



**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)	9948: Impact Carbon Global Safe Water Programme of Activities (PoA)	
Version number(s) of the PoA-DD(s) to which this report applies	7.0	
Version number of the verification and certification report	2.0	
Completion date of the verification and certification report	23/09/2020	
Monitoring period number and duration of this monitoring period	Monitoring Period Number: Third Monitoring Period: 23/05/2019-31/12/2019	
Number and version number of the monitoring report to which this report applies	Version: 2.0 Monitoring Report Number: 5	
Coordinating/managing entity (CME)	Impact Carbon	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	Rwanda	No
	Uganda	No
	Nigeria	No
	Kenya	Yes
Applied methodologies and standardized baselines	Methodology: AMS-III.AV. Low greenhouse gas emitting safe drinking water production systems (Version 4.0) Standardized Baseline: Not Applicable	
Mandatory sectoral scopes	3: Energy Demand	
Conditional sectoral scopes, if applicable	Not Applicable	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	912,175 tCO ₂ e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	116,118 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

The PoA aims at distribution of the low carbon water purification technologies to households, communities and institutions in Rwanda, Nigeria, Kenya and Uganda. Thus, PoA through the dissemination of these technologies aims to address the issue of lack of access to safe drinking water.

In absence of the PoA, boiling water using fossil fuels / non-renewable woody biomass would have been the means of availing safe drinking water. The project Water Purification Systems (WPS) provides safe drinking water without the use of non-renewable biomass/ fossil fuel, thus leading to a reduction in Green-house gas (GHG) emissions. This verification covers implemented CPAs 9948-P1-0078-CP1 to 9948-P1-0102-CP1 (25 CPAs).

The verification team confirms that the total emission reductions achieved under this monitoring period 23/05/2019 to 31/12/2019 (inclusive of both days) are 116,118 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 accepted PoA-DD & CPA-DDs viz., 9948-P1-0078-CP1 to 9948-P1-0102-CP1 (25 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/6/ applied in the PoA-DD & CPA-DDs/1/,/2/
- (ii) The registered and revised accepted 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 2.0/9/
- (v) The CDM Project Standard (PS) /7/ and Project Cycle Procedure (PCP) for PoA version 2.0 /8/
- (vi) Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions

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

Verification Process:

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

- a) Contract with 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/13/ and corresponding ER sheet /4/ by verification team and planning of remote audit (including sampling approach (refer Section D.4 of this report) to be applied)
- e) Remote audit Survey (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., 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 evidences)

- 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 request for issuance, as appropriate.

Verification Conclusion:

Based on the outcome of the verification process of the registered/revised accepted PoA “Impact Carbon Global Safe Water Programme of Activities (PoA)” and its 25 CPAs (**9948-P1-0078-CP1 to 9948-P1-0102-CP1**) for the monitoring period **23/05/2019 – 31/12/2019** (including both dates) we confirm that the implementation of referenced registered/revised accepted PoA and CPAs is complying with applicable CDM rules and regulations as stated in the Monitoring Report (final) **Ver 2.0, dated 15/06/2020 /13/**. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodologies AMS-III.AV. ver.4 Low greenhouse gas emitting safe drinking water production systems/6/ and the monitoring plan contained in the revised accepted PoA-DD/1/.

Earthood Services Private Limited is able to certify that the emission reductions from the registered CDM PoA UN#9948 “Impact Carbon Global Safe Water Programme of Activities (PoA)” in Kenya during the period **23/05/2019 – 31/12/2019** (including both days) amount to **116,118 tCO₂e**. Therefore, this is being submitted for request for issuance, as per UNFCCC procedures

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

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

* Remote audit survey was conducted instead of on-site audit. Refer to section D.2 for details.

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.	TA 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	High	25 CPAs are being verified	Verification team randomly

	monitoring survey staff of CME/CPA implementer while recording the responses of users in relation to survey parameters		for the for the first time and there may be lack of experience. The survey is conducted for representative samples of population, which may impact the population significantly. Surveyors may be unsupervised at the site.	selected the samples from CME surveyed institutions. The recorded survey forms by CME were checked with DOE remote audit survey observations. 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, 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 02.0/9/ 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 5% as PoA comprises only small-scale CPAs.

Particulars / Monitoring Report	MR Version (Public)	MR Version (Revised/Final)
Emission Reductions Achieved (tCO ₂ e) in this monitoring period	167,888	116,118*
Applicable Threshold (%) as per CDM VVS for PoAs Version 02.0	5.0%	5.0%

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

Monitored Parameter (Symbol / Description)	Reporting Frequency	Number of Discrete Data* (Total) Total (100%)	Sample selected for verification Sample (100%)	Type of error identified	Impact on ERs	
					ERs impacted (Sample)	ERs impacted (Population based on extrapolation)
9948-P1-0078-CP1 – 9948-P1-0102-CP1						
<u>For water purifier</u>						
QPW _y	Annually	25(calculated parameter for each CPA)	25(100%)	There were errors in calculation which have been corrected (25).	All the errors have been corrected*	No extrapolation is required as 100% values checked and corrected.
nWB	Continuously	1	1	None	NA	NA
T _{y,i}	Continuously	1,252 UltraFLO 4 052	1,252 UltraFLO 4 052	None	NA	NA

		UltraTAB (5,304)	UltraTAB Sales database/5/ was checked for the information. 11 systems were checked during remote audit survey for cross check.			
$N_{y,i}$	Continuously	5,303 (one value for each institution and 25 values (average value for each CPA)	Entire sales database was checked for the information.	None	NA	NA
Water Quality _i	Annually	65	11 (based on acceptance sampling)	None	NA	NA
Operational Units _i	At least once per verification	65	11 (based on acceptance sampling)	None	NA	NA
$f_{NRB,y}$	Continuously	1	1	None	NA	NA
$EF_{\text{projected_fossilfuel}}$	Continuously	1	1	None	NA	NA
Existence of public distribution network of safe drinking water	Annually	65	11 (based on acceptance sampling)	None	NA	NA

* The ERs mentioned in MR (public) and the ER sheet submitted were found to be different. An inconsistency was identified between the MR and the ER sheet after the MR was published for webhosting by the DoE. Thus, CAR#03 was raised and resolved for the inconsistency identified. Based on the above table it can be confirmed that the actual individual and aggregated material error is determined for the registered PoA as per CDM VVS for PoA/09/. The applicable threshold for materiality in accordance with CDM PoA VVS Version 2 para 308(d)/9/ is 5%.

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 the Appendix 3 of VCR.

D.2. On-site inspection¹

Duration of on-site inspection: NA*				
No.	Activity performed on-site	Site location	Date	Team member
1.	Interview of the monitoring personnel and CME representative	-	04/06/2020-05/06/2020	Deepika Mahala and Vaishali Vatsa
2.	Interview of the head of the institution related to the DoE sampled project devices	-	04/06/2020-05/06/2020	Deepika Mahala and Vaishali Vatsa

*No physical on-site inspection was conducted. Alternative means were adopted, under which remote audit survey was conducted.

Mandatory Site-visit

The site-visit for the current verification was not mandatory as these 25 CPAs have already been verified by ESPL previously via a physical on-site visit in 2019 and none of these CPAs have accrued more than 300,000tCO₂e since the last on-site assessment, in-line to para 322 of VVS for PoA Version 2.0 /9/.

Planned Site-Visit

The on-site visit was initially planned from 23/03/2020 – 27/03/2020. In view of the COVID-19 outbreak and increased exposure due to international travel and nation-wide lockdown in India (DOE office country), on-site visit was not possible as per original plan. An advisory issued by the Indian Ministry of Health & FW on 19/03/2019 said that “No scheduled international commercial passenger aircraft shall take off from any foreign airport for any airport in India, after 0001 hrs GMT of March 22, 2020 (*i.e. 0531 hrs Indian Standard Time (IST) of March 22, 2020) - these instructions shall remain in force till 0001 hrs GMT of March 29, 2020”/38/.

Also, the Indian government had imposed 21-day lockdown. In an attempt to slow spread of the coronavirus with effect from 26/03/2020- 15/04/2020. During this, period there was total ban on venturing out of the homes/35,36/. In such situation, conducting a site visit in a foreign country became an implausible activity for the verification team.

Issue with the postponement of Site-visit:

The on-site audit assessment for this verification could not be postponed as the cases of coronavirus started rising suddenly with a very high number of death rates in many countries/40/. The Indian government also foresaw the same situation to happen in India. The lockdown was imposed across the country. By each passing day it was not clear whether the lockdown would get relaxed or extended. Delaying the site visit would lead to delayed issuance of the CERs. The CME relies upon the CER revenue generated from the project for the working capital of the project. It was clarified by the CME that along with the impact on the working capital of the project, the delay might also cause ERPA/40/ being cancelled. In light of the argument and evidence (CME Mail /39/) made available by the CME a clarification for the exemption of the onsite visit was sought from CDM EB.

Exemption by CDM EB

In response to the clarification, an exemption (for the site-visits scheduled from 23/03/2020- 23/06/2020, now extended to 31/12/2020) was provided by CDM EB. Due to the site-visit exemption provided by the CDM-EB concerning the COVID-19 outbreak, a checklist as per the ESPL CDM QMS was made available for the application of alternative means for verifying the project related details. A declaration (Checklist for alternative means for site-visit exemption in accordance with the ESPL CDM QMS) was submitted to the Technical Manager for approval.

Alternative means applied

Following alternative means have been used to verify the project details:

1. Remote Audit Surveys including interviews of CME/CPA Implementer, end users and the personnel's involved in monitoring and preparation of the monitoring report and related documents via e-meeting. Random samples for eleven WPS users (details on sampling provided in section D.3) were drawn from the CME's monitoring sample survey sheet and interviewed through skype calls.

¹ This table lists down the activities conducted during the remote audit survey

2. Photographic evidences of the water quality testing kits /30/, Installed WPS with Unique Product IDs/27/, Monitoring Survey (filled) Forms/18/.
3. Complaint Log (Scanned Samples) /41/
4. Monitoring personnel training certificates/20/
5. Review of Other Documentary evidences (ER sheet/4/, Sample Size Calculation sheet, Monitoring Data sheet)

D.3. Interviews²

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Brown	Julie	Impact Carbon	04/06/2020-05/06/2020	Sampling Surveys	Deepika Mahala, Vaishali Vatsa
2.	Neville	Tim	Impact Water	04/06/2020-05/06/2020	Implementation	Deepika Mahala, Vaishali Vatsa
3.	Akinyemi	Zacch	Impact Water Kenya	04/06/2020-05/06/2020	Implementation, Sales records	Deepika Mahala, Vaishali Vatsa
4.	Obunaya	Samuel	Impact Water Kenya	04/06/2020-05/06/2020	Database management	Deepika Mahala, Vaishali Vatsa
5.	Huelsenbeck	Mark	Impact Water Kenya	04/06/2020-05/06/2020	Monitoring surveys	Deepika Mahala, Vaishali Vatsa
6.	Lohia	Rohit	Climate Secure India Private Limited	04/06/2020-05/06/2020	Monitoring Report, Sampling methodology, ER calculations	Deepika Mahala, Vaishali Vatsa
7.	-	Nihar	Climate Secure India Private Limited	04/06/2020-05/06/2020	ER calculation and Sampling	Deepika Mahala, Vaishali Vatsa
8.	Nagai	Murethi	St.Johns Karigiri Primary School (Head Teacher)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa
9.	Murithi	Lenick	Gatituri Secondary School (Principal)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa
10.	Omollo	Roselyne	St. Francis Nycaba	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
11.	Odor	Priscilla	Mahondo Primari School (Senior Teacher)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
12.	Chumba	Kenneth	St.Marks Kabba ACK primary School (head of School)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
13.	Occhola	Kennedy	Masisi Primary School (Head Teacher)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
14.	Obila	Deborah	Nyamome Primary School (Head teacher)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
15.	Mutua	Defrossa	Bororiet Primary School (Deputy Head Teacher)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
16.	Olungo	Tomas	Kosodo Mixed secondary (Principal)	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri
17.	Sabwa	Anne	Lumakanda Township	04/06/2020-05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and

² The interviews were conducted via Skype call.

			Secondary (Head of health and Sanitation)			Virginia Njeri
18.	Owunor	Irene	Udenda Primary (Deputy Head teacher)	04/06/2020- 05/06/2020	DOE Remote audit survey	Deepika Mahala, Vaishali Vatsa and Virginia Njeri

D.4. Sampling approach

CME Sampling approach

For the purpose of sampling, CME has followed the CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities version 7.0/19/ and Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 8/42/ which is in-line with the revised accepted PoA DD/1/. The CME has applied Stratified Random Sampling at PoA level for different monitoring parameters as per validated revised accepted/registered PoA DD /1/and registered CPA DDs/2/. 95/10 confidence precision was applied by CME in the sampling which is appropriate as per the single sampling covering 25 CPAs. Thus, CPA wide single sampling plan was used by the CME.

DOE Sampling approach

In order to meet the requirements of paragraph 28 of Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 8/42/ the verification team applied acceptance sampling in the verification (in accordance with para 28).

According to para 30 of Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 8/42/. The maximum errors associated with the determination have been kept at following level:

- (a) A 10 per cent chance that the DOE will wrongly reject the project participants' or the coordinating/managing entity's records (i.e. reject a set of records of acceptable quality);
- (b) A 10 per cent chance that the DOE will wrongly accept the project participants' or the coordinating/managing entity's records (i.e. accept a set of records which is unacceptable).

Verification team has applied following AQL and UQL level using its own judgement:

0.5% AQL- Acceptable quality level (AQL) or the level of assurance, that is the proportion of acceptable discrepancies between the project participants' or the coordinating/managing entity's sample records and the DOE sample records

20% UQL- Unacceptable quality level (UQL), that is the proportion of unacceptable discrepancies between the project participants' or the coordinating/managing entity's sample records and the DOE sample records

The verification team selected the sample size as 11 institutions for the purpose of e-site inspection institution visit to check the acceptability of CME's sampling results or otherwise.

Sample Size:

CPA Ref No.	AQL	UQL	Producer Risk	Consumer Risk	Sample Size; Min	Acceptance No.
9948-P1-0078-CP1 to 9948-P1-0102-CP1	0.5%	20%	10%	10%	11	0

The verification team will select the random samples of CME's sampled records to check the acceptability (or otherwise) of the data for each such record with CME's sample records, and determine if the CME's sample records meet the requirements.

The distribution breakup from sales database is as follows:

Type of WPS	No. of units
Ultra FLO	1,252
Ultra Tab	4,052

Since, the distribution ratio between the three categories is 1:3, the sample size was also divided in a similar ratio. The samples were chosen randomly (using website www.randomizer.org) out of total of 65 CME's monitored samples (as part of monitoring survey). As per plan 11 systems were required. DOE surveyed 3 samples of Ultra FLO type and 8 samples of Ultra Tab type. No inconsistency between the CME results and DOE's observations during the remote audit survey were found.

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	-	-	-
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	-	-	-
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 ³	-	-	-
• 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	-	CAR#04	-
Post-registration changes	-	-	-
• 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	CL#02 CL#05	CAR#03	-
• Implementation of sampling plan	CL#01	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions	-	-	-

³ 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).

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	03	02	00

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 form used is CDM-PoA-MR-FORM version 03.0/10/ which is an appropriate form and the latest version available at the time of verification/submission for request for issuance. All the sections of the aforesaid form were duly filled as per the guidelines and provided all the relevant details.
Findings	No findings were raised.
Conclusion	The final monitoring report /13/ is found to be in-line with the latest CDM-PoA-MR-form/10/ available and the instructions therein.

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

No FAR was found to be raised during the validation of inclusion of CPAs and from the previous verification/43/.

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)
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 1, Version: 3.0, Ref No.:9948-P1-0001-CP1	No	01/05/2014	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 2, Version: 3.0, 9948-P1-0002-CP1	No	01/05/2014	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 3, Version: 1.3, 9948-P1-0003-CP1	No	08/05/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 4, Version: 01.2, 9948-P1-0004-CP1	No	02/07/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 5, Version: 5.0, 9948-P1-0005-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 6, Version: 5.0, 9948-P1-0006-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 7, Version: 5.0, 9948-P1-0007-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 8, Version: 5.0, 9948-P1-0008-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 9, Version: 5.0, 9948-P1-0009-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 10, Version: 5.0, 9948-P1-0010-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 11, Version: 5.0, 9948-P1-0011-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 12, Version: 5.0, 9948-P1-0012-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 13, Version: 5.0, 9948-P1-0013-CP1	No	04/10/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 14, Version: 1.0, 9948-P1-0014-CP1	No	21/11/2017	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 15, Version: 1.0, 9948-P1-0015-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 16, Version: 5.0, 9948-P1-0016-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 17, Version: 5.0, 9948-P1-0017-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 18, Version: 5.0, 9948-P1-0018-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 19, Version: 5.0, 9948-P1-0019-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 20, Version: 5.0, 9948-P1-0020-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 21, Version: 5.0, 9948-P1-0021-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 22, Version: 5.0, 9948-P1-0022-CP1	No	21/11/2017	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 23, Version: 4.0, 9948-P1-0023-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 24, Version: 4.0, 9948-P1-0024-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 25, Version: 4.0, 9948-P1-0025-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 26, Version: 4.0, 9948-P1-0026-CP1	No	18/11/2018	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 27, Version: 4.0, 9948-P1-0027-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 28, Version: 4.0, 9948-P1-0028-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 29, Version: 4.0, 9948-P1-0029	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 30, Version: 4.0, 9948-P1-0030-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 31, Version: 4.0, 9948-P1-0031-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 32, Version: 4.0, 9948-P1-0032-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 33, Version: 4.0, 9948-P1-0033-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 34, Version: 4.0, 9948-P1-0034-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 35, Version: 4.0, 9948-P1-0035-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 36, Version: 4.0, 9948-P1-0036-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 37, Version: 4.0, 9948-P1-0037-CP1	No	18/11/2018	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 38 supported by Republic of Korea, Version: 2.0, 9948-P1-0038-CP1	No	26/04/2019	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 39 supported by Republic of Korea, Version: 2.0, 9948-P1-0039-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 40 supported by Republic of Korea, Version: 2.0, 9948-P1-0040-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 41 supported by Republic of Korea, Version: 2.0, 9948-P1-0041-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 42 supported by Republic of Korea, Version: 2.0, 9948-P1-0042-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 43 supported by Republic of Korea, Version: 1.0, 9948-P1-0043-CP1	No	26/04/2019	7.0	NA ⁴
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 44 supported by Republic of Korea, Version: 1.0, 9948-P1-0044-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 45 supported by Republic of Korea, Version: 1.0, 9948-P1-0045-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 46 supported by Republic of Korea, Version: 1.0, 9948-P1-0046-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 47 supported by Republic of Korea, Version: 1.0, 9948-P1-0047-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 48 supported by Republic of Korea, Version: 1.0, 9948-P1-0048-CP1	No	26/04/2019	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 49 supported by Republic of Korea, Version: 1.0, 9948-P1-0049-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 50 supported by Republic of Korea, Version: 1.0, 9948-P1-0050-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 51 supported by Republic of Korea, Version: 1.0, 9948-P1-0051-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 52 supported by Republic of Korea, Version: 1.0, 9948-P1-0052-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 53 supported by Republic of Korea, Version: 1.0, 9948-P1-0053-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 54 supported by Republic of Korea, Version: 1.0, 9948-P1-0054-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 55 supported by Republic of Korea, Version: 1.0, 9948-P1-0055-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 56 supported by Republic of Korea, Version: 1.0, 9948-P1-0056-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 57 supported by Republic of Korea, Version: 1.0, 9948-P1-0057-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 58 supported by Republic of Korea, Version: 1.0, 9948-P1-0058-CP1	No	26/04/2019	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 59 supported by Republic of Korea, Version: 1.0, 9948-P1-0059-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 60 supported by Republic of Korea, Version: 1.0, 9948-P1-0060-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 61 supported by Republic of Korea, Version: 1.0, 9948-P1-0061-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 62 supported by Republic of Korea, Version: 1.0, 9948-P1-0062-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 63 supported by Republic of Korea, Version: 1.0, 9948-P1-0063-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 64 supported by Republic of Korea, Version: 1.0, 9948-P1-0064-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 65 supported by Republic of Korea, Version: 1.0, 9948-P1-0065-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 66 supported by Republic of Korea, Version: 1.0, 9948-P1-0066-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 67 supported by Republic of Korea, Version: 1.0, 9948-P1-0067-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 68 supported by Republic of Korea, Version: 1.0, 9948-P1-0068-CP1	No	26/04/2019	7.0	NA

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 69 supported by Republic of Korea, Version: 1.0, 9948-P1-0069-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 70 supported by Republic of Korea, Version: 1.0, 9948-P1-0070-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 71 supported by Republic of Korea, Version: 1.0, 9948-P1-0071-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 72 supported by Republic of Korea, Version: 1.0, 9948-P1-0072-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 73 supported by Republic of Korea, Version: 1.0, 9948-P1-0073-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 74 supported by Republic of Korea, Version: 1.0, 9948-P1-0074-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 75 supported by Republic of Korea, Version: 1.0, 9948-P1-0075-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 76 supported by Republic of Korea, Version: 1.0, 9948-P1-0076-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 77 supported by Republic of Korea, Version: 1.0, 9948-P1-0077-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 78 supported by Republic of Korea, Version: 1.0, 9948-P1-0078-CP1	Yes	26/04/2019	7.0	Yes

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 79 supported by Republic of Korea, Version: 1.0, 9948-P1-0079-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 80 supported by Republic of Korea, Version: 1.0, 9948-P1-0080-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 81 supported by Republic of Korea, Version: 1.0, 9948-P1-0081-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 82 supported by Republic of Korea, Version: 1.0, 9948-P1-0082-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 83 supported by Republic of Korea, Version: 1.0, 9948-P1-0083-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 84 supported by Republic of Korea, Version: 1.0, 9948-P1-0084-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 85 supported by Republic of Korea, Version: 1.0, 9948-P1-0085-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 86 supported by Republic of Korea, Version: 1.0, 9948-P1-0086-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 87 supported by Republic of Korea, Version: 1.0, 9948-P1-0087-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 88 supported by Republic of Korea, Version: 1.0, 9948-P1-0088-CP1	Yes	26/04/2019	7.0	Yes

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 89 supported by Republic of Korea, Version: 1.0, 9948-P1-0089-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 90 supported by Republic of Korea, Version: 1.0, 9948-P1-0090-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 91 supported by Republic of Korea, Version: 1.0, 9948-P1-0091-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 92 supported by Republic of Korea, Version: 1.0, 9948-P1-0092-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 93 supported by Republic of Korea, Version: 1.0, 9948-P1-0093-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 94 supported by Republic of Korea, Version: 1.0, 9948-P1-0094-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 95 supported by Republic of Korea, Version: 1.0, 9948-P1-0095-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 96 supported by Republic of Korea, Version: 1.0, 9948-P1-0096-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 97 supported by Republic of Korea, Version: 1.0, 9948-P1-0097-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 98 supported by Republic of Korea, Version: 1.0, 9948-P1-0098-CP1	Yes	26/04/2019	7.0	Yes

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 99 supported by Republic of Korea, Version: 1.0, 9948-P1-0099-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 100 supported By Republic of Korea, Version: 1.0, 9948-P1-0100-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 101 supported By Republic of Korea, Version: 1.0, 9948-P1-0101-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 102 supported By Republic of Korea, Version: 1.0, 9948-P1-0102-CP1	Yes	26/04/2019	7.0	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 103 supported By Republic of Korea, Version: 1.0, 9948-P1-0103-CP1	No	11/06/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 104 supported By Republic of Korea, Version: 1.0, 9948-P1-0104-CP1	No	11/06/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 105 supported By Republic of Korea, Version: 1.0, 9948-P1-0105-CP1	No	11/06/2019	7.0	NA

E.2. Programme of activities

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

Means of verification	<p>The PoA aims at disseminating water purification systems (WPS) technologies to target countries like Rwanda, Nigeria, Uganda and Kenya for addressing the problem of safe drinking water. During this monitoring period, 25 CPAs of Type 2: Technologies for institutional water consumption, with no project emissions (i.e. from 9948-P1-0078-CP1 to 9948-P1-0102-CP1) were included. This monitoring period includes the implementation and monitoring of 25 CPAs from 9948-P1-0078-CP1 to 9948-P1-0102-CP1 in Kenya. The coordinating and managing entity (CME) is Impact Carbon and CERPD Co., Ltd. (CERPD) is the CPA Implementer/15/. / . CERPD has provided all implementation costs for the CPAs. CERPD has fully sponsored the WPS to make WPS affordable to beneficiary schools, as well covered the cost of operation and management of the CPAs in a financially sustainable condition. CERPD fully owns all the CERs specified in this monitoring report by virtue of an agreement with the CME. Their roles and responsibilities are defined in the signed agreement.</p>
------------------------------	---

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.

CPAs of this PoA involve dissemination of two types of water purification systems:

1. Ultra FLO
2. Ultra Tab

	Ultra FLO	Ultra Tab
Size / Dimensions	Cartridge Length: ~12 cm Cartridge height: ~10 cm Cartridge circumference: ~22 cm	Strip size: ~13 cm X ~5.5 cm (100 tablets per packet)
Application	Piped water	Un-piped water
Flow rate	20L/min	1 tablet treats 100 L
Capacity/lifespan	340,000 L / 5-year expiry	10,000 L / 5-year expiry
Fixed or Portable	Fixed	Portable
Removal of E. Coli	99 (2-log)	99 (2-log)
Watts/Voltage	Not applicable	Not applicable

All the systems meet the eligibility requirements of the PoA DD, page 65/1/. The details of the systems were verified from the manufacturer's specification/28/ provided by the CME.

Through the photographs of the installation of WPS claimed by the CME were checked and found to be in-line with the technical description provided in the registered PoA-DD/1/ and Monitoring report/13/.

Also, the verification team checked the implementation status of the project activity through interviewing the CME, CPA implementer, Monitoring personnel and WPS User as defined in the registered PoA DD/1/, and MR/13/.

Interview of the personnel via skype call involved in the QA/QC procedures revealed that the procedures mentioned in the PoA DD/1/ are being followed and the Training records/20/ regarding the trained personnel were checked.

The project location and coordinates shared by CME were verified using the "<https://www.latlong.net/place/mombasa-kenya-4229.html>" and found to be in-line with the registered PoA-DD/1/ and MR/13/.

Further, based on the review of sales database (presented in ER sheet)/4/, remote audit survey observations and interview conducted during remote audit survey, the verification team found that:

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

A remote audit survey was conducted by the verification team; 11 institutions (8 for Ultra Tab, 3 for Ultra Flo were surveyed. The uniqueness of the system was identified from UID written on the units (either on cartridges or on TAB box

	<p>packs)/27/. Along with the unique ID the following details are also noted in the database:</p> <ul style="list-style-type: none"> a) Type of system (UltraFLO / UltraTAB) b) Unique serial number of the units installed / distributed c) Date of installation / distribution d) Address and details of school and contact detail (if available) of representative e) Type of School (Boarding / Non-boarding) f) School population count (number of students / staff in boarding / non-boarding category) <p>The information of the was also verified from the CME database/5/ which was cross checked for 11 samples with the purchase orders/14/.</p> <p>The emission reductions being claimed during this monitoring period are lesser than the estimated emission reductions in the revised or included CPA-DDs/2/, as given in the table under section E.3.6.5. for comparable estimated ERs in the CPA DDs/2/ for the corresponding period.</p> <p>The CPAs are within the threshold limits of the applied methodology/6/.</p> <p>The monitoring report was compared and verified against the description provided in the revised accepted PoA-DD/1/ and found to be correct.</p>
Findings	No findings were raised.
Conclusion	<p>In view of the information's verified through the remote audit survey, the verification team is able to confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM program of activities were in place and that the CME has operated the project activity as per the registered PoA-DD/1/ during the concerned monitoring period.</p> <p>The emission reductions achieved during the current monitoring period are 116,118 tCO₂e. Justification for this has been assessed in further sections of report.</p>

E.2.2. Implementation and operation of the management system

Means of verification	<p>The verification team through interviewing the CME, CPA Implementer, Monitoring Personnel and WPS End-users and reviewing the selected sample videos 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 /13/ and were verified through interviews with the with the CME and other people involved in the project..</p> <p>CPA implementers fill purchase order/14/ to note the details of the institution and provide delivery note/21/ at the time of installation (receipt of tablets in case of Ultra TAB). All the information is transferred to Salesforce software by the CME which was checked by interviewing the monitoring personnel to confirm that the management system is in place. The sales database was crosschecked with purchase order, delivery notes and Salesforce data to confirm that information for any system installed (unique ID) is consistent between the records. The unique ID code of WPS is combination of system type code, year code, country code and a serial number. The unique IDs of the WPS were checked for all the sampled systems surveyed during remote audit 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.</p> <p>The CME also has a customer care centre which contacts the schools to ensure if the cartridge replacement (Ultra FLO) or new packets of tablets (Ultra TAB) are required or not.</p> <p>For data survey, a monitoring team has been organized by the CME consisting of</p>
------------------------------	--

	<p>trained monitoring staff, who conducted the Aquagenx tests (water quality tests) and 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. Scanned copies of purchase order /14/ and completed monitoring survey forms with test results/18/ were made available to the verification team for assessment of the information of institutions and survey and test results, in the sales data and monitoring data mentioned in ER calculator /5/ . Monitoring team staff were interviewed by the verification team regarding the monitoring procedures, using the water quality testing kits and filling the monitoring questionnaires. The staff explained the complete procedure followed for Aquagenx tests and the monitoring survey form filling. The evaluation of the water quality test is done in the main office. The verification team also checked training records of the monitoring & data recording personnel/20/.</p> <p>Thus, it can be confirmed that the Implementation and operation of the management system has been done in line with the registered PoA DD/1/ and CPA DDs/2/.</p>
Findings	No findings were raised.
Conclusion	The verification team from the desk review and remote audit survey assessment 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

No correction observed

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

N/A

E.2.3.4. Changes to the programme design

The request of approval of changes from the PoA as described in the registered PoA-DD was submitted by CME under the following request no. and approval date:

PRC request number	Approval Status	Date of Approval	Reference Link
PRC-9948-002	Approved	03/07/2017	https://cdm.unfccc.int/PRCContainer/DB/prcp445611461/view
PRC-9948-001	Approved	08/05/2017	https://cdm.unfccc.int/PRCContainer/DB/prcp266525508/view

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	The registered PoA aims to provide safe drinking water to the institutions in Nigeria, Rwanda, Uganda
-----------------	---

verification

and Kenya. The PoA is primarily designed to replace the existing non-renewable means of purifying water by installing Water purification systems instead to provide safe drinking water. CERPD is the implementer of the CPAs and has fully implemented the CPAs with the help of Sales and Distribution Partner (SDP). The same has been verified from the agreement between the CME and CPAI/15/. This monitoring period includes the implementation and monitoring of 25 CPAs- CPA 9948-P1-0078-CP1 to 9948-P1-0102-CP1 in Kenya.

CPA no.	First WPS Installation date	Inclusion date	Crediting period	Number of Units		Estimated ERs	ERs achieved
				FLO	TAB		
9948-P1-0078-CP1	23/04/2019	26/04/2019	26/04/2019 - 25/04/2026	64	154	36,487	7,917
9948-P1-0079-CP1	23/04/2019	26/04/2019	26/04/2019 - 25/04/2026	52	183	36,487	7,074
9948-P1-0080-CP1	23/04/2019	26/04/2019	26/04/2019 - 25/04/2026	68	163	36,487	7,542
9948-P1-0081-CP1	23/04/2019	26/04/2019	26/04/2019 - 25/04/2026	65	166	36,487	6,328
9948-P1-0082-CP1	23/04/2019	26/04/2019	26/04/2019 - 25/04/2026	50	190	36,487	6,219
9948-P1-0083-CP1	24/04/2019	26/04/2019	26/04/2019 - 25/04/2026	74	129	36,487	6,227
9948-P1-0084-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	80	124	36,487	6,042
9948-P1-0085-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	64	170	36,487	5,227
9948-P1-0086-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	29	200	36,487	4,277
9948-P1-0087-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	37	215	36,487	4,042
9948-P1-0088-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	56	226	36,487	4,667
9948-P1-0089-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	61	208	36,487	4,659
9948-P1-0090-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	34	251	36,487	3,106
9948-P1-0091-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	37	231	36,487	3,095
9948-P1-0092-CP1	25/04/2019	26/04/2019	26/04/2019 - 25/04/2026	266	540	36,487	29,469
9948-P1-0093-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	7	36,487	207
9948-P1-0094-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	9	36,487	162
9948-P1-0095-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	8	36,487	179
9948-P1-0096-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	88	255	36,487	3,852
9948-P1-0097-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	58	297	36,487	3,037
9948-P1-0098-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	65	289	36,487	1,958
9948-P1-0099-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	3	36,487	313
9948-P1-0100-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	10	36,487	157
9948-P1-0101-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	11	36,487	172
9948-P1-0102-CP1	26/04/2019	26/04/2019	26/04/2019 - 25/04/2026	2	13	36,487	190
	As checked	Checked	Checked	Check-		Checked	Checked

		from the delivery notes/21/	from the UN website /12/	from the UN website /12/	ed from sales data base/5/	from the ER sheet/4/	from the ER sheet/4/
	<p>As per the registered PoA-DD page 59 “products deployed under the project activity are assumed be in operation as of the start of the next month following the date of sale”. Thus, any installation in the month of May 2019 will be eligible for crediting only in the month of June 2019. Given, the current monitoring period is ending in 31st December 2019, therefore only the units installed till November 2019 (up to 30-November-2019) are eligible for crediting under the concerned monitoring period. Thus, the CME has considered 30-November-2019 as the cut-off date of installation for this monitoring period.</p> <p>It has been checked by the verification team from the ER sheet/4/ that the ERs achieved for the CPAs lies between 152 tCO₂e – 7,917 tCO₂e, which is below the threshold of small-scale activity. It has been confirmed that:</p> <ol style="list-style-type: none"> 1. Each of these CPAs achieves an annual emission reduction equal to or less than 60,000 tCO₂e per year thus complying with the applied methodology SSC threshold/6/, 2. Each of the technologies installed under these CPAs achieves an annual emission reduction equal to or less than 3,000 tCO₂e per year (5% of the SSC limit) thus fulfilling the additionality criteria stated in the CPA DD/2/ and PoA DD/1/. 3. 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 methodology (i.e. not exceeding 600 tCO₂e for SSC type III methodologies) thus fulfilling the additionality criteria stated in the CPA DD/2/ and PoA DD/1/. <p>The implementation of the CPA as mentioned above is within the geographical boundary of PoA-DD/1/, which constitutes the physical boundary as well. Impact Carbon is the CME of the CPA and CERPD is the CPAI/15/.</p> <p>The reference number and the inclusion date of CPAs have been checked and verified from the UN website/12/ and the details are found correct and consistent. The start date of CPAs was confirmed from the delivery notes/21/. The WPS are installed across Kenya.</p>						
Findings	CAR#04 was raised and resolved						
Conclusion	<ol style="list-style-type: none"> a) The verification team is of the opinion that physical features of the CPA have been implemented in accordance with the registered CPA-DD. b) No specific monitoring equipment had to be installed according to the monitoring plan. c) It is also confirmed, through the remote audit survey and review of the supporting documentation that physical features of the component CPA have been implemented in accordance with the CPA-DD. d) The CPA was also found to be completely operational in line with the CPA-DD. e) The information provided in the relevant sections of the monitoring report appropriately describes 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

No deviations identified in the current verification and there exist no previously approved deviations for the CPAs under verification.

E.3.2.2. Corrections

Not Applicable

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

Not Applicable

E.3.2.4. Inclusion of a monitoring plan

Not Applicable

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

Not Applicable

E.3.2.6. Changes to the project design

Not Applicable

E.3.2.7. Changes specific to afforestation and reforestation activities

Not Applicable

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

Means of verification	The monitoring plan as contained in CPA-DDs/2/ were reviewed against the monitoring requirements of the applied methodology AMS-III.AV version 04 /6/ as well as PoA-DD/1/ with reference to the technology involved. Based on this review, it was found that the monitoring plan contained in the CPA DDs/2/ includes all the required parameters to be monitored in the context of the CPA design and description and allows proper determination of emission reductions in accordance with PoA DD/1/ and applied methodology AMS-III.AV version 04/6/.
Findings	No findings were raised
Conclusion	The monitoring plan is in line with the approved methodology AMS III A.V Ver.4/6/, that is included in the CPA-DDs/2/.

E.3.4. Compliance of monitoring activities with the registered monitoring plan**E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period**

Case 1 or Case 2: Project activities implemented in rural or urban areas of countries with proportion of rural or urban population using an improved drinking-water source equal to or less than 60 % (Case1) or above 60% (Case2), Case1 or Case 2

Means of verification	The CPAs located in Kenya fall under Case 1. It was checked from CPA DD and study report MICS 2016-2017 that less than 60% of the country has access to clean drinking water, hence Case 1 is applied.
Findings	None
Conclusion	The value applied is found to be consistent with the registered CPA-DDs/2/ which is correct and justified.

Specific Heat of water, WH, KJ/L °C

Means of verification	The value of the parameter is fixed at the time of validation and the value has been sourced from Methodology A.M.S.-III.AV Ver.4/6/. The value considered is 4.186 and is found to be consistent with the CPA-DD/2/.
Findings	None.
Conclusion	The value in the MR/13/ and ER sheet /4/ are consistent with the registered PoA-DD/1/ & CPA-DDs/2/. The applied value is correct and justified.

Final Temperature, T_f(°C)

Means of verification	The value of the parameter is fixed at the time of validation and the value is sourced from the methodology AMS-III.AV version 4.0/6/. The values as available in MR is 100 which is found consistent with the values in CPA-DD/2/.
Findings	None.
Conclusion	The value in the MR/13/ and ER sheet /4/ are consistent with the registered PoA-DD/1/ & CPA-DDs/2/. The applied value is correct and justified.

Initial Temperature, T_i

Means of verification	The value of the parameter is fixed at the time of validation and the value is sourced from the methodology AMS-III.AV version 4.0/6/. The value considered is 20 and is found to be consistent with the CPA-DD/2/.
Findings	None.
Conclusion	The value in the MR/13/ and ER sheet /4/ are consistent with the registered PoA-DD/1/ & CPA-DDs/2/. The applied value is correct and justified.

Latent heat of Water Evaporation, WHE, KJ/L

Means of verification	The value of the parameter is fixed at the time of validation and the value is sourced from the methodology A.M.S.III AV- version 4/6/. The value considered is 2,260 and is found to be consistent with the CPA-DDs/2/.
Findings	None.
Conclusion	The value in the MR/13/ and ER sheet /4/ are consistent with the registered PoA-DD/1/ & CPA-DDs/2/. The applied value is correct and justified.

Leakage, L

Means of verification	The value of the parameter is fixed at the time of validation and the value is sourced from the methodology AMS-I.E version 5.0 /25/. The value considered is 0.95 times baseline emission and is found to be consistent with the CPA-DDs/2/.
Findings	None.
Conclusion	The value in the MR /13/and ER sheet /4/is consistent with the registered PoA-DD/1/ & CPA-DD/2/. The applied value is correct and justified.

Average volume of drinking water per person per day, R_{yi} , Litres/Person/day

Means of verification	The value of the parameter is fixed at the time of validation and the value is sourced from the report WHO Minimum water quantity needed for domestic use in emergencies/24/. The value considered is 2 (for day schools) and 3.5 (for boarding schools, prisons) and is found to be consistent with the CPA-DD/2/.
Findings	None.
Conclusion	The value in the MR and ER sheet /13,4/ are consistent with the registered PoA-DD/1/ & CPA-DD/2/. The applied value is correct and justified.

E.3.4.2. Data and parameters monitored

Quantity of purified water in year y, QPW_y (liters):

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>The value applied is 552,946,084 litres/year.</p> <p>The parameter is a calculated parameter determined through following equation:</p> $QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$ <p>The formula is correct and in line to the applied methodology/6/, PoA DD/1/ and CPA DDs/2/.</p> <p>The installation for CPAs under the verification has been done between 23/04/2019-30/11/2019.</p> <p>As per page 59 of revised approved</p>

		<p>PoA DD/1/, "The date of installation for each unit is used to determine the portion of the monitoring period during which the unit was active. Products deployed under the project activity are assumed be in operation as of the start of the next month following the date of sale, i.e. if the date of sale is April 1st, the start of operation is May 1"</p> <p>Thus, for all the systems installed in April, ERs will be claimed in May 2019.</p> <p>The end date of the monitoring period is 31/12/2019.</p> <p>The ER sheet/4/ was checked to confirm that the formula has been applied correctly.</p>
	If applicable, has the reported data been cross-checked with other available data?	Yes. The equation used for the calculation is correct and is sourced from paragraph 11 of the applied methodology/6/
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	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?	NA
Findings	CAR#03 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

Efficiency of water boiling system being replaced, η_{wb} , fraction

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Continuously
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>The parameter is determined by sourcing a default value from the applied methodology/6/ and multiplying it with the proportion of population of the institutions different type of stove.</p> <p>The GACC report for Kenya, 2016/16/ was reviewed to confirm that the all public institutions cook with wood on traditional three stone fire.</p> <p>Therefore, a value of 0.1 for unimproved stove was applied.</p>
	If applicable, has the reported data	Yes. Sampled number of entries (11)

	been cross-checked with other available data?	were surveyed. The head/deputy head teachers of the institutions were interviewed to know the treatment method used in the absence of the WPS installation. All interviewed people replied that unsafe drinking water was used from boreholes/wells and boiling water would have been the cheapest option to get safe drinking water. No other means were deemed affordable by the institutions.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	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?	NA
Findings	CL#02 and CAR#03 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

Total distributed water purification systems, T_{y,i}, Number

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Continuously
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>The total number of systems reported in the monitoring report are as following:</p> <p>1,252 UltraFLO</p> <p>4,052 UltraTAB</p> <p>The CME keeps purchase order/14/, delivery notes/21/ and details of each system on salesforce as checked from the survey videos provided by CME.</p> <p>Each unit of Ultra FLO system has unique ID, which is listed in the database and has been claimed for ERs.</p> <p>For Ultra TAB system, the value of the parameter has been determined by considering each institution as a unit system. Therefore, for institutions with Ultra TAB, the number of tab systems is same as number of institutions.</p> <p>The entries in database were checked</p>

		to confirm the total number presented in the MR. 11 samples were remotely surveyed also, to confirm that the details of the entries in the database/5/ are correct.
	If applicable, has the reported data been cross-checked with other available data?	Yes. Sampled number of entries (11) were checked with the purchase orders/14/ and the delivery notes/21/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
	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?	NA
Findings	CAR#03 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

The average population serviced by water purification systems, $N_{y,i}$, Persons/equipment

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Continuously
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>At the time of installation, the purchase order form is filled by the CME. This form/14/ notes down the total number of students and staff in boarding/non-boarding schools.</p> <p>These numbers are mentioned for each school in the sales database. For the 11 samples checked by the DOE during the remote audit survey through e-meeting, the same numbers were checked and found to be correct.</p> <p>The CME has also applied formula in the ER sheet/4/ to ensure that the $N_{y,i}$ multiplied by $R_{y,i}$ does not exceed the maximum output of the unit [per unit].</p> <p>An average value of all the adjusted $N_{y,i}$ has been used for ER calculation respective of each CPA. In general, the average of $N_{y,i}$ for all the CPAs was found to be 455 person/technology.</p> <p>The parameter value is noted at the time of installation by the CME and as the number of systems increases over the time, the value will change</p>

		<p>continuously. The institutions were checked to confirm that CME is recording this information in database and the implementation is in line with PoA DD/1/.</p> <p>As per the CPA DDs (9948-P1-0078 to 9948-P1-00102-CP1) page 15/2/, The value of $N_{y,i}$ is effectively the number of people in the institution. The number of people in the institution will be updated (at least biennially) to reflect change in the institution size over time. The value will be updated in the sales database biennially.</p> <p>For the current monitoring, the value of the parameter was verified from the sales database /5/ and purchase orders/14/. This parameter is neither prescribed nor monitored by CME on sample basis as per registered monitoring plan. The parameter is monitored on an absolute basis for each of the installation.</p>
	If applicable, has the reported data been cross-checked with other available data?	Yes. The values in the ER sheet /4/ were checked with remote audit survey observations by the DOE which was further cross-checked with the purchase orders/14/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
	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?	NA
Findings	CL#02 and CAR#03 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

Water quality measurement, Water Quality, Proportion

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Aquagenx testing kits
	Calibration details	Not Applicable.
	How were the values in the monitoring report verified?	The CME used Aquagenx testing kits to monitor the E.Coli value for sampled institutions.

		<p>The Head teachers/ Deputy Head teachers of the schools interviewed by the DOE during the remote audit survey confirmed that they were visited by monitoring team for the tests.</p> <p>The monitoring forms/18/, Aquagenx testing kits photographs showing achieved results /30/ for all the institutions were checked by the verification team to confirm the monitoring parameter value. It was found that all the tests gave positive results confirming safe drinking water except three sampled schools. Hence, the applied value of 0.95 was found acceptable.</p>
	If applicable, has the reported data been cross-checked with other available data?	Photos of the test/30/ conducted during the monitoring were shared by the CME which confirmed the results in monitoring forms.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the tests were found to be trained as confirmed from training evidences/20/ provided by the CME confirmed that the tests are conducted and evaluated by trained staff.
	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?	NA
Findings	CL#02 and CAR#03 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

Percent of the monitoring period in which the units are in use, Operational Units, Percentage

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Once per verification
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>The sampled institutions were visited by the CME's monitoring team to monitor the operational status of the WPS units installed in the institutions as checked from the monitoring survey forms/18/.</p> <p>The Head teachers/ dy. Head teachers at the schools visited by the CME representative during the monitoring survey were confirmed to the DOE</p>

		<p>through the e-meeting that the monitoring team visited the school for the monitoring.</p> <p>Not all the institutions visited by the CME representative during the remote audit survey were found to be operational.</p> <p>Thus, the applied value of 96.60% was found acceptable.</p>
	If applicable, has the reported data been cross-checked with other available data?	Results presented in the ER sheet were checked with monitoring survey forms/18/ and remote audit survey visit videos.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the tests were found to be trained as confirmed from training evidences/20/ provided by the CME confirmed that the tests are conducted and evaluated by trained staff.
	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?	NA
Findings	CL#02 and CAR#03 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

Fraction of woody bio-mass saved by the project activity in Year, f_{NRB} , Fraction

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Continuously
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>The PoA applies CDM SSC methodology AMS-III.AV. Low greenhouse gas emitting safe drinking water production systems (Version 4.0)/6/. The applied methodology, on page 6, refers to determining f_{NRB} as per the relevant provisions of "AMS-I.E: Switch from Non-Renewable Biomass for Thermal Applications by the User"/6/.</p> <p>Further, it states that "If the displaced fuel is fossil fuel use a default value of 1.0. If a mixture of woody biomass and fossil fuels is used in the absence of the project activity, a weighted average</p>

	<p>value (e.g. based on energy content of fuels consumed) should be used"/6/.</p> <p>"AMS-I.E: Switch from Non Renewable Biomass for Thermal Applications by the User" version 5.0, page 2, states that $f_{NRB,y}$ can be established as non-renewable biomass using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (f_{NRB}) values available on the CDM website/25/. Also, as per Clarification on monitoring the quantity of biomass and the fraction of non-renewable biomass under AMS-I.E. (submitted 17 Jun 11): SSC_543, the value of $f_{NRB,y}$ can be fixed ex ante at the beginning of each crediting period/45/.</p> <p>The CME therefore, fixed the value of f_{NRB} for Kenya through EB67 Annex 22 /32/ (extension SSC 37 Annex 14th, approved in EB68)/44/ as stated in the registered PoA-DD/1/ at page 69, 82 and 100, 115. However, the $f_{NRB,y}$ was listed as monitoring parameter to allow determination of a weighted average value in case a mixture of woody biomass and fossil fuels is used in the absence of the project activity in line with AMS III.AV. version 4.0, page 6/6/.</p> <p>The PoA-DD version 7.0 (Section B.7.1.)/1/ states the $f_{NRB,y}$ as a calculated parameter which has a formula:</p> $f_{NRB,y} = [\text{Default } f_{NRB} \text{ value}] * [\% \text{ of users using NRB}] + [1.0^5] * [\% \text{ of users using fossil fuels}]$ <p>The aforesaid formula only keeps the % of users (using NRB / fossil fuel) as a variable and considers f_{NRB} values as a constant (default for NRB and 1.0 for fossil fuel). Thus, the parameter is listed as monitoring parameter only because of the variability attributed to % users using a given baseline fuel type.</p> <p>Since the default value of f_{NRB} has been considered as a constant, the expiry of f_{NRB} value is deemed not applicable to the PoA and included CPAs. Besides, no other method to determine the value f_{NRB} is found listed under section B.7.1 of the registered PoA DD/1/.</p>
--	--

⁵ In line with page 6 of AMS III.AV. - If the displaced fuel is fossil fuel use a default value of 1.0

		<p>Additionally, the CME will not apply the updated value of fNRB(i.e., if the host country DNA publish a new value) within this crediting period as it is bound by the requirement stated in the PoA DD(page 69, 82 and 100,115)/1/. This also confirms that only % of users is variable in the monitored parameter.</p> <p>The parameter is determined by sourcing a default value from UNFCCC SSC WG 37th Meeting Report for Kenya /26/ and multiplying it with the percentage of population using non-renewable woody biomass / fossil fuel.</p> <p>During the current monitoring period the parameter is determined by sourcing a default value from EB 37 Annex 14/26/ and multiplying it with the proportion of population for different type of fuel replaced, sourced from national data.</p> <p>Biomass Fuel Market Study dated August 2016/23/, which used as a source of national data was reviewed to confirm that distribution of various fuel used in Kenya are as follows:</p> <table border="1" data-bbox="954 1041 1428 1413"> <thead> <tr> <th>Description</th> <th>Percentage of users as checked from/23/</th> <th>Default value of efficiency from AMS-III.A.V./6/ EB 37 Annex 14/26/</th> </tr> </thead> <tbody> <tr> <td>NRB users</td> <td>95%</td> <td>0.92</td> </tr> <tr> <td>Fossil fuel users</td> <td>5%</td> <td>1.00</td> </tr> </tbody> </table> <p>As per the source used to check percentage of users have more than one system encountered, a weighted average value was applied.</p> <p>The applied value was 0.924 and found to be correct.</p> <p>Thus, in-line to para 346 of the VVS for PoA it was confirmed that CME has followed the registered monitoring plan stated in the registered PoA-DD/1/, included CPA-DDs/2/ and the applied methodology for monitoring the parameter.</p>	Description	Percentage of users as checked from/23/	Default value of efficiency from AMS-III.A.V./6/ EB 37 Annex 14/26/	NRB users	95%	0.92	Fossil fuel users	5%	1.00
Description	Percentage of users as checked from/23/	Default value of efficiency from AMS-III.A.V./6/ EB 37 Annex 14/26/									
NRB users	95%	0.92									
Fossil fuel users	5%	1.00									
	If applicable, has the reported data been cross-checked with other available data?	NA									
	Does the data management ensure correct transfer of data and reporting of emission reductions and are	NA									

	necessary QA/QC processes in place?	
	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?	NA
Findings	CL#05 was raised and resolved.	
Conclusion	The values in the Monitoring Report /13/ and corresponding Emission Reduction Spreadsheet /4/ are consistent with the revised accepted PoA-DD/1/ and CPA-DDs/2/. The values applied for ER calculations/4/ in the relevant CPAs are correct and justified.	

Emission factor as per AMS-I.E. procedures when NRB is displaced or the emission factor of the fossil fuel substituted, $EF_{\text{projected_fossil fuel}}$, tCO_2/TJ

Means of verification	Criteria/Requirements	Assessment/Observations									
	Measuring /Reading /Recording frequency	Continuously									
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes									
	Monitoring equipment	NA									
	How were the values in the monitoring report verified?	<p>The CPA DD/2/ states that the parameter should be determined by applying Default values as per AMS-I.E./25/ and IPCC/22/ combined with survey, national, or regional data to determine the percent of users using different types of fuels displaced.</p> <p>During the current monitoring period the parameter is determined by sourcing a default value from the applied methodology/6/ and EB67 Annex 22/32/ and multiplying it with the proportion of population of the institutions different type of fuel used sourced from national data.</p> <p>Biomass fuel market Study dated August 2016/23/, which used as a source of national data was reviewed to confirm that distribution of various types of fuels displaced in Kenya are as follows:</p> <table border="1"> <thead> <tr> <th>Description</th><th>Percentage of users as checked from meeting report for Kenya/26/</th><th>Default value from AMS-I.E./25/ and IPCC/22/</th></tr> </thead> <tbody> <tr> <td>NRB users</td><td>95.0%</td><td>81.6</td></tr> <tr> <td>Fossil fuel users</td><td>5.0%</td><td>56.1⁶</td></tr> </tbody> </table>	Description	Percentage of users as checked from meeting report for Kenya/26/	Default value from AMS-I.E./25/ and IPCC/22/	NRB users	95.0%	81.6	Fossil fuel users	5.0%	56.1 ⁶
Description	Percentage of users as checked from meeting report for Kenya/26/	Default value from AMS-I.E./25/ and IPCC/22/									
NRB users	95.0%	81.6									
Fossil fuel users	5.0%	56.1 ⁶									

⁶ To apply a conservative estimate of CERs, all fossil fuel used is assumed to be Natural Gas, as this fuel has the lowest emission factor

		<p>As per the source used to check percentage of users have more than one system encountered, a weighted average value was applied.</p> <p>Therefore, average weighted value of 80.3 was applied for the current monitoring period.</p> <p>The applied value was found to be correct. The value has been determined is in line with the PoA DD/1/ and CPA DDs/2/.</p>
	If applicable, has the reported data been cross-checked with other available data?	Yes. The value sourced from AMS-I.E./25/ was also cross-checked from the IPCC greenhouse gas inventories report/22/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
	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?	NA
Findings	CAR#03 was raised and resolved	
Conclusion	The values in the Monitoring Report /13/ and corresponding Emission Reduction Spreadsheet /4/ are consistent with the revised accepted PoA-DD/1/ and CPA-DDs/2/. The values were found consistent with IPCC default values for fossil fuels /22/. The applied values are correct and justified.	

Existence of public distribution network of safe drinking water, Fraction, Existence of public distribution network of safe drinking water in year y, Fraction

Means of verification	Criteria/Requirements	Assessment/Observations
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	<p>The sampled institutions visited by the CME's monitoring team to check the existing public distribution network with safe drinking water as checked from the monitoring survey forms/18/.</p> <p>The Head teachers/ dy. Head teachers of the schools visited by the CME representative during the monitoring survey were confirmed to the DOE through the telephonic interview that the monitoring team visited the school for the monitoring.</p> <p>11 head teachers (of total 11 interviewed) confirmed that their school does not have access to piped network and they source the water from borewell/rainwater saved.</p>

		Besides, review of other monitoring survey forms and sales database indicated that safe drinking water based public distribution network was not accessible to project schools. Thus, the applied value of 0 was found acceptable for the current verification.
	If applicable, has the reported data been cross-checked with other available data?	Results presented in the ER sheet were checked with monitoring survey forms/18/ and DOE site visit.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the tests were interviewed during the site visit and training evidences/20/ provided by the CME confirmed that the surveys are conducted and evaluated by trained staff.
	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?	NA
Findings	CAR#03 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (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/.	

E.3.4.3. Implementation of sampling plan

Means of verification	<p>The monitoring has been carried out in accordance with the monitoring plan contained in the revised approved PoA DD/1/ and CPA DDs/2/.</p> <p>Sampling Design/Target Population/Sampling Frame/Reliability:</p> <p>The CME has applied single sampling plan for all of the 25 CPAs implemented. According to the 'Sampling and Survey standards,' version 8.0/42/, 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 90% confidence interval and a 10% margin of error requirement is achieved for the sampled parameters. When a single sampling plan covers a group of CPAs or when monitoring is conducted biennially (every two years), confidence/precision of 95/10 for the sample size calculation is applicable. Since the sampling has been done across the CPAs, 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/.</p> <p>The target population for the parameters stated above are Water purification systems⁷ installed / distributed in institutions and recorded in the project sales database</p> <p>Sampling Frame:</p> <p>There are two different type of units under the CPAs. 1,252 UltraFLO units 4,052 UltraTAB units have been listed in the sales database. However, the parameters for monitoring are homologous (i.e. implemented in schools). Thus, the CME has applied a common sampling for all the parameters monitored which was found acceptable.</p>
------------------------------	---

⁷ The definition of each system considered for ER is different for Ultra FLO and Ultra Tab. Each unit of Ultra FLO having unique ID as listed in the database, is considered as individual system for CER calculations. For Ultra TAB, the value of the parameter has been determined by considering each institution as one system. Therefore, for institutions with Ultra TAB, the number of TAB systems is same as the number of institutions.

	<p>Sampling Method and selection:</p> <p>The CME has applied Stratified Random Sampling by dividing the population into two strata (UltraFLO, UltraTAB). The samples have been chosen randomly from these two strata as checked from the excel sheets with random numbers/33/.</p> <p>Sample Size for Parameter of Interest:</p> <p>The sampling is applied to the following monitoring parameters:</p> <ul style="list-style-type: none">• Operational Units• Water Quality- Aquagenx Tests• Existence of public distribution network of safe drinking water <p>The sample size is chosen using the equation inline to CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities.</p> <p>In this regard, sample size calculation spreadsheet /4/ was checked and found correct as per registered monitoring plan. The complete details are given in E.3 section of Monitoring Report/13/.</p> <p>Implementation of Sampling Survey and Field Test Records:</p> <p>Based on interviews with the CME and surveyors during the e-meeting of the remote audit survey, in addition to simply asking this question to the end users, the surveyors were also trained to evaluate to results of Aquagenx tests. Therefore, the implementation of CME's surveys and tests was considered reliable. The surveyors also took photos of the school name board, test results which was shared by CME and were checked during the desk-review by the verification team.</p> <p>Monitoring survey (by CME) duration:</p> <p>The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period.</p> <table><tr><th>CPA Ref.No.</th><th>Technology</th><th>From</th><th>To</th></tr><tr><td>9948-P1-0078-CP1 to 9948-P1-0102-CP1</td><td>Water Purification systems</td><td>07/01/2020</td><td>04/02/2020</td></tr></table> <p>Reliability and precision calculation:</p> <p>The verification team has verified the ER calculation spreadsheets /4/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under “Standard for sampling and surveys for CDM project activities and Programme of Activities” Version 4.0 /31/ and confirms that the calculation of achieved reliability was done correctly.</p> <p>All parameters of interest are included in the ER spreadsheet 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 /4/ corresponding to final Monitoring Report /13/, which were also found correct. Thus, the verification team confirms that required precision has been met and the results are reliable.</p>	CPA Ref.No.	Technology	From	To	9948-P1-0078-CP1 to 9948-P1-0102-CP1	Water Purification systems	07/01/2020	04/02/2020
CPA Ref.No.	Technology	From	To						
9948-P1-0078-CP1 to 9948-P1-0102-CP1	Water Purification systems	07/01/2020	04/02/2020						
Findings	CL#01 was raised and resolved								
Conclusion	The verification team has found out that the sampling plan applied is found to be in-line with the monitoring plan mentioned in the registered PoA-DD/1/ and CPA-DDs/2/ and Sampling and survey standards, ver.8/19/								

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

Means of verification	No monitoring equipment is required as outline in the CPA-DDs/2/ and revised accepted PoA-DD/1/.
Findings	None.
Conclusion	The verification team has determined that no monitoring equipment has been used by the CME that requires calibration. Furthermore, there was no requirement of calibration in the CPA-DDs/2/. This was in accordance with the accepted monitoring plan and the applied monitoring methodology/6/.

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

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

Means of verification	<p>The following equations were used to determine the baseline emissions as provided in the monitoring report /13/ and applied in the corresponding ER calculations sheet /4/. The expressions used were found consistent with the revised accepted PoA DD /1/, CPA DDs /2/ and the applied methodology AMSIII.AV, version 04 /6/:</p> $BE_y = QPW_y * SEC * f_{NRB,y} * EF_{\text{projected_fossilfuel}} * 10^{-9}$ <p>Where,</p> <table border="1" data-bbox="454 521 1437 1341"> <tr> <td>BE_y</td><td>Baseline emissions during the year y in (tCO₂e)</td></tr> <tr> <td>QPW_y</td><td>Quantity of purified water in year y (Liters/yr).</td></tr> <tr> <td>SEC</td><td>Specific energy consumption required to boil one litre of water (kJ/L)</td></tr> <tr> <td>$f_{NRB,y}$</td><td> <p>Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable.</p> <p>For biomass, the default values of f_{NRB} shall be used from EB67. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of biomass and other fuels (e.g. fossil fuels) are used, a weighted average renewability factor shall be applied.</p> </td></tr> <tr> <td>$EF_{\text{projected_fossilfuel}}$</td><td> <p>Emission factor when NRB is displaced or the emission factor of the fossil fuel substituted</p> <p>Default emission factors from AMS-I.E as referenced in AMS-III.AV version 4 and IPCC shall be used. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of woody biomass and fossil fuels are used in the absence of the project activity a weighted average value shall be applied, as described in parameter box in section E.2</p> </td></tr> </table> <p>Calculation for CPA 9948-P1-0078-CP1 (as an example):</p> $= 37,693,031 \times 3574.80 \times 0.93 \times 81.60 \times 10^{-9}$ $= 7,917 \text{ tCO}_2\text{e}$ <p>Specific energy consumption (SEC) i.e. energy required to boil one litre of water is calculated as</p> $SEC = [WH * (T_f - T_i) + 0.01 * WHE] / n_{wb}$ <p>Where</p> <table data-bbox="454 1653 1358 1872"> <tr> <td>WH</td><td>Specific heat of water (kJ/L °C)</td></tr> <tr> <td>T_f</td><td>Final temperature (°C)</td></tr> <tr> <td>T_i</td><td>Initial temperature of water (°C)</td></tr> <tr> <td>WHE</td><td>Latent heat of water evaporation (kJ/L)</td></tr> <tr> <td>n_{wb}</td><td>Efficiency of water boiling system being replaced (fraction)</td></tr> </table> <p>Calculation for CPA 9948-P1-0078-CP1:</p> $SEC = [4.186 \times (100 - 20) + 0.01 \times 2260] / 0.12$ $SEC = 2979 \text{ kJ/L.}$	BE_y	Baseline emissions during the year y in (tCO ₂ e)	QPW_y	Quantity of purified water in year y (Liters/yr).	SEC	Specific energy consumption required to boil one litre of water (kJ/L)	$f_{NRB,y}$	<p>Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable.</p> <p>For biomass, the default values of f_{NRB} shall be used from EB67. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of biomass and other fuels (e.g. fossil fuels) are used, a weighted average renewability factor shall be applied.</p>	$EF_{\text{projected_fossilfuel}}$	<p>Emission factor when NRB is displaced or the emission factor of the fossil fuel substituted</p> <p>Default emission factors from AMS-I.E as referenced in AMS-III.AV version 4 and IPCC shall be used. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of woody biomass and fossil fuels are used in the absence of the project activity a weighted average value shall be applied, as described in parameter box in section E.2</p>	WH	Specific heat of water (kJ/L °C)	T_f	Final temperature (°C)	T_i	Initial temperature of water (°C)	WHE	Latent heat of water evaporation (kJ/L)	n_{wb}	Efficiency of water boiling system being replaced (fraction)
BE_y	Baseline emissions during the year y in (tCO ₂ e)																				
QPW_y	Quantity of purified water in year y (Liters/yr).																				
SEC	Specific energy consumption required to boil one litre of water (kJ/L)																				
$f_{NRB,y}$	<p>Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable.</p> <p>For biomass, the default values of f_{NRB} shall be used from EB67. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of biomass and other fuels (e.g. fossil fuels) are used, a weighted average renewability factor shall be applied.</p>																				
$EF_{\text{projected_fossilfuel}}$	<p>Emission factor when NRB is displaced or the emission factor of the fossil fuel substituted</p> <p>Default emission factors from AMS-I.E as referenced in AMS-III.AV version 4 and IPCC shall be used. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of woody biomass and fossil fuels are used in the absence of the project activity a weighted average value shall be applied, as described in parameter box in section E.2</p>																				
WH	Specific heat of water (kJ/L °C)																				
T_f	Final temperature (°C)																				
T_i	Initial temperature of water (°C)																				
WHE	Latent heat of water evaporation (kJ/L)																				
n_{wb}	Efficiency of water boiling system being replaced (fraction)																				

	<p>And QPW_y is calculated through following equation:</p> $QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$ <p>The installation for CPAs under the verification has been done between 23/04/2019-29/11/2019.</p> <p>As per the page 59 of revised approved PoA DD/1/, “The date of installation for each unit is used to determine the portion of the monitoring period during which the unit was active. Products deployed under the project activity are assumed be in operation as of the start of the next month following the date of sale, i.e. if the date of sale is April 1st, the start of operation is May 1”</p> <p>Thus, for all the systems installed in November, ERs will be claimed in December 2019. The end date of the monitoring period is 31/12/2019.</p> <p>The applicable formula is:</p> $QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$ <p>Where:</p> <p>QPW_y : Quantity of purified water for drinking for all technologies type i in year y (Liters)</p> <p>$T_{y,i}$: Total distributed water purification systems</p> <p>$N_{y,i}$: The average population serviced by water purification systems (person/equipment)</p> <p>$R_{y,i}$: Average volume of drinking water per person per day (Liters/person/day)</p> <p>Water Quality_i : Percent of units that meet water quality requirements</p> <p>Operational Units_i : Percent of the monitoring period in which the units are in use</p> <p>Calculation for CPA 9948-P1-0078-CP1:</p> $QPW_y = 218 \times 488 \times 2.15 \times 179 \times 0.9660 \times 0.95$ $QPW_y = 37,693,031 \text{ L}$ <p>The verification team has checked that the calculation for other CPAs (9948-P1-0078-CP1 to 9948-P1-0102-CP1) have also been done in the worksheet ‘ERs Summary’ /4/ in the same manner.</p> <p>The calculations for all the CPAs (9948-P1-0078-CP1 to 9948-P1-0102-CP1) were checked in the ER sheet/4/ and it was found that calculations have been done inline to the PoA DD/01/ and in accordance to the applied methodology/6/.</p> <p>All the parameters are assessed in detail under section E.3.4. of this report.</p> <p>* 179 days has been used in the formula, instead of 365 days due to progressive sales across the monitoring period under CPA 0078 and less than an annual monitoring period, resulting in lower number of crediting days.</p>
Findings	No findings were raised.
Conclusion	<p>The verification team confirms that</p> <ol style="list-style-type: none"> The complete data was available and is duly reported; As indicated above, the description with regard to cross-check of reported data is included under respective parameter above; Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed; Appropriate emission factors, IPCC default factors and other reference values were correctly applied. 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.3.6.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The project activity involves no emissions for type 2 CPAs as it involves dissemination of water purification systems and replaces the non-renewable woody biomass/ fossil fuel way of boiling water with the transitioned way of water purification by the chlorination technologies.
Findings	None.
Conclusion	There is no project emission for Type 2 CPAs. The approach is in line with the PoA DD/1/.

E.3.6.3. Calculation of leakage GHG emissions

Means of verification	<p>The PoA-DD/1/, CPA DDs/2/ and applied monitoring methodologies does not prescribe any leakage emissions to be considered. The remote audit survey and project design also did not reveal any potential source to be considered in this regard. However, the leakage adjustment factor that is required to adjust the baseline emissions has been duly accounted in baseline calculations.</p> <p>BE_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. Therefore, the leakage is calculated as follows:</p> <p>Leakage = BE_y * (1-95%)</p> <p>Calculation for 9948-P1-0043-CP1 is as follows:</p> <p>LE = 8,334 * (1-0.95)</p> <p>LE = 417</p> <p>The verification team has checked that the calculation for other CPAs (9948-P1-0078-CP1 to 9948-P1-0102-CP1) have also been done in the worksheet 'ERs Summary' /4/ in the same manner.</p> <p>The calculations for all the CPAs (9948-P1-0078-CP1 to 9948-P1-0102-CP1) were checked in the ER sheet/4/ and it was found that calculations have been done inline to the PoA DD/1/ and in accordance to the applied methodology/6/.</p> <p>The verified value of Leakage for all the CPAs is 6,126 tCO₂e. The value is mentioned CPA wise in the table presented under the next section.</p>
Findings	None.
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) were required in accordance with the methodology AMS-III.AV, version 04 /6/.

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

Means of verification	<p>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 /13/ and corresponding ER calculations sheet /4/ 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/6/.</p> <p>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.</p>
Findings	CAR#03 was raised and resolved.
Conclusion	<p>The verification team confirms that</p> <p>a) The complete data was available and is duly reported.</p> <p>b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 of this report).</p> <p>c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed.</p> <p>d) The total number of ERs achieved (on account of water purifiers installation) during the current monitoring period were 116,118 tCO₂e.</p>

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
9948-P1-0078-CP1	8,334	0	417	0	7,917	7,917
9948-P1-0079-CP1	7,447	0	373	0	7,074	7,074
9948-P1-0080-CP1	7,939	0	397	0	7,542	7,542
9948-P1-0081-CP1	6,662	0	334	0	6,328	6,328
9948-P1-0082-CP1	6,547	0	328	0	6,219	6,219
9948-P1-0083-CP1	6,555	0	328	0	6,227	6,227
9948-P1-0084-CP1	6,361	0	319	0	6,042	6,042
9948-P1-0085-CP1	5,503	0	276	0	5,227	5,227
9948-P1-0086-CP1	4,503	0	226	0	4,277	4,277
9948-P1-0087-CP1	4,255	0	213	0	4,042	4,042
9948-P1-0088-CP1	4,913	0	246	0	4,667	4,667
9948-P1-0089-CP1	4,905	0	246	0	4,659	4,659
9948-P1-0090-CP1	3,270	0	164	0	3,106	3,106
9948-P1-0091-CP1	3,258	0	163	0	3,095	3,095
9948-P1-0092-CP1	31,021	0	1,552	0	29,469	29,469
9948-P1-0093-CP1	218	0	11	0	207	207
9948-P1-0094-CP1	171	0	9	0	162	162
9948-P1-0095-CP1	189	0	10	0	179	179
9948-P1-0096-CP1	4,055	0	203	0	3,852	3,852
9948-P1-0097-CP1	3,197	0	160	0	3,037	3,037
9948-P1-0098-CP1	2,062	0	104	0	1,958	1,958
9948-P1-0099-CP1	330	0	17	0	313	313
9948-P1-0100-CP1	166	0	9	0	157	157

9948-P1-0101-CP1	182	0	10	0	172	172
9948-P1-0102-CP1	201	0	11	0	190	190
Total	122,244	0	6,126	0	116,118	116,118

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

Means of verification	<p>Earthood Services Private Limited is able to certify that the emission reductions from the CDM project activity 9948 "Impact Carbon Global Safe Water Programme of Activities (PoA)" in Kenya for the monitoring period 23/05/2019-31/12/2019 (including both days) amount to 116,118 tCO₂.</p> <p>Verified and certified emission reductions as per commitment period:</p> <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>116,118 tCO₂</td></tr> </table>	Commitment period	Amount	Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e	From 01/01/2013	116,118 tCO ₂
Commitment period	Amount						
Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e						
From 01/01/2013	116,118 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 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)
9948-P1-0078-CP1	7,917	36,487
9948-P1-0079-CP1	7,074	36,487
9948-P1-0080-CP1	7,542	36,487
9948-P1-0081-CP1	6,328	36,487
9948-P1-0082-CP1	6,219	36,487
9948-P1-0083-CP1	6,227	36,487
9948-P1-0084-CP1	6,042	36,487
9948-P1-0085-CP1	5,227	36,487
9948-P1-0086-CP1	4,277	36,487
9948-P1-0087-CP1	4,042	36,487
9948-P1-0088-CP1	4,667	36,487
9948-P1-0089-CP1	4,659	36,487
9948-P1-0090-CP1	3,106	36,487
9948-P1-0091-CP1	3,095	36,487
9948-P1-0092-CP1	29,469	36,487
9948-P1-0093-CP1	207	36,487
9948-P1-0094-CP1	162	36,487
9948-P1-0095-CP1	179	36,487
9948-P1-0096-CP1	3,852	36,487
9948-P1-0097-CP1	3,037	36,487
9948-P1-0098-CP1	1,958	36,487
9948-P1-0099-CP1	313	36,487
9948-P1-0100-CP1	157	36,487
9948-P1-0101-CP1	172	36,487
9948-P1-0102-CP1	190	36,487
Total	116,118	912,175

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

Means of verification	As verified and evident from the Monitoring Report /13/ and corresponding ER calculations sheet /4/, the actual emission reductions achieved for Water Purification systems 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. This is largely due to lower number of water purifiers that were installed/distributed. Considering, there is no increase in ERs, the verification team did not seek further justification. The quantitative details of actual values of achieved ERs for the CPA and value 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.3.7. 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/12/. Therefore, assessment is required.
Findings	No findings were raised
Conclusion	The CME is not required to monitor the sustainable development benefits of the registered CDM PoA.

E.3.8. Global stakeholder consultation

Means of verification	The global stakeholder consultation was not found applicable because period under verification is 3rd 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.

SECTION F. Internal quality control

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

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

SECTION G. Verification opinion

Earthood Services Private Limited (ESPL), contracted by Impact Carbon (the CME for the PoA), has performed an independent verification of the emission reductions for the registered CDM PoA 9948 "Impact Carbon Global Safe Water Programme of Activities (PoA)" for the third monitoring period 23/05/2019-31/12/2019 (both days included) as reported in the Monitoring Report (public) Version 01 dated 22/04/2020 /13/. 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.

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/11/ specified by UNFCCC and complies with the instructions to follow of CDM VVS-PoA Version 02/9/.

The verification activities were conducted in accordance with ESPL's CDM Quality Manual System as per the steps indicated under Section A of this report. The verification process has resulted in conclusion that the included CPAs confirm to the revised accepted PoA-DD as well as comply with applicable CDM rules and regulations and in accordance with applied monitoring methodologies, AMS III.AV (Version 04)/6/.

As a result, it is confirmed that the emission reductions from the CDM PoA 9948 "Impact Carbon Global Safe Water Programme of Activities (PoA)" are correctly reported in the Monitoring Report Version 2.0 dated 15/06/2020 and corresponding ER sheets for the monitoring period 23/05/2019-31/12/2019 (including both days) amount as 116,118 tCO₂e. Therefore, this will be submitted as part of request for issuance as per CDM PCP Version 02/8/.

SECTION H. Certification statement

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

In our opinion the GHG emissions reductions reported for the PoA for the monitoring period 23/05/2019-31/12/2019 (MP 03) are fairly stated in the Monitoring Report (final) Version 2.0 dated 15/06/2020.

ESPL, based on outcome of verification activities, certify in writing that, during the monitoring period 23/05/2019-31/12/2019 (including both days), the registered CDM PoA "Impact Carbon Global Safe Water Programme of Activities (PoA)" and the included CDM CPAs achieved the verified amount of **116,118 tCO₂e** reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CPAs.

Appendix 1. Abbreviations

	Full texts
AM	Approved Methodology
ACM	Approved Consolidated Methodology
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon di oxide
CP	Crediting Period
DNA	Designated National Authority
DR	Desk Review
DOE	Designated Operational Entity
EB	Executive Board
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LoA	Letter of Approval/Authorization
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
ODA	Official Development Assistance
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PoA DD	Programme of Activities Design Document
PP	Project Participant
PS	Project Standard
RFR	Request for Registration
tCO ₂ e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VVS	Validation and Verification Standard

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

Competence Statement			
Name	Vaishali Vatsa		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	4 months		
Field	Climate Change		
Approved Roles			
Team Leader	NO		
Validator	Yes		
Verifier	Yes		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	NO		
Reviewed by	Shreya Garg	Date	30/12/2019
Approved by	Anshika Gupta	Date	02/01/2020

Competence Statement	
Name	Virginia Njeri
Country	Kenya
Education	Diploma (Business Management)
Experience	7 Years
Field	Administration

Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Kenya		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

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., 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	23/10/2019
Approved by	Anshika Gupta	Date	23/10/2019

Competence Statement	
Name	Rahi Sahni
Education	M.Sc Environment Science and Technology, Bharati Vidyapeeth University, Pune
Experience	6 months
Field	Climate Change and Environment
Approved Roles	
Team Leader	NO
Validator	Yes
Verifier	Yes
Methodology Expert	NO
Local expert	NO
Financial Expert	NO

[illegible]

	International	Mapping by GVEP International, 2012		
17	Impact Carbon	DHS Report, Kenya 2016	2016	CME
18	Impact Carbon	Monitoring form + Water Quality Test	Multiple Dates: 23/05/2019-29/06/2019	CME
19	UNFCCC	Standards for Sampling and survey for CDM project activities and programmes of activities	Version 7.0	Others
20	Impact Carbon	Training Records	20/05/2019 & 17/06/2019	CME
21	Impact Carbon	Delivery Notes	Multiple Dates: 23/04/2019-30/04/2019	CME
22	Impact Carbon	IPCC default values for fossil fuels	https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf	Other
23	Government of Nakuru	Biomass Fuel Market Study, Country Government of Nakuru, 2016	Dated August 2016	CME
24	WHO	WHO Technical Notes on Drinking -Water sanitation and Hygiene	https://www.who.int/water_sanitation_health/emergencies/WHO_TN_10_Hygiene_promotion_in_emergencies.pdf?ua=1	CME
25	UNFCCC	AMS-I.E.	Version 5.0	Other
26	UNFCCC	UNFCCC SSC WG 37 th Meeting Report for Kenya	http://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf	CME
27	Impact Carbon	UID photographs of WPS	-	CME
28	Impact Carbon	Manufacturer's Specifications	-	CME
29	Impact Carbon	Evaluating household water treatment options: Health based targets and microbiological performance specifications" (WHO 2011)	https://www.who.int/water_sanitation_health/publications/2011/evaluating_water_treatment.pdf	CME
30	Impact Carbon	Photos of Aquagenix test	-	CME
31	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities	Version 4.0	Other
32.	UNFCCC	EB 67 Annex 22 https://cdm.unfccc.int/filestorage/H/2/9/H29X6EKQMJU7RY85DIT4ZPFAL3O1GW/eb67_rep_an22.pdf?t=ZIZ8cHgxcXQ1fDBaKlvFgRuMIYclRR3nH_se	11/05/2012	Other
33.	Stat Trek	Screenshot- Stat trek	-	CME
34.	Impact Carbon	Random number -excel sheet	-	CME
35	worldometers	https://www.worldometers.info/coronavirus/worldwide-graphs/	-	Other
36	NY TIMES	https://www.nytimes.com/2020/03/24/world/asia/india-coronavirus-lockdown.html	-	Other
37	BBC NEWS	https://www.bbc.com/news/world-asia-india-52024239	-	Other
38	Bureau of Immigration	Advisory: Travel and Visa restrictions	13/03/2020	Other
39	Impact Carbon	CME Mail	-	Other
40	Impact Carbon	ERPA	-	Other
41	Impact Carbon	Complaint Log (Samples)	-	Other
42	UNFCCC	Standards for Sampling and survey for CDM project activities and programmes of activities	Version 8.0	Others

43	ESPL	Previous Verification report (MP2)	27/08/2019	Other
44	UNFCCC	EB68 - meeting report https://cdm.unfccc.int/filestorage/8/i/KYQVI5N0ABEJX3T68ZDF1M7RCGU9SW.pdf/eb68_report%20v01.1?t=QXZ8cWgz bWZtfDB2p0F4x0TF7eAJLmYt1_yy	20/07/2012	Other
45	UNFCCC	SSC 543 https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/03200	07/10/2011	Other

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

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

No FAR from the previous verification.

Table 2. CLs from this verification

CL ID	01	Section no.	E.3.4.3	Date : 03/06/2020
Description of CL				
1. Please clarify when was the sampling conducted in order to confirm whether the monitoring frequency for parameters monitoring through sampling are in accordance with the registered monitoring plan (of (also refer e.g., CPA DD 78 Section B.5.3 para (a)) given the monitored data worksheet in the ER does not contain the date the survey was carried out. In MR, it is indicated that it was carried out in January 2020 to February 2020 without specifying the actual start date and end date. (para 263c of CDM PS PoA V2).				
Project participant response				Date: 19/06/2020
1. The duration of monitoring has been specified in section E.3 of the revised MR. The revised MR is being submitted.				
Documentation provided by project participant				
PoA 9948_MP3_CERPD 2_Kenya MR ver2.0 15062020				
DOE assessment				Date: 23/06/2020
1. Section E.3 of the revised MR (Version 2.0), now includes the monitoring survey dates 07/01/2020 to 04/02/2020. The dates of the survey as mentioned in the MR were crossed checked from the monitoring survey forms and were found to be consistent. The same has been incorporated to the VCR. Thus, CL#01 stands closed.				

CL ID	02	Section no.	E.3.4.2	Date : 08/04/2020
Description of CL				
<div>1. Considering that η_{wb} is defined as data to be monitored and the question is also listed under monitored data worksheet (column P and Q), why the responses were not captured or reported? The parameter defines the default value depending upon the baseline device. How the type of baseline device was not identified as part of monitoring survey in spite of having question for that? Please clarify?</div> <div>2. Several parameters under Section E.2 define multiple frequencies as permitted by registered monitoring plan. However, it is not clear what has been following in the current monitoring period? para 263c of CDM PS PoA V2)</div>				
Project participant response				Date: 15/06/2020
<div>1. The question listed under monitored data worksheet (column P and Q) captures the likelihood of project users boiling water after treatment by the project devices. If any of the sampled user is found boiling water after water treatment by project device, appropriate discounts need to be applied to</div>				

emission reduction calculations (given boiling water after purification by project device will neutralize the baseline emissions avoided by the corresponding project device). No sample users were found boiling water after treatment with project device. Hence the columns P and Q don't show any response as they are only attributed to post project device treatment boiling cases.

Additionally, please refer page number 82 and 115 of the registered PoA-DD which states the following:

Default values as per AMS-III.AV combined with survey, national, or regional data to determine the percent of users using different types of water boiling systems in the baseline scenario.

Thus, % users using unimproved biomass burning stove, other biomass burning stove and/or fossil fuel stove in Kenya has been updated as the per the Global Alliance for Clean Cookstoves, Kenya report and a weighted average value has been applied to determine η_{wb} . This remains the most recent national data available. Hence determination of η_{wb} value is in line with the registered PoA-DD.

2. The monitoring frequencies under section E.2 of the MR have been revised as per the monitoring frequency followed for various monitoring parameters in the current monitoring period. The revised MR is being submitted.

Documentation provided by project participant

PoA 9948_MP3_CERPD 2_Kenya MR ver2.0 15062020

DOE assessment

Date: 23/06/2020

1. The parameter nwb is monitored to calculate the efficiency of baseline device and the discount factor is applied when the end-user is found to be using the baseline device along with the deployed project device. As per the GACC report it was confirmed that all the public institutions cook with wood on traditional three stone fire and in-line to the default value stated in the applied methodology 10% was used as the efficiency of traditional stove.

The question listed under column P and Q was found to be appropriate for the users using boiling of water post the use of project device. From the monitoring survey forms it was also confirmed that none of the users were boiling water post the treatment from the project device. Thus, no responses were recorded under the respective columns which was found to be appropriate and correct.

CME would apply the weighted average value of the % users using unimproved biomass burning stove other biomass burning stove or fossil fuel stove in Kenya so as to determine nwb value for the users using more than one baseline device in-line to the Source of data of the parameter mentioned on page 82 and 115 of the registered PoA-DD (Version 7.0). Thus, the clarification provided by the CME of using the default value for the monitored parameter as all the end-users were found using unimproved biomass burning stove as confirmed from the monitoring sheet as well as survey forms. The approach for the determination of nwb value was found to be in-line with the measurement methods and procedure mentioned in the registered PoA-DD (on page 83). (Closed)

2. CME has now mentioned the chosen frequency for each of the monitoring parameter. The frequency for each of the monitored parameter was found to be updated under section E.2 of the revised MR (Version 2.0). Thus, CL#02 stands closed.

CL ID	05	Section no.	E.3.4.2	Date : 17/09/2020
Description of CL				
1.	As per revised PoA-DD dated 18/04/2017, monitoring plan under Generic CPA-DD section of PoA-DD (section B.7.1) and monitoring plan of specific CPA-DDs (section B.5.1) considered during the current verification, the parameter 'Fraction of non-renewable biomass (fNRB)' is mentioned as monitoring parameter. As per the monitoring procedure in the specific CPA-DDs for this parameter the CME mentioned that it will use the DNA approved value of fNRB as a monitored value during the monitoring period. However, it should be noted that fNRB value for Kenya has expired on 18 Sept. 2017 (refer https://cdm.unfccc.int/DNA/fNRB/index.html) and no further submission was made by the DNA to update this value.			
	CME is requested to clarify how is the monitoring of the parameter has been conducted in accordance to the registered monitoring plan stated under the included CPA-DDs and the revised PoA-DD (Version 7.0).			

2. Since the parameter f_{NRB} is listed as a monitored parameter, the CME shall clarify if the default value of f_{NRB} can be updated in future (within this crediting period), if a new value of f_{NRB} is published by the host country DNA. Please justify your answer.

Project participant response Date: 18/09/2020

1.

- a) Page 69 (for CPA type 2) and page 100 (for CPA type 3) of the registered PoA-DD dated 18/04/2017 states the following:

$f_{NRB,y}$	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable. For biomass, the default values of f_{NRB} shall be used from EB67⁸ . A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of biomass and other fuels (e.g. fossil fuels) are used, a weighted average renewability factor shall be applied.
-------------	--

- b) Also, page 82 (for CPA type 2) and page 115 (for CPA type 3) of the registered PoA-DD dated 18/04/2017 states the following in parameter table for $f_{NRB,y}$

Data/Parameter	$f_{NRB,y}$
Source of data	EB 67 Annex 22 Default Values for Fraction of Non-Renewable Biomass for Least Developed Countries and Small Island Developing States, combined with survey, national, or regional data to determine the percent of users using woody biomass and fossil fuel in the baseline scenario. If the displaced fuel is fossil fuel use the default value of 1.0. If a mixture of woody biomass and fossil fuels is used in the absence of the project activity a weighted average value should be used, using surveys or national data.
Measurement methods and procedures	The type of baseline fuel(s) used by target population will be determined via survey, national, or regional data. Parameter will be determined using the default values from EB67 Annex 22 for woody biomass and from the methodology for fossil fuels: If a mixture of woody biomass and fossil fuels is used in the absence of the project activity a weighted average value shall be applied, calculated through the following formula: $f_{NRB,y} = [\text{Default } f_{NRB} \text{ value}] * [\% \text{ of users using NRB}] + [1.0] * [\% \text{ of users using fossil fuels}]$

Thus, from the aforesaid it is confirmed that the registered PoA-DD and its monitoring plan mandate the CME to use the default value of f_{NRB} as approved by EB67, Annex 22 and the continuous or at least biennial monitoring, as per PoA-DD, only requires monitoring the % of users using NRB and % of users using fossil fuels to update the weighted average value of $f_{NRB,y}$.

This is further substantiated by the CPA-DDs in section B.5.1, as follows:

Data/Parameter	$f_{NRB,y}$
----------------	-------------

⁸ The f_{NRB} value for Kenya was provided in SSC WG 37th Meeting, Annex 14, deemed as extension of EB 67 annex 22 as per para 3 of SSC WG 37 annex 14, available at:

https://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf

The SSCWG presented an information note giving default f_{NRB} values for various countries which was approved in EB67 as Annex 22 (refer EB meeting 67 meeting report, para 92). In EB 67, The EB further requested the secretariat, in consultation with the SSC WG, to continue to determine f_{NRB} factors for Parties with 10 or less registered CDM project activities as of 31 December 2010 and recommend to the Board default values for application in these countries (EB 67 meeting report, para 93). The SSC WG published another information note in SSC WG 37 (annex 14) providing default f_{NRB} value for Kenya which was subsequently approved in EB68 (refer EB68 meeting report, para 106).

Source of data	Value used is default value from UNFCCC CDM Data ⁹
Measurement methods and procedures	<p>CDM Default value taken in line with PoA-DD page 82, and assumptions made, as suitable.</p> <p>% of schools/ institutions using Woody Biomass = 95% (Assumed)</p> <p>% of schools/ institutions using fossil fuels = 5% (Assumed)</p> <p>NRB value for Woody Biomass = 92%</p> <p>NRB value for Fossil Fuel = 100%</p> <p>$f_{NRB,y} = \{(0.92 \times 0.95) + (1.0 \times 0.05)\} = 0.924$</p>

In the table above, while the % users using NRB/fossil fuel is mentioned as “assumed” but the NRB values are fixed in line with the formula defined in registered PoA-DD (and hence not mentioned as assumed).

Thus, from the registered PoA-DD and included CPA-DDs, it is confirmed that monitoring of $f_{NRB,y}$ only requires determining the % of users using NRB / fossil fuels in the baseline and updating the applicable weighted average $f_{NRB,y}$. The use of default f_{NRB} values is in line with the registered monitoring plan.

This is also in-line with the approach defined for other similar monitoring parameters $EF_{projected_fossilfuel}$ and η_{wb} where default values have been fixed and the parameters are being updated based on % users using fuel type or stove type respectively.

Thus, as per the registered PoA/CPA-DD, the % of users using NRB / fossil fuel in Kenya has been updated as per national data and a weighted average value has been applied to determine $f_{NRB,y}$ in the monitoring report.

No change in the MR is deemed required, given it is fully compliant with registered PoA-DD wrt $f_{NRB,y}$.

- Any more recent default value of f_{NRB} published / endorsed than that stated in the PoA-DD (EB67, annex 22) can only be changed at the time of renewal of the PoA and will be valid for the subsequently included CPAs only because the POA-DD has mandated use of EB67 Annex 22 values on page 69, 82 and 100,115.

Documentation provided by project participant

-

DOE assessment

Date: 21/09/2020

- The PoA applies CDM SSC methodology AMS-III.AV. Low greenhouse gas emitting safe drinking water production systems (Version 4.0). The applied methodology, on page 6, refers to determining f_{NRB} as per the relevant provisions of “AMS-I.E: Switch from Non-Renewable Biomass for Thermal Applications by the User”.

Further, it states that “If the displaced fuel is fossil fuel use a default value of 1.0. If a mixture of woody biomass and fossil fuels is used in the absence of the project activity, a weighted average value (e.g. based on energy content of fuels consumed) should be used”.

“AMS-I.E: Switch from Non Renewable Biomass for Thermal Applications by the User” version 5.0, page 2, states that $f_{NRB,y}$ can be established as non-renewable biomass using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (f_{NRB}) values available on the CDM website. Also, as per Clarification on monitoring the quantity of biomass and the fraction of non-renewable biomass under AMS-I.E. (submitted 17 Jun 11): SSC_543, the value of $f_{NRB,y}$ can be fixed ex ante at the beginning of each crediting period.

The CME therefore, fixed the value of f_{NRB} for Kenya through EB67 Annex 22 (extension SSC 37 Annex 14th, approved in EB68) as stated in the registered PoA-DD at page 69, 82 and 100, 115 for CPA type 2 and CPA type 3 respectively. However, the $f_{NRB,y}$ was listed as monitoring parameter to allow determination of a weighted average value in case a mixture of woody biomass and fossil fuels is used in the absence of the project activity in line with AMS III.AV. version 4.0, page 6.

The PoA-DD version 7.0 (Section B.7.1.) states the $f_{NRB,y}$ as a calculated parameter which has a formula:
 $f_{NRB,y} = [\text{Default } f_{NRB} \text{ value}] * [\% \text{ of users using NRB}] + [1.0^{10}] * [\% \text{ of users using fossil fuels}]$

The aforesaid formula only keeps the % of users (using NRB / fossil fuel) as a variable and considers f_{NRB} values as a constant (default for NRB and 1.0 for fossil fuel). Thus, the parameter is listed as monitoring

⁹ https://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf (Extension of EB 67 annex 22 as per para 3 of SSC WG 37 annex 14).

¹⁰ In line with page 6 of AMS III.AV. - If the displaced fuel is fossil fuel use a default value of 1.0

parameter only because of the variability attributed to % users using a given baseline fuel type.

Since the default value of f_{NRB} has been considered as a constant, the expiry of f_{NRB} value is deemed not applicable to the PoA and included CPAs. Besides, no other method to determine the value f_{NRB} is found listed under section B.7.1 of the registered PoA DD.

This approach of monitoring the $f_{NRB,y}$ parameter has also been clearly stated under the monitoring plan of the included CPA-DDs (B.5.1.).

Thus, in-line to para 346 of the VVS for PoA it was confirmed that CME has followed the registered monitoring plan stated in the revised approved PoA-DD version 7.0, included CPA-DDs and the applied methodology AMS-III.AV. version 4.0, for monitoring the parameter.

The verification report version 3.0 dated 21/09/2020 has also been revised to reflect the opinion on the revised information.

2. The CME will not apply the updated value of f_{NRB} within this crediting period as it is bound by the requirement stated in the PoA DD. This also confirms that only % of users is variable in the monitored parameter.

Thus, CL#05 stands closed.

Table 3. CARs from this verification

CAR ID	03	Section no.	E.3.4.2	Date : 03/06/2020
Description of CAR				
<ol style="list-style-type: none"> 1. There are inconsistencies in the value of multiple monitored parameters under section E.2. of the MR (Version 1.1, Dated:22/04/2020) 2. Achieved ERs mentioned in the MR (Version 1.1) was found to be inconsistent with the ER sheet (Tab: ER summary; Cell: U21). 3. Value of monitored parameter 'QPW' mentioned on page 20 of the Monitoring Report (Version 1.1) was found to be inconsistent with the ER sheet (Title: PoA 9948_MP3_CERPD 2 Kenya; Version 1.0; Tab: ERs Summary; Cell: U8) 				
Project participant response				Date: 15/06/2020
<ol style="list-style-type: none"> 1. Value of monitored parameters have been rectified in revised MR. The value of monitored parameters mentioned in the revised MR is now consistent with the submitted ER Sheet. The ER volume also has been rectified in the revised MR to be consistent with the ER Sheet. Revised MR and ER Sheet are being submitted. 2. The achieved ERs have been rectified in the revised MR to be consistent with the ER Sheet. Revised MR and ER Sheet are being submitted. 3. Value of monitored parameter "QPW_y" has been rectified in revised MR. The value of QPW_y mentioned in the revised MR is now consistent with the submitted ER Sheet. Revised MR and ER are being submitted. 				
Documentation provided by project participant				
PoA 9948_MP3_CERPD 2_Kenya MR ver2.0 15062020				
PoA 9948_MP3_MR5_CEPRD 2 Kenya ER Sheet ver 2.0 15062020				
DOE assessment				Date: 23/06/2020

1. CME has now revised the value of monitored parameters listed under section E.2. The value of monitored parameters was found to be consistent with the value mentioned in the ER sheet. (Closed)
2. CME has revised the achieved ERs mentioned in the MR (version 2.0) and has now made it consistent with the ERs achieved mentioned in the ER sheet (Tab: ERs Summary, Cell: AD20)
3. CME has revised the value for monitored parameter "QPWy" in the MR (Version 2.0). The value was found to be consistent with the value mentioned in the ER sheet.

Thus, CAR#03 stands closed.

CAR ID	04	Section no.	E.3.4.3	Date : 23/06/2020
Description of CAR				
The MR (MP3MR5) version 1.1 dated 22/04/2020 published by the verification team has CPA 9948-P1-0105-CP1 included in it under section A.1.2. However, the revised MR version 2.0 dated 15/06/2020 does not mention this CPAs considered for this issuance. CME shall clarify why the CPA has been removed.				
Project participant response				Date : 24/06/2020
The CPA 9948-P1-0105-CP1 was not implemented till the end date of the concerned monitoring period and hence the CME decided not to cover this CPA in the concerned monitoring report.				
Documentation provided by project participant				
NA				
DOE assessment				Date: 29/06/2020
CME has not implemented CPA 9948-P1-0105-CP1 as confirmed from the CPA-Database shared by the CME and through the CME representative interview, it was again confirmed that they have not implemented the CPA. Thus, it was not covered in the MR (Version 2.0) and was found to be acceptable (Closed).				
Thus, CAR#04 stands closed.				

Table 4. FARs from this verification

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

- - - - -

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN);• Make structural and editorial improvements.
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: programme of activities, verifying and certifying		