




**Verification and certification report form for  
CDM programme of activities  
(Version 04.0)**

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

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the programme of activities (PoA)</b>	Impact Carbon Global Safe Water Programme of Activities (PoA) UNFCCC Ref. No.9948		
<b>Version number(s) of the PoA-DD(s) to which this report applies</b>	7.0		
<b>Version number of the verification and certification report</b>	2.0		
<b>Completion date of the verification and certification report</b>	29/06/2021		
<b>Monitoring period number and duration of this monitoring period</b>	Monitoring Period Number: Fifth Monitoring Period: 22/03/2020-31/12/2020 (both days inclusive)		
<b>Number and version number of the monitoring report to which this report applies</b>	Version: 2.0 Monitoring Report Number: 3		
<b>Coordinating/managing entity (CME)</b>	Impact Carbon		
<b>Host Parties</b>	<b>Host Parties of the PoA</b>	<b>Is this a host Party to a CPA covered in this report? (yes/no)</b>	
	Rwanda	No	
	Uganda	No	
	Nigeria	Yes	
	Kenya	No	
<b>Applied methodologies and standardized baselines</b>	Methodology: AMS-III.AV. Low greenhouse gas emitting safe drinking water production systems (Version 4.0)  Standardized Baseline: Not Applicable		
<b>Mandatory sectoral scopes</b>	3: Energy Demand		
<b>Conditional sectoral scopes, if applicable</b>	Not Applicable		
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report</b>	1,623,685 tCO <sub>2e</sub>		
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report</b>	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	0 tCO <sub>2e</sub>	134,384 tCO <sub>2e</sub>	NA
<b>Name and UNFCCC reference number of the DOE</b>	Earthood Services Private Limited E-0066		
<b>Name, position and signature of the approver of the verification and certification report</b>			

	Dr. Kaviraj Singh Managing Director
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## SECTION A. Executive summary

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The CDM PoA 9948 aims at distribution of the low carbon emissions 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 target countries.

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 reduction in Green-house gas (GHG) emissions attributed to boiling in the baseline. This verification covers implemented CPAs 9948-P1-0043-CP1 to 9948-P1-0077-CP1 (35 CPAs).

The verification team confirms that the total emission reductions achieved under this monitoring period from 22/03/2020 – 31/12/2020 (inclusive of both days) are 134,384 tCO<sub>2</sub>e.

### **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-P1-0043-CP1 to 9948-P1-0077-CP1 (35 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/13/
- 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 onsite audit (including sampling approach (refer Section D.4 of this report) to be applied)
- e) Remote audit inspection (refer Section D.2 of this report) (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 evidence)
- i) Reporting and closure of TR comments/findings (refer Section D.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section G and H of this report).
- j) Issuance of final verification report to contracted CME (or authorized representatives) and submission of 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 35 CPAs (**9948-P1-0043-CP1 to 9948-P1-0077-CP1**) for the monitoring period 22/03/2020 – 31/12/2020 (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) Version 2.0 dated 24/06/2021/13/. 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 Nigeria during the period 22/03/2020 – 31/12/2020 (inclusive of both days) amount to **134,384** tCO<sub>2</sub>e. 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	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	Nanbal	Kumden	Central Office	Y	N	Y	Y

\*Remote Site Inspection was conducted instead of on-site inspection. Refer to section D.2 of this report for further 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	Guleria	Shifali	Central Office
2.	TA to TR	IR	Guleria	Shifali	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

## SECTION C. Application of materiality in conducting the verification

### C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Observational error by monitoring survey staff of CME/CPA implementer while recording the responses of users in relation to survey parameters	High	The survey is conducted for representative samples of population, which may impact the population significantly. Surveyors may be unsupervised at the site.	Verification team randomly selected the samples from CME surveyed sampled WPS. The recorded survey forms by CME were checked with DOE remote audit inspection observations. The verification team also interviewed the monitoring staff and checked their training records.
2.	Calculation Errors	Med	The process is manual and therefore there is potential risk of errors / omissions/misstatements.	All calculations were checked by verification team concerning 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 <sub>2e</sub> )/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 <sub>2e</sub> ) in this monitoring period	227,565 tCO <sub>2e</sub>	134,384* tCO <sub>2e</sub>
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-P1-0043-CP1 to 9948-P1-0077-CP1						
For water purifier						
QPW <sub>y</sub>	Annual or at least biennial	35 calculated parameter for each CPA)	35 (100%)	There were errors in calculation which have	All the errors have been	No extrapolation is required

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				been corrected (35).	corrected *	as 100% values checked and corrected.
nWB	Continuously or at least biennial	1	1	None	NA	NA
Tyi	Continuous	7,636 UltraFLO 10,949 UltraTAB Total: 18,585 units (systems being claimed)	Entire Sales database/5/ was checked for the information. 11 WPS were checked during remote audit inspection for cross check.	None	NA	NA
Nyi	Continuous	341	Entire sales database was checked for the information.	None	NA	NA
Water quality (WQ)	Annually	58	11 WPS were checked during remote audit inspection for cross check. (Based on acceptance sampling)	None	NA	NA
Operational Units <sub>i</sub>	At least once per verification	63	11 WPS were checked during remote audit inspection for cross check. (based on acceptance sampling)	None	NA	NA
f <sub>NRB</sub>	Continuously	1	1	None	NA	NA
EF <sub>projected_fossilfuel</sub>	Continuously	1	1	None	NA	NA
Existence of public distribution network of safe drinking water	Annually	58	11 WPS were checked during remote audit inspection for cross check. (based on acceptance sampling)	None	NA	NA

\*There was an error identified related to the calculation of ERs in the ER sheet shared by CME which has been corrected by the CME. CAR ID 09 was raised and resolved to address the issue.

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) A review of data and information provided for its completeness.
- b) 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 this Verification and Certification Report.

## D.2. On-site inspection<sup>1</sup>

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	-	11/05/2021	Deepika Mahala and Vaishali Vatsa, Nanbal Kumden
2.	Interview of the head of the institution related to the DoE sampled project devices	-	11/05/2021	Deepika Mahala and Vaishali Vatsa, Nanbal Kumden

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

### Mandatory Site-visit

The site-visit for the current verification was not mandatory, as none of the conditions for verification that require a mandatory site visit were applicable.

Para 321 of VVS for PoA, version 2.0 /9/ says that It is mandatory for the DOE to conduct an on-site inspection at verification for the included CPA if:

- a) It is the first verification for the DOE with regard to this CPA;
- b) More than three years have elapsed since the last on-site inspection conducted for verification for the CPA; or
- c) The CPA has achieved more than 300,000 tCO<sub>2e</sub> of GHG emission reductions or net anthropogenic GHG removals since the last verification when an on-site inspection was conducted.

The 35 CPAs that are part of this verification have already been verified by ESPL previously via a physical on-site visit in the year 2019, which means that it is neither the first verification for ESPL, nor more than 3 years have elapsed since the last physical on-site inspection for the batch requesting issuance. ESPL was involved in the MP2 on-site verification of this batch which was conducted on 14/07/2019-17/07/2019. The total ERs in this PoA batch accrued after MP2 is 491,088 (= 227,787 in MP3 + 128,917 in MP4 + 134,384 in MP5, current MP) tCO<sub>2e</sub> where overall achieved ERs is 491,088 and none of the CPAs included in this verification has achieved more than 300,00 tCO<sub>2e</sub> ERs since MP2 when an on-site inspection was conducted/37/,/40/. Thus, the site visit was not deemed mandatory for the current verification.

The site-visit was not conducted for this issuance due to outbreak of global pandemic Covid-19, increased risk of exposure and contraction due to travel as the host country where the DOE is located was facing second wave of Covid 19 and the case in the country were spurring at a very high rate at the time the decision to not conduct the physical site visit was taken/48/,/50/.

### **UN EB decision on Mandatory DOE on-site visits**

UN EB 106 report (Para 26) mentions the decision EB took on 20<sup>th</sup> March 2020, in relation to DOE on-site visit which was applicable from 23<sup>rd</sup> March 2020 to 23<sup>rd</sup> June 2020/47/. The Executive Board of the Clean Development Mechanism (CDM) agreed on 23 June 2020, on an exceptional basis considering the COVID-19 pandemic, to extend the period in which CDM Designated Operational Entities (DOEs) may apply alternative measures of validation/verification to mandatory on-site inspections until 31 December 2020/48/ which was extended to 30 June 2021 in EB 108 when the decision to conduct the RSV was taken.

Therefore, for reasons provided above, and in line with UN EB guidelines, the assessment team conducted the verification for this PoA batch using alternative means as defined in the CDM VVS-PoA, ver. 2.0/9/. DOE verification team applied standard auditing techniques while verifying the PoA verification, as discussed below.

<sup>1</sup> This table lists down the activities conducted during the remote audit inspection

**Alternative means applied:**

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

1. Remote Audit Inspections 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.
2. Photographic evidence of the water quality testing kits /30/, Installed WPS with Unique Product IDs /27/, Monitoring Survey (filled) Forms /18/.
3. Complaint Log (Scanned Samples) /36/
4. Monitoring personnel training certificates /20/
5. Review of Other Documentary evidence (ER sheet /4/, Sample Size Calculation sheet /4/, Monitoring Data sheet /4/)

These alternative methods were considered sufficient by the verification team for the current verification.



D.3. Interviews<sup>2</sup>

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Turgesen	Mark	Impact Water	11/05/2021	Sampling Surveys	Deepika Mahala, Vaishali Vatsa
2.	Kibagendi	Everline	Impact Water	11/05/2021	Implementation	Deepika Mahala, Vaishali Vatsa
3.	Brown	Julie	Impact Carbon	11/05/2021	Implementation, Sales records	Deepika Mahala, Vaishali Vatsa
4.	Neville	Tim	Impact Carbon	11/05/2021	Database management	Deepika Mahala, Vaishali Vatsa
5.	Lohia	Rohit	CSIPL	11/05/2021	Monitoring Report, Sampling methodology, ER calculations	Deepika Mahala, Vaishali Vatsa
6.	-	Nihar	CSIPL	11/05/2021	Monitoring Report, Sampling methodology, ER calculations	Deepika Mahala, Vaishali Vatsa
7.	Kumar	Ritesh	CSIPL	11/05/2021	Monitoring surveys	Deepika Mahala, Vaishali Vatsa
8.	Huelsenbeck	Mark	Impact Water	11/05/2021	Monitoring Report, Sampling methodology, ER calculations	Deepika Mahala, Vaishali Vatsa
9.	-	Ajayi	Principal (N1842398)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
10.	Abdulkareem	Yakubu	Headmaster (N1843665)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
11.	Joel	Nwachukwu	Proprietor (N1865784)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
12.	Tunde	Akinyefa	School Supervisor (N1868919)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
13.	Yakubu	Salish	Head Teacher (N1849313)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
14.	Mohammed	Ismail'La	Head Teacher (N1849321)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
15.	Afusat	Alhaja	Principal (N1854166)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
16.	Funmilayo	Popoola	Head Teacher (N1854352)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka

<sup>2</sup> Interviews were conducted Via Skype Call

17.	Bamigboye	E.B	Deputy Head Teacher (N1854353)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
18.	Oladimeji James	Pastor Oyeleye	Proprietor (N1831807)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka
19.	M.K.	Adeyemo	Principal (N1854605)	11/05/2021	DOE Remote audit inspection sample	Deepika Mahala, Vaishali Vatsa and Kumden Nanbal Luka

#### D.4. Sampling approach

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##### 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 4.0/31/ and Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 8.0 /19/ 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 35 CPAs which are part of this batch under issuance. Thus, PoA wide single sampling plan was used by the CME.

##### DOE's 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 8.0 /19/ 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 8.0 /19/, 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 remote audit inspection 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-P1-0043-CP1 to 9948-P1-0077-CP1	0.5%	20%	10%	10%	11	0

The verification team selected random samples from CME's sampled units to check the acceptability (or otherwise) of the monitoring 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
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Ultra FLO	7,830
Ultra Tab	10,987

Since, the distribution ratio between the two categories UltraFLO & UltraTab is 2:3, the DOE's sample size of 11 WPS units was also divided in a similar ratio. These 11 samples were chosen randomly (using website [www.randomizer.org](http://www.randomizer.org)) out of total of 52 CME's monitored samples (as part of monitoring survey). As per plan, 11 systems (WPS) were required and DOE surveyed 5 samples of Ultra FLO type and 6 samples of Ultra Tab type. No inconsistency between the CME results and DOE's observations during the remote audit inspection was identified.

It shall be noted that the latest version of the sampling standard is version 9.0/54/ available at time of preparation of the final version of this report. However, the DOE sampling plan was prepared before the release date of latest version of the standard (i.e., version 09.0 published on 27/05/2021) and the remote audit inspection was done on 11/05/2021 as stated under the previous section of this report which is before the release date of the latest standard. Thus, version 8.0 was applied/19/. Nevertheless, the verification team has checked the latest version of the sampling standard and found that there is no new guideline/requirement added in the latest version of the standard with regard to the DOE sampling plan and the sampling plan applied by the verification team complies with version 9.0 of the standard too/55/.

#### 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
<b>General</b>	-	-	-
Compliance of the monitoring report with the monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verifications	-	-	FAR#01 FAR#02
CPAs considered for verification and covered in this report	-	-	-
<b>Programme of activities</b>	-	-	-
Compliance of the programme implementation with the registered PoA-DD	CL#03 CL#05 CL#06	-	-
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 <sup>3</sup>	-	-	-
• Changes to the programme design	-	-	-
• Addition of CPA inclusion template	-	-	-
• Change of coordinating/managing entity	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
<b>Component project activities</b>	-	-	-
Compliance of the CPA implementation with the included CPA design document	CL#04 CL#05 CL#07	-	-
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	-	-	-

<sup>3</sup> 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).

• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	-	-	-
• Changes to the project design	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
Compliance of the registered monitoring plan with applied methodologies and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
• Data and parameters fixed ex ante or at renewal of crediting period	-	-	-
• Data and parameters monitored	-	CAR#09 CAR#10	FAR#11 FAR#12
• Implementation of sampling plan	CL#08	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	-	-	-
• Calculation of project GHG emissions or actual net GHG removals by sinks	-	-	-
• Calculation of leakage GHG emissions	-	-	-
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	-	-	-
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	-	-	-
• Remarks on difference from estimated value in included CPA	-	-	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
<b>Total</b>	06	02	04

## SECTION E. Verification findings

### E.1. General

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

<b>Means of verification</b>	The monitoring report form used is CDM-PoA-MR-FORM version 04.0/10/ which is the latest and an appropriate form 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. The sections in the form are providing all the relevant details, and the template was not found altered at any place.
<b>Findings</b>	No finding was raised.
<b>Conclusion</b>	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 two FARs were found to be raised. There are two FARs from this verification that shall be addressed in the next verification. Please see Appendix 4 /37/,/40/.

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

<b>Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period</b>	<b>Is the CPA considered for this verification? (yes/no)</b>	<b>The date when the CPA was included</b>	<b>Version of the PoA-DD</b>	<b>Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)</b>
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	Yes	26/04/2019	7.0	Yes <sup>4</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 44 supported by Republic of Korea, Version: 1.0, 9948-P1-0044-CP1	Yes	26/04/2019	7.0	Yes <sup>5</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 45 supported by Republic of Korea, Version: 1.0, 9948-P1-0045-CP1	Yes	26/04/2019	7.0	Yes <sup>6</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 46 supported by Republic of Korea, Version: 1.0, 9948-P1-0046-CP1	Yes	26/04/2019	7.0	Yes <sup>7</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 47 supported by Republic of Korea, Version: 1.0, 9948-P1-0047-CP1	Yes	26/04/2019	7.0	Yes <sup>8</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 48 supported by Republic of Korea, Version: 1.0, 9948-P1-0048-CP1	Yes	26/04/2019	7.0	Yes <sup>9</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 49 supported by Republic of Korea, Version: 1.0, 9948-P1-0049-CP1	Yes	26/04/2019	7.0	Yes <sup>10</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 50 supported by Republic of Korea, Version: 1.0, 9948-P1-0050-CP1	Yes	26/04/2019	7.0	Yes <sup>11</sup>

<sup>4</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>5</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>6</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>7</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>8</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>9</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>10</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

<sup>11</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poaiss893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss893843136/view)

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 51 supported by Republic of Korea, Version: 1.0, 9948-P1-0051-CP1	Yes	26/04/2019	7.0	Yes <sup>12</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 52 supported by Republic of Korea, Version: 1.0, 9948-P1-0052-CP1	Yes	26/04/2019	7.0	Yes <sup>13</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 53 supported by Republic of Korea, Version: 1.0, 9948-P1-0053-CP1	Yes	26/04/2019	7.0	Yes <sup>14</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 54 supported by Republic of Korea, Version: 1.0, 9948-P1-0054-CP1	Yes	26/04/2019	7.0	Yes <sup>15</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 55 supported by Republic of Korea, Version: 1.0, 9948-P1-0055-CP1	Yes	26/04/2019	7.0	Yes <sup>16</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 56 supported by Republic of Korea, Version: 1.0, 9948-P1-0056-CP1	Yes	26/04/2019	7.0	Yes <sup>17</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 57 supported by Republic of Korea, Version: 1.0, 9948-P1-0057-CP1	Yes	26/04/2019	7.0	Yes <sup>18</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 58 supported by Republic of Korea, Version: 1.0, 9948-P1-0058-CP1	Yes	26/04/2019	7.0	Yes <sup>19</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 59 supported by Republic of Korea, Version: 1.0, 9948-P1-0059-CP1	Yes	26/04/2019	7.0	Yes <sup>20</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 60 supported by Republic of Korea, Version: 1.0, 9948-P1-0060-CP1	Yes	26/04/2019	7.0	Yes <sup>21</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 61 supported by Republic of Korea, Version: 1.0, 9948-P1-0061-CP1	Yes	26/04/2019	7.0	Yes <sup>22</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 62 supported by Republic of Korea, Version: 1.0, 9948-P1-0062-CP1	Yes	26/04/2019	7.0	Yes <sup>23</sup>

<sup>12</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>13</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>14</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>15</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>16</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>17</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>18</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>19</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>20</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>21</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>22</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>23</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)



Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 63 supported by Republic of Korea, Version: 1.0, 9948-P1-0063-CP1	Yes	26/04/2019	7.0	Yes <sup>24</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 64 supported by Republic of Korea, Version: 1.0, 9948-P1-0064-CP1	Yes	26/04/2019	7.0	Yes <sup>25</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 65 supported by Republic of Korea, Version: 1.0, 9948-P1-0065-CP1	Yes	26/04/2019	7.0	Yes <sup>26</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 66 supported by Republic of Korea, Version: 1.0, 9948-P1-0066-CP1	Yes	26/04/2019	7.0	Yes <sup>27</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 67 supported by Republic of Korea, Version: 1.0, 9948-P1-0067-CP1	Yes	26/04/2019	7.0	Yes <sup>28</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 68 supported by Republic of Korea, Version: 1.0, 9948-P1-0068-CP1	Yes	26/04/2019	7.0	Yes <sup>29</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 69 supported by Republic of Korea, Version: 1.0, 9948-P1-0069-CP1	Yes	26/04/2019	7.0	Yes <sup>30</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 70 supported by Republic of Korea, Version: 1.0, 9948-P1-0070-CP1	Yes	26/04/2019	7.0	Yes <sup>31</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 71 supported by Republic of Korea, Version: 1.0, 9948-P1-0071-CP1	Yes	26/04/2019	7.0	Yes <sup>32</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 72 supported by Republic of Korea, Version: 1.0, 9948-P1-0072-CP1	Yes	26/04/2019	7.0	Yes <sup>33</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 73 supported by Republic of Korea, Version: 1.0, 9948-P1-0073-CP1	Yes	26/04/2019	7.0	Yes <sup>34</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 74 supported by Republic of Korea, Version: 1.0, 9948-P1-0074-CP1	Yes	26/04/2019	7.0	Yes <sup>35</sup>

<sup>24</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>25</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>26</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>27</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>28</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>29</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>30</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>31</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>32</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>33</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>34</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>35</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 75 supported by Republic of Korea, Version: 1.0, 9948-P1-0075-CP1	Yes	26/04/2019	7.0	Yes <sup>36</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 76 supported by Republic of Korea, Version: 1.0, 9948-P1-0076-CP1	Yes	26/04/2019	7.0	Yes <sup>37</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 77 supported by Republic of Korea, Version: 1.0, 9948-P1-0077-CP1	Yes	26/04/2019	7.0	Yes <sup>38</sup>
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 78 supported by Republic of Korea, Version: 1.0, 9948-P1-0078-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 79 supported by Republic of Korea, Version: 1.0, 9948-P1-0079-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 80 supported by Republic of Korea, Version: 1.0, 9948-P1-0080-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 81 supported by Republic of Korea, Version: 1.0, 9948-P1-0081-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 82 supported by Republic of Korea, Version: 1.0, 9948-P1-0082-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 83 supported by Republic of Korea, Version: 1.0, 9948-P1-0083-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 84 supported by Republic of Korea, Version: 1.0, 9948-P1-0084-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 85 supported by Republic of Korea, Version: 1.0, 9948-P1-0085-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 86 supported by Republic of Korea, Version: 1.0, 9948-P1-0086-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 87 supported by Republic of Korea, Version: 1.0, 9948-P1-0087-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 88 supported by Republic of Korea, Version: 1.0, 9948-P1-0088-CP1	No	26/04/2019	7.0	NA

<sup>36</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>37</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

<sup>38</sup> [https://cdm.unfccc.int/PoAIssuance/iss\\_db/poais893843136/view](https://cdm.unfccc.int/PoAIssuance/iss_db/poais893843136/view)

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 89 supported by Republic of Korea, Version: 1.0, 9948-P1-0089-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 90 supported by Republic of Korea, Version: 1.0, 9948-P1-0090-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 91 supported by Republic of Korea, Version: 1.0, 9948-P1-0091-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 92 supported by Republic of Korea, Version: 1.0, 9948-P1-0092-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 93 supported by Republic of Korea, Version: 1.0, 9948-P1-0093-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 94 supported by Republic of Korea, Version: 1.0, 9948-P1-0094-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 95 supported by Republic of Korea, Version: 1.0, 9948-P1-0095-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 96 supported by Republic of Korea, Version: 1.0, 9948-P1-0096-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 97 supported by Republic of Korea, Version: 1.0, 9948-P1-0097-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 98 supported by Republic of Korea, Version: 1.0, 9948-P1-0098-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 99 supported by Republic of Korea, Version: 1.0, 9948-P1-0099-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 100 supported By Republic of Korea, Version: 1.0, 9948-P1-0100-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 101 supported By Republic of Korea, Version: 1.0, 9948-P1-0101-CP1	No	26/04/2019	7.0	NA
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 102 supported By Republic of Korea, Version: 1.0, 9948-P1-0102-CP1	No	26/04/2019	7.0	NA
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 access to safe drinking water. For this monitoring period, 35 CPAs of Type 2: Technologies for institutional water consumption, with no project emissions have been covered under the MR. This monitoring period includes the implementation and monitoring of 35 CPAs from 9948-P1-0043-CP1 to 9948-P1-0077-CP1 in the host country Nigeria. The coordinating and managing entity (CME) is Impact Carbon, and CERPD Co., Ltd (CERPD) is the CPA Implementer/15/ for these CPAs. 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 as specified in the monitoring report of the current monitoring period and confirmed from the agreement signed between CME and CPA implementer/15/. Their roles and responsibilities are defined in the signed agreement.</p> <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 use of non-renewable biomass / fossil fuel for boiling with the WPS, reducing amount of equivalent GHG emissions.</p> <p>CPAs covered in the MR involve dissemination of two types of water purification systems:</p> <ol style="list-style-type: none"><li>1. Ultra FLO</li><li>2. Ultra Tab</li></ol>																								
	<table><tr><th>Description</th><th>Ultra FLO</th><th>Ultra Tab</th></tr><tr><td>Size Dimensions</td><td>Cartridge Length: ~12 cm Cartridge height: ~10 cm Cartridge circumference: ~22 cm</td><td>Strip size: ~13 cm X ~5.5 cm (10 tablets per strip)</td></tr><tr><td>Application</td><td>Piped water</td><td>Un-piped water</td></tr><tr><td>Flow rate</td><td>20L/min</td><td>1 tablet treats 100 L</td></tr><tr><td>Capacity/lifespan</td><td>340,000 L / 5-year expiry</td><td>Small Pack: 10,000L / 5-year expiry Big Pack: 48,000L / 5-year expiry</td></tr><tr><td>Fixed or Portable</td><td>Fixed</td><td>Portable</td></tr><tr><td>Removal of E.Coli</td><td>99 (2-log)</td><td>99 (2-log)</td></tr><tr><td>Watts/Voltage</td><td>Not applicable</td><td>Not applicable</td></tr></table>	Description	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 (10 tablets per strip)	Application	Piped water	Un-piped water	Flow rate	20L/min	1 tablet treats 100 L	Capacity/lifespan	340,000 L / 5-year expiry	Small Pack: 10,000L / 5-year expiry Big Pack: 48,000L / 5-year expiry	Fixed or Portable	Fixed	Portable	Removal of E.Coli	99 (2-log)	99 (2-log)	Watts/Voltage	Not applicable	Not applicable
	Description	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 (10 tablets per strip)																						
	Application	Piped water	Un-piped water																						
	Flow rate	20L/min	1 tablet treats 100 L																						
	Capacity/lifespan	340,000 L / 5-year expiry	Small Pack: 10,000L / 5-year expiry Big Pack: 48,000L / 5-year expiry																						
	Fixed or Portable	Fixed	Portable																						
	Removal of E.Coli	99 (2-log)	99 (2-log)																						
	Watts/Voltage	Not applicable	Not applicable																						
<p>All the deployed 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.</p> <p>Through the remote audit inspection call recordings /42/ the installation of WPS</p>																									

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/.

*The Verification team assessed the following information to verify the capacity and lifetime of systems under the CPAs:*

- I. *Technical specification / expiry of UltraFLO issued by Medentech (technology supplier)*
- II. *Technical specification / expiry of UltraTAB issued by Medentech (technology supplier)*
- III. *The UltraTAB strip clearly mentions the treatment capacity of 1 tablet as 100ltrs and an Small Pack UltraTAB pack is standardized at 10 strips of 10 tablets each, rendering the capacity of Small Pack UltraTAB pack as 10,000 ltrs (verified physically during previous site visits as well as UltraTAB photos)*
- IV. *The UltraTAB strip clearly mentions the treatment capacity of 1 tablet as 100ltrs and a Big Pack UltraTAB pack is standardized at 48 strips of 10 tablets each, rendering the capacity of Big Pack UltraTAB pack as 48,000 ltrs (verified during remote site inspection as well as Manufacturer Specification)*
- V. *UltraFLO cartridges are manufactured in a standardized size as per the dimensions specified in the CPA-DDs and MR (verified physically during previous site visits as well as UltraFLO dimension declaration by CME) and pertains to the specifications issued by Medentech.*
- VI. *The expiry of the UltraFlo/UltraTAB was also found mentioned on the UltraFLO cartridge / UltraTAB pack respectively as 5 years (photographs of UltraFlo and UltraTAB units)*

*The photographs of the WPS installed by the CME were checked by the verification team and found to be in-line with the technical description provided in the registered PoA-DD/1/ and Monitoring report/13/ and manufacturer's specifications /28/.*

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 monitoring 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 web application "Google Maps" /41/ 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 inspection observations and interview conducted during the e-meeting, 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/2/ were in place
- The project participants/CPA implementer has operated the CPAs as per the information provided in the included CPA DDs/2/.

	<p>A remote audit inspection and e-meeting was conducted by the verification team; 11 WPS (5 for Ultra FLO units and 6 for Ultra TAB units) were surveyed. The uniqueness of the system was identified from UID written on the units (either on cartridges or on TAB box packs)/27/. Along with the unique ID the following details are also noted in the database:</p> <ul style="list-style-type: none"> <li>a) Type of system (UltraFLO / UltraTAB)</li> <li>b) Unique serial number of the units installed / distributed</li> <li>c) Date of installation / distribution</li> <li>d) Address and details of school and contact detail (if available) of representative</li> <li>e) Type of School (Boarding / Non-boarding)</li> <li>f) School population count (number of students / staff in boarding / non-boarding category)</li> </ul> <p>The information of the installed device was also verified from the CME database/5/ which was cross checked for 11 WPS 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. of this report 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>
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	<p>In view of the information's verified through the remote audit inspection and e-meeting, 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 134,384 tCO<sub>2</sub>e. The verification has been conducted in-line with the CDM VVS for PoA /9/.</p>

### E.2.2. Implementation and operation of the management system

<b>Means of verification</b>	<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 remote audit 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 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 /49/ 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 inspection 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</p>
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	<p>the cartridge replacement Ultra FLO or new packets of tablets (Ultra TAB) are required or not.</p> <p>For data survey, a monitoring team was organized by the CME consisting of trained monitoring staff, who conducted the Aquagenx tests (water quality tests) /30/,/43/ and Usage surveys /18/. 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 as confirmed from the CME during the interview via telephonic call. 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 /5/ and monitoring data mentioned in ER calculator /4/. 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 country office. The verification team also checked training records of the monitoring &amp; data recording personnel/20/.</p> <p>Based on the above assessment, 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>
<b>Findings</b>	CL#03,CL#05 and CL#06 were raised and resolved.
<b>Conclusion</b>	The verification team from the desk review and remote audit inspection 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 corrections observed

#### E.2.3.2. Inclusion of a monitoring plan

>>NA

#### 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

>>NA

#### E.2.3.4. Changes to the programme design

Two changes to the programme design have been made to the registered PoA and approved prior to this monitoring period.

PRC request number	Approval Status	Date of Approval	Description
PRC-9948-002	Approved	03 Jul 17	Expansion of PoA Boundary to include Host Country Nigeria
PRC-9948-001	Approved	08 May 17	Expansion of PoA Boundary to include Host Country Kenya

#### E.2.3.5. Addition of CPA inclusion template

>>NA

**E.2.3.6. Change of coordination/managing entity**

&gt;&gt;NA

**E.2.3.7. Changes specific to afforestation and reforestation activities**

&gt;&gt;NA

**E.3. Component project activities****E.3.1. Compliance of the CPA implementation with the included CPA design document**

<b>Means of verification</b>	<p>The revised accepted PoA aims to provide safe drinking water to the institutions in Nigeria, Rwanda, Uganda and Kenya. The PoA is primarily designed to replace the existing fossil fuel / non-renewable woody biomass-based means of purifying water by installing low emission / emission free Water purification systems 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 35 CPAs - CPA 9948-P1-0043-CP1 to 9948-P1-0077-CP1 in Nigeria.</p> <p>The table below provides details on CPA and technology specific figures for this monitoring period:</p>							
	CPA no.	First WPS Installation date	Inclusion date	Crediting period	No. of units (Installed)		Estimated ERs	ERs achieved
					FLO	TAB		
	9948-P1-0043-CP1	23/04/2019	26/04/2019	26/04/2019-25/04/2026	306	336	46,391	4,538
	9948-P1-0044-CP1	23/04/2019	26/04/2019	26/04/2019-25/04/2026	317	448	46,391	4,399
	9948-P1-0045-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	291	407	46,391	4,598
	9948-P1-0046-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	74	646	46,391	4,959
	9948-P1-0047-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	184	525	46,391	4,238
	9948-P1-0048-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	373	323	46,391	3,803
	9948-P1-0049-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	163	428	46,391	4,304
	9948-P1-0050-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	168	292	46,391	4,510
	9948-P1-0051-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	70	346	46,391	4,142
	9948-P1-0052-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	19	392	46,391	4,845
	9948-P1-0053-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	22	463	46,391	4,522
	9948-P1-0054-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	104	389	46,391	4,465
	9948-P1-0055-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	215	362	46,391	4,426
	9948-P1-0056-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	240	338	46,391	4,613
	9948-P1-0057-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	215	485	46,391	3,752
	9948-P1-0058-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	231	294	46,391	3,736
	9948-P1-	24/04/2019	26/04/2019	26/04/2019-	262	348	46,391	3,876



0059-CP1			25/04/2026				
9948-P1-0060-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	237	243	46,391	3,627
9948-P1-0061-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	302	201	46,391	3,790
9948-P1-0062-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	440	104	46,391	4,083
9948-P1-0063-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	774	175	46,391	6,706
9948-P1-0064-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	465	524	46,391	6,698
9948-P1-0065-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	204	3	46,391	1,581
9948-P1-0066-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	203	3	46,391	1,759
9948-P1-0067-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	191	295	46,391	4,501
9948-P1-0068-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	215	381	46,391	4,513
9948-P1-0069-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	194	502	46,391	4,737
9948-P1-0070-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	154	549	46,391	4,244
9948-P1-0071-CP1	24/04/2019	26/04/2019	26/04/2019-25/04/2026	542	584	46,391	7,239
9948-P1-0072-CP1	25/04/2019	26/04/2019	26/04/2019-25/04/2026	123	103	46,391	1,251
9948-P1-0073-CP1	25/04/2019	26/04/2019	26/04/2019-25/04/2026	171	36	46,391	1,283
9948-P1-0074-CP1	25/04/2019	26/04/2019	26/04/2019-25/04/2026	64	143	46,391	953
9948-P1-0075-CP1	25/04/2019	26/04/2019	26/04/2019-25/04/2026	181	25	46,391	1,705
9948-P1-0076-CP1	25/04/2019	26/04/2019	26/04/2019-25/04/2026	34	173	46,391	925
9948-P1-0077-CP1	25/04/2019	26/04/2019	26/04/2019-25/04/2026	82	121	46,391	1,063
	As checked from the delivery notes/21/	Checked from the UN website /12/	Checked from the UN website /12/	Checked from sales database /5/	Checked from sales database/ 5/	Checked from the ER sheet/ 4/	Checked from the ER sheet/4 /

The start date of crediting period, inclusion dates of the CPAs were checked from the UN website /12/. The First WPS Installation dates were checked from the screenshots of salesforce database/49/.

The revised accepted PoA-DD page 59 says that “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 November 2020 will be eligible for crediting only in the month of December 2020. Given the current monitoring period is ending 31<sup>st</sup> December 2020, therefore only the units installed till the end of November 2020 (up to 30-November-2020) are eligible for crediting under the current monitoring period. Thus, the CME has considered 30-November-2020 as the cut-off date of installation for WPS during current monitoring period.

It has been checked by the verification team from the ER sheet/4/ that the ERs achieved for the CPAs are below the threshold of small-scale activity. It has been confirmed that:

1. Each of these CPAs achieves an annual emission reduction equal to or less than 60,000 tCO<sub>2</sub>e 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 tCO<sub>2</sub>e 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 tCO<sub>2</sub>e for SSC type III methodologies) thus fulfilling the additionality criteria stated in the CPA DD/2/ and PoA DD/1/.

The implementation of the CPA as mentioned above is within the geographical boundary of PoA-DD/1/, which has been verified using the Latitude and Longitude verification through web application "Google Maps" /41/, discussed already in section E.2.1 above. Impact Carbon is the CME of the CPA and CERP is the CPAI/15/.

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 Nigeria.

The aforesaid CPAs involve dissemination of the following WPS:

1. Chemical Disinfection/Chlorination (UltraFLO / UltraTAB)

The technical description of the systems has been verified under E.2.1 of this report.

It is noteworthy that UltraFLO systems are fixed type of water purification units and can only be installed when water is being procured through a piped connection. This WPS type can work only when it is mounted on a piped connection and water flows through them. Hence, the CPA DDs (section A.3.) and monitoring report (section C.1) correctly mention that UltraFLO are fixed type systems and applicable on piped water.

The ER sheet, worksheet titled 'MP5 Sales Database', column R 'water source' lists the primary source as surface water, wells etc. besides piped water. The term "piped" water under this column has been used for the schools which receive water from City Council / Government / Municipal Water Connections.

In case of UltraFLO, it shall be noted that water is transported from primary water sources such as wells, surface water and boreholes through pipes to water storage tanks in project schools. The fixed Ultra-FLO systems installed on these pipes.

In the absence of a pipeline connection to the drinking water storage tanks, UltraTABs are provided to the schools, which are designed for non-piped applications. A Small Pack consists of 10 strips of 10 tablets each and a Big Pack consists of 48 strips of 10 tablets each, wherein the tablets can be directly put in drinking water storage tank (@one tablet per 100L of water), thus, is feasible for un-piped applications. In case of UltraTAB, the schools which specify "Piped" as primary water source in column Q, indicate that although water is available via government piped network, but it is not connected with the drinking water storage tank(s). Thus, in such cases, the drinking water storage tank is un-piped making the school fit only for UltraTAB units.

During the remote site visit conducted for the current issuance request, as well as, during the physical site-visit conducted for previous batches, it was clearly noted by the verification team that UltraFLO have only been installed on pipeline connections, even when the primary water source is different from City Council / Government / Municipal water connection. Similarly, UltraTABs are administered only in un-piped applications even when the schools may have a piped connection (not connected to drinking water storage tank).

Thus, the WPS have been implemented in line with the description contained in the included CPA DDs.

<b>Findings</b>	CL#04 and CL#05 was raised and resolved.
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<b>Conclusion</b>	<ul style="list-style-type: none"> <li>a) The verification team is of the opinion that physical features of the CPA have been implemented in accordance with the registered CPA-DD.</li> <li>b) No specific monitoring equipment had to be installed according to the monitoring plan.</li> <li>c) It is also confirmed, through the remote audit inspection and review of the supporting documentation that physical features of the component CPAs included under this monitoring report have been implemented in accordance with the CPA-DD.</li> <li>d) The CPA was also found to be completely operational in line with the CPA-DD. However, CME has sought a temporary deviation during the current MP as CME was unable to provide the replacement of the fully consumed systems/ discontinued prior to the start of the current monitoring period to the institutions. (Please refer to section E.3.2.1. of the report for details)</li> <li>e) The information provided in the relevant sections of the monitoring report appropriately describes the implementation and operational status of the PoA</li> </ul>
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### E.3.2. Post-registration changes

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

The following temporary deviations have been applied by the CME for the current monitoring period (22/03/2020-31/12/2020 (both days inclusive):

1. Description: Systems that were consumed fully/discontinued prior to the start of monitoring period (operational days = 0) have not been considered for sampling and ER calculations and their ERs have been considered as 0 tCO<sub>2</sub>e.
  - a. Nature of temporary deviation: No service level as systems deemed not functional
  - b. Applicability: 22/03/2020 to 31/12/2020
  - c. 9948-P1-0043-CP1 to 9948-P1-0077-CP1

The aforesaid approach is deemed correct as any service level not been provided by these systems being not being functional is not considered for sampling and monitoring. Conservatively, the CME has considered 0 ERs from all such systems. Please refer to PRC validation report/52/ for details.

#### E.3.2.2. Corrections

NA

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

NA

#### E.3.2.4. Inclusion of a monitoring plan

NA

#### 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

NA

#### E.3.2.6. Changes to the project design

NA

#### E.3.2.7. Changes specific to afforestation and reforestation activities

NA

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

<b>Means of verification</b>	The monitoring plan as contained in CPA-DDs/2/ were reviewed against the
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	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/.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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**

<b>Means of verification</b>	The CPAs located in Nigeria fall under Case 1. It was checked from CPA DDs/2/ and study report MICS 2016-2017 /23/ which states that less than 60% of the country has access to clean drinking water, hence Case 1 is applied.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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

<b>Means of verification</b>	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 Kj/L°C and is found to be consistent with the CPA-DD/2/.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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<sub>f</sub>, (°C)

<b>Means of verification</b>	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°C which is found consistent with the values in CPA-DD/2/.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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<sub>i</sub>, (°C)

<b>Means of verification</b>	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 °C and is found to be consistent with the CPA-DD/2/.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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

<b>Means of verification</b>	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 kJ/L and is found to be consistent with the CPA-DDs/2/.
<b>Findings</b>	No findings were raised

<b>Conclusion</b>	The value in the MR and ER sheet /13,4/ are consistent with the registered PoA-DD/1/ & CPA-DDs/2/. The applied value is correct and justified.
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**Leakage, L**

<b>Means of verification</b>	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 and is found to be consistent with the CPA-DDs/2/.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	The value in the MR /13/and ER sheet /4/ are 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, Ryi, Litres/Person/day**

<b>Means of verification</b>	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 Litres/Person/day (for day schools) and 3.5 Litres/Person/day (for boarding schools, prisons) and is found to be consistent with the CPA-DD/2/.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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 (litres), QPW<sub>y</sub> (litres/year):**

<b>Means of verification</b>	<b>Criteria/Requirements</b>	<b>Assessment/Observations</b>
	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 521,550,225 litres/year.</p> <p>The parameter is a calculated parameter determined through following equation for case 1:</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 23/04/2019-11/09/2020.</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 2020.</p>

		<p>The end date of the monitoring period is 31/12/2020.</p> <p>It shall be noted that the equation stated above, sourced from PoA DD, accounts for 365 days of crediting in a year (or for the duration of the monitoring period in case of shorter monitoring periods). However, the schools don't operate for 365 days in a year. Therefore, the CME has determined operational school days in the monitoring period, as per the academic school calendar issued by "Federal Ministry of Education, Nigeria"/53/ for ER calculations, excluding weekend and school holidays, as a conservative measure (ER sheet, Tab MP5 school days). For non-boarding schools, the weekend and school holidays (public holidays, mid-term and end term holidays) have been excluded as a conservative measure. For boarding schools, weekends and short public holidays have been included but the CME has excluded mid-term and end term holidays because the boarding students/staff would still consume water during weekends and short public holidays.</p> <p>The verification team reviewed the Nigeria school academic calendars (2020-21) issued by the Federal Ministry of Education and found them to be presenting school opening and closure dates covering the entire monitoring period. The Verification team confirms that the calculation of school days in the ER sheet/4/ is correct, in accordance with the relevant academic calendars and results in conservative calculation of ERs.</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 the 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
<b>Findings</b>	FAR#02 was raised during last verification and has been resolved now. CAR#10 was raised during current verification and also resolved. FAR#12 has been raised during current verification to be addressed in the next verification.	
<b>Conclusion</b>	<p>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/.</p> <p>FAR#12 has been raised for subsequent monitoring periods to ensure that QPW<sub>y</sub> is</p>	

	determined accounting the operational school days instead of duration of the concerned monitoring period, as applicable.
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**Efficiency of water boiling system being replaced,  $\eta_{wb}$ , 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 Nigeria, 2016/16/ was reviewed to confirm that all the public institutions cook with wood on traditional three stone fire.</p> <p>Therefore, a value of 0.10 for unimproved stove was applied.</p> <p>Default value of 10% thermal efficiency for traditional stoves</p> <p>As per GACC report, all public institutions cook with wood on traditional threestone fire.</p> <p>Thus, <math>\eta_{wb} = 100\% \times 0.10</math></p>
	If applicable, has the reported data been cross-checked with other available data?	Yes. Sampled number of entries (11 WPS systems) were surveyed. The head/deputy head teacher 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
<b>Findings</b>	No findings	
<b>Conclusion</b>	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
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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 distributed as reported in the monitoring report are as following:</p> <p>7,830 UltraFLO</p> <p>10,987 UltraTAB</p> <p>Total: 18,817</p> <p>The total number of systems reported in the monitoring report on which credits are being claimed are as following:</p> <p>7,636 UltraFLO</p> <p>10,949 UltraTAB .</p> <p>Total: 18,585</p> <p>Kindly refer section E.3.2.1 above for more details</p> <p>The CME keeps purchase order/14/, delivery notes/21/ and details of each system on salesforce /49/ 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 to confirm the total number presented in the MR. 11 WPS samples were remotely surveyed also, to confirm that the details of the entries in the database/5/ are correct.</p>
If applicable, has the reported data been cross-checked with other available data?	Yes. Sampled number of entries (5 for Ultra Flo and 6 for Ultra Tab) 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?	Few of the distributed systems were fully consumed / discontinued before the starting of the current MP and CME was unable to replace those systems. Thus, as this parameter has not been monitored for 22/03/2020 to 31/12/2020 as per the registered monitoring plan, temporary deviation has been proposed for the same in-line to para 228 of PS for PoA version 2.0 /7/. Please refer to PRC Validation Report /52/ for details



<b>Findings</b>	No findings were raised.
<b>Conclusion</b>	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>As per the CPA DDs (9948-P1-0043-CP1 to 9948-P1-0077-CP1) page 15 /2/, the value of <math>N_{y,i}</math> is effectively the number of people in the institution. 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>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>It was confirmed during the Remote audit inspection, that 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 gets updated continuously.</p> <p>These numbers are mentioned for each school in the sales database. The database for institutions was checked to confirm that CME is recording this information in database/5, 56/ and the implementation is in line with PoA DD /1/. For the 11 WPS samples checked by the DOE during the remote audit inspection, 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 <math>N_{y,i}</math> multiplied by <math>R_{y,i}</math> does not exceed the maximum output of the unit [per unit].</p> <p>An average value of all the adjusted <math>N_{y,i}</math> has been used for ER calculation respective of each CPA. In general, the average of <math>N_{y,i}</math> for all the CPAs was found to be 341 person/technology.</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 absolute basis for each of the installation.</p>
	If applicable, has the reported data been	Yes. The values in the ER sheet /4/ were

	cross-checked with other available data?	checked with remote audit inspection 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
<b>Findings</b>	CAR#09 was raised and resolved.	
<b>Conclusion</b>	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?	<p>The CME used Aquagenx testing kits to monitor the E.Coli value for sampled institutions.</p> <p>The Head teachers/ Deputy Head teachers of the schools interviewed by the DOE during the remote audit inspection 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 0.93 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, which was confirmed from training evidence/20/ provided by the CME. The training records /20/ 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	NA

	Appendix 1 to the CDM Project Standard?	
<b>Findings</b>	No findings raised.	
<b>Conclusion</b>	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/.	

**Percentage of the monitoring period in which the units of each technology type 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)	<p>Yes. During the current MP and in all the previous monitored periods, the monitoring frequency followed is found to be adhering to the methodology requirements.</p> <p>Further, the verification team also assessed the PoA validation report CAR 07, page 80 of 106 which confirms that “atleast once per verification” is superseded by “biennial” and the methodology requirements prevails.</p> <p>However, to ensure that under no circumstances, the methodology requirement is compromised in future, FAR#10 has been raised to ensure that monitoring frequency of parameter “operational units”, shall be at least biennial, in line with monitoring methodology requirements.</p>
	Monitoring equipment	Sampling Survey has been done to determine the number of water purification system still in operation by field survey by a dedicated team of the CME.
	How were the values in the monitoring report verified?	<p>The sampled systems were checked 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 through the remote audit inspection that the monitoring team visited the school for the monitoring.</p> <p>91.91% of the institutions from the total institution visited by the CME representative during the monitoring survey were found to be operational.</p> <p>Thus, the applied value of 91.91% 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 inspection visit recordings and was found to be consistent.
	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 evidence/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
<b>Findings</b>	FAR#01 was raised during last verification and has been resolved now. FAR#11 has been raised during current verification which needs to be addressed in the next verification.	
<b>Conclusion</b>	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/. FAR#11 has been raised to ensure that monitoring frequency of parameter "operational units", shall be at least biennial, in line with monitoring methodology requirements.	

**Fraction of woody bio-mass saved by the project activity in year, y, that can be established as non-renewable biomass using national or local statistics, survey results, studies, maps or other sources of information, such as remote- sensing data,  $f_{NRB}$ , 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 parameter is determined by sourcing a default value from UNFCCC SSC WG 37<sup>th</sup> Meeting Report for Nigeria /26/ and multiplying it with the percentage of population using non-renewable woody biomass / fossil fuel.</p> <p>"AMS-I.E: Switch from Non Renewable Biomass for Thermal Applications by the User" version 5.0 /25/, page 2, states that <math>f_{NRB,y}</math> can be established as non-renewable biomass using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (<math>f_{NRB}</math>) values available on the CDM website /44/. 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 <math>f_{NRB,y}</math> can be fixed ex ante at the beginning of each crediting period</p>

		<p>/45/.</p> <p>The CME, therefore, fixed the value of <math>f_{NRB}</math> for Nigeria through EB67 Annex 22 /32/ (extension SSC 37 Annex 14<sup>th</sup>, approved in EB68) /38/ as stated in the registered PoA-DD /1/ at page 69, 82, 100, and 115. However, the <math>f_{NRB,y}</math> 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 <math>f_{NRB,y}</math> as a calculated parameter which has a formula:</p> $f_{NRB,y} = [\text{Default } f_{NRB} \text{ value}] * [\% \text{ of users using NRB}] + [1.0^{39}] * [\% \text{ of users using fossil fuels}]$ <p>The aforesaid formula only keeps the % of users (using NRB / fossil fuel) as a variable and considers <math>f_{NRB}</math> 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 <math>f_{NRB}</math> has been considered as a constant, the expiry of <math>f_{NRB}</math> value is deemed not applicable to the PoA and included CPAs. Besides, no other method to determine the value <math>f_{NRB}</math> is found listed under section B.7.1 of the registered PoA DD /1/.</p> <p>Additionally, the CME will not apply the updated value of <math>f_{NRB}</math> (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 GACC report for Nigeria, 2016/16/ was reviewed to confirm that all the public institutions cook with wood on traditional three stone fire.</p> <p>Therefore, a value 100% of users using non-renewable woody biomass / fossil fuel was multiplied with default value of 0.93 UNFCCC SSC WG 37th Meeting Report for Nigeria /26/ to the final value = 0.93, which was applied in the ER calculation sheet/4/. The applied value was found to be correct.</p> <p>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?	NA

<sup>39</sup> In line with page 6 of AMS III.AV. - If the displaced fuel is fossil fuel use a default value of 1.0

	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
<b>Findings</b>	No findings were raised.	
<b>Conclusion</b>	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 projected\_fossil fuel, tCO<sub>2</sub>/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 parameter is determined by sourcing a default value from AMS-I.E /25/ and multiplying it with the % population using non-renewable woody biomass / fossil fuel.</p> <p>The value of % users in the previous MP was established through the review of The GACC report for Nigeria, 2016/16/ which confirmed that all public institutions cook with wood on traditional three stone fire.</p> <p>Therefore, a value 100% users using non-renewable woody biomass / fossil fuel was multiplied with default value of 81.6 sourced from AMS-I.E./25/ to give the final value = 81.6, which was applied in the ER calculation sheet/4/. The applied value was found to be correct.</p> <p>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 form 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
<b>Findings</b>	No findings were raised	

<b>Conclusion</b>	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.
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**Existence of public distribution network of safe drinking water, Fraction, Existence of public distribution network of safe drinking water in year y, Percentage**

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 institutions of sampled WPS were visited by the CME's monitoring team to check the existence of public distribution network of 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>All the institutions of sampled WPS checked by the CME representative during the remote audit inspection were found to not have any access to public distribution network of safe drinking water. Their source of water was found to be Borewell/Well etc. 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.</p> <p>Thus, the applied value of 0 was found acceptable for the current verification.</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 inspection results /42/and was found to be consistent.
	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 evidence/20/ provided by the CME. The training records 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
<b>Findings</b>	No findings were raised.	
<b>Conclusion</b>	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

<b>Means of verification</b>	<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><b>Sampling Design/Target Population/Sampling Frame/Reliability:</b></p> <p>The CME has applied single sampling plan for all of the 35 CPAs implemented. According to the 'Sampling and Survey standards,' version 8.0 /19/, the sampling plan applied by the PP for all the CPAs considered during current verification 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 systems<sup>40</sup> installed / distributed in institutions and recorded in the project sales database</p> <p><b>Sampling Frame:</b></p> <p>There are two different type of units under the CPAs. 7,636 UltraFLO units and 10,949 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> <p><b>Sampling Method and selection:</b></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/ and the samples for each type of WPS were picked proportionally to the distribution in entire population as confirmed from the sample size calculation sheet in the ER sheet /4/.</p> <p><b>Sample Size for Parameter of Interest:</b></p> <p>The sampling is applied to the following monitoring parameters:</p> <ul style="list-style-type: none"> <li>• Operational Units</li> <li>• Water Quality- Aquagenx Tests</li> <li>• Existence of public distribution network of safe drinking water</li> </ul> <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 /31/.</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><b>Implementation of Sampling Survey and Field Test Records:</b></p> <p>Based on interviews with the CME and surveyors during the remote audit inspection, , the surveyors were also found to be trained to evaluate to results of Aquagenx tests/20/. Therefore, the implementation of CME's surveys and tests /18/ was considered reliable. The surveyors also took photos of the school name board, test results which was shared by CME /27/ and were checked during the desk-review by the verification team.</p>
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<sup>40</sup> 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.



**Monitoring survey (by CME) duration:**

The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period.

CPA Ref.No.	Technology	From	To
9948-P1-0043-CP1 to 9948-P1-0077-CP1	Water Purification systems	19/01/2021	30/01/2021

**Reliability and precision calculation:**

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 CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities, version 4.0 /31/ and confirms that the calculation of achieved reliability was done correctly.

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.

**Version of sampling standard applied:**

The survey for this MP was conducted between the dates stated in the table above. Thus, the planning for sampling for the concerned monitoring period (including samples size determination) was conducted on 17/12/2020 (as checked from online random sample generator snapshots submitted by CME/33/).

The latest version available at the time of sampling and monitoring was Standard: "Sampling and surveys for CDM project activities and programmes of activities", was version 08.0/19/ which was applied by the CME. The latest version of standard is "Sampling and surveys for CDM project activities and programmes of activities", Version 09.0/55/ which was published on 27/05/2021. Thus, the CME could not apply version 09.0 of the Sampling Standard at the time of sampling, for planning sampling, monitoring, data calculation and reporting as all these activities were completed before its publication.

However, it was observed that the new standard has added a condition to keep the proportion scale to less than/equal to 1.0. It was checked in the ER sheet that, even if the expected value of the proportion for monitoring parameters is reduced to 0.9 (Or 90%) to keep the proportional scale less than 1.0 for the monitoring parameters to meet compliance with footnote 10 of version 09.0 of the Standard: "Sampling and surveys for CDM project activities and programmes of activities" /55/, the calculated sample size still remains less than the number of samples actually monitored by the CME for each of the monitoring parameter (and strata within). The CME has provided a separate sample size calculation sheet/57/ to demonstrate sample size calculation compliance with version 9.0 of the standard.

Thus, it was concluded that the sampling conducted by the CME is in compliance with both the versions of Standard: "Sampling and surveys for CDM project activities and programmes of activities"/19,55/.

CDM Executive Board decision and documentation framework Version 5.1 para 13 /58/, states that the version containing substantive changes, with the exception of forms, will be recorded in and annexed to the meeting report of the Board, and published on the UNFCCC CDM website and the latest version of the document becomes effective, unless otherwise stated in the meeting report or in the document itself, on the date of publication of the meeting report in which the document was revised. Thus, it could not be applied to an activity conducted before the effective date of the new standard.

**Findings**

CL#08 was raised and resolved

<b>Conclusion</b>	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.8.0 /19/
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### E.3.5. Compliance with the calibration frequency requirements for measuring instruments

<b>Means of verification</b>	No monitoring equipment is required as outlined in the CPA-DDs/2/ and revised accepted PoA-DD/1/.
<b>Findings</b>	None.
<b>Conclusion</b>	The verification team has determined that no monitoring equipment has been used by the PP 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

<b>Means of verification</b>	<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> $BE_y = QPW_y * SEC * f_{NRBy} * EF_{\text{projected\_fossilfuel}} * 10^{-9}$ <p>Where,</p> <table border="1"> <tr> <td><math>BE_y</math></td><td>Baseline emissions during the year y in (tCO<sub>2</sub>e)</td></tr> <tr> <td><math>QPW_y</math></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><math>f_{NRBy}</math></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 <math>f_{NRB}</math> 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><math>EF_{\text{projected\_fossilfuel}}</math></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>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> <tr> <td>WH</td><td>Specific heat of water (kJ/L °C)</td></tr> <tr> <td><math>T_f</math></td><td>Final temperature (°C)</td></tr> </table>	$BE_y$	Baseline emissions during the year y in (tCO <sub>2</sub> 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)	$f_{NRBy}$	<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 <math>f_{NRB}</math> 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)
$BE_y$	Baseline emissions during the year y in (tCO <sub>2</sub> 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)														
$f_{NRBy}$	<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 <math>f_{NRB}</math> 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)

And  $QPW_y$  is calculated through following equation:

$$QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$$

The installation for CPAs under the verification has been done between 23/04/2019-11/09/2020.

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”

Thus, for all the systems installed in October 2020, ERs will be claimed in November 2020. The end date of the monitoring period is 31/12/2020

The applicable formula is:

$$QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$$

Where:

$QPW_y$ : Quantity of purified water for drinking for all technologies type i in year y (Liters)

$N_{y,i}$ : The average population serviced by water purification systems (person/equipment)

$T_{y,i}$ : Total distributed water purification systems

$R_{y,i}$ : Average volume of drinking water per person per day (Liters/person/day)

Water Quality<sub>i</sub>: Proportion of units that meet water quality requirements

Operational Units<sub>i</sub>: Percent of the monitoring period in which the units are in use

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

Number of days: The equation in CPA DDs uses 365 days (or the duration of monitoring period in case of less than annual monitoring period) for calculating  $QPW_y$ .

However, instead of using the duration of monitoring period, the CME has conservatively used operational school days determined as per academic school calendar issued by “Federal Ministry of Education, Nigeria”/53/. For non-boarding schools, the weekends and school holidays (public holidays, mid-term and end term holidays) have been excluded as a conservative measure and for boarding schools, weekends and public holidays have been included but the CME has excluded mid-term and end term holidays because the boarding students/staff would still consume water during weekends and short public holidays as checked in the ER sheet /4/.

#### **Residual capacity from previous MP, considered in the ER sheet:**

The DOE checked the ER sheet/4/ and confirmed that the values of ‘residual capacity from previous MP’ in MP5 ER spreadsheet (tab: “MP5 Sales data, column AB) were verified to be correctly calculated after cross-checking with MP4 ER calculator, the verification team further confirms the following:

In the MP5 ER Calculator, the MP4 Sales database has been added (Tab: ‘MP4 Sales data – reference only’) by the CME. The verification team has verified that information in the revised ER Calculator, Tab: ‘MP4 Sales data – reference only’ is 100% consistent with the tab: ‘Sales database’ in the MP4, ER calculator available

at UN webpage/53/.

Further, in the revised ER calculator, tab 'MP5 Sales database' column AC, the residual capacity from previous MP has been found to be correctly linked with 'MP4 Sales data – reference only', column AO, thus establishing complete traceability.

The verification team has independently checked MP4 ER calculator from PoA page (9948-MP4-IRP3) and cross-verified the information in the revised ER Calculator, Tab: 'MP4 Sales data – reference only' and found it to be consistent.

In the ER calculator, 'MP5 sales database', column AC, for all systems newly installed, the 'residual capacity from previous MP' is also found to be correctly specified as "new installation, not applicable".

Thus, 'residual capacity from previous MP' is confirmed to be calculated correctly in column AC of MP5 Sales database for all schools.

#### **Subsequent supplies:**

The total subsequent supplies to any school during the monitoring period are depicted under column AD of the worksheet titled "MP5 sales database". If the residual capacity is high and sufficient for the concerned monitoring period, then no new supplies are required to be sent to the schools.

The schools which have '0' residual capacity (see under column AC, MP5 sales database/4/) from previous MP along with 0 subsequent supplies (see under column AD, MP5 sales database/4/), were verified to have 0 crediting school days (column AP), thus substantiating that no ERs have been claimed for such cases (see column AQ, MP4 sales database/4/).

The verification team has verified all corresponding calculations and found them accurate and correct. Thus, it was confirmed that the CME has followed the implementation plan stated in the CPA DDs and claimed ERs only for the systems that are rendering clean water during the current monitoring period by virtue of their residual capacity from previous MP and/or subsequent supplies and/or initial installation capacity, as applicable.

#### **Lifetime of Ultra FLO and Ultra Tab units in ER sheet/4/):**

The verification team further confirmed that UltraFLO/UltraTAB expiry is 5 years/28/. In the CPAs covered in the verification, the first WPS system was installed in April 2019 in Nigeria, thus no device will expire before the end of the current monitoring period.

#### **Other Determinants**

The continuous running end date was merely a determinant to check compliance with the registered monitoring plan requirement and is not linked with lifetime of the installed devices. The same has been removed by the CME from the revised ER sheet to avoid any confusion.

The revised ER sheet/4/ tab, 'MP5 Sales Database' ensures that  $(N_{y,i} * R_{y,i})$  \* operational school days in the monitoring period, do not exceed the available treatment capacity for any unit (column AI). It also confirms that the total treatment capacity (column AN) remains lower of these two in all cases. This is better approach .

The total consumed capacity during the monitoring period (column AN), residual capacity at the end of MP (column AO) and credited operational school days (column AP) have been correctly calculated.

The verification team has checked all determinants (column AH:AP) and confirms them to be correctly and accurately calculated and conservative with respect to ER calculations.

	<p>The effective duration of monitoring period is from 12/10/2020 to 31/12/2020 as from 22/03/2020 till 11/10/2020 schools were closed due to COVID-19; the same could be verified from the academic calendar of the school mentioned in the sales database in the ER sheet. Thus, CME has claimed conservatively the ERs only from 12/10/2020 to 31/12/2020.</p> <p>The calculations for all the CPAs 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 with the applied methodology/6/. The achieved emission reductions in the current monitoring period thus are confirmed to be conservative, accurate and credible.</p> <p>The calculations for all the CPAs (9948-P1-0043-CP1 to 9948-P1-0077-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/. The achieved emission reductions in the current monitoring period thus are confirmed to be conservative, accurate and credible.</p> <p>All the parameters are assessed in detail under section E.3.4. of this report.</p>
<b>Findings</b>	No findings were raised.
<b>Conclusion</b>	<p>The verification team confirms that</p> <ul style="list-style-type: none"> <li>a) The complete data was available and is duly reported;</li> <li>b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter above;</li> <li>c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed;</li> <li>d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied.</li> <li>e) There is no pro-rata approach applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.</li> </ul>

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

<b>Means of verification</b>	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.
<b>Findings</b>	None.
<b>Conclusion</b>	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

<b>Means of verification</b>	<p>The PoA-DD/1/, CPA DDs/2/ and applied monitoring methodologies does not prescribe any leakage emissions to be considered. The remote audit inspection 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<sub>y</sub> 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> $\text{Leakage} = \text{BE}_y * (1-95\%)$ <p>For example, for 9948-P1-0043-CP1</p> $= 4,777 * (1-0.95)$ $= 239 \text{ tCO}_2\text{e}$ <p>The verification team has checked that the calculation for other CPAs (9948-P1-0043-CP1 to 9948-P1-0077-CP1) have also been done in the worksheet 'ERs</p>
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	<p>Summary' /4/ in the same manner.</p> <p>The calculations for all the CPAs (9948-P1-0043-CP1 to 9948-P1-0077-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 cumulative verified value of Leakage for all the CPAs is 7,087 tCO<sub>2e</sub>. The value is mentioned CPA wise in the table presented under the next section.</p>
<b>Findings</b>	None.
<b>Conclusion</b>	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

<b>Means of verification</b>	<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 inspection where all the evidence and records that validated the stated figures were checked and found acceptable.</p>
<b>Findings</b>	No findings were raised.
<b>Conclusion</b>	<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 134,384 tCO<sub>2e</sub>.</p>

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO <sub>2e</sub> )	Project emissions or actual net GHG removals by sinks (tCO <sub>2e</sub> )	Title and UNFCCC reference number of the CPA	GHG emission reductions or net GHG removals by sinks (tCO <sub>2e</sub> )		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
9948-P1-0043-CP1	4,777	0	239	0	4,538	4,538
9948-P1-0044-CP1	4,631	0	232	0	4,399	4,399
9948-P1-0045-CP1	4,841	0	243	0	4,598	4,598
9948-P1-0046-CP1	5,220	0	261	0	4,959	4,959
9948-P1-0047-CP1	4,462	0	224	0	4,238	4,238
9948-P1-0048-CP1	4,004	0	201	0	3,803	3,803
9948-P1-0049-CP1	4,531	0	227	0	4,304	4,304
9948-P1-0050-CP1	4,748	0	238	0	4,510	4,510
9948-P1-0051-CP1	4,360	0	218	0	4,142	4,142
9948-P1-0052-CP1	5,100	0	255	0	4,845	4,845
9948-P1-0053-CP1	4,761	0	239	0	4,522	4,522

9948-P1-0054-CP1	4,701	0	236	0	4,465	4,465
9948-P1-0055-CP1	4,659	0	233	0	4,426	4,426
9948-P1-0056-CP1	4,856	0	243	0	4,613	4,613
9948-P1-0057-CP1	3,950	0	198	0	3,752	3,752
9948-P1-0058-CP1	3,933	0	197	0	3,736	3,736
9948-P1-0059-CP1	4,080	0	204	0	3,876	3,876
9948-P1-0060-CP1	3,818	0	191	0	3,627	3,627
9948-P1-0061-CP1	3,990	0	200	0	3,790	3,790
9948-P1-0062-CP1	4,298	0	215	0	4,083	4,083
9948-P1-0063-CP1	7,059	0	353	0	6,706	6,706
9948-P1-0064-CP1	7,051	0	353	0	6,698	6,698
9948-P1-0065-CP1	1,665	0	84	0	1,581	1,581
9948-P1-0066-CP1	1,852	0	93	0	1,759	1,759
9948-P1-0067-CP1	4,738	0	237	0	4,501	4,501
9948-P1-0068-CP1	4,751	0	238	0	4,513	4,513
9948-P1-0069-CP1	4,987	0	250	0	4,737	4,737
9948-P1-0070-CP1	4,468	0	224	0	4,244	4,244
9948-P1-0071-CP1	7,620	0	381	0	7,239	7,239
9948-P1-0072-CP1	1,317	0	66	0	1,251	1,251
9948-P1-0073-CP1	1,351	0	68	0	1,283	1,283
9948-P1-0074-CP1	1,004	0	51	0	953	953
9948-P1-0075-CP1	1,795	0	90	0	1,705	1,705
9948-P1-0076-CP1	974	0	49	0	925	925
9948-P1-0077-CP1	1,119	0	56	0	1,063	1,063
<b>Total</b>	<b>141,471</b>	<b>0</b>	<b>7,087</b>	<b>0</b>	<b>134,384</b>	<b>134,384</b>

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

<b>Means of verification</b>	<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 Nigeria for the monitoring period 22/03/2020 – 31/12/2020 (both days inclusive) amount to 134,384 tCO<sub>2e</sub>.</p> <p><b>Verified and certified emission reductions as per commitment period:</b></p> <table> <tr> <th>Commitment period</th><th>Amount</th></tr> <tr> <td>Upto 31/12/2012 (1<sup>st</sup> commitment period)</td><td>0 tCO<sub>2e</sub></td></tr> <tr> <td>From 01/01/2013 to 31/12/2020</td><td>134,384 tCO<sub>2e</sub></td></tr> <tr> <td>01/01/2021 onwards</td><td>Not applicable</td></tr> </table>	Commitment period	Amount	Upto 31/12/2012 (1 <sup>st</sup> commitment period)	0 tCO <sub>2e</sub>	From 01/01/2013 to 31/12/2020	134,384 tCO <sub>2e</sub>	01/01/2021 onwards	Not applicable
Commitment period	Amount								
Upto 31/12/2012 (1 <sup>st</sup> commitment period)	0 tCO <sub>2e</sub>								
From 01/01/2013 to 31/12/2020	134,384 tCO <sub>2e</sub>								
01/01/2021 onwards	Not applicable								
<b>Findings</b>	No findings were raised								
<b>Conclusion</b>	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. 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.								

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)
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 43 supported by Republic of Korea, Version: 1.0, 9948-P1-0043-CP1	4,538	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 44 supported by Republic of Korea, Version: 1.0, 9948-P1-0044-CP1	4,399	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 45 supported by Republic of Korea, Version: 1.0, 9948-P1-0045-CP1	4,598	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 46 supported by Republic of Korea, Version: 1.0, 9948-P1-0046-CP1	4,959	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 47 supported by Republic of Korea, Version: 1.0, 9948-P1-0047-CP1	4,238	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 48 supported by Republic of Korea, Version: 1.0, 9948-P1-0048-CP1	3,803	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 49 supported by Republic of Korea, Version: 1.0, 9948-P1-0049-CP1	4,304	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 50 supported by Republic of Korea, Version: 1.0, 9948-P1-0050-CP1	4,510	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 51 supported by Republic of Korea, Version: 1.0, 9948-P1-0051-CP1	4,142	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 52 supported by Republic of Korea, Version: 1.0, 9948-P1-0052-CP1	4,845	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 53 supported by Republic of Korea, Version: 1.0, 9948-P1-0053-CP1	4,522	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 54 supported by Republic of Korea, Version: 1.0, 9948-P1-0054-CP1	4,465	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 55 supported by Republic of Korea, Version: 1.0, 9948-P1-0055-CP1	4,426	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 56 supported by Republic of Korea, Version: 1.0, 9948-P1-0056-CP1	4,613	46,391
Impact Carbon Global Safe Water	3,752	46,391



Programme of Activities (PoA): CPA 57 supported by Republic of Korea, Version: 1.0, 9948-P1-0057-CP1		
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 58 supported by Republic of Korea, Version: 1.0, 9948-P1-0058-CP1	3,736	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 59 supported by Republic of Korea, Version: 1.0, 9948-P1-0059-CP1	3,876	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 60 supported by Republic of Korea, Version: 1.0, 9948-P1-0060-CP1	3,627	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 61 supported by Republic of Korea, Version: 1.0, 9948-P1-0061-CP1	3,790	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 62 supported by Republic of Korea, Version: 1.0, 9948-P1-0062-CP1	4,083	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 63 supported by Republic of Korea, Version: 1.0, 9948-P1-0063-CP1	6,706	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 64 supported by Republic of Korea, Version: 1.0, 9948-P1-0064-CP1	6,698	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 65 supported by Republic of Korea, Version: 1.0, 9948-P1-0065-CP1	1,581	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 66 supported by Republic of Korea, Version: 1.0, 9948-P1-0066-CP1	1,759	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 67 supported by Republic of Korea, Version: 1.0, 9948-P1-0067-CP1	4,501	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 68 supported by Republic of Korea, Version: 1.0, 9948-P1-0068-CP1	4,513	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 69 supported by Republic of Korea, Version: 1.0, 9948-P1-0069-CP1	4,737	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 70 supported by Republic of Korea, Version: 1.0, 9948-P1-0070-CP1	4,244	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 71 supported by Republic of Korea, Version: 1.0, 9948-P1-0071-CP1	7,239	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 72	1,251	46,391

supported by Republic of Korea, Version: 1.0, 9948-P1-0072-CP1		
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 73 supported by Republic of Korea, Version: 1.0, 9948-P1-0073-CP1	1,283	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 74 supported by Republic of Korea, Version: 1.0, 9948-P1-0074-CP1	953	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 75 supported by Republic of Korea, Version: 1.0, 9948-P1-0075-CP1	1,705	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 76 supported by Republic of Korea, Version: 1.0, 9948-P1-0076-CP1	925	46,391
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 77 supported by Republic of Korea, Version: 1.0, 9948-P1-0077-CP1	1,063	46,391
<b>Total</b>	<b>134,384 tCO<sub>2e</sub></b>	<b>1,623,685 tCO<sub>2e</sub></b>

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

<b>Means of verification</b>	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 all 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 in the CPAs compared to that envisaged in the CPA-DDs/2/.  Considering, there is no increase in ERs, no further verification effort was put in.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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

<b>Means of verification</b>	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, no assessment is required for the same.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	The CME is not required to monitor the sustainable development benefits of the registered CDM PoA.

#### E.3.8. Global stakeholder consultation

<b>Means of verification</b>	The global stakeholder consultation was not found applicable because period under verification is 5 <sup>th</sup> monitoring period.
<b>Findings</b>	No findings were raised
<b>Conclusion</b>	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 the first independent verification of the emission reductions for the registered CDM PoA 9948 "Impact Carbon Global Safe Water Programme of Activities (PoA)" for the fifth monitoring period 22/03/2020 – 31/12/2020 (both days inclusive) as reported in the Monitoring Report (final) Version 2.0 dated 24/06/2021 /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.

This verification report is for the PoA-9948 which was included at the UNFCCC webpage at the end of the current monitoring period.

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/1/ 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 24/06/2021 and corresponding ER sheets for the monitoring period 22/03/2020 – 31/12/2020 (including both days) amount as 134,384 tCO<sub>2e</sub>. 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 22/03/2020 – 31/12/2020 (both days inclusive) (MP 05) are fairly stated in the Monitoring Report (final) Version 2.0 dated 24/06/2021.

ESPL, based on outcome of verification activities, certify that, during the monitoring period 22/03/2020 – 31/12/2020 (both days inclusive), the registered CDM PoA "Impact Carbon Global Safe Water Programme of Activities (PoA)" and the included CDM CPAs achieved the verified amount of 134,384 tCO<sub>2e</sub> reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CPAs.

## Appendix 1. Abbreviations

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 <sub>4</sub>	Methane
CL	Clarification Request
CO <sub>2</sub>	Carbon dioxide
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 Period
ODA	Official Development Assistance
PoA	Programme of Activities
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 Review
tCO <sub>2e</sub>	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

<b>Education</b>	M. Sc. (Environmental Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
<b>Experience</b>	Years +		
<b>Field</b>	Climate Change		
<b>Approved Roles</b>			
<b>Team Leader</b>	YES		
<b>Validator</b>	YES		
<b>Verifier</b>	YES		
<b>Methodology Expert</b>	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G		
<b>Local expert</b>	YES (India)		
<b>Financial Expert</b>	NO		
<b>Technical Reviewer</b>	YES		
<b>TA Expert</b>	YES (TA 1.2 & TA 3.1)		
<b>Reviewed by</b>	Shreya Garg	<b>Date</b>	15/04/2021
<b>Approved by</b>	Anshika Gupta	<b>Date</b>	15/04/2021

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

<b>Competence Statement</b>			
<b>Name</b>	Kumden Nanbal Luka		
<b>Country</b>	Nigeria		
<b>Education</b>	B.tech. in Urban and Regional Planning		
<b>Experience</b>	1+ years		
<b>Field</b>	Environment; Urban-Rural planning		
<b>Approved Roles</b>			
<b>Team Leader</b>	No		
<b>Validator</b>	No		
<b>Verifier</b>	No		
<b>Methodology Expert</b>	No		
<b>Local expert</b>	Yes (Nigeria)		

<b>Financial Expert</b>	No		
<b>Technical Reviewer</b>	No		
<b>TA Expert</b>	No		
<b>Reviewed by</b>	Shreya Garg	<b>Date</b>	23/11/2018
<b>Approved by</b>	Anshika Gupta	<b>Date</b>	23/11/2018

Competence Statement			
Name	Shifali Guleria		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	2+ year		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G., AMS-III.A.V., AMS-I.D, ACM0002)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Shreya Garg	Date	09/07/2020
Approved by	Ashok Gautam	Date	09/07/2020

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Impact Carbon	Registered PoA-DD Revised Approved PoA-DD (Version 6.1) Revised Approved PoA-DD Version 7.0)	Dated:24/03/2014 Dated: 15/02/2017  Dated: 18/04/2017	CME
2	Impact Carbon	Registered CPA-DD-43 Registered CPA-DD-44 Registered CPA-DD-45 Registered CPA-DD-46 Registered CPA-DD-47 Registered CPA-DD-48 Registered CPA-DD-49 Registered CPA-DD-50 Registered CPA-DD-51 Registered CPA-DD-52 Registered CPA-DD-53 Registered CPA-DD-54 Registered CPA-DD-55 Registered CPA-DD-56 Registered CPA-DD-57	Version 1.0, Dated: 01/04/2019	Other

		Registered CPA-DD-58 Registered CPA-DD-59 Registered CPA-DD-60 Registered CPA-DD-61 Registered CPA-DD-62 Registered CPA-DD-63 Registered CPA-DD-64 Registered CPA-DD-65 Registered CPA-DD-66 Registered CPA-DD-67 Registered CPA-DD-68 Registered CPA-DD-69 Registered CPA-DD-70 Registered CPA-DD-71 Registered CPA-DD-72 Registered CPA-DD-73 Registered CPA-DD-74 Registered CPA-DD-75 Registered CPA-DD-76 Registered CPA-DD-77		
3	Carbon check India Pvt Ltd.	CPA Inclusion Report (9948-P1-0043-CP1 to 9948-P1-0077-CP1)	Version 1, Dated: 18/04/2019  Version 1, Dated: 30/05/2019	Other
4	Impact Carbon	ER sheet (Version 2.0)	Corresponding to the current monitoring period	CME
5	Impact Carbon	Sales Database	-	CME
6	UNFCCC	Methodology: AMS III A.V.	Version 4	Others
7	UNFCCC	PS for PoA	Version 2	Others
8	UNFCCC	PCP for PoA	Version 2	Others
9	UNFCCC	VVS for PoA	Version 2	Others
10	UNFCCC	CDM-PoA-MR-Form	Version 4	Others
11	UNFCCC	CDM-PoA-VCR-Form	Version 3	Others
12	UNFCCC	PoA UN webpage	<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/5J36IFUKQVNMRA0OZPGLH9C7STED1W/viewCPAs?s=0">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/5J36IFUKQVNMRA0OZPGLH9C7STED1W/viewCPAs?s=0</a>	Others
13	Impact Carbon	Monitoring Report (Final)	Version 2.0 Dated: 24/06/2021	CME
14	Impact Carbon	Purchase Orders	Various	CME
15	Impact Carbon	Agreement between CME and CPA Implementer	Dated: 17/06/2017	CME
16	GACC	GACC Analysis report (The Truth About Cooking Landscape Analysis, Nigeria) Link: <a href="https://www.cleancookingalliance.org/binary-data/RESOURCE/file/000/000/499-1.pdf">https://www.cleancookingalliance.org/binary-data/RESOURCE/file/000/000/499-1.pdf</a>	Dated: 14/10/2016	CME
17	DHS	DHS Report, Nigeria 2016	2016	CME
18	Impact Carbon	Monitoring forms (Scanned and filled)	Various (January 2021)	CME
19	UNFCCC	Standards for Sampling and survey for CDM PoA	Version 8.0	Others
20	Impact Carbon	Training Records	-	CME
21	Impact Carbon	Delivery Notes	Multiple Dates: 23/04/2019-11/09/2020	CME
22	IPCC	IPCC default values for fossil	<a href="https://www.ipcc-">https://www.ipcc-</a>	Other

		fuels	<a href="http://nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf">nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf</a>	
23	MICS	MICS 2016-2017 survey report for Nigeria	<a href="https://www.unicef.org/nigeria/reports/multiple-indicator-cluster-survey-2016-17-mics">https://www.unicef.org/nigeria/reports/multiple-indicator-cluster-survey-2016-17-mics</a>	CME
24	WHO	WHO Technical Notes on Drinking -Water sanitation and Hygiene	<a href="https://www.who.int/water_sanitation_health/emergencies/WHO_TN_10_Hygiene_promotion_in_emergencies.pdf?ua=1">https://www.who.int/water_sanitation_health/emergencies/WHO_TN_10_Hygiene_promotion_in_emergencies.pdf?ua=1</a>	CME
25	UNFCCC	AMS-I.E.	Version 5.0	Other
26	UNFCCC	UNFCCC SSC WG 37 <sup>th</sup> Meeting Report for Nigeria	<a href="http://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf">http://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf</a>	CME
27	Impact Carbon	UID photographs of WPS	-	CME
28	Medentech (technology supplier)	<ul style="list-style-type: none"> <li>a. Technical specification / expiry of UltraFlo issued by Medentech</li> <li>b. Technical specification / expiry of UltraTAB (Small Pack &amp; Big Pack) issued by Medentech</li> <li>c. Photographs of UltraTAB strip and UltraTAB pack (small and big) for the UltraTAB treatment capacity</li> <li>d. UltraFLO dimension declaration by CME</li> <li>e. Photographs of UltraFlo cartridge and UltraTAB pack (small and big) for the expiry of the UltraFlo and UltraTAB respectively</li> </ul>	-	CME
29	Impact Carbon	Evaluating household water treatment options: Health based targets and microbiological performance specifications" (WHO 2011)	<a href="https://www.who.int/water_sanitation_health/publications/2011/evaluating_water_treatment.pdf">https://www.who.int/water_sanitation_health/publications/2011/evaluating_water_treatment.pdf</a>	CME
30	Impact Carbon	Photos of Aquagenx test (water quality tests)	-	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 <a href="https://cdm.unfccc.int/filestorage/H/2/9/H29X6EKQMJU7RY85DIT4ZPFAL3O1GW/eb67_rep_an22.pdf?t=ZIZ8cHgxcXQ1fDBaKlvFqRuMIYclRR3nH_se">https://cdm.unfccc.int/filestorage/H/2/9/H29X6EKQMJU7RY85DIT4ZPFAL3O1GW/eb67_rep_an22.pdf?t=ZIZ8cHgxcXQ1fDBaKlvFqRuMIYclRR3nH_se</a>	11/05/2012	Other
33	Impact Carbon	Random number -excel sheet	-	CME
34	Impact Carbon	CME Mail conversation with buyers for delivery commitment	-	CME
35	Impact Carbon	Emission Reduction Purchase Agreement	2016-2020	CME
36	Impact Carbon	Complaint Log (Sample)	-	CME
37	ESPL	Previous Verification report	Version 2.0; Dated 28/07/2019.	Other



		(MP2) Verification report (MP3B5)	Version 3.0; Dated 21/08/2020	
38	UNFCCC	EB68 - meeting report  <a href="https://cdm.unfccc.int/filestorage/8/i/KYQVI5N0ABEJX3T68ZDF1M7RCGU9SW.pdf/eb68_report%20v01.1?t=QXZ8cWgz bWZtfDB2p0F4x0TF7eAJLmYt1_yy">https://cdm.unfccc.int/filestorage/8/i/KYQVI5N0ABEJX3T68ZDF1M7RCGU9SW.pdf/eb68_report%20v01.1?t=QXZ8cWgz bWZtfDB2p0F4x0TF7eAJLmYt1_yy</a>	20/07/2012	Other
39	ESPL	QMS Manual	Version 3.5, Dated 21/10/2020	Others
40	ESPL	Previous Verification report (MP4)	Version 2.0, Dated 07/01/2021	Others
41	Google	<a href="#">Google Maps</a>	-	Others
42	ESPL	Skype call recordings of the remote surveys	11/05/2021	Others
43	Aquagenx	Aquagenx test module	-	CME
44	UNFCCC	CDM Website URL: <a href="https://cdm.unfccc.int/DNA/fNRB/index.html">https://cdm.unfccc.int/DNA/fNRB/index.html</a>	-	
45	UNFCCC	SSC 543 <a href="https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/03200">https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/03200</a>	07/10/2011	Other
46	UNFCCC	EB 106 Meeting report	-	Other
47	UNFCCC	EB announcement <a href="https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01041_index.html">https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01041_index.html</a>	23/06/2020	Other
48	Business Today	<a href="#">India reports 2.76 lakh new COVID-19 cases, 3,874 deaths in 24 hrs (businesstoday.in)</a>	Dated 20/05/2021	Other
49	CME	Salesforce database	Multiple	Other
50	NDTV	Status on Novel Coronavirus Cases in India URL: <a href="#">India Coronavirus Cases Updates: 2.59 Lakh Fresh Covid Cases, India's Highest Daily Testing (20.61 Lakh) (ndtv.com)</a>	Dated 21/05/2021	Other
51	ESPL	OSV Exemption Request for UN 9948, MP-5, Batch-2.	Approved on Date 07/05/2021 (internal document)	Other
52	ESPL	CPA PRC Validation report	Dated: 18/06/2021	Others
53	CME	ER sheet for MP3B2 <a href="https://cdm.unfccc.int/PoAIssuance/iss_db/poais995886785/view">https://cdm.unfccc.int/PoAIssuance/iss_db/poais995886785/view</a>	-	Other
54	Ministry of Education , Nigeria	Academic school calendars	Calendar for 2020-2021	CME
55	UNFCCC	Standards for Sampling and survey for CDM project activities and programmes of activities	Version 9.0	Others
56	CME	Master Database sheet	-	CME
57	CME	Sample size calculation sheet as per Sampling standard version 9.0	-	CME
58	UNFCCC	CDM Executive Board Decision and documentation	Version 5.1	Others

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

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

FAR ID	01	Section no.	E.3.4.2.	Date	: 19/05/2021
<b>Description of FAR</b>					
DOE involved in subsequent verifications shall ensure that monitoring frequency of parameter “operational units” is at least, biennial, in line the with monitoring methodology requirements.					
<b>Project participant response</b>					<b>Date</b> : 21/05/2021
The monitoring activity in MP4 was conducted in Aug 2020 and the monitoring activity in MP5 was conducted in Jan 2021. Thus, for the current monitoring period, the monitoring frequency is in compliance with the monitoring methodology in addition to being compliant with the registered monitoring plan as well (once per verification).					
<b>Documentation provided by project participant</b>					
N/A					
<b>DOE assessment</b>					<b>Date</b> : 02/06/2021
The verification team confirmed from the MR and VCR of the previous MP(MP4B2) that the monitoring activity was conducted in August 2020 whereas for MP5, the monitoring activity was conducted in January 2021 as checked from the monitoring survey sheet, thereby meeting the methodology requirement of once in two years as well as the requirement set in the registered monitoring plan of conducting the monitoring once per verification. The gap between the last monitoring and the current monitoring is even less than one year.					
Thus, for the current verification, the frequency required by the applied methodology has been met. However, for next verification FAR#01 has been raised.					
Thus, the FAR is closed.					

FAR ID	02	Section no.	E.3.4.2.	Date	: 19/05/2021
<b>Description of FAR</b>					
DOE involved in subsequent verifications shall ensure that the parameter QPW <sub>y</sub> is determined accounting the operational school days instead of duration of the concerned monitoring period, as applicable.					
<b>Project participant response</b>					<b>Date</b> : 21/05/2021
The number of credited operational school days in ERs Summary tab (refer row 6), has been calculated to correspond to only operational school days during the monitoring period instead of complete duration of the monitoring period.					
As a conservative measure, the school academic calendar, as issued by the Federal Ministry of Education, Nigeria has been used to determine the total available operational school days within the monitoring period weighted for non-boarding and boarding population for each school.					
Subsequently, the CME has considered weekdays (excluding weekends, public holidays and end term holidays) for non-boarding users and considered days (including weekends and public holidays but excluding end term holidays) for boarding users (as boarding students/staff will consume water during weekends and short public holidays) for determining the school days for which WPS should be credited. Also, COVID school closure days have also been excluded and no CERs are being claimed for that period. Please refer column AZ:BG in “MP5 Sales Database” tab of ER Calculator where the school calendar for the monitoring period, school holidays list and start date and end date of school term have been presented.					
The QPW <sub>y</sub> value (row 8: ERs Summary tab) has been calculated accordingly considering credited school days in the monitoring period (row 6: ERs Summary tab).					
<b>Documentation provided by project participant</b>					
PoA 9948_MP5_MR4_CERPD Nigeria MR ver1.1_19052021					
PoA 9948_MP5_CERPD Nigeria ER Sheet_ver_1.1 19052021					

DOE assessment	Date : 02/06/2021
<p>In the applied methodology / registered PoA-DD/CPA-DDs, CPAs do not have provision to account for school holidays. However, the CME has claimed ERs only for operational school days (refer tab: MP5 Sales Database) instead of the monitoring period days, on the basis of published and objectively verifiable government data (Academic school calendar).</p> <p>The school term duration and corresponding term holidays are found to be correctly calculated as per the submitted academic school calendars for the period 2020-21 issued by Ministry of Education, Nigeria. Further, the CME's approach of considering only weekdays and excluding all weekend days, holidays, mid-term / end term breaks for non-boarding schools is deemed appropriate. Also, the approach for boarding schools to include weekdays, weekends and short holidays but excluding mid-term, end-term breaks is deemed appropriate as boarding staff and students will be serviced by the WPS systems occur during weekends and short holidays. Therefore, the QPWy has been calculated correctly considering school operational days.</p> <p>Moreover, FAR#02 has been raised to ensure that QPWy is based on operational school days (discounting holidays), in future verifications.</p> <p>Thus, the FAR is closed.</p>	

Table 2. CLs from this verification

CL ID

03

Section no.

E.3.6.1.

Date : 19/05/2021

Description of CL

Out of the 17,084 schools using either UltraFLO or UltraTAB in the CPAs, 1727 schools indicate zero continuous supplies during this monitoring period (i.e., column 'AI' of tab 'Sales Database').

CME is requested to substantiate continuous availability of safe drinking water to schools considering some water purifiers had no residual capacity from the previous monitoring period and received no supplies during the current monitoring period.

Project participant response

Date : 21/05/2021

Please note that column AC in 'MP5 Sales Database' show a value of 0 if there is no residual capacity from the previous monitoring period and show "new installation, not applicable" in case of new installations. Please refer the following in this regard:

Description	MP5 Sales Database
1) Schools with no residual capacity from the previous monitoring period	Select value "0" in column AC in MP5 Sales Database
2) Schools with no residual capacity from previous monitoring period and received no supplies during the current monitoring period	Simultaneously Select value "0" in column AD in MP5 Sales Database
3) Total number of cases identified	143
4) Operational days for these schools	0 (refer column AW, MP5 Sales Database)

Thus, for the schools in (3) above, the operational school days have been calculated as 0 because there is no residual capacity from previous MP, neither continuous supplies have been made to the school in the current monitoring period and hence no ERs have been accounted.

On the other hand, "new installation, not applicable" cells in column AC in 'MP5 Sales Database' indicate that these systems are newly installed and did not have any residual capacity from previous MP. This is verifiable against their installation dates. These systems provide continuous safe drinking water in the monitoring period by virtue of their initial installed capacity, even if no subsequent supplies have been made in these schools. Thus, the ER sheet is correctly ensuring that only those schools are credited that either have residual capacity from previous MP and/or, have received supplies and/or have been newly installed from previous MP and/or, have received supplies and/or have been newly installed.

Documentation provided by project participant

PoA 9948\_MP5\_CERPD Nigeria ER Sheet\_ver\_1.1 19052021

DOE assessment

Date : 02/06/2020

The subsequent supplies to any school are depicted under column AD of the worksheet titled "MP5 sales database". The subsequent supplies are required in cases where the residual capacity from the previous period is 0. If the residual capacity is high and sufficient for the concerned monitoring period, then no new supplies are required to be sent to the schools. The schools which have '0' residual capacity in the current MP along with 0 subsequent supplies, were verified to have 0 operation days under column AP (cases for

which both column AB and AC are '0' in MP5 sales database sheet), thus substantiating that no ERs have been claimed for such cases.

Thus, CL stands closed.

<b>CL ID</b>	04	<b>Section No.</b>	E.3.6.1.	<b>Date:</b>	19/05/2021	
<b>Description of CL</b>						
The baseline water source is not mentioned in the monitoring report or emission reduction sheet – The included CPA-DDs (section A.3) and the monitoring report section C.1) mentions that UltraFlo Water Purification System will be fixed and applicable for piped water while UltraTab WPS is portable in nature and applicable for un-piped water. However, it is not clear how the implementation of the WPS is in accordance with the description provided in the included CPA-DDs and whether the installed WPS is compatible with the available water source. Therefore, the CME shall explain how the WPS is implemented in accordance with description contained in the included CPA-DDs and the installed WPS is compatible with the available water source.						
<b>CME response</b>					<b>Date:</b> 21/05/2021	
The source of primary water is already included in column R, tab “MP5 Sales data” of the submitted the ER calculator.						
<b>Multi-Barrier UV and UltraFLO</b>						
As mentioned in the CPA-DDs and MR, Multi-Barrier UV and UltraFLO Chlorination water purification systems (WPS) are fixed type water purification systems requiring pressurized piping connection to operate. The relevant information / specifications of these WPS (Refer Table 1 given below) confirm that both these two system types require a piping connection to operate.						
Table 1: System Specification						
WPS Type	Model	Port size inlet	Pressure (psi)	Rated capacity (L)	Lifespan (year)	Reference
Multi Barrier UV	2 GPM	¼ inch	125	4,088,232	7	Technical Specification from Supplier (Rotek) for Large and Small UV  Multi-Barrier UV Lifespan confirmation from Supplier (Rotek)
UltraFlo	UltraFlo	20mm	As per line pressure	340,0000	5	Technical specification / expiry of UltraFlo by Medentech (technology supplier)  UltraFLO Installation Manual
Thus, the Port size inlet rating and pressure rating mentioned in the manufacturer specifications / installation manual confirm that these systems require piping connection at their inlet ports for water purification. Thus, it is confirmed that a water connection is pre-requisite for these two types of systems by virtue of their design.						
Additionally, the photographs of the WPS installations, CME installation logs further confirm that these WPS are installed on pressurized piping connection and are designed to operate exclusively for piped applications only. Please refer below:						
<b>1. Sample photographs:</b> The photographs confirm these systems being installed on piped applications only						



Picture 1: Multi-Barrier UV Installation



Picture 2: UltraFlo Installation

## 2. Installation Logs:

The Installation Logs of both Multi Barrier UV and UltraFlo systems report the length of ppr (polypropylene random copolymer plastic) pipe used to complete the installations, further confirming that these systems can be and were installed on piped applications only.

Thus, in case of Multi-Barrier UV and UltraFLO Chlorination WPS, primary water sources like the surface water, well/borehole, rainwater etc. have a piping connection installed to transport water from these primary sources to the point of installation of Multi-Barrier UV and UltraFLO device. For example, the wells/boreholes are connected to drinking water storage tanks via pipes. The water is pumped from wells/boreholes to these water storage tanks. The Multi-Barrier UV or UltraFLO Chlorination WPS is fitted in the tanks at the inlet to ensure that any water flowing in the tank is treated and rendered safe for drinking. The outlet of the tank is connected to the taps to facilitate the drinking of water by the school students and staff. Please note that schools having Primary Water Source marked as "Piped" in Column R, refers to only City Council / Government / Municipal Water Piped Connection in the school as the Primary Water Source.

### UltraTABS

On the other hand, UltraTAB systems can only be installed in case of un-piped applications. UltraTABS by virtue of its design can only cater to cases where the drinking water storage tank(s) is not connected to the primary water source via pipes. The UltraTABS are directly administered in the "un-piped" drinking water storage tank(s) @ 1 tablet per 100 litres of water. Thus, although some of the schools may have "Piped" Connections in column R for UltraTABS, the drinking water storage tank is un-piped making the schools fit only for UltraTABS devices in such cases.

Thus, the statements under the included CPA-DDs (section A.3) and the monitoring report (section C.1) are verified and deemed correct and both the WPS type have been implemented in line with the description provided in the CPA-DD / MR.

### **Documentation provided by the CME**

PoA 9948\_MP5\_CERPD Nigeria ER Sheet\_ver\_1.1 19052021

### **DOE assessment**

**Date:** 02/06/2020

UltraFLO systems are fixed type of water purification units and can only be installed when water is being procured through a piped connection. This WPS can work only when it is mounted on a piped connection and water flows through them.

Hence, the CPA DDs (section A.3.) and monitoring report (section C.1) correctly mention that UltraFLO are fixed type systems and applicable on piped water.

The ER sheet, worksheet titled 'MP5 sales database', column R 'Primary water source' lists the source as surface water, wells etc. besides piped water. The term "piped" water under this column has been used for the schools which receive water from City Council / Government / Municipal Water Connections.

It shall be noted that water is transported from primary water sources such as wells, surface water and boreholes through pipes to drinking water storage tanks in the project schools where fixed Ultra-FLO systems are installed on these pipes.

In the absence of a pipeline connection to the drinking water storage tanks, UltraTABS are provided to the schools, UltraTAB being designed for non-piped applications. The UltraTAB pack consists of 10 strips of 10 tablets each, wherein the tablets are directly put in drinking water storage tank (@one tablet per 100L of

water), feasible for un-piped applications. In case of UltraTAB, the schools which have “Piped” Connections in column Q, pertains to cases where although water is available from government piped network (like municipal water supply tap) but is not connected to the drinking water storage tank(s). Thus, in such cases the drinking water storage tank remains un-piped making the schools fit only for UltraTAB units.

This has been verified by the verification team during the on-site visit during the previous monitoring periods. This was also checked by the verification team during the remote audit in the current monitoring period. For MP5, the DOE’s audit samples included 5 UltraFLO school connected via pipe to source “Well/Borehole”. In these samples the verification team was able to verify that the respective schools have operational UltraFLO systems receiving water from the quoted primary water source and connected via pipes to the drinking water storage tank(s). Similarly, the verification team was able to verify for UltraTAB school samples, having operational UltraTAB system to be receiving water from the quoted primary water source which were directly connected with the drinking water storage tank(s).

During the remote site visit conducted for the current issuance request as well as during the physical site-visit conducted for previous batches, it was clearly noted by the verification team that UltraFLO have only been installed on pipeline connections, even when the primary water source is different from City Council / Government / Municipal water connection and UltraTABs are administered only in un-piped applications even when the schools may have a piped connection.

Thus, the verification team confirms that the WPS have been implemented in line with the description contained in the included CPA DDs.

Thus, the finding is closed.

<b>CL ID</b>	05	<b>Section No.</b>	E.2.1 and E.3.1.	<b>Date:</b> 02/06/2021
<b>Description of CL</b>				
The registered PoA-DD and the included CPAs mention that the sales database will include information on the address and contact details (name and phone number if available) of the end user. However, no information is provided on the name of the user (institution) where the water purification systems have been implemented. The CME shall explain how the implementation and operation of the registered CDM PoA and the included CPAs in accordance with the description contained in the registered PoA-DD and included CPA-DDs. (Open)				
<b>CME response</b>				<b>Date:</b> 14/06/2021
CME has now submitted a master database having information related to the End user (institution) where the WPS have been implemented. The same can be reviewed by the verification team. However due to privacy concerns, this information shall not be made public and must remain confidential. Further, the end user (institution) information was also cross verified by the DOE during the remote audit assessment.				
Thus, the PoA and the CPAs have been implemented in accordance with the description contained in the registered PoA-DD and included CPA-DDs.				
<b>Documentation provided by the CME</b>				
PoA 9948 MP5 MR1 CEPRD Nigeria Master Database ver 1.0 09042021				
<b>DOE assessment</b>				<b>Date:</b> 18/06/2021
The Sales database in the ER sheet provided, was cross-checked with the master Sales database including institution details. The school SF ID, address and product ID were confirmed to be correctly stated in the Sales database worksheet in ER Calculator. Further, the institutional details were then verified with the purchase order form for the sampled schools interviewed by the verification team during the remote survey and were found to be correct. Thus, the verification team confirms that the PoA and the CPAs have been implemented in accordance with the description contained in the registered PoA-DD and included CPA-DDs.				
Thus, the CL stands closed.				

<b>CL ID</b>	06	<b>Section No.</b>	E.2.1.	<b>Date:</b> 02/06/2021
<b>Description of CL</b>				
The monitoring period on the first page of MR is mentioned as 22/03/2020. However, as per MP5 Sales database sheet (Cell:AS6) the effective start date is mentioned as 12/10/2020. CME shall clarify the reason. (Open)				
<b>CME response</b>				<b>Date:</b> 14/06/2021
The monitoring report submitted pertains to the fifth monitoring period of the PoA. The start date of the fifth monitoring period is 22/03/2020 and end date is 31/12/2020 which is in continuation with the previous				

monitoring period.
However, due to COVID 19, the schools were closed on 22/03/2021 and were reopened on 12/10/2020. Thus, the effective start date of the monitoring period has been considered as 12/10/2020 for ER calculations as a conservative measure accounting only operation school days in the monitoring period.
CME is not claiming any CERs for the covid affected school closure days (22/03/2020 to 11/10/2020). Please refer column AV:BC in "MP5 Sales Database" tab of ER Calculator where the school calendar listing covid closure days, holidays list and start date / end date of school term have been presented.
The school academic calendar, as issued by the Federal Ministry of Education, Nigeria has already been submitted as a supporting document. The revised ER sheet and MR are being submitted.
<b>Documentation provided by the CME</b>
PoA 9948_MP5_Nigeria_Norway ER Sheet_ver 1.2_14062021 PoA 9948_MP5_MR4 Nigeria Norway MR ver 1.2_14062021
<b>DOE assessment</b> <span style="float: right;"><b>Date:</b> 18/06/2021</span>
The start date of the 5 <sup>th</sup> MP is from 22/03/2020 and end date is 31/12/2020. However, the effective date of the monitoring period is from 12/10/2020 as the schools were closed from 22/03/2020 to 11/10/2020 due to COVID-19 as confirmed from the school calendar list mentioned in the MP5 Sales database sheet. It was confirmed from the ER sheet that the CME has claimed ERs from 12/10/2020 onwards thus the effective monitoring period from 12/10/2020 to 31/12/2020 was found to be acceptable by the assessment team. Thus, CL stands closed.

<b>CL ID</b>	07	<b>Section No.</b>	E.3.1.	<b>Date:</b> 02/06/2021
<b>Description of CL</b>				
Section A.3 (on page 5) of the registered CPA-DDs of CPA-43 to CPA-77 mentions that Ultra Tab systems with strip size: ~13 cm X ~5.5 cm (10 tablets per strip) and purification capacity as 10000 L will be distributed under the CPAs. However, it was observed that in the ER sheet, worksheet titled 'Assumptions', Row 10, another type of unit named 'Big Pack UltraTAB', with capacity 48000L/unit has been distributed and considered for ER calculation. The CME shall explain how the implementation has been done in line with the registered CPA DDs.(open)				
<b>CME response</b>				<b>Date:</b> 14/06/2021
As the project is expanding, large no. of supplies is required to provide continuous availability of safe drinking water to a school.				
Due to the aforesaid, the UltraTAB technology supplier (Medentech) has changed the UltraTAB packing size from 10 strips (10 tablets in each strip) earlier having purification capacity as 10,000 L to 48 strips now (10 tablets in each strip) having purification capacity as 48,000 L and named it as "BigPack UltraTAB". The size of one UltraTAB strip is remain same as ~13 cm X ~5.5 cm (10 tablets per strip) as earlier.				
The technical specification / expiry of UltraTAB issued by Medentech (technology supplier) is being submitted.				
Further, the CME has only installed or subsequently supplied "BigPack UltraTAB" to schools in the current monitoring period to avoid any confusion.				
Hence the CME confirm that the implementation is in line with the registered CPA-DDs.				
<b>Documentation provided by the CME</b>				
Technical specification / expiry of UltraTAB issued by Medentech (technology supplier) ~13 cm X ~5.5 cm				
<b>DOE assessment</b>				<b>Date:</b> 18/06/2021
UltraTab packing has changed from 10 strips to 48 strips i.e., changing the purification capacity from 10,000 L to 48,000 L in-order to have the continuously supply of clean drinking water in the school. It was confirmed from the technical specification / expiry of UltraTAB issued by Medentech (technology supplier) that the size of each of the tablet has remained same as ~13 cm X ~5.5 cm and just the UltraTAB packing size has changed from 10 strips (10 tablets in each strip) earlier having purification capacity as 10,000 L to 48 strips now (10 tablets in each strip) having purification capacity as 48,000 L and named it as "BigPack UltraTAB". Thus, CL stands closed.				

<b>CL ID</b>	08	<b>Section No.</b>	E.3.6.1	<b>Date:</b> 23/06/2021
<b>Description of CL</b>				

1.	Under section E.3 of the MR it was observed that CME has determined expected value for proportional parameters. However, the expected value or precision for the proportional parameters were not found to be in-line with guidance stated under footnote 10 of the Sampling and surveys for CDM project activities and programmes of activities, Version 09.0.
2.	Also, the version of sampling standard applied by the CME (version 08.0) is not the latest version available on the UN webpage. CME shall clarify how the use of older version of standard is found to be appropriate.
<b>CME response</b>	
<p>The sampling for the concerned monitoring period was conducted on 17/12/2020 (please refer online random sample generator snapshots submitted by CME). The monitoring activities (Surveys and Water Quality Tests) were conducted during the period 19 – 30 Jan 2021.</p> <p>Thus, at the time of sampling and monitoring, the latest and valid version of the Standard: “Sampling and surveys for CDM project activities and programmes of activities”, was version 08.0 only. Please note that the standard for “Sampling and surveys for CDM project activities and programmes of activities”, Version 09.0 was published on 27/05/2021 which is even after the date of remote audit assessment by the DoE (11/05/2021).</p> <p>Thus, it is not possible for the CME to apply version 09.0 of the Sampling Standard at the time of sampling, monitoring, data calculation and reporting as all these activities were completed before its publication. Hence, the latest version of sampling standard is not deemed applicable for the concerned monitoring period.</p> <p>Lastly, even if the expected value of the proportion for monitoring parameters is reduced to 0.9 (or 90%) for the monitoring parameters to meet compliance with footnote 10 of version 09.0 of the Standard: “Sampling and surveys for CDM project activities and programmes of activities”, the calculated sample size still remains less than the number of samples actually monitored by the CME for each of the monitoring parameter (and strata within).</p> <p>So, the monitoring conducted by CME is in compliance with both version 08.0 and 09.0 of the Standard: “Sampling and surveys for CDM project activities and programmes of activities”.</p>	
<b>Documentation provided by the CME</b>	
N/A	
<b>DOE assessment</b>	
<b>Date: 28/06/2021</b>	



The application of Sampling and Survey standard for PA and PoA version 8.0 was found to be acceptable by the team as:

1. The random sample generator screenshots shared by CME as a supportive for sampling was reviewed and it was confirmed that the sampling was conducted on 17/12/2020.
2. It was confirmed from the monitoring survey records that the monitoring activities (Monitoring Survey and WQT) were conducted during the period 19/01/2021 to 30/01/2021.
3. Also, the remote audit inspection was conducted by DOE on 11/05/2021.

Thus, the applicable and valid version of the Standard: "Sampling and surveys for CDM project activities and programmes of activities", for the current monitoring period was version 08.0 only as Version 9.0 of the Standard published on 27/05/2021. CDM Executive Board decision and documentation framework Version 5.1 para 13, states that the version containing substantive changes, with the exception of forms, will be recorded in and annexed to the meeting report of the Board, and published on the UNFCCC CDM website and the latest version of the document becomes effective, unless otherwise stated in the meeting report or in the document itself, on the date of publication of the meeting report in which the document was revised. Thus, it could not be applied to an activity conducted before the effective date of the new standard.

Moreover, It was confirmed from the monitoring survey sheet and sample size calculation sheet that the number of samples monitored by CME is more than the number of samples that will be calculated when the expected value of the proportion for monitoring parameters is reduced to 0.9 (Or 90%) for the monitoring parameters in order to meet the compliance with footnote 10 of version 09.0 of the Standard: "Sampling and surveys for CDM project activities and programmes of activities". The CME has provided a separate sample size calculation sheet to demonstrate that compliance with version 9.0 of the standard.

The assessment team is of the opinion that the expected value of precision of proportional parameters determined by CME was found to be in compliance with footnote 10 of Version 8.0 and Version 9.0 of the sampling standard.

Thus, CL stands closed.

**Table 3. CARs from this verification**

CAR ID	09	Section No.	E.3.4.2.	Date:	19/05/2021
Description of CAR					
Following inconsistencies were observed in the MR version 1.0:					
<ol style="list-style-type: none"> <li>1. The achieved ERs mentioned in the MR version 1.0 was found to be inconsistent with the ER sheet (Tab: ER summary, Cell: AN20). Also, as the ERs mentioned in the published MR was found to be 227,565 tCO<sub>2e</sub> and the ER's mentioned in the ER sheet (Version 1.0) was found to be 134,368 tCO<sub>2e</sub>. CME shall clarify the reason of difference in the achieved ER values mentioned in the public MR and ER sheet version 1.0.</li> <li>2. Section C.1 of the MR mentions the total number of systems for each of the CPAs inconsistently with the number of systems mentioned for each CPA in the ER sheet (Tab: ER summary, Row: 2)</li> <li>3. Under section C.1 (d) of MR, the emission reduction for each of the CPAs were found to be inconsistently mentioned with the ER values mentioned for each of the CPAs in ER sheet (Tab: ER summary, Row: 22)</li> </ol>					
CME response				Date:	
				21/05/2021	

1. The achieved ERs mentioned in the MR has now been made consistent with the ER Sheet (Tab: ER summary, Cell: AN20).

The ERs were wrongly mentioned in the MR as a matter of oversight and calculation error in ER calculator. After submitting the MR to the verification team, the CME spotted the error in the ER calculator. Thus, the calculation error in the ER sheet (accounting operational school days instead of duration of monitoring period) was rectified by CME before submission to the verification team. The MR has now been updated to be consisted with the ER sheet.

2. The section C.1 of the MR specified the “**total no. of systems installed/distributed under each CPA**” (kindly refer cell BB8:BD44 of “MP5 Sales Database” tab of ER Sheet for no. of systems installed/distributed under each CPA), while the row:2, of “ER Summary” tab of ER sheet specified the “**total number of systems on which credits are being claimed**” (kindly refer section C.3.1 of MR and additional comments section of monitoring parameter Ty,i of MR, where it has been clarified now).
3. The emission reduction for each of the CPAs under section C.1 (d) of the MR has now been made consistent with the ERs values mentioned for each of the CPAs in ER sheet (Tab: ER summary, Row: 20).

Revised MR and ER Sheet are being submitted.

#### Documentation provided by the CME

PoA 9948\_MP5\_MR4\_CERPD Nigeria MR ver1.1\_19052021\_  
PoA 9948\_MP5\_CERPD Nigeria ER Sheet\_ver\_1.1 19052021

#### DOE assessment

Date: 02/06/2021

1. The MR (version 2.0) now mentions the achieved ERs consistently.
2. The number of systems distributed/installed under each of the CPAs were found to be listed under section C.1 of the MR. However, the total number systems for which the CME was claiming the CERs were found to be listed under section C.3.1 and simultaneously in row 2 of the ERs summary sheet. Thus, both the sections of MR version 2.0 refer to two different columns which have correct values.
3. CME has now consistently mentioned the ERs for each CPAs under section C.1 of the MR (Version 2.0).

Thus, CAR stands closed.

CAR ID	10	Section No.	E.3.4.2.	Date:	19/05/2021
Description of CAR					
<ol style="list-style-type: none"> <li>1. Value for monitored parameter QPW<sub>y</sub> was found to be mentioned as 883,114,550 in the MR version 1.0 which was found to be inconsistent with the value mentioned in the ER sheet (Tab: ER summary, Cell: AN8).</li> <li>2. The total distributed WPS was found to be mentioned as 18,817 in MR version 1.0 which was found to be inconsistent with the value mentioned in the ER sheet (Tab: ERs Summary, Cell: AN2)</li> <li>3. The value for parameter Nyi was found to be mentioned as 340 in the MR version 1.0. However, in the ER sheet the value of the parameter was found to be mentioned as 341 (Tab: ERs Summary, Cell:AN5)</li> <li>4. The value for parameter Operational Units was found to be mentioned as 91.90% in the MR version 1.0. However, in the ER sheet the value of the parameter was found to be mentioned as 91.91% (Tab: ERs Summary, Cell:AN3).</li> </ol>					
CME response					Date:
					21/05/2021

1. Value of monitored parameter “QPWy” has now been made consistent in MR with the value mentioned in the ER sheet (Tab: ER summary, Cell: AN8).
2. The value (18,817) mentioned under “Value(s) of monitored parameter” of monitoring parameter  $T_{y,i}$  is the **“total number of systems distributed/installed across various CPAs covered in this monitoring report”** (kindly refer cell BB8:BD44 of “MP5 Sales Database” tab of ER Sheet for, total no. of systems installed/distributed under each CPA),  
  
On the other hand, the total no. of water purification systems (18,585) mentioned in cell: AN2 of “Ers Summary” tab of ER sheet is **“total number of systems on which credits are being claimed”**. Kindly refer section C.3.1 of MR and additional comments section of monitoring parameter  $T_{y,i}$  in MR, where it has been clarified now.
3. Value of monitored parameter “Nyi” has now been made consistent in MR with the value mentioned in the ER sheet (Tab: ER summary, Cell: AN5).
4. Value of monitored parameter “Operational Units” has now been made consistent in MR with the value mentioned in the ER sheet (Tab: ER summary, Cell: AN3).

Revised MR and ER Sheet are being submitted.

#### Documentation provided by the CME

PoA 9948\_MP5\_MR4\_CERPD Nigeria MR ver1.1\_19052021\_

PoA 9948\_MP5\_CERPD Nigeria ER Sheet\_ver\_1.1 19052021

#### DOE assessment

Date: 02/06/2020

1. CME has now consistently mentioned the value of ‘QPWy’ in MR (version 2.0) under section E.2.
2. The number of systems distributed/installed under each of the CPAs were found to be listed under section C.1 of the MR. However, the total number systems for which the CME was claiming the CERs were found to be listed under section C.3.1 and simultaneously in row 2 of the ERs summary sheet. Thus, both the sections of MR version 2.0 refer to two different columns which depict correct values.
3. CME has now consistently mentioned the value of ‘Ny<sub>i</sub>’ in MR (version 2.0) under section E.2.
4. CME has now consistently mentioned the value of ‘Operational Units’ in MR (version 2.0) under section E.2.

Thus, CAR stands closed.

**Table 4. FARs from this verification**

FAR ID	11	Section No.	E.3.4.2.	Date:	02/06/2020
<b>Description of FAR</b>					
DOE involved in subsequent verifications shall ensure that monitoring frequency of parameter “operational units” is atleast, biennial, in line the with monitoring methodology requirements.					
<b>CME response</b>					<b>Date:</b> DD/MM/YYYY
NA					
<b>Documentation provided by the CME</b>					
NA					
<b>DOE assessment</b>					<b>Date:</b> DD/MM/YYYY
NA					

FAR ID	12	Section No.	E.3.4.2.	Date:	02/06/2020
<b>Description of FAR</b>					
DOE involved in subsequent verifications shall ensure that the parameter QPW <sub>y</sub> is determined accounting the operational school days instead of duration of the concerned monitoring period, as applicable.					
<b>CME response</b>					<b>Date:</b> DD/MM/YYYY
NA					
<b>Documentation provided by the CME</b>					
NA					
<b>DOE assessment</b>					<b>Date:</b> DD/MM/YYYY
NA					

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	6 April 2021	Revision to: <ul style="list-style-type: none"> <li>• Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).</li> </ul>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN);</li> <li>• Make structural and editorial improvements.</li> </ul>
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
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