME
46.	DelAgua	Period C ER calculation sheet for Group2 titled "MP3c Calcs_Group2"	Pertaining to MR version 2.4	CME
47.	DelAgua	Period D ER calculation sheet for Group1 titled "MP3d Calcs_Group1"	Pertaining to MR version 2.4	CME
48.	DelAgua	Period D ER calculation sheet for Group2 titled "MP3d Calcs_Group2"	Pertaining to MR version 2.4	CME
49.	DelAgua Health Rwanda Limited	SurveyA_Downtime survey_Group1-excel sheet	01/07/2018 – 01/10/2018	CME
50.	DelAgua Health Rwanda Limited	SurveyA_Downtime survey _Group2-excel sheet	01/07/2018 – 01/10/2018	CME
51.	DelAgua Health Rwanda Limited	SurveyB_Downtime survey _Group1-excel sheet	01/01/2019 – 25/03/2019	CME
52.	DelAgua Health Rwanda Limited	SurveyB_Downtime survey _Group2-excel sheet	01/01/2019 – 25/03/2019	CME
53.	DelAgua Health Rwanda Limited	Survey0_MP1-excel sheet	08/07/2015 – 01/09/2015	CME
54.	DelAgua Health Rwanda Limited	Survey0_MP2-excel sheet	02/02/2015 - 25/04/2015	CME
55.	DelAgua Health Rwanda Limited	Survey1_Group1-excel sheet	09/09/2016 – 25/10/2016 & 25/09/2017 – 28/09/2017	CME
56.	DelAgua Health Rwanda Limited	Survey1_Group2-excel sheet	09/08/2016 - 25/10/2016 & 25/09/2017 – 16/10/2017	CME
57.	DelAgua Health Rwanda Limited	Survey2_Group1-excel sheet	18/06/2018 – 13/09/2018	CME
58.	DelAgua Health Rwanda Limited	Survey2_Group2-excel sheet	18/06/2018 – 24/09/2018	CME
59.	DelAgua Health Rwanda Limited	Survey3_Group1-excel sheet	01/01/2019 – 22/01/2019	CME
60.	DelAgua Health Rwanda Limited	Survey3_Group2-excel sheet	01/01/2019 – 22/01/2019	CME
61	DelAgua Health Rwanda Limited	Training Evidences	-	CME
62	CREEC	CREEC accreditation: https://www.creec.or.ug/about/	-	Other
63	Rwanda Standard Board	Communication between RSB and Del Agua regarding CREEC	08/01/2018 17/01/2018	CME
64	DelAgua Health Rwanda Limited	Verification survey Transcript – Round 3.xlsx	-	CME
65	Global Alliance for Clean Cookstoves	WBT protocol https://www.cleancookingalliance.org/binary-data/DOCUMENT/file/000/000/399-1.pdf	Version 4.2.3	Other
66	UNFCCC	PRC 9626-006 Approval for 9626-P1-0001-CP1: https://cdm.unfccc.int/CPAPostR	23/07/2020	Other

		egChanges/DB/prcp873365421/v iew		
67	UNFCCC	PRC 9626-007 Approval for 9626-P1-0002-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp603021788/v iew	23/07/2020	Other
68	UNFCCC	PRC 9626-008 Approval for 9626-P1-0003-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp603021789/v iew	23/07/2020	Other
69	UNFCCC	PRC 9626-009 Approval for 9626-P1-0004-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp205615145/v iew	23/07/2020	Other
70	UNFCCC	PRC 9626-010 Approval for 9626-P1-0005-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp205615146/v iew	23/07/2020	Other
71	UNFCCC	PRC 9626-011 Approval for 9626-P1-0006-CP1: https://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/YMEJQNX4ZWDK3PGBIU2851RFTAHL0/v iew	23/07/2020	Other
72	UNFCCC	PRC 9626-012 Approval for 9626-P1-0007-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp402462239/v iew	23/07/2020	Other
73	UNFCCC	PRC 9626-013 Approval for 9626-P1-0008-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp402462240/v iew	23/07/2020	Other
74	UNFCCC	PRC 9626-014 Approval for 9626-P1-0009-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp402462241/v iew	23/07/2020	Other
75	UNFCCC	PRC 9626-015 Approval for 9626-P1-0010-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp402462242/v iew	23/07/2020	Other
76	UNFCCC	PRC 9626-016 Approval for 9626-P1-0011-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp402462243/v iew	23/07/2020	Other
77	UNFCCC	PRC 9626-017 Approval for 9626-P1-0012-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp402462244/v iew	23/07/2020	Other
78	UNFCCC	PRC 9626-018 Approval for	23/07/2020	Other

		9626-P1-0013-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp537414154/view		
79	UNFCCC	PRC 9626-019 Approval for 9626-P1-0014-CP1: https://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/MILNBZCJWE0SQ12PX37FG6Y4V8AHK5/view	23/07/2020	Other
81	UNFCCC	PRC 9626-020 Approval for 9626-P1-0015-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp537414157/view	23/07/2020	Other
82	UNFCCC	PRC 9626-021 Approval for 9626-P1-0016-CP1: https://cdm.unfccc.int/CPAPostReqChanges/DB/prcp537414158/view	23/07/2020	Other
83	Ecozoom	Email received from the supplier confirming the lifespan of the stove.	29/11/2014	CME

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 and E.3.5.3.	Date : 23/07/2020
Description of FAR				
For water technologies, seasonality of use is not addressed in the survey. Please address seasonality of water filter use in the survey for subsequent monitoring periods				
Project participant response				Date : 27/07/2020
As documented in the verification survey transcript, question IDs 314 & 315 ask about seasonality of use.				
Documentation provided by project participant				
Verification Survey transcript				
DOE assessment				Date: 27/07/2020
The seasonality was captured in the surveys conducted after the second verification. The verification transcript and the survey sheets confirmed that the survey team noted the information for the related parameter in dry and wet season.				
Thus, the CAR stands closed.				

FAR ID	02	Section no.	E.1.2 and E.3.5.3.	Date : 23/07/2020
Description of FAR				
The surveyors have been noted by ERM CVS to physically check whether water comes out of the tap from the Lifestraw filters. However, this check is not specifically documented in the questionnaire. Please revise the survey for the next monitoring period to explicitly include this check.				
Project participant response				Date : 27/07/2020

As documented in the Verification Survey transcript, the survey does include a check of whether water comes out of the tap. Question ID 389 states “Is the tap operational (Does water come out of the tap)?”, and Question ID 389 requires the surveyor to “Physically open the tap to observe whether water comes out”.	
Documentation provided by project participant	
Verification Survey transcript	
DOE assessment	Date: 27/07/2020
The CME had updated the survey questionnaire to include the questions to check the taps are functional. The verification survey transcript and the survey sheets confirmed that the CME has addressed the issue raised during second verification. Thus, the FAR stands closed.	

FAR ID	03	Section no.	E.1.2 and E.3.5.3.	Date : 23/07/2020
Description of FAR				
Since the training exercise update was carried out part-way through the monitoring process (57 surveys were carried out before the training and the rest, i.e. 130 surveys, were carried out after the training was conducted), FAR 03 is raised for the PP to ensure any trainings carried out for the next verification is done prior to the start of the survey process.				
Project participant response				Date : 27/07/2020
This FAR was originally raised for Period A (15/09/2015 – 31/08/2016) by ERM. The FAR was implemented for subsequent periods as follows: - No survey was conducted for Period B - For Period C (01/01/2017-31/12/2017), the training was held on 18/06/2018 - For Period D (01/01/2018-31/12/2018), the training was held on 18/12/2018				
Documentation provided by project participant				
See evidence in training folder				
DOE assessment				Date: 27/07/2020
After the FAR, the training has been conducted before each survey. The training certificates and survey sheets dates were checked to confirm this. Thus, the FAR is closed.				

Table 2. CLs from this verification

CL ID	01	Section no.	E.2.2.	Date : 23/07/2020
Description of CL				
Page 13 of the MR says “CHWs collected basic HH identification information on smart phones” and page 14 “use of the smart phone for data collection surveys”. The CME shall clarify how the data from the application is stored and transferred to the excel sheets for ER calculation.				
Project participant response				Date : 27/07/2020
DelAgua previously used a data collection app called DoForms. Data was collected on a smart-phone app, and uploaded to a DoForms server. DelAgua then downloads the data from the server to the ER calculation sheets. DelAgua no longer uses Do Forms and has switched to World App (which is the app shown to the DOE during the site visit).				
Documentation provided by project participant				
None				
DOE assessment				Date: 27/07/2020
The data used in ER calculation is sheet was used from the DoForms server which has now been replaced by World App. The transfer of data has been clearly explained by the CME. Thus, the CL stands closed.				

Table 3. CARs from this verification

CAR ID	01	Section no.	E.3.5.2.	Date : 19/03/2020
Description of CAR				
1. For parameter: $N_{y,i,j}$ (Number of project devices of type i and batch j operating during year y.) BS (Fraction of population for which the baseline fuel displaced is biomass) $\mu_{y,i,j}$ (Number of days of utilization of the project device i and batch j during the year y) The coordinating/managing entity shall describe the nature, extent and duration of the nonconforming monitoring period in the monitoring report as per paragraph 228. Under section C.3.1 of the MR, it is mentioned that a delay of more than 1 year in monitoring survey has been observed during the current monitoring period and a temporary deviation has been sought for this delay. PP has proposed an alternative arrangement for the non-conforming monitoring period which doesn't lead to the overestimation of the ERs inline to the para 228 (a) of the PS for PoA version 2.0. The first verification survey was conducted between Aug 2016 and Sept 2016. The second verification survey was conducted between 18/06/2018 and 24/09/2018. The current monitoring period is from 15/09/2015 to 31/12/2018, PP shall clarify the period for which period (exact dates) temporary deviation is sought considering the frequency mentioned in the CPA DDs is followed. Efficiency: The coordinating/managing entity shall describe the nature, extent and duration of the nonconforming monitoring period in the monitoring report as per paragraph 228. Thus, PP shall clarify when the monitoring tests have been conducted and in which period the temporary deviation has been sought considering the frequency set in the approved CPA DDs. PP has submitted the Group 1 stoves to CREEC for testing of efficiency of devices and did not included Group 2 devices as stated in the MR page 27. As per standard "Sampling and survey for CDM project activities and programmes of activities" version 8.0 para 6 (a) – "A "sample" is a subset of a "population". The population could be, for example, all households included in a CDM project activity or PoA, or in a group of project activities or PoAs; the sample is a subset of these households". PP is requested to clarify how this approach is representative for Group 2 when the stoves form Group 2 database had no possibility of getting selected. Parameter- Lifespan: PP has stated in the MR page 28 section E.2 that a temporary deviation was applied for the monitoring parameter Life span which is described in the section C.3.1. of the MR. Though no temporary deviation has been reported in the section C.3.1. 2. Parameter WQ has not been monitored in line with the applied methodology.				
Project participant response				Date : 20/03/2020
1. The temporary deviation is sought for the period of time between the first round of surveying (Aug-Sep 2016) and the second round of surveying (June-Sept, 2018), as this gap is nearly two years. Note that the first round of surveying did include several surveys conducted in 2017. Due to a server error, the data from 62 surveys was not retrievable (9 from Group 1, and 51 from Group 2). Therefore, an additional round of surveys was conducted between September-October, 2017, with 9 additional surveys in Group 1, and 51 additional surveys in Group 2. However, the sample size is not sufficient to consider these surveys as meeting the requirements of the sampling plan, and therefore a temporary deviation is requested. According to AMS-II.G, loss in efficiency can be monitored by determining the rate of efficiency drop for a representative sample of the first batch of project device i in year y and assume that same rate of loss in efficiency applies to all other batches. Group1 stoves are considered batch 1, and efficiency is monitored for this batch. The results are then applied to other batches, including Group 2 stoves. According to the PoA-DD, v 3.0, the LifeSpan parameter should be certified by a national standards body or an appropriate certifying agent. DelAgua requested the certification from the Rwanda Standards Board (RSB); RSB does not have the equipment necessary for stove testing, and they suggested that DelAgua should work with the CREEC lab in Uganda. Currently, the CREEC lab does not have the equipment necessary to certify the lifetime of the stove. Therefore, DelAgua is relying on life span estimates provided by the manufacturer, to demonstrate the expected life span of the cook stove. 2. Temporary Deviation has been sought.				

Documentation provided by project participant	
Revised MR	
DOE assessment	Date: 23/07/2020
The CME has sought temporary deviation for the period when the registered monitoring plan has not been followed. The detailed assessment of the deviation is written in the CPA PRC validation report.	
Thus, the CAR stands closed.	

CAR ID	02	Section no.	E.3.5.2.	Date : 23/07/2020
Description of CAR				
The revised approved PoA DD and revised CPA DDs apply 5 years as the lifetime of the improve stove. However, the monitoring report version 2.2 mention 6-7 years and 7 years in many sections.				
Project participant response				Date : 27/07/2020
The monitoring report has been revised to mention 5 years				
Documentation provided by project participant				
Monitoring Report				
DOE assessment				Date: 27/07/2020
The revised MR mentions the lifetime as 5 years consistently which in line with the revised approved CPA DDs and revised approved PoA DD.				
Thus, the CAR stands closed.				

CAR ID	03	Section no.	E.3.5.2.	Date : 23/07/2020
Description of CAR				
1. The installation database does not have the information of baseline stove. It is not clear how the value of the parameter η_{wb} ; η_{old} is determined. The baseline efficiency sheet has only 71222 entries while the total number of the stoves is 296133(combined for group1 and group2). The parameter is determined at the time of distribution and fixed. As per the applied methodology AMS-II.G. version 7.0, the value is 'Fixed for each individual household when included in the project activity database.' CME shall explain how this has been followed. 2. Inconsistency in the no of units distributed was observed in the MR and database. For group 1, the total distribution in the 'Phase2 HH List 2014'sheet is 100,596 while the MR mention a number 100,906 on page 29.				
Project participant response				Date : 27/07/2020
1. The calculation of the parameters η_{wb} ; η_{old} was changed during PRC-9626-002 (which updated AMS-II.G from version 5 to version 7). Prior to this PRC, the parameter was determined as a weighted average of the stoves used in the baseline. After the PRC, it was a weighted average that considered the stove type and amount of biomass consumed. While the PRC was approved in 2017, monitoring was changed part-way through 2016, and applied to all households that received stoves thereafter. As the results met the required confidence/precision, they were applied to the entire PoA. 2. The ER sheets & MR have been revised.				
Documentation provided by project participant				
Monitoring Report				
DOE assessment				Date: 27/07/2020

1. As per the PRC 9626-002, the value is being established prior to the start of implementation and surveys will be used to determine the type of baseline device used in households and the amount of woody biomass consumed by each device. The CME had conducted baseline survey and determined for all the CPAs.
2. The ER sheet and MR has been made consistent with the database sheet. The correction of inconsistency has decreased the total ERs. The ERs presented in the MR now are correct as the no. of installations were erroneously stated higher in the published MR. Thus, the revision of final value was found to be correct.

Thus, the CAR stands closed.

CAR ID	04	Section No.	E.3.5.3.	Date : 04/08/2020
Description of CAR				
CME shall explain the reason of monitoring 90,369 samples under the downtime survey when the samples covered in HH survey is 310. How the sample size was derived and how the samples were selected? Why a separate survey was conducted when the question asked in downtime survey could have been captured with HH surveys itself? Why an unreasonably high number (defeating the purpose of sampling and why the other parameters were left out) of HHs have been visited? While explaining this, the CME shall also explain how covering so many samples was feasible in a period of 3 months?				
Project participant response				Date : 06/08/2020
This project is implemented in partnership with the Rwandan Ministry of Health. As part of this partnership, DelAgua utilizes MoH's Community Health Workers to implement the project. CHWs are health volunteers located in every village of the country, and DelAgua selects/trains 12-15 CHWs to work in each sector of the country. These CHWs visit each household annually, to reiterate proper use and maintenance of the stoves, and to respond to user feedback/address maintenance concerns. Based on previous monitoring results, the expected sample size for the downtime parameter (3,000+) was significantly higher than other parameters, and more than DelAgua staff could cost-effectively visit. Since CHWs were already visiting households as part of the program design, DelAgua incorporated the downtime survey into their standard household visit. There are 500+ CHWs working on this project, and so they can cover a significant number of households in a short amount of time. Other parameters were not monitored by CHWs for two reasons: First, the standard CHW household visit takes over an hour, and so combining this with the full monitoring survey would be too long. Second, DelAgua wants its staff to visit households, to get another view of how households are using the stoves. It should be noted that the high sample size was based on the way the parameter was stated – it examined the number of days that a stove was not working, which resulted in a low average and a relatively high deviation. If the parameter focused on the number of days that a stove is working, the sample size estimate would have been significantly lower. This will be corrected in future monitoring.				
Documentation provided by project participant				
NA				
DOE assessment				Date: 07/08/2020
The CME has employed more than 500+ temporary employees called CHW who are involved in the task of conducting surveys. The monitoring of such a large number of samples(as referred above in the question) is feasible with all these CHWs involved in conducting the surveys. Moreover, covering a higher number of samples still complies with required confidence and precision. Thus, results were found acceptable by the verification team. Thus, the CAR stands closed.				

Table 4. FARs from this verification

FAR ID	XX	Section No.		Date: DD/MM/YYYY
Description of FAR				

No FAR from this verification	
CME response	Date: DD/MM/YYYY
NA	
Documentation provided by the CME	
NA	
DOE assessment	Date: DD/MM/YYYY
NA	

Appendix 5. Values applied and Comparative analysis of values applied in Temporary deviation

Table 1: monitoring results of household surveys

Parameters			$\mu_{y,i,j}$ - continued usage of the baseline stove (fraction)		N _{y,i,j} (fraction)- operational check	BS (fraction)	Average HHsize (number)	Pot skirt (%)	QPW _y (Litres/person/day)		Document used verifying value
MP	Survey	Groups (dates of survey)	Value obtained (DRY SEASON)	Value obtained (WET SEASON)					Dry season	Wet season	
1	Survey 0	Group 1 (02/02/2015 - 25/04/2015)	0.15	NA ⁹	0.99	1.00	4.77	0.94	7.14	NA	Survey0_MP1-excel sheet/49/
		Group 2(NA)	NA	NA	0	NA	NA	NA	NA	NA	NA
2	Survey 0	Group 1(08/07/2015 -01/09/2015)	0.16	0.29	0.99	1.00	4.60	0.977	7.13	NA	Survey0_MP2-excel sheet/50/
		Group 2(NA)	NA ¹⁰	NA	0	NA	NA	NA	NA	NA	NA
3 (current MP)	Survey 1	Group 1 (09/09/2016 – 25/10/2016 & 25/09/2017 – 28/09/2017)	0.33	0.34	0.97	1.00	4.83	0.91	7.66	5.65	Survey1_Group1-excel sheet/51/
		Group 2 (09/08/2016 - 25/10/2016 & 25/09/2017 – 16/10/2017)	0.23	0.24	0.99	1.00	4.35	0.93	NA	NA	Survey1_Group2-excel sheet/52/
	Survey 2	Group 1(18/06/2018 – 13/09/2018)	0.33	0.38	0.86	1.00	4.60	0.96	6.53	5.05	Survey2_Group1-excel sheet/53/

⁹The parameter started considering the season after the FAR was raised during MP1

¹⁰ Dissemination under group2 started from 2016 and the current MP starts from 15/09/2019. So, group 2 was not part of MP1 and MP2.

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		Group 2 (18/06/2018 – 24/09/2018)	0.23	0.29	0.94	1.00	4.39	0.96	NA	NA	Survey2_Group2-excel sheet/54/
	Survey 3	Group 1 (01/01/2019 – 22/01/2019)	0.35	0.46	0.85	1.00	4.46	0.93	6.61	4.97	Survey3_Group1-excel sheet/55/
		Group 2 (01/01/2019 – 22/01/2019)	0.29	0.31	0.96	1.00	4.08	0.97	NA	NA	Survey3_Group2-excel sheet/56/

Table 2: monitoring results of downtime surveys¹¹

		$\mu_{y,i,j}$ - number of days that stoves were not working (days)	Document used verifying value
Survey A	Group 1 (01/07/2018 – 01/10/2018)	31.97	SurveyA_Downtime survey_Group1-excel sheet/57/
	Group 2 (01/07/2018 – 01/10/2018)	13.84	SurveyA_Downtime survey_Group2-excel sheet/58/
Survey B	Group 1 (01/01/2019 – 25/03/2019)	43.30	SurveyB_Downtime survey_Group1-excel sheet/59/
	Group 2 (01/01/2019 – 25/03/2019)	18.50	SurveyB_Downtime survey_Group2-excel sheet/60/

Table 3: Test results for efficiency

Stove setup- Test name	Test Date	Group	With Pot Skirt	Without Pot Skirt	Document used verifying value
New Unused Stove (Design efficiency)	14/09/2019 for Pot with skirt and 23/02/2020 for Pot without skirt	Group 1	44.9%	40.9%	CREEC report/41/
		Group 2	44.9%	40.9%	CREEC report/41/
Internal WBT- Test 0 (MP2) ¹²	05/08/2015-07/08/2015	Group 1	35.55	26.90%	WBT calculation sheet/63/
		Group 2	-	-	
Internal WBT- Test 0 (MP3)	17/8/2016 - 24/08/2016	Group 1	29.0%	14.0%	WBT calculation sheet/64/
		Group 2	-	-	
Third party WBT By CREEC-	27/08/2018-17/10/2018	Group 1	45.2%	33.6%	CREEC report/38,39/
		Group 2	NA	NA	
Test 1 (on 3-yr old stove)					
Third party WBT By CREEC-	22/02/2019	Group 1	36.6%	31.1%	CREEC report/40/
		Group 2	NA	NA	
Test 2 (on 4 yr old stove)					

Values applied during the current monitoring:

As explained in the CPA PRC report/25, The length of the monitoring period under verification is 3 years and 108 days. To simplify the process of identifying the deviation periods and therefore applying conservative

¹¹ Downtime

¹² No WBT was conducted during MP1 as age of the stove was less than one year.

estimates in those periods, the CME has broadly divided the monitoring period into four parts/portions as under:

Part of Monitoring Period	From	To	Duration (days)
Period A	15/09/2015	31/08/2016	352
Period B	01/09/2016	31/12/2016	122
Period C	01/01/2017	31/12/2017	365
Period D	01/01/2018	31/12/2018	365

Thus, the table lists all the values that have been used in period A, B, C and D during the current monitoring period.

Table 4: Verified values of the discount factors applied in calculating the parameter

Parameter	Period A		Period B		Period C		Period D	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
OC_filters	80.25%	NA	70.00%	NA	70.00%	NA	74.12%	NA
OC_stoves	96.91%	98.77%	84.71%	84.71%	86.45%	93.64%	84.71%	96.04%
AvgHHSIZE	4.83	4.35	4.08	4.08	4.60	4.39	4.46	4.08
BS	1.00	0.98	0.98	0.98	0.98	0.99	0.99	0.99
QPWhh,day,dryseason	7.66	NA	7.66	NA	6.54	NA	6.61	NA
QPWhh,day,wetseason	5.65	NA	5.65	NA	5.05	NA	4.97	NA
SDWfrac	0.62%	NA	0.00%	NA	2.55%	NA	0.00%	NA
Use of baseline stove UsageFrac - DRY	33.20%	23.61%	35.43%	35.43%	33.46%	23.09%	35.43%	29.10%
Use of baseline stove UsageFrac - WET	34.95%	24.42%	46.66%	46.66%	38.71%	29.73%	46.66%	31.73%
Days Technologies Not Working Downtime-Filters	72.89	NA	72.89	NA	49.65	NA	72.89	NA
Days Technologies Not Working Downtime-Stove	43.30	43.30	43.30	43.30	31.97	43.30	43.30	18.50
BS	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100%
Reboil	0.00%	NA	0.00%	NA	0.00%	NA	0.00%	0.00%
η new,wskirt	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%
η new,woskirt	31.1%	31.1%	31.1%	31.1%	31.1%	31.1%	31.1%	31.1%
Pot skirt (%)	91.50%	93.19%	91.50%	91.50%	96.91%	96.62%	93.42%	97.44%

Table 5: Verified applied values obtained after applying above listed the discount factors

Parameter	Period A		Period B		Period C		Period D	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Stoves (For 9626-P1-0001-CP1 to 9626-P1-0016-CP1)								
$\mu_{y,i,j}$	There are too many values. Please refer Table 6 below.							
N_{yi}	There are too many values. Please refer Table 7 below.							
HHsize	4.83	4.35	4.08	4.08	4.60	4.39	4.46	4.08
BS	100%	98%	0.98	0.98	0.98	0.99	0.99	0.99
$\eta_{new,i,j}$	36.13	36.23%	36.13%	36.13%	36.43%	36.41%	36.24%	36.46%
Water Purifiers (For 9626-P1-0001-CP1 to 9626-P1-0007-CP1)								
$\mu_{y,i,j}$	223.18		33.68		220.05		215.76	
$N_{y,i,j}$	N is the number of filters distributed, based on distribution records in the database Not Determined							

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	as ERs have been taken 0 for the entire monitoring period. See Table 8.							
HHsize	4.83	NA	4.08	NA	4.60	NA	4.46	NA
BS	100%	NA	0.98	NA	0.98	NA	0.99	NA
QPWhh,day,dryseason	7.66	NA	7.66	NA	6.54	NA	6.61	NA
QPWhh,day,wetseason	5.65	NA	5.65	NA	5.05	NA	4.97	NA
SDWfrac	0.62%	NA	0.00%	NA	2.55%	NA	0.00%	NA
WQ	0	NA	0	NA	0	NA	0	NA

Table 6: Verified value of $\mu_{y,i,j}$ (Number of days of utilization of the project device i and batch j during the year y) for stoves

	Period A			Period B			Period C			Period D		
	Group1		Group2	Group1		Group2	Group1		Group2	Group1		Group2
	CER with cross effect	CER w/o cross effect	CER w/o cross effect	CER with cross effect	CER w/o cross	CER w/o cross	CER with cross effect	CER w/o cross	CER w/o cross	CER with cross effect	CER w/o cross	CER w/o cross
9626-P1-0001-CP1	202.72	202.72	94.97	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0002-CP1	202.72	202.72	105.41	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0003-CP1	202.72	202.72	101.49	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0004-CP1	202.72	202.72	56.94	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0005-CP1	202.72	202.72	105.92	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0006-CP1	202.72	202.72	93.91	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0007-CP1	202.72	202.72	97.03	44.14	44.14	44.14	212.83	212.83	236.71	189.60	189.60	241.09
9626-P1-0008-CP1	-	-	85.12	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0009-CP1	-	-	99.82	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0010-	-	-	45.66	-	-	44.14	-	-	236.71	-	-	241.09

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CP1												
9626-P1-0011-CP1	-	-	102.48	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0012-CP1	-	-	100.38	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0013-CP1	-	-	103.57	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0014-CP1	-	-	94.43	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0015-CP1	-	-	102.50	-	-	44.14	-	-	236.71	-	-	241.09
9626-P1-0016-CP1	-	-	94.22	-	-	44.14	-	-	236.71	-	-	241.09

Table 7: Values of $N_{y,i,j}$ (Number of project devices of type i and batch j operating during year y) for stove

	Period A			Period B			Period C			Period D		
	Group1		Group2	Group1		Group2	Group1		Group2	Group1		Group2
	CER with cross effect	CER w/o cross effect	CER w/o cross effect	CER with cross effect	CER w/o cross effect	CER w/o cross effect	CER with cross effect	CER w/o cross effect	CER w/o cross effect	CER with cross effect	CER w/o cross effect	CER w/o cross effect
9626-P1-0001-CP1	8032.83	1668.35	118.22	7007.10	1472.08	5870.32	7007.10	1646.83	6489.59	7419.28	1059.89	6655.78
9626-P1-0002-CP1	1104.029	2292.98	14.07	9630.53	2023.22	3462.64	9630.53	2263.39	3827.92	10197.03	1456.71	3925.95
9626-P1-0003-CP1	1362.006	2828.78	315.25	1188.089	2495.98	4048.47	1188.089	2792.28	4475.55	12579.76	1797.10	4590.16
9626-P1-0004-CP1	1064.158	1689.57	2566.17	7096.21	1490.80	2447.91	7069.21	1667.77	2706.14	7513.63	1073.37	2775.44
9626-P1-0005-CP1	8134.99	2210.17	572.34	9282.73	1950.15	4668.09	9282.73	2181.65	5160.54	9828.77	1404.11	5292.69

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9626-P1-0006-CP1	1278 0.72	2654. 45	186.71	1114 8.72	2342. 16	4917.55	1114 8.72	2620. 20	5436.31	11804.5 3	1686. 36	5575.53
9626-P1-0007-CP1	1241 6.324 1	2578. 77	700.88	1083 0.85	2275. 38	5917.00	1083 0.85	2545. 50	6541.19	11467.9 6	1638. 28	6708.70
9626-P1-0008-CP1	-	-	821.92	-	-	19020.8 3	-	-	21027.3 6	-	-	21565.8 3
9626-P1-0009-CP1	-	-	267.40	-	-	17742.9 6	-	-	19614.6 8	-	-	20116.9 8
9626-P1-0010-CP1	-	-	17747.4 0	-	-	17531.3 2	-	-	19380.7 2	-	-	19877.0 2
9626-P1-0011-CP1	-	-	2861.72	-	-	12123.6 9	-	-	13402.6 4	-	-	13745.8 6
9626-P1-0012-CP1	-	-	1931.90	-	-	10778.2 3	-	-	11915.2 4	-	-	12220.3 6
9626-P1-0013-CP1	-	-	79.75	-	-	11229.6 7	-	-	12414.3 0	-	-	12732.2 1
9626-P1-0014-CP1	-	-	1729.23	-	-	12485.0 1	-	-	13802.0 7	-	-	14155.5 1
9626-P1-0015-CP1	-	-	2643.11	-	-	12653.1 9	-	-	13987.9 9	-	-	14346.2 0
9626-P1-0016-CP1	-	-	922.32	-	-	12203.3 6	-	-	13490.7 1	-	-	13836.1 8

Table 8: Values of $N_{y,i,j}$ (Number of project devices of type i and batch j operating during year y) for stove

District	Group 1
CPA001 - Rubavu	10,537
CPA002 - Karongi	14,482
CPA003 - Ngororero	17866
CPA004 - Nyabihu	10,671
CPA005 - Nyamasheke	13,959
CPA006 - Rutsiro	16,765
CPA007 - Rusizi	16,287
CPA008 - Bugesera	0
CPA009 - Burera	0

CPA010 - Gatsibo	0
CPA011 - Rulindo	0
CPA012 - Kayonza	0
CPA013 - Kirehe	0
CPA014 - Ngoma	0
CPA015 - Nyagatare	0
CPA016 - Rwamagana	0
Total	100,567

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Document information

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