



Verification and certification report form for CDM programme of activities
(version 01.0)

Complete this form in accordance with the "Attachment. Instructions for filling out the verification and certification report form for CDM programme of activities" at the end of this form.

VERIFICATION AND CERTIFICATION REPORT

Title of the programme of activities (PoA)	International Water Purification Programme	
UNFCCC PoA reference number of the PoA	5962	
Version number(s) of the PoA-DD(s) applicable to this report	07	
Version number of the verification and certification report	02	
Completion date of the verification and certification report	06/09/2016	
Monitoring period number	2 nd monitoring period	
Duration of this monitoring period	01/02/2015 – 30/09/2015	
Number and version number of the monitoring report to which this report applies	Monitoring report number 01 Version 02	
Coordinating/managing entity (CME)	Pure Water Ltd.	
Host Party(ies)	Host Party(ies) of the PoA	Is this a host Party to a CPA covered in this report?(yes/no)
	Uganda	Yes
	Ethiopia	No
	Gambia	No
	Kenya	No
	Madagascar	No
	South Africa	No
	Egypt	No
	El Salvador	No
	Mexico	No
	Nicaragua	No
	Chile	No
	Iran	No
Vietnam	No	

	Cambodia	No
	Malawi	No
Sectoral scope(s)	Sectoral scope 03 : Energy demand	
Selected methodology(ies)	AMS-III.AV. "Low greenhouse gas emitting safe drinking water production systems (EB69, Version 03)"	
Selected standardized baseline(s)	N/A	
Total estimated GHG emission reductions or net GHG removals for this monitoring period in the included CPA(s) covered in this report	55,480 tCO ₂ e	
Total certified GHG emission reductions or net GHG removals for this monitoring period for the included CPA(s) covered in this report	79,558 tCO ₂ e	
Name of DOE	China Classification Society Certification Company (CCSC)	
Name, position and signature of the approver of the verification and certification report	Mr. TU Jianhua, Deputy General Manager 	

SECTION A. Executive summary

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The Coordinating/managing Entity (CME) Pure Water Ltd. (hereinafter referred to as PWL) has commissioned China Classification Society Certification Company (hereafter referred to as "CCSC") to carry out the 2nd periodic verification of the CDM PoA "International Water Purification Programme" (hereafter referred to as "the PoA") registered with UNFCCC PoA reference No. 5962, covering the monitoring period from 01/02/2015 to 30/09/2015.

The verification is based on the currently valid documentation of the United Nations Framework Convention on Climate Change (UNFCCC).

The verification process includes three phases: 1) desk review of documents; 2) on-site inspection and follow-up interviews with the relevant personnel; 3) resolution of outstanding issues and the issuance of final verification report and opinion.

Two Corrective Action Requests (CARs) and two Clarification Requests (CLs) were raised in the verification process and successfully closed upon the Coordinating/managing Entity (CME) taken actions and submitted the revised monitoring report and supporting evidence. One Forward Action Request (FAR) was raised during this verification.

In summary, CCSC confirms that the PoA and CPAs are implemented as planned and described in the approved revised PoA-DD and registered/included CAP-DDs. The monitoring plan contained in the approved revised PoA-DD and registered/included CPA-DDs is in accordance with the applied methodology and the monitoring system is in place and functional. The installed equipment for measuring parameters required for calculating emission reductions are operated appropriately. The PoA and CPAs are generating GHG emission reductions. The GHG emission reductions are calculated without material misstatements.

Based on the verified amount of emission reductions stated in the verification report, CCSC confirms the following statement, and requests the CDM-EB to issue the CERs:

Specific-case CPA reference number	GHG emission reductions or net GHG removals by sinks (tCO _{2e})		
	Results achieved in the period up to 31 December 2012	Results achieved in the period from 1 January 2013 onwards	Results achieved in the entire monitoring period
5962-0001	0	0	0
5962-0002	0	47,809	47,809
5962-0003	0	31,749	31,749
Total	0	79,558	79,558

A.1. Objective

CDM PoA Verification is the periodic thorough, independent review and ex-post determination by a DOE of the monitored reductions in GHG emissions during defined verification period. In carrying out its verification work, the DOE shall ensure that the project activity complies with the requirements of paragraph 62 of the CDM modalities and procedures. The verification shall:

- Ensure that the PoA and its CPAs have been implemented and operated as per the registered PoA-DD and CPA-DDs or any approved revised PoA-DD and CPA-DDs, and that all physical features (technology, project equipment, and monitoring and metering equipment) of the PoA and CPAs are in place;

- Ensure that the monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of CERs and verifiable and in accordance with applicable CDM requirements;
- Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan or any revised approved monitoring plan, and the approved methodology including applicable tool(s);
- Evaluate the data recorded and stored as per the monitoring methodology including applicable tool(s).

A.2. Scope

The verification scope covers the relevant documents (e.g. the approved revised PoA-DD, registered/included CPA-DDs, the Monitoring Report, the emission reduction calculation spreadsheet, supporting documents available to the verifier and information collected through performing interviews and during the on-site assessment, EB’s request and guidelines publicly available, relevant rules, including the host country legislation, etc.) to be independently reviewed, the local stakeholders to be interviewed with, and processes that are necessary to acquire objective evidence for the evaluation of the PoA compliance to the CDM verification requirements.

The above verification activities are conducted according to the CDM requirements. In doing so, the principles of accuracy and completeness, relevance, reliability and credibility were followed.

The verification is not meant to provide any consulting service towards the CME/PPs. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the PoA.

A.3. PoA Description

The PoA seeks to further the access of households and communities to clean and safe drinking water, by promoting low greenhouse gas emitting water purification technologies in the host Parties. The PoA is thus primarily designed for the long-term improvement of the living conditions of local people. The targeted users of such technologies will be households and/or communities. Examples of technologies include, but are not limited to, water filters (e.g. membrane, activated carbon, ceramic filters), solar technologies (Ultra violet disinfection devices, solar water disinfection SODIS), photocatalytic disinfection equipment, pasteurization appliances, chemical disinfection methods (eg. chlorination), combined treatment approaches (eg. Flocculation plus disinfection), etc. The PoA reduces the use and demand for fossil fuels and non-renewable biomass that would have been used to boil water as a mean of water purification in the absence of the Programme of Activities. This directly leads to reduced greenhouse gas emissions. The PoA is implemented by Pure Water Ltd. who is the coordinating/managing entity (hereafter referred to as “CME”). The CME is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the CPAs.

PoA title:	International Water Purification Programme
UNFCCC PoA Reference No.:	5962
Registration Date:	16/11/2012
PoA Renewal Period:	16/11/2012-15/11/2019
PoA Duration	19/11/2012-18/11/2040
Monitoring Period:	2 nd monitoring period: 01/02/2015-30/09/2015
Specific-case CPA	5962-0001 (Gravity Driven Membrane Filters in Uganda - CPA 1)

reference number	5962-0002 (Chlorine Dispensers in Uganda – CPA 2) 5962-0003 (Chlorine Dispensers in Uganda – CPA 3)
Coordinating/managing entity (CME):	Pure Water Ltd.
Methodologies used	AMS-III.AV. “Low greenhouse gas emitting safe drinking water production systems (EB69, version 03)”
UNFCCC view page:	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/RG9OBX48DCT65YUZV03A7KELJ2SMFW/view

This monitoring period includes the implementation and monitoring of three CPAs, as part of registered PoA within the geographical boundary of Uganda (Ref.5962-0001 (CPA-1), Ref.5962-0002 (CPA-2) and Ref.5962-0003 (CPA-3)). The 1st CPA (Ref.5962-0001) is included under the current monitoring period but is not yet implemented, hence no emission reductions was generated during the monitoring period. This was confirmed by reviewing the monitoring report and also during the on-site visit interviews. The CPAs that were included after the end of the current monitoring period were not considered as part of verification.

Items	Techniology	Location	Dispensers installation Start/complete date	Dispensers Installed	Included Date	Operation days in this monitoring period
CPA-1	Gravity-Driven ultrafiltration Membranes. (GDM)	Uganda	Not installed	/	16/11/2012	/
CPA-2	Chlorine dispenser system	Uganda: Budaka district Kibuku district Manafwa district	08/04/2013-10/04/2014	1,150	17/07/2014	242 days
CPA-3		Uganda: Manafwa district Mbale district	22/01/2014-25/10/2014	1,013	15/04/2015	169 days

During this monitoring period (01/02/2015-30/09/2015), the PoA and its CPAs has been operated normally and there have been no events or situations that occurred which may impact the applicability of the applied methodology. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of	Last name	First	Affiliation	Involvement in
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		resource		name	(e.g. name of central or other office of DOE or outsourced entity)	Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	LI	Xingtong	CCSC Central Office	√	√	√	√
2.	Verifier	IR	XU	Fangzhou	CCSC Central Office	√	√	√	√

Note: IR: Internal Resources, EI: External Individuals

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	EI	TANG	Xuemei	CCSC Central Office
2.	Approver	IR	TU	Jianhua	CCSC Central Office

SECTION C. Means of verification

C.1. Desk review

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After receiving the Monitoring Report Version 01 dated 15/05/2016, CCSC made it publicly available on the UNFCCC CDM dedicated website on 20/05/2016. (link: http://cdm.unfccc.int/PoAIssuance/mon_db/poamon889709377/edit?viewmode=1).

A desk review of the Monitoring Report Version 01 dated 15/05/2016 and supporting documents was conducted by the CCSC verification team. The aim of the desk review of the documentation was to verify the completeness of the data and the information presented, to carry out the compliance check of the MR with respect to the monitoring plan and the applied methodology. Particular attention was given to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures. The evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions was also conducted.

In addition to the monitoring documentation provided by the CME, the DOE reviews:

- The approved revised PoA-DD Version 07 dated 13/04/2015 /7/, the registered/included CPA-DDs /9//10//12/;
- The PoA validation report /6/ and the Inclusion Validation Reports of CPAs /13//14//16/;
- The Post Registration Changes (PRC) Validation Opinion for the PoA /8/;
- The revised CPA-DD for CPA-2 and its PRC Validation Report for the CPA-2 /11//15/;
- Previous monitoring reports and verification reports /17/;
- The applied monitoring methodologies /45/;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board /47//48//49//50//51/;

(h) Other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, laboratory analysis or national regulations) /31//40//41//46/.

Appendix 3 of this report contains a complete list of all documents and proofs reviewed by the verification team.

C.2. On-site inspection

Duration of on-site inspection: 10/06/2016-12/06/2016				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting (Scope of work, timetable, approval process, CDM procedure for verification, verification methodology, confidentiality)	Mbale Office of Evidence Action, Uganda	10/06/2016	Mr. LI Xingtong Mr. XU Fangzhou
2.	Field Visit including the status of the project implementation: Sampled 30 dispensers of CPA-2 and CPA-3 Data acquisition and processing system ODK software and its Raw Database Water quality test system	Mbale District Manafwa District Kibuku District, Uganda	10/06/2016- 11/06/2016	Mr. LI Xingtong Mr. XU Fangzhou
3.	Interview (Refer to the table in section C.3)	Mbale District Manafwa District Kibuku District, Uganda	10/06/2016- 11/06/2016	Mr. LI Xingtong Mr. XU Fangzhou
4.	Document Review	Mbale Office of Evidence Action, Uganda	10/06/2016- 11/06/2016	Mr. LI Xingtong Mr. XU Fangzhou
5.	Closing Meeting CARs/CLs discussion, findings compilation, agreement on the time frame for replies Recommendations, impacts of the findings and delayed response upon timings and next steps.	Mbale Office of Evidence Action, Uganda	12/06/2016	Mr. LI Xingtong Mr. XU Fangzhou

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	CALES	Kckwugu	Implementer: Evidence Action (EA)	10/06/2016- 12/06/2016	Water Quality Implementation, Records Operation and	Mr. LI Xingtong Mr. XU Fangzhou
2.	HILDA	Nangala	EA	10/06/2016- 12/06/2016		

3.	NAOMOBE	Irene	EA	10/06/2016-12/06/2016	Management Implementation, Records
4.	ANDREW	Oceca	EA	10/06/2016-12/06/2016	
5.	SUSAN	Klerikhe	EA	10/06/2016-12/06/2016	
6.	OSTERWALDER	Lars	CME: Pure Water Ltd.(PWL)	10/06/2016-12/06/2016	Monitoring, Survey, Database

Note: Please refer to Appendix 5 for the interviewee of promoters and end users.

C.4. Sampling approach

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CME's sampling approach:

As indicated in Section G.2 and G.3 of the monitoring report, three parameters were quantified through surveys i.e. Water quality, Fraction of water treated with the dispenser that is actually drunk (Drink%) and Fraction of delivered chlorine available for use in dispenser (Refill%). The sampling design was implemented in line with the registered/included CPA-DD Section D.7.2.

In the current monitoring period, CPA-1 has not implemented yet. The three parameters for CPA-2 and CPA-3 have been monitored by grouped survey for both of them applied the same technology and located in the host-country, which complied with the approved revised PoA-DD and registered/included CPA-DDs /7//11//12/.

The CME has applied clustered sampling approach for the water quality monitoring, multi-stage sampling approach for Drink% and simple random sampling approach for Refill%. As this monitoring report refers to CPAs with a monitoring period of less than a year, a 95/10 confidence/precision requirement has been fulfilled. The complete details of CME's sampling is included under Section G.3 of the monitoring report.

Verification team's sampling approach:

In order to meet the requirements of *Standard for Sampling and surveys for CDM project activities and programmes of activities*, Version 05.0 /47/, the CCSC verification team applied acceptance sampling in the verification (in accordance with para 24). The verification team selected random sample of CME's sampled records, checked the acceptability of the data for each such record with CME's sample records, and then based on the number of records where there is agreement, determined if the CME's sample records meet the requirements.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the *Standard Sampling and surveys for CDM project activities and programme of activities* Version 05.0 /47/:

- The proportion of discrepancies between the CME's data and verification team's (field check results) data that can be considered acceptable. This is referred to as the Acceptable Quality Level (AQL): 1.0% was considered in the verification.
- The proportion of discrepancies between the CME's data and verification team's (field check results) data that would be considered unacceptable. This is the Unacceptable Quality Level (UQL): 20% was considered in the verification.
- The producer risk and consumer risk: 5% was considered for both.

As per the referred standard, a sample size (**n**) of 22 is required with acceptance number (**c**) of 1. For the consideration of data redundancy, the **sample size of 30** has been chosen for CCSC verification team's field check during onsite inspection to exceed the minimum level.

The verification team observed that all the water dispensers checked were in operation and were found consistent with the functional status reported by the CME's samples record. The actual number of functional dispensers was reported by CME as 91.6% for CPA-2 and 95.8% for CPA-3, which is based on regular physical check at the time of chlorine delivery to that dispenser. This

parameter is based on actual physical inspection of all dispensers on rotational basis and is not based on any survey. In all, the overall functionality rate reported by the CME is conservative as compared to the result of verification team’s field check (100%) and therefore accepted.

In the same manner, Refill% and Drink% were also covered during the verification team field check and found to be consistent with the CME’s reported sampling results and were therefore accepted.

For the parameter of Water Quality, the verification team has interviewed the Analyst in the Lab, and found the *Protocol for Processing Samples* was strictly carried out /29/. And the Protocol of the Project is in line with the Quanti-Tray System User Manual issued by IDEXX /31/.

And then the verification team has checked the Water Quality Test (WQT) data in the ER spreadsheet against the ODK Raw Data and the IDEXX Water Quality Testing Form (hard copy) and found the WQT data are consistent.

Through site inspection, the verification team confirmed the WQT result archived by the CME and Evidence Action are consistent and reliable.

Thus, CME’s set of records has been accepted in line with the *Standard for Sampling and surveys for CDM project activities and programmes of activities*, Version 05.0 /47/.

C.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General	-	-	-
Compliance of the monitoring report with the monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verification	-	-	-
Specific-case CPA(s) considered for verification and covered in this report	-	1	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
Post-registration changes	-	-	-
<ul style="list-style-type: none"> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline 	-	-	-
<ul style="list-style-type: none"> Corrections 	-	-	-
<ul style="list-style-type: none"> Inclusion of a monitoring plan in a registered PoA-DD (including its generic CPA-DD(s)) 	-	-	-
<ul style="list-style-type: none"> Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline 	-	-	-
<ul style="list-style-type: none"> Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA 	-	-	-
<ul style="list-style-type: none"> Types of changes specific to afforestation and reforestation activities 	-	-	-
Component project activity(ies)	-	-	-
Compliance of the CPA implementation with the included CPA design document	1	-	-
Post-registration changes	-	-	-

• Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline	-	-	-
• Corrections	-	-	-
• Changes to the start date of the crediting period	-	-	-
• Inclusion of a monitoring plan to an included CPA-DD	-	-	-
• Permanent changes to the monitoring plan as described in the included CPA-DD, applied methodology, or applied standardized baseline	-	-	-
• Changes to the programme design of the included CPA-DD	-	-	-
• Types of changes specific to afforestation and reforestation component project activities	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	-	-
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	-	-	-
• Implementation of sampling plan	-	1	-
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 specific-case CPA	-	-	-
• Remarks on difference from estimated value in registered PDD	1	-	1
Others (please specify)	-	-	-
Total	2	2	1

SECTION D. Internal quality control

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CCSC has taken the following quality control measures within the verification team and of the verification process according to relevant CCSC's internal procedures:

- The application review of the verification was conducted and concluded that CCSC has the accredited scope and competence to verify the PoA and CPAs with impartiality as well;
- The verification team was selected with due considerations given in terms of the competence and impartiality;
- The verification team carried out the verification work and compiled a verification report

strictly following CCSC's Procedures for Implementation of Verification.

The verification report submitted by the verification team was subjected to a technical review and decision-making process, the technical reviewers and decision-makers are qualified and independent from the verification team. If any issue is raised during technical review and/or decision-making the same is to be discussed between the issue-raiser and the team leader as well as the CME/PPs. All issues must be satisfactorily addressed before the submission of the report for final approval. The persons who conducted the technical review and decision-making for the PoA and CPAs are shown in section B.2 this report and their Certificates of Competence can be found in Appendix 2 of this report.

The report approved by the authorized official of CCSC as the final report together with relevant documents are submitted to CDM EB through the UNFCCC dedicated web-platform for request for issuance (only if an unconditioned positive verification/certification opinion is concluded).

SECTION E. Verification opinion

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The verification team assigned by the China Classification Society Certification Company (CCSC) concludes that the CDM-PoA "International Water Purification Programme", as described in the monitoring plan contained in the approved revised PoA-DD and registered/included CPA-DDs /11//12/, and Monitoring Report (Version 02, 04/07/2016) /2/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification is conducted in line with the VVS requirements /43/.

The verification was executed by taking the following methods and in the following steps so far:

- Publication of the MR on the UNFCCC website (on 20/05/2016)
- Desk review of Monitoring Report Version 01 dated 15/05/2016 and related documents
- On-site inspection and interviews (between 10/06/2016 and 12/06/2016)
- Raise verification findings: corrective action requests (CAR), Clarification Requests (CL) and Forward Action Request (FAR)
- Desk review of revised MR (Version 02, 04/07/2016) /2/ and responses to verification findings
- Issue of this version of the verification report

The PoA and its CPAs are implemented according to selected monitoring methodology AMS-III.AV Version 03 /45/ and the monitoring plan contained in the approved revised PoA-DD and registered/included CPA-DDs /11//12/. The monitoring equipment was installed, calibrated and maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions.

CCSC therefore issues the positive verification opinion expressed in the Certification statement in Section F.

SECTION F. Certification statement

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CCSC has carried out the 2nd periodic verification of the PoA "International Water Purification Programme" (UNFCCC PoA reference No.5962). This verification covers the period from 01/02/2015 to 30/09/2015 (first and last days included).

In the course of the verification two Corrective Action Requests (CAR) and two Clarification Requests (CL) were raised and successfully closed. One Forward Action Request (FAR) was raised during this verification. The verification is based on the Monitoring Report Version 01 dated 15/05/2016, the revised Monitoring Report Version 02 dated 04/07/2016, the approved revised PoA-DD, registered/included CPA-DDs, the PRC Validation Report for the PoA, inclusion validation

report for CPA-3 and PRC validation report for CPA-2, the previous monitoring report and verification report, ER Spreadsheet, and supporting documents available to CCSC.


As the result of the 2nd periodic verification, CCSC confirms that:

- The PoA and its CPAs have been implemented and operated as per the approved revised PoA-DD and registered/included CPA-DDs and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- The monitoring report and other supporting documents provided are complete in accordance with the latest applicable version of the completeness checklist for requests for issuance of CERs and in accordance with applicable CDM requirements;
- The actual monitoring systems and procedures are in place and functional, and comply with the monitoring systems and procedures described in the monitoring plan;
- The monitoring plan is in accordance with the applied methodology, i.e., AMS-III.AV Version 03;
- The installed equipment for measuring parameters required for calculating emission reductions are operated appropriately.
- The GHG emission reductions are calculated without material omission, errors, misstatements and in a conservative and appropriate manner.

CCSC hereby certifies that the Project has achieved emission reductions as follows:

Specific-case CPA reference number	GHG emission reductions or net GHG removals by sinks (tCO ₂ e) achieved in the monitoring period		
	Up to 31/12/2012	From 01/01/2013	Total amount
5962-0001	0	0	0
5962-0002	0	47,809	47,809
5962-0003	0	31,749	31,749
Total	0	79,558	79,558

For and on behalf of CCSC



Authorized Signature

Name: TU Jianhua

Date: 06/09/2016

SECTION G. Verification findings - General**G.1. Compliance of the monitoring report with the monitoring report form**

Means of verification	Through cross-check and comparison to confirm if the applied PoA monitoring report form is valid and listed in UNFCCC website.
Findings	Through document review of the provided monitoring report (MR) /1//2/ and comparison with the latest PoA-MR template, the verification team confirm: <ul style="list-style-type: none"> • The MR /1//2/ used the latest PoA-MR form available at UNFCCC website. • The MR /1//2/ is complete and meet all requirements of Instructions for filling out the monitoring report form for CDM programme of activities /52/ and “Clean development mechanism project standard” /42/. No CARs/CLs/FARs raised in this section.
Conclusion	According to Para. 382 of VVS Version 09.0 /43/, CCSC verification team confirms that the monitoring report /1//2/ was in compliance with relevant monitoring report form and instructions therein.

G.2. Remaining forward action requests from validation and/or previous verification

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Through checking the previous verification report and validation report of PoA-DD and inclusion validation reports for CPA-2 and CPA3, it's identified that one FAR was raised during the 1st verification, which is for the CPA-2 “CME shall revise the relevant specific CPA DDs prior to or during the next verification, to correctly and consistently reflect the monitoring frequency of the parameter “Existence of public distribution network supplying safe drinking water” in line with the generic CPA DD and applied methodology AMS III AV Version3”.

The monitoring frequency of the parameter “Existence of public distribution network supplying safe drinking water” in CPA-2 was changed from “Biennial” to “Annual”, following the FAR raised in the first verification, and revised CPA-DD Version 04 has been provided for CPA-2. And the CCSC verification team has checked the revised CPA-DD as per the applied methodology and the generic CPA-DD and found the monitoring frequency has been changed appropriately. Detail please refer to the revised CPA-DD and validation report for PRC. Therefore, the remaining FAR was closed.

G.3. Specific-case CPA(s) considered for verification and covered in this report

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Is the specific-case CPA considered for this verification? (yes/no)	Version number of the registered PoA-DD to which the specific-case CPA complies with	Confirmation that a request for issuance including the specific-case CPA has been published for the previous monitoring period (Y/N)
5962-0001	Yes	Version 07 dated 13/04/2015	Y
5962-0002	Yes	Version 07 dated 13/04/2015	Y

5962-0003	Yes	Version 07 dated 13/04/2015	N/A. This is the first verification period for CPA-3 was included on 15/04/2015.
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SECTION H. Verification findings – Programme of activities

H.1. Compliance of the programme implementation with the registered programme design document

Means verification	<p>of</p> <p>Based on the review of documentation provided, and the on-site visit, CCSC verification team assessed whether the PoA have been implemented and operated in accordance with operational criteria set out in the PoA-DD/7/, and whether any deviation or proposed or actual changes in the implementation or operation of the PoA has taken place.</p> <p>During the site inspection, the verification team:</p> <ul style="list-style-type: none"> • Visited the sites of all the CPAs; • Checked dispensers in a sample and interviewed householders about their use; • Interviewed staff responsible for monitoring and implementation of the project, and reviewed relevant documents; • Reviewed the relevant training materials and training records.
Findings	<p>The introduction of low greenhouse gas emitting water purification systems to provide clean drinking water to low income households. The PoA serves as an open platform for various water treatment technologies which are eligible under the methodology AMS-III.AV Version 03 /45/.</p> <p>The management system has been implemented as described in the approved revised PoA-DD ('Operational and management plan') and in accordance with applicable provisions on the implementation of the management system in the Project Standard /7//42/. The PoA is managed by the CME (Pure Water Ltd. based in Switzerland) with CPA Managers responsible for the coordination with the CPA Implementers (CPA-1: Water School Uganda, CPA-2 and CPA-3: Evidence Action). At the end of the current monitoring period, three CPAs were included in the registered PoA i.e., 5962-0001, 5962-0001 and 5962-003. The CME has informed that CPA 1 (5962-0001) has not been implemented as yet, which has been confirmed by the verification team by reviewing the Dispenser Installation Records and interviewing with the CME.</p> <p>As per Clause 429 of VVS Version 09.0 and Clause 315 of PS Version 09.0, as of the end date of the monitoring period, all CPAs of the PoA shall be reported for this monitoring period. However, the CPA 1 (5962-0001) was covered in the monitoring period, and its information has not been reported in the monitoring report version 01, the verification team raised the CAR-1 for the issue. And CPA-1 and its information has been included in the monitoring report version 02. The start date of CPA-1 (CDM# 5962-0001) is still pending (no GDM filter has been distributed as of the end of the second monitoring period) and no CERs will be claimed for CPA-1 for the indicated monitoring period. Therefore, the CAR-1 was closed out. Details please refer to Appendix 4 of the report.</p>

	<p>The overall responsibility of implementation and operation is with CME (Pure Water Ltd.), which was also evident during the site visit. This is consistent with PoA-DD /7/.</p> <p>This monitoring period includes the implementation and monitoring of two CPAs (CPA-1 has not implemented) as part of revised PoA. The implementation of all CPAs, as referenced above, are within the geographical boundary of the PoA-DD, which constitutes the physical boundary as well.</p> <p>The verification team has checked the dispenser installation records and ODK Raw Data, and found all the dispensers of CPA-2 and CPA-3 were operated before the start date of this monitoring period, i.e. 01/02/2015. Detail information has been checked and described in Section 1.1 of the verification report.</p> <p>There is no information (data and variables) provided in the monitoring report that is different from that stated in the registered PoA-DD and CPA-DD.</p> <p>Further, based on the review of Dispenser Installation Records /27/, physical observations and interview conducted during the site visit, the verification team found that the actual implementation on ground of the PoA is consistent with PoA DD /7/ and respective CPA-DD /9//11//12/.</p>
Conclusion	<p>According to Para. 385 of VVS Version 09.0 /43/, CCSC verification team confirms that :</p> <ul style="list-style-type: none"> ● The implementation status and equipments installation of the PoA and its included CPAs are consistent with the approved revised PoA-DD and CPA-DDs; ● The actual operation of the PoA is as per the approved revised PoA-DD and CPA-DDs; ● Information (data and variables) provided in the monitoring report is in accordance with that stated in the approved revised PoA-DD and CPA-DDs; ● An opinion on the cause of any increase in the actual GHG emission reductions achieved by the registered PoA in the current monitoring period that was reported in monitoring report.

H.2. Implementation and operation of the management system

Means of verification	<p>The CCSC verification team reviewed the description of the operation and management system as set out in the approved revised PoA-DD /7/, and conducted on-site inspection to determine whether the operation and management structures required for monitoring have been put in place.</p>
Findings	<p>Based on the interview of CME representative and monitoring team during the on-site visit, it was confirmed that the CME has organized an appropriate management and operational system for implementation, monitoring and reporting functions.</p> <p>PWL appointed a PoA Manager who is supported by CPA Manager in the host Party (Uganda). The host Party CPA manager overlooks the representatives from CPA implementers.</p> <p>Considering only CPA-2 and CPA-3 have been implemented in the current monitoring period, it was verified by the verification team that Evidence</p>

	<p>Action, which acts as CPA implementer, is managing the implementation of water purifiers (chlorine dispensers), monitoring (field surveys, physical check and spot checks). The actual records (hard copies) are retained by Evidence Action and provided to CME. The verification team reviewed relevant documents, which were kept in order by Evidence Action viz., Installation Records /27/, Carbon Rights Waiver Records /26/, ODK Raw Records /20/, Survey Records /21/, Community Meeting Records /23/, Village Community Sensitization Records /34/ and Chlorine Delivery Records /24/ among others. PWL was also found to have access to all the records mentioned above, maintained by CPA implementer.</p> <p>CME is responsible for QA/QC of the data, analysis and reporting into the monitoring report. For survey data, a monitoring team has been organized by the CME consisting of trained monitoring staff, who conducted the monitoring and surveys.</p> <p>The organizational structure and roles and responsibilities for monitoring are in line with the situation on the ground as observed during the site visit, and the structure is considered appropriate.</p>
Conclusion	<p>In conclusion, based on document review, and onsite inspection, together based on their local and sectoral expertise, CCSC verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.</p>

H.3. Post-registration changes

H.3.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

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There are no temporary deviations from monitoring plan or applied methodology has been identified for this monitoring period.

H.3.2. Corrections

>>

There are no corrections has been identified for this monitoring period.

H.3.3. Inclusion of a monitoring plan in a registered PoA-DD (including its generic CPA-DD(s))

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N/A. The CCSC verification team has checked the approved revised PoA-DD (Version 07, dated 13/04/2015) /7/ and registered/includedregistered/included CPA-DDs /9//11//12/ to confirm a monitoring plan included in the DDs.

H.3.4. Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline

>>

No permanent changes to the monitoring plan in the approved revised PoA-DD or applied methodology was identified for this monitoring period.

H.3.5. Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA

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No such changes were identified during the current monitoring period.

However, the approved revised PoA-DD, with regard to inclusion of two additional host Parties viz., Cambodia and Malawi was approved on 05/11/2015 by CDM EB as checked from <http://cdm.unfccc.int/PRCCContainer/DB/prcp705942171/view>. The approved PRC does not affect the current monitoring period verified as it does not include the CPAs from additional host Parties) nor it was available at the time of initial submission of request for issuance.

H.3.6. Types of changes specific to afforestation and reforestation activities

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N/A

SECTION I. Verification findings – Component project activity(ies)

I.1. Compliance of the CPA implementation with the included CPA design document

<p>Means of verification</p>	<p>The verification team has performed an on-site inspection to assess:</p> <p>a) If all physical features (technology, project equipment, and monitoring and metering equipment) of the CPA-DDs are in place.</p> <p>b) If the CME/PP has operated the project activity as per the PoA-DD and CPA-DDs /7//9//11//12/.</p> <p>The verification team has:</p> <ul style="list-style-type: none"> • Applied the GPS instruments to check the location and geo-coordinates; • Field checked the dispensers, QC certificates and specifications for components, and Installation Records, to confirm that the project equipment installation is consistent with the PoA-DD and CPA-DDs /7//9//11//12/. • Interviewed relevant personnel for the project implementation information, and assessed the construction and implementation status with the Installation Records and the ODK Raw Data to check the implementation status of the Project /20//27/. • Interviewed the promoters and households and field surveyed/checked the monitoring parameters • Reviewed ODK operation procedure and ODK Raw Data to confirm the Project has been operated as per the PoA-DD and CPA-DDs.
<p>Findings</p>	<p>There are three specific CPAs (5962-0001, 5962-0002 and 5962-0003) that were included in the PoA as of the end of this monitoring period.</p> <p>The implementation and operation status of each CPA has been verified as follows:</p> <p>5962-0001 (Referred to as CPA-1):</p> <p>It will consist of the distribution and installation of Gravity-Driven ultrafiltration membranes (GDM) in Buikwe District, Uganda. However, as referenced under Section H.1, CPA-1 has not been implemented as yet. The CME has indicated that once the funds are secured, the efforts would be made to implement the CPA.</p> <p>5962-0002 (Referred to as CPA-2)</p> <p>5962-0003 (Referred to as CPA-3):</p> <p>The CPA-2 and CPA-3 consist of the distribution and installation of chlorine dispensers in Eastern Uganda. The CPAs seek to further the access of households and communities to safe drinking water, using a low greenhouse gas emitting water purification technology, chlorine dispensers.</p>

The CPAs reduce the use and demand of non-renewable biomass that would have been used to boil the water as a mean of water purification in the absence of the CPAs. The CPAs are undertaken by the coordinating/managing entity (CME) of the PoA, Pure Water Ltd., and implemented on a voluntary basis by Evidence Action.

CL-1 was raised that: As per the Project Standard and Instruction of the MR template, the following information should be provided in the section D.1 of the MR:

- 1) Information on the implementation and actual operation of each CPAs, including relevant dates (e.g. commissioning, continued operation periods, etc.)
- 2) Information on how double counting have been avoid for the GHG emission reductions achieved in this monitoring period.
- 3) Description of whether the events or situations occurred during the monitoring period that may impact the applicability of the applied methodology.

In total 1,150 dispensers were installed between 08/04/2013 and 10/04/2014 (in CPA-2) and 1,013 dispensers were installed between 22/01/2014 and 25/10/2014 (in CPA-3).

In order to avoid double-counting each water source is given a unique ID. In addition, each dispenser casing is marked with a unique identification number on a scannable asset tag (barcode ID). The allocation of this barcode ID to the unique water point ID is recorded in a central database.

No events or situations occurred during the monitoring period that may have impacted the applicability of the applied methodology AMS-III.AV version 03.

The verification team has checked the information added in the revised MR, and found consistent with relevant evidence. And then **CL-1** was closed.

	Dispense rs Installed	Commence Date	Complete Date	Location
CPA -2	1,150 (1,302 designed the CPA- DD)	08/04/2013	10/04/2014	Budaka district (all sub- counties), N 01° 00' 44.32", E 33° 48' 35.99" Kibuku district (all sub- counties), N 01° 04' 12.48", E 33° 59' 50.30" Manafwa district (Tsekukulu, Mukoto, Buwabala, Bukhabusi, Bukhaweka, Bupoto, Namabaya, Bumbu and Bukhoko sub-counties), N 00° 52' 40.72", E 34° 18' 51.38"
CPA -3	1,013 (1,000 designed in the CPA-DD)	22/01/2014	25/10/2014	Manafwa district (Bubutu, Bukiabi, Bumwoni, Lwakhakha TC, Magale, Namboko, Bugobero, Bukhofu, Bukhusu, Bunabwana, Busukuya, Butiru, Butta, Buwagogo,

	<p>Kaato, Khabutoola, Manafwa TC, Nalondo, Sibanga, Sisuni and Wesswa sub-counties) N 00° 52' 40.72", E 34° 18' 51.38"</p> <p>Mbale district (Bubyangu, Bufumbo, Bukhiende, Lukhonge, Busiu, Bumasikye, Busoba, Nyondo and Busanosub-counties), N 01° 00' 05.18", E 34° 10' 27.76"</p>
	<p>During field check, the verification team found that the installation dates were also inscribed on the base of poles. By the GPS instruments and checking the installation records /27/ and ODK Raw Data /20/, the verification team confirmed the CPA-2 and CPA-3 have implemented as per their CPA-DDs, and all the dispensers were installed before this monitoring period, i.e. the dispensers (except the malfunction/replaced) were all operated throughout this monitoring period.</p> <p>The total dispenser installed was verified from the installation records /27/ and ODK Raw Data /20/ during the onsite inspection.</p> <p>In addition to this, the verification team also checked the community education meeting attendance records /28/ that would ensure that these used by the beneficiaries in an optimal and desired manner. The installed dispenser at project site is looked after by 'Promoters' who remain connected with the Evidence Action with regard to the sustained supplies of the chlorine.</p> <p>The dispensers are distinguished based on the unique Water Point ID and the casing of each dispenser, which is a bar code. The Water Point ID may not be changed as it represents an identified dispenser location. However, the dispenser ID (barcode) may get replaced occasionally in situations of physical damage etc.</p> <p>The type of chlorine dispensers found installed were consistent with the included CPA-DDs /11//12/. The final MR /2/ includes complete description of the implementing partners, locations, and implementation status, which is consistent with the observations and interviews during the site visit as well as review of the installation records (physical and electronic).</p> <p>The CPAs are small-scale CPA, and the verification team has verified the emission reductions of all the CPAs, and found all the CPAs remains within the limit of its type, details please refer to section 1.6.6 of the report.</p>
<p>Conclusion</p>	<p>According to Para. 385 of VVS Version 09.0 /43/, CCSC verification team confirms that :</p> <ul style="list-style-type: none"> ● The implementation status and equipments installation of the PoA and its included CPAs are consistent with the approved revised PoA-DD and CPA-DDs; ● The actual operation of the PoA is as per the approved revised PoA-DD and CPA-DDs; ● Information (data and variables) provided in the monitoring report is in accordance with that stated in the approved revised PoA-DD and CPA-DDs; ● An opinion on the cause of any increase in the actual GHG emission

	reductions achieved by the registered CDM project activity in the current monitoring period that was reported in monitoring report.
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I.2. Post-registration changes

I.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

>>

There are no temporary deviations from registered monitoring plan or applied methodology has been identified for this monitoring period.

I.2.2. Corrections

>>

There are no corrections has been identified for this monitoring period.

I.2.3. Changes to the start date of the crediting period

>>

N/A

I.2.4. Inclusion of a monitoring plan to an included CPA-DD

>>

N/A. The CCSC verification team has checked the registered/included CPA-DDs to confirm the monitoring plan included in the CPA-DDs.

I.2.5. Permanent changes to the monitoring plan as described in the included CPA-DD, applied methodology, or applied standardized baseline

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The CCSC verification team has confirmed no permanent changes to the monitoring plan as described in the included CPA-DD of CPA-1 and CPA-3 occurred during this monitoring period.

For CPA-2, The monitoring frequency of the parameter “Existence of public distribution network supplying safe drinking water” in CPA-2 was changed from “Biennial” to “Annual” following the FAR raised during the first verification, and revised CPA-DD Version 04 has been provided for CPA-2.

A request for approval of permanent change from the registered monitoring plan as described in the registered PDD or the monitoring methodology is submitted along with this verification report as part of the request for issuance. Please refer to the revised CPA-DD for CPA-2 (Version 4) /11/ and the PRC Validation Report on the changes issued by CCSC /15/.

I.2.6. Changes to the programme design of the included CPA-DD

>>

No changes to the programme design of the included CPA-DD has been identified for this monitoring period.

I.2.7. Types of changes specific to afforestation and reforestation component project activities

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N/A.

I.3. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	The monitoring plan included in the registered/included CPA-DDs /9//11//12/
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	of the PoA has been assessed against the monitoring methodology AMS-III.AV /45/.
Findings	<p>Through review of the monitoring plan against the monitoring methodology AMS-III.AV /45/, the verification team confirmed that the monitoring plan in the registered/included CPA-DDs /9//11//12/ is in accordance with the applied monitoring methodology AMS-III.AV /45/.</p> <p>The on-site assessment further demonstrated there are no monitoring aspects of the Project that are not specified in the methodology AMS-III.AV /45/.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>CCSC verification team confirms that the monitoring plan in the registered/included CPA-DDs is in accordance with the applied methodology, i.e. AMS-III.AV /45/.</p> <p>Therefore, the PoA is also in compliance with Para. 388 of VVS Version 09.0 /43/.</p>

I.4. Compliance of monitoring activities with the registered monitoring plan

I.4.1. Data and parameters fixed ex ante or at renewal of crediting period

Means verification	of	<p>The data and parameters fixed ex-ante include:</p> <ol style="list-style-type: none"> 1) Specific heat of water (WH) 2) Final temperature (T_f) 3) Initial temperature (T_i) 4) Latent heat of water evaporation (WHE) 5) Efficiency of the water boiling system being replaced (η_{wb}) 6) Non Renewable Biomass factor (f_{NRB}) 7) Capacity of the water purification equipment (L_P) 8) Number of persons supplied with purified water from each of the functional project appliances (POP_P) 9) Average volume of drinking water per person per day (DW_{POP}) 10) Proportion of total population attended by the project that is serviced at households/buildings where water boiling would have been the purification practice ($POP_{Boiling}$) 11) Ex-ante determined parameters for the project emissions from fossil fuel combustion 12) Ex-ante determined parameters for the project emissions from electricity consumption <p>Fractional increase in NRB usage by households outside the project boundary (leakage)</p> <p>This parameter reported in the MR /2/ has been checked against the approved revised PoA-DD, CPA-DDs and the applied methodology /45/ by the verification team.</p>
Findings		<ol style="list-style-type: none"> 1) Specific heat of water (WH) <p>The parameter used in the monitoring report is 4.186 kJ/L °C, which has been verified against the PoA-DD and CPA-DDs, the methodology AMS-III.AV and found them to be consistent.</p>

- 2) Final temperature (T_f)
The default value of boiling point of water at standard conditions of 100°C has been applied in the MR, which is consistent with the PoA-DD and CPA-DD and the applied methodology.
- 3) Initial temperature (T_i)
The default value of initial temperature of 20°C has been applied in the MR, which is consistent with the PoA-DD and CPA-DD and the applied methodology.
- 4) Latent heat of water evaporation (WHE)
The default value of 2,260 kJ/L has been applied in the MR, which is consistent with the PoA-DD and CPA-DD and the applied methodology.
- 5) Efficiency of the water boiling system being replaced (η_{wb})
The default value of 10.83% (CPA-2) and 10.92% (CPA-3) have been applied in the MR, which is consistent with the PoA-DD and CPA-DDs and the applied methodology.
The verification team has also checked the value against the Baseline Survey Records /37/, and found consistent.
- 6) Non Renewable Biomass factor (f_{NRB})
The default value of 82% has been applied in the MR, which is consistent with the PoA-DD and CPA-DDs, and is consistent with the the default country-specific f_{NRB} values approved by the Board /40/.
- 7) Capacity of the water purification equipment (L_P)
The default value of 32,971 Liters/refill (CPA-2) and 32,680 Liters/refill (CPA-3) have been applied in the MR, which is consistent with the CPA-DDs.
- 8) Number of persons supplied with purified water from each of the functional project appliances (POP_P)
The default value of 301 (CPA-2) and 287 (CPA-3) have been applied in the MR, which is consistent with the CPA-DDs.
The verification team has also checked the persons per household with the latest National Population and Housing Census 2014 /41/, and found the value keeps the same with those in CPA-DDs.
- 9) Average volume of drinking water per person per day (DW_{POP})
The default value of 3.5 Liters/person/day have been applied in the MR, which is consistent with the CPA-DDs, which has not exceeded the value of 5.5 liters per person per day as per the applied methodology.
- 10) Proportion of total population attended by the project that is serviced at households/buildings where water boiling would have been the purification practice ($POP_{Boiling}$)
N/A for it is only relevant for Case 2 as per the CPA-DDs and the methodology.
- 11) Ex-ante determined parameters for the project emissions from fossil fuel combustion
No consumption of fossil fuel by chlorine dispenser, which has been confirmed by the verification team by the onsite inspection.
- 12) Ex-ante determined parameters for the project emissions from electricity consumption
No consumption of electricity by chlorine dispenser, which has been confirmed by the verification team by the onsite inspection.

	<p>13) Fractional increase in NRB usage by households outside the project boundary (leakage) The default value of 0.95 have been applied in the MR, which is consistent with the CPA-DDs and the methodology AMS-I.E. Version 5 /46/.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>In conclusion, according to Para. 392 and 393 of VVS (Version 09.0)/5/ and based on CCSC's local and sectorial knowledge, CCSC confirms that:</p> <ul style="list-style-type: none"> • The data and parameters fixed ex-ante have been correctly listed. Parameters fixed ex-ante for required parameters have been verified by checking the information flow and in compliance with the monitoring plan of the PDD/1/.

1.4.2. Data and parameters monitored

Means verification of	<p>According to Para. 390 of VVS Version 9.0, CCSC has performed the following activities to determine whether the monitoring of parameters related to the GHG emission reductions has been implemented in accordance with the registered monitoring plan.</p> <p>(a) Through the on-site inspection of the monitoring system, interview with the operation staff, document review including relevant records, procedures and technical specifications, the verification team has assessed the implementation of the registered monitoring plan followed by the PP;</p> <p>(b) The parameters stated in the registered monitoring plan and relevant Board decisions has been checked by means above;</p> <p>(c) The verification team has checked the ODK survey system, the water quality test equipment and procedure.</p> <p>(d) The relevant records /database were checked by the team to confirm the frequency of the monitoring results;</p> <p>(e) Based on the interview with the management, operation staff and the review of the CDM monitoring manual, the CCSC has assessed the quality assurance and quality control procedures applied by the CME/PP.</p> <p>And according to Para. 390 of VVS Version 9.0 /43/, CCSC has assess the compliance of the sampling efforts and surveys with the validated sampling plan in the accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities" Version 05.0 /47/.</p>
Findings	<p>CCSC verification team's findings for each monitored parameter are presented in Appendix 5.</p>
Conclusion	<p>Corresponding to the paragraph 392 and 393 of VVS version 09.0, CCSC verification team confirms that:</p> <ul style="list-style-type: none"> • The monitoring has been carried out in accordance with the monitoring plan contained in the CPA-DDs. • All parameters required by the monitoring plan have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified by checking the whole information flow.

1.4.3. Implementation of sampling plan

Means of	CCSC verification team reviewed the sampling plan in the approved revised
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<p>verification</p>	<p>PoA-DD and registered/included CPA-DDs, reviewed the actual sampling efforts carried out, including through a visit to the project site, interviews with personnel involved in sampling and surveys, and visits to a subset of households that were included in the CME/PP's sample survey, and assessed the compliance of the sampling efforts and surveys with the validated sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities" Version 05.0.</p>																				
<p>Findings</p>	<p>The monitoring has been carried out in accordance with the monitoring plan contained in the CPA-DDs /11//12/.</p> <p><u>Sampling Design/Method/Target Population/Sampling Frame/Reliability:</u></p> <p>The sampling method applied for parameter Drink% (multi-stage), Refill% (simple random), and clustered sampling was used for parameter water quality monitoring, which is in line with the monitoring plan of the PoA DD (Section B.7.2) as referred in CPA-DDs /11//12/.</p> <p>The parameters were monitored by grouped survey for CPA-2 and CPA-3, which is verified to be in line with criteria of same technology and host-country in the approved revised PoA-DD and CPA-DDs.</p> <p>The sampling frame considered confidence/precision as 95/10 considering the length of monitoring period, which is less than a year, in order to meet the requirement of Standard for sampling and surveys for CDM project activities and PoAs /47/. The target population were the households served by the chlorine dispensers installed as part of CPA-2 and CPA-3 located in the eastern districts of Uganda. Each dispenser had the equal chance of selection.</p> <p><u>Sample Size (Required and Actual) for Parameter of Interest:</u> The sampling is applied to the following monitoring parameters:</p> <ul style="list-style-type: none"> - Refill% - Drink% - Water Quality <p>The sample sizes were determined, separately for each of them as under. The outcome of sample size calculation (required and actual samples) based on the considered confidence level and precision is presented below:</p> <table border="1" data-bbox="424 1442 1441 1749"> <thead> <tr> <th></th> <th>Required Sample Size</th> <th>Actual Sample Size</th> <th>Results</th> <th>Precision Achieved</th> </tr> </thead> <tbody> <tr> <td>Refill%</td> <td>21 dispensers</td> <td>220 dispensers</td> <td>98.6%</td> <td>1.5%</td> </tr> <tr> <td>Drink%</td> <td>112 sample (14 dispensers)</td> <td>741 sample (222 dispensers)</td> <td>92.2%</td> <td>2.3%</td> </tr> <tr> <td>Water Quality</td> <td>38 sample (9 Clusters/dispensers)</td> <td>95 sample (36 clusters/dispensers)</td> <td>92.6%</td> <td>4.6%</td> </tr> </tbody> </table> <p>In this regard, sample size calculation (required and actual) is included in the ER spreadsheet /4/ that was checked and found correct as per registered monitoring plan.</p> <p>The verification team reviewed the sample size determination and Reliability Calculation of the surveys, and reproduced the same result as per the Standard: Sampling and surveys for CDM project activities and programmes of activities /47/, Guideline: Sampling and surveys for CDM project activities and programmes of activities /48/, and Sample Size Calculator /49/.</p>		Required Sample Size	Actual Sample Size	Results	Precision Achieved	Refill%	21 dispensers	220 dispensers	98.6%	1.5%	Drink%	112 sample (14 dispensers)	741 sample (222 dispensers)	92.2%	2.3%	Water Quality	38 sample (9 Clusters/dispensers)	95 sample (36 clusters/dispensers)	92.6%	4.6%
	Required Sample Size	Actual Sample Size	Results	Precision Achieved																	
Refill%	21 dispensers	220 dispensers	98.6%	1.5%																	
Drink%	112 sample (14 dispensers)	741 sample (222 dispensers)	92.2%	2.3%																	
Water Quality	38 sample (9 Clusters/dispensers)	95 sample (36 clusters/dispensers)	92.6%	4.6%																	

	<p>The actual number of dispensers covered by the CME' sample were clearly larger than the minimum size required. The precision achieved for the confidence level 95% is within the limit (<10%) for all the parameter of interest.</p> <p><u>Sample selection:</u></p> <p>The randomization was undertaken in Stata (statistical software), and the same has been verified by the verification team. The samples were drawn from the database. Hence the verification team able to confirm that the samples were representative of the total population.</p> <p>The reliability (demonstration of precision achieved after the survey results) is depicted in the ER spreadsheet /4/ corresponding to final Monitoring Report /2/, which were also found correct.</p> <p>Based on the verified results the verification team found that the required precision is met in all the cases and therefore the results were directly used in the calculation of ERs.</p> <p>The verification team has checked different version of PoA-DDs (registered version 06 and revised version 07) and found there is no change for the sample plan, i.e. the sampling approach are the same in different versions of the PoA-DDs. The verification team has ensured that a statistically sound sample of CPAs from each version of the PoA are being verified.</p> <p>For other information, please refer to section I.4.2 of the report.</p> <p>CAR-2 was raised that in order to assess the combined Reliability for parameter of Drink% in the ER spreadsheet Ver.01, the verification team found the total number of groups/dispensers is incorrect.</p> <p>In the ER Spreadsheet Version 02, the number was revised to 2,163 (1,150 for CPA-2 and 1,013 for CPA-3), and the precision was re-calculated to be 2.3%, the same as the previous result. The verification team has checked the ER spreadsheet and confirmed the calculation is correct. And then CAR-2 was closed out.</p>
<p>Conclusion</p>	<p>As per the VVS Version 09.0, the CCSC verification team confirmed that:</p> <ul style="list-style-type: none"> • The sampling and surveys were carried out in line with the sampling plan and monitoring plan in the registered PoA-DD and CPA-DDs. • The sampling approach and sample size determination was consistent with the sampling plan, and the sampling and surveys were carried out in accordance with the requirements of the '<i>Standard: Sampling and surveys for CDM project activities and programme of activities</i>' and the '<i>Guideline: Sampling and surveys for CDM project activities and programmes of activities</i>'. • A statistically sound sample of CPAs from each version of the PoA are being verified.

I.5. Compliance with the calibration frequency requirements for measuring instruments

<p>Means of verification</p>	<p>Not applicable. No monitoring equipment requiring calibration was installed as part of the monitoring plan.</p>
<p>Findings</p>	<p>N/A</p>
<p>Conclusion</p>	<p>N/A</p>

I.6. Assessment of data and calculation of emission reductions or net removals

I.6.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

<p>Means of verification</p>	<p>According to the Para.402 of VVS Version 09.0 /43/, the verification team has performed the following activities to assess the data and calculations of GHG emission reductions achieved by the PoA and its CPAs as per the methodology /45/:</p> <p>(a) Through desk review and on-site inspection on the ODK Raw Data /20/, to verify that a complete set of data for the specified monitoring period is available.</p> <p>(b) Information provided in the monitoring report /2/ has been cross-checked with other sources.</p> <p>(c) Review the calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered/included CPA-DDs /11//12/, and the methodology /45/;</p> <p>(d) Justify the assumptions used in emission calculations</p> <p>(e) Review emission factors, IPCC default values, GWPs and other reference values as per the registered/included CPA-DDs /11//12/.</p>												
<p>Findings</p>	<p>The following equations were used to determine the baseline emissions as provided in the monitoring report /2/and applied in the corresponding ER sheet /4/. The expressions used were found consistent with the approved revised PoA DD /7/, registered/included CPA-DDs /11//12/ and the applied methodology AMS-III.AV, version 03:</p> $BE_y = QPW_y * SEC * f_{NRB,y} * EF_{projected_fossilfuel} * 10^{-9}$ <p style="margin-left: 40px;">= 54,348 tCO₂e [CPA-2]</p> <p style="margin-left: 40px;">= 36,091 tCO₂e [CPA-3]</p> <p>Where:</p> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">BE_y</td> <td>Baseline emissions during the year y (tCO₂e)</td> </tr> <tr> <td style="padding-right: 20px;">QPW_y</td> <td>Quantity of purified water in year y = 246,054,247 (monitoring results) [CPA-2] = 164,744,756 (cap) [CPA-3]</td> </tr> <tr> <td style="padding-right: 20px;">SEC</td> <td>Specific energy consumption required to boil one liter of water = 3,301 kJ/L [CPA-2] and 3,274 [CPA-3] (SEC calculation below)</td> </tr> <tr> <td style="padding-right: 20px;">$f_{NRB,y}$</td> <td>Fraction of non-renewable biomass = 82% (default value for Uganda)</td> </tr> <tr> <td style="padding-right: 20px;">$EF_{projected_fossilfuel}$</td> <td>Emission factor = 81.6 tCO₂/TJ (default value)</td> </tr> </table> <p>The specific energy consumption required to boil one liter of water was calculated as follows:</p> $SEC = [WH * (T_f - T_i) + 0.01 * WHE] / n_{wb}$ <p>Where:</p> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">WH</td> <td>Specific heat of water</td> </tr> </table>	BE_y	Baseline emissions during the year y (tCO ₂ e)	QPW_y	Quantity of purified water in year y = 246,054,247 (monitoring results) [CPA-2] = 164,744,756 (cap) [CPA-3]	SEC	Specific energy consumption required to boil one liter of water = 3,301 kJ/L [CPA-2] and 3,274 [CPA-3] (SEC calculation below)	$f_{NRB,y}$	Fraction of non-renewable biomass = 82% (default value for Uganda)	$EF_{projected_fossilfuel}$	Emission factor = 81.6 tCO ₂ /TJ (default value)	WH	Specific heat of water
BE_y	Baseline emissions during the year y (tCO ₂ e)												
QPW_y	Quantity of purified water in year y = 246,054,247 (monitoring results) [CPA-2] = 164,744,756 (cap) [CPA-3]												
SEC	Specific energy consumption required to boil one liter of water = 3,301 kJ/L [CPA-2] and 3,274 [CPA-3] (SEC calculation below)												
$f_{NRB,y}$	Fraction of non-renewable biomass = 82% (default value for Uganda)												
$EF_{projected_fossilfuel}$	Emission factor = 81.6 tCO ₂ /TJ (default value)												
WH	Specific heat of water												

	<p>= 4.186 kJ/L °C (default value)</p> <p>T_f Final temperature = 100 °C (default value)</p> <p>T_i Initial temperature of water = 20 °C (default value)</p> <p>WHE Latent heat of water evaporation = 2,260 kJ/L (default value)</p> <p>η_{wb} Efficiency of the water boiling systems being replaced = 10.83% [CPA-2] and 10.92% [CPA-3] (baseline survey)</p> <p>The water quality was monitored on sample basis for contamination with Escherichia coli (E. coli). A presence of up to 10 E. coli CFU/100 ml shall be acceptable. The fraction of water quality measurements providing water of insufficient quality (92.6%) needs be excluded from the calculation of emission reductions and BE_y was adjusted accordingly.</p> <p>54,348 tCO₂e * 92.6% = 50,326 tCO₂e [CPA-2] 36,091 tCO₂e * 92.6% = 33,420 tCO₂e [CPA-3]</p> <p><u>Assumptions Justification:</u></p> <p>1) It was assumed that the average chlorine consumption was constant between the last chlorine delivery before the start date and the first record during the monitoring period, and between the cut-off date and the first chlorine delivery after the cut-off date.</p> <p>In case of missing data, it is assumed that no chlorine was used (e.g. in case no chlorine delivery record was collected for a certain dispenser before the start date of the monitoring period but chlorine delivery records are available for during and after the monitoring period, no chlorine usage is assumed before the date of the chlorine delivery record collected during the monitoring period).</p> <p>The verification team confirmed that with the assumptions, the average chlorine consumption during this monitoring period can be calculated reasonably and conservative.</p> <p>2) Dispensers for which no functionality records were collected after monitoring start date (01/02/2015) are assumed to be non-functional</p> <p>The verification team confirmed that it's conservative and can be accepted.</p> <p>The verification team has reviewed the calculation in the MR Version 02 and ER spreadsheet Version 02, and found a complete set of data for the specified monitoring period is available, which has been crosschecked against the ODK Raw Data/other documents and the onsite inspection by the verification team, and the calculation of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology.</p>
<p>Conclusion</p>	<p>Corresponding to the paragraph 403 of VVS Version 09.0, CCSC verification team confirms that:</p> <ul style="list-style-type: none"> ● A complete set of data for the monitoring period is available,

	<ul style="list-style-type: none"> Information on the baseline GHG emission calculation provided in the monitoring report has been cross-checked with other sources, Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document, The assumptions in emission calculations has been justified, Appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied.
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1.6.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means verification	of	The verification team has reviewed the project emission calculation as per the registered/included CPA-DDs /11//12/, and the methodology /45/.
Findings		<p>The operation of the chlorine dispensers does not involve the consumption of fossil fuels or electricity. Therefore, the project emissions are zero. The on-site visit and project design also did not reveal any potential source to be considered in this regard.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion		<p>Corresponding to the paragraph 403 of VVS version 09.0, CCSC verification team confirms that:</p> <ul style="list-style-type: none"> A complete set of data for the monitoring period is available. Information on the project GHG emission calculation provided in the monitoring report has been cross-checked with other sources. Calculations of project emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document. Appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied.

1.6.3. Calculation of leakage GHG emissions

Means verification	of	The verification team has reviewed the leakage calculation as per the registered/included CPA-DDs /11//12/, and the methodology /45/.
Findings		<p>Leakage relating to the non-renewable woody biomass is assessed as per the relevant procedures of AMS-I.E Version 5 explained below i.e., BE_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.</p> <p>And the leakage are 2,517 tCO₂e (CPA-2) and 1,671 tCO₂e (CPA-3) (round up for conservativeness).</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion		<p>Corresponding to the paragraph 403 of VVS version 09.0, CCSC verification team confirms that:</p> <ul style="list-style-type: none"> A complete set of data for the monitoring period is available. Information on the leakage GHG emission calculation provided in the monitoring report has been cross-checked with other sources. Calculations of leakage have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied

methodology document.

I.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	The verification team has reviewed the calculation of GHG emission reductions in the MR Version 02 /2/ and ER Calculation Sheet /4/ as per the registered/included CPA-DDs /11//12/, and the methodology /45/.
Findings	<p>As elaborated above, the entire emission reductions from the PoA were based on baseline emissions and leakage emissions. The calculations presented in this regard in the final monitoring report /2/ and corresponding ER sheet /4/ were found appropriate and complying with the provisions prescribed in the monitoring plan of respective CPA-DD, PoA-DD and applied methodology.</p> <p>The verification team confirms that the calculation is accurate and conservative. The total number of ERs achieved during the current monitoring period is 79,558 tCO₂e.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>Corresponding to the paragraph 403 of VVS version 09.0, CCSC verification team confirms that:</p> <ul style="list-style-type: none"> • A complete set of data for the monitoring period is available. • Information provided in the monitoring report has been cross-checked with other sources. • Calculations of baseline emissions, and project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document. • The assumptions in emission calculations are reasonable. • Appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied

Specific-case CPA reference number	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)		
				Results achieved in the period up to 31 December 2012	Results achieved in the period from 1 January 2013 onwards	Results achieved in the entire monitoring period
5962-0001	0	0	0	0	0	0
5962-0002	50,326	0	2,517	0	47,809	47,809
5962-0003	33,420	0	1,671	0	31,749	31,749
Total	83,746	0	4,188	0	79,558	79,558

I.6.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included specific-case CPA

Means verification	of	The comparison of actual GHG emission reductions with estimates in the registered/included CPA-DDs /11//12/ has been checked and re-calculated by the verification team.
Findings		<p>Based on the above assessment, the emission reductions during the monitoring period from 01/02/2015 to 30/09/2015 is verified as 79,558 tCO₂e for all the CPAs. Compared with the value of estimated emission reductions during the same period, in the CPA-DDs, which is 55,480 tCO₂e. Please refer to the following table for comparison of specific CPA.</p> <p>The verified emission reductions are about 30% more than the estimated value in the monitoring period for the PoA, and about 37.5% (CPA-2) and 53.3% (CPA-3) more than the estimated value in the monitoring period.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion		<p>Corresponding to the paragraph 256 of CDM Project Standard version 09.0, CCSC can confirm that:</p> <p>A comparison of actual GHG emission reductions or net anthropogenic GHG removal of the project activity achieved during this monitoring period with the estimates in the registered/included CPA-DDs has been provided, and the results are correct.</p>

Specific-case CPA reference number	Value estimated in ex ante calculation in the included specific-case CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period
5962-0001	1,864	0
5962-0002	34,764	47,809
5962-0003	20,716	31,749
Total	55,480	79,558

I.6.6. Remarks on difference from estimated value in registered PDD

Means verification	of	The CCSC verification team reviewed the emission reduction spreadsheet, description set out in the monitoring report, and other evidence presented by the CME where applicable to justify the reasons for the difference in emission reductions between the registered/included CPA-DDs and the actual monitored values.
Findings		<p>The verified emission reductions are 37.5% (CPA-2) and 53.3% (CPA-3) more than the estimated value in the monitoring period. The verification team has assessed the cause of any increase in the actual GHG emission reductions achieved during the current monitoring period, including all information (i.e. data and/or parameters) that is different from that stated in the registered/included CPA-DDs, by reviewing the approved revised PoA-DD, registered/included CPA-DDs and relevant validation reports, ODK Raw Data etc.</p> <p>CL-2 was raised by the verification team that the actual emission reductions achieved for CPA-2 and CPA-3 during this monitoring period are 37% and 53% respectively more than the estimations in included CPA-DDs. Please clarify whether the applicability of the methodology has been impacted.</p> <p>This is mainly due to a higher chlorine consumption: in the CPA-DD an</p>

	<p>annual use of 9 chlorine jerricans (5 L) per dispenser was assumed while the actual annual consumption (projected to one full year) was 11.7 (CPA-2) and 13.0 (CPA-3), which are consistent with the Chlorine Delivery Records. High adoption rates, i.e. more purified water, by local communities are the reason for the increased emission reductions achieved.</p> <p>In order to be deemed additional it needs to be shown that each of the chlorine dispensers achieves an annual emission reduction equal to or less than 3,000 (i.e. 5% of the small-scale CDM threshold) as per the Methodological tool: Demonstration of additionality of small-scale project activities (Version 10.0).</p> <p>In addition, according to the Methodological tool: Assessment of debundling for small-scale project activities (Version 04.0) for determining the occurrence of debundling under a Programme of Activities (PoA)", if each of the independent subsystem/measures included in the CPA of a PoA is not larger than 1% of the small scale threshold defined by the methodology applied, than that CPA of PoA is exempted from performing de-bundling check, i.e. considered as being not a de-bundled component of a large scale activity. Hence, the annual emission reductions per dispenser shall be below 600 tCO₂. Both eligibility criteria are still fulfilled with an annual emission reduction of 62.7 CERs per dispenser (CPA-2) and 67.7 CERs per dispenser (CPA-3) respectively.</p> <p>In order to meet the small-scale threshold, the average annual emission reductions for the Type III components need to be below 60k tCO₂ per annum. If the threshold is exceeded the emission reductions shall be capped at 60k tCO₂ per annum. So far in 2015, a total of 51,986 CERs were claimed for CPA-2 (4,177 in first monitoring period and 47,809 in the second monitoring period) and 31,749 CERs for CPA-3. No more than 8,014 CERs (for CPA-2) and 28,251 CERs (for CPA-3) shall be claimed for the remaining three months of 2015 (01/10/2015 – 31/12/2015) which will be included in the third monitoring period.</p> <p>The verification team has reviewed the clarification against relevant evidence documents and methodological tools, and found the ERs increase caused by the higher chlorine consumption, and the clarification is reasonable. The verification team confirmed the additionality of the PoA has not been affected, and the applicability of the methodology has not been impacted during this monitoring period. Therefore, the CL-2 was closed.</p> <p>Subsequently, the verification team raised FAR-1 for the next verification that: the emission reductions of each CPAs should be capped at 60k tCO₂ per annum to ensure the applicability of the methodology will not be impacted. And the CME confirms the emission reductions of each CPAs should be capped at 60k tCO₂ per annum.</p>
<p>Conclusion</p>	<p>Corresponding to the Para 257 of CDM Project Standard version 09.0 and Para 385 (c) and (d) of VVS version 09.0, CCSC verification team confirms that:</p> <ul style="list-style-type: none"> ● The project participants have explained the cause of any increase in the actual GHG emission reductions achieved during the current monitoring period, and including all information (i.e. data and/or parameters) that is different from that stated in the approved revised PoA-DD and registered/included CPA-DDs. ● The variation is deemed to be reasonable.

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
BE	Baseline emissions
CAR	Corrective Action Request
CCSC	China Classification Society Certification Company
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification request
CME	Coordinating/Managing Entity
CPA	Component Project Activity
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DD	Design Document
DOE	Designated operational entity
DNA	Designated National Authority
EA	Evidence Action
EB	Executive Board
EF	Emission factor
FAR	Forward action request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LoA	Letter of Approval
LE	Leakage emissions
MR	Monitoring report
NGO	Non-governmental Organization
ODK	Open Data Kit (Mobile App)
PCP	Project Cycle Procedure
PE	Project Emissions
PP	Project Participant
PRC	Post-registration change(s)
PS	Project Standard
PWL	Pure Water Ltd.
S/N	Serial Number

TCR	Total Chlorine Residual
tCO ₂ e	Tonne of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
UQL	Unacceptable Quality Level
VVS	Validation and Verification Standard
WQT	Water Quality Test

Appendix 2. Competence of team members and technical reviewers



Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 16/10/2015

Mr. Li Xingtong

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

- CDM validator for Technical Area(s):
TA1.1/TA1.2/TA3.1/TA9.2
- CDM verifier for Technical Area(s):
TA1.1/TA1.2/TA3.1/TA9.2
- Technical expert for Technical Area(s): _____

Huang ShiYuan
CCSC General Manager



Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 16/10/2015

Mr. Xu Fangzhou

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

- CDM validator for Technical Area(s): TA1.2
- CDM verifier for Technical Area(s): TA1.2
- Technical expert for Technical Area(s): _____

Huang ShiYuan
CCSC General Manager



Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 15/02/2016

Ms. Tang Xuemei

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

- CDM validator for Technical Area(s):
TA1.1/TA1.2/TA3.1/TA4.1
- CDM verifier for Technical Area(s):
TA1.1/TA1.2/TA3.1/TA4.1
- Technical expert for Technical Area(s): _____

Huang ShiYuan
CCSC General Manager

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	CME	Monitoring Report	Version 01	CME
2.	CME	Monitoring Report	Version 02	CME
3.	CME	ER Spreadsheet	Version 01	CME
4.	CME	ER Spreadsheet	Version 02	CME
5.	CME	Registered PoA-DD	Version 6 02/10/2012	CME
6.	GLC	Validation Report (Registered PoA DD)	Rev. 12 16/11/2012	Others
7.	CME	Approved revised PoA-DD	Version 07 13/04/2015	CME
8.	RINA	PRC Validation Opinion	Rev1.1 Aa 16/07/2015	Others
9.	CME	CPA DD – CPA 001	Version 6 02/10/2012	CME
10.	CME	CPA DD – CPA 002	Version 3 16/07/2014	CME
11.	CME	Revised CPA DD – CPA 002	Version 4 30/05/2016	CME
12.	CME	CPA DD – CPA 003	Version 4 27/03/2015	CME
13.	GLC	Validation Report – CPA 001	Rev. 12 16/11/2012	Others
14.	CarbonCheck	Validation Report – CPA 002	Rev 2 17/07/2014	Others
15.	CCSC	PRC Validation Report– CPA 002	Version 02 11/08/2016	Others
16.	CarbonCheck	Validation Report – CPA 003	Rev 5 27/03/2015	Others
17.	CME Other DOE	Previous monitoring report and verification report	-	CME Others
18.	EA	Evidence Action Global Organization Chart	-	CME
19.	EA	Certificate of Evidence Action Limited	-	CME
20.	EA	ODK Raw Records/Spreadsheet	-	CME
21.	EA	Survey Records (ODK based) / Spot	-	CME

		Checks		
22.	EA	Promoter Survey Records (ODK based)	-	CME
23.	EA	Community Adoption Survey Records	-	CME
24.	EA	Chlorine Delivery Records	-	CME
25.	EA	WQT Records	-	CME
26.	EA	Carbon Rights Waiver Records	-	CME
27.	EA	Dispenser Installation Records	-	CME
28.	EA	Community Education Meeting Attendance Records	-	CME
29.	EA	Protocol for Processing Samples using IDEXX Quanti – Tray / 2000 (Water Quality Tests)	-	CME
30.	EA	IDEXX Water Quality Testing Form (Water Quality Tests)	-	CME
31.	IDEXX	Quanti-Tray System User Manual (www.idexx.com/water/products/quantitrays.html)	-	Others
32.	EA	Survey Back-check Protocol	-	CME
33.	EA	Dispensers for Safe Water Back-check Protocol	-	CME
34.	EA	Village Community Sensitization Meeting Record	-	CME
35.	EA	Technical Specifications of the dispenser and its hardware		CME
36.	EA	Chlorine Usage Data and Calculation	-	CME
37.	EA	Baseline Survey Records	-	CME
38.	CME	Summary of Interview conducted with Government Officials	May 2015	CME
39.	CME	Statements signed by RDC with regard to Existence of public distribution network supplying safe drinking water	Jan 2016	CME
40.	EB	Default values of fraction of non-renewable biomass http://cdm.unfccc.int/DNA/fNRB/index.html	-	Others
41.	Uganda Bureau of Statistics	National Population and Housing Census 2014 of Uganda http://www.ubos.org/onlinefiles/uploads/ubos/census_2014_regional_reports/Census_2014_Report%20Eastern_Region.pdf	2014	Others
42.	EB	CDM PS Version 09.0	20/02/2015	Others
43.	EB	CDM VVS Version 09.0	20/02/2015	Others
44.	EB	CDM PCP Version 09.0	20/02/2015	Others
45.	EB	AMS-III.AV Low greenhouse gas emitting safe drinking water production systems	Version 03 13/09/2012	Others

46.	EB	AMS-I.E. Switch from Non-Renewable biomass for thermal applications by the user	Version 05 20/07/2012	Others
47.	EB	Standard: Sampling and surveys for CDM project activities and programmes of activities	Version 05.0 16/10/2015	Others
48.	EB	Guideline: Sampling and surveys for CDM project activities and programmes of activities	Version 04.0 16/10/2015	Others
49.	EB	Sample Size Calculator (Appendix 6 of Guidelines for sampling and surveys for CDM project activities and programme of activities)	16/10/2015	Others
50.	EB	Methodological tool: Demonstration of additionality of small-scale project activities	Version 10.0 16/04/2015	Others
51.	EB	Methodological tool: Assessment of debundling for small-scale project activities	Version 04.0 16/04/2015	Others
52.	EB	Instructions for filling out the monitoring report form for CDM programme of activities in the Monitoring report form for CDM programme of activities version 01.0	Version 01.0 01/04/2015	Others

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

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

FAR ID	FAR (ID15)	Section no.	I.2	Date: 01/07/2016
Description of FAR				
In 1 st periodic verification, the DOE has raised FAR (ID15) that “CME shall revise the relevant specific CPA DDs prior to or during the next verification, to correctly and consistently reflect the monitoring frequency of the parameter “Existence of public distribution network supplying safe drinking water” in line with the generic CPA DD and applied methodology AMS III AV Version3”.				
CME response				Date: 04/07/2016
The monitoring frequency of the parameter “Existence of public distribution network supplying safe drinking water” in CPA-2 was changed from “Biennial” to “Annual” following the FAR raised during the first verification. The PRC for CPA-2 will be validated by the DOE during this second verification. The monitoring frequency stated in the validated DD of CPA-3 is correct.				
Documentation provided by the CME				
Revised CPA-DD				
DOE assessment				Date: 15/07/2016
The CCSC team has validated the revision to the monitoring plan of CPA-2, and found the change complied with the relevant requirements in the VVS Version 09, PS Version 09. Please refer to the PRC validation report submitted together with the verification report. Therefore, the remaining FAR (ID15) was closed out.				

Table 2. CL from this verification

CL ID	CL-1	Section no.	I.1	Date: 01/07/2016
Description of CL				
As per the Project Standard and Instruction of the MR template, the following information should be provided in the section D.1 of the MR:				
<ol style="list-style-type: none"> 1) Information on the implementation and actual operation of each CPAs, including relevant dates (e.g. commissioning, continued operation periods, etc.) 2) Information on how double counting have been avoid for the GHG emission reductions achieved in this monitoring period. 3) Description of whether the events or situations occurred during the monitoring period that may impact the applicability of the applied methodology. 				
CME response				Date: 04/07/2016
In total 1,150 dispensers were installed between 08/04/2013 and 10/04/2014 (in CPA-2) and 1,013 dispensers were installed between 22/01/2014 and 25/10/2014 (in CPA-3).				
In order to avoid double-counting each water source is given a unique ID. In addition, each dispenser casing is marked with a unique identification number on a scannable asset tag (barcode ID). The allocation of this barcode ID to the unique water point ID is recorded in a central database.				
No events or situations occurred during the monitoring period that may have impacted the applicability of the applied methodology AMS-III.AV version 03.				
Relevant text was added to section D.1 of the MR.				
Documentation provided by the CME				

Monitoring Report Version 02	
DOE assessment	Date: 15/07/2016
<p>The verification team has checked the installation records and found the installation information in the revised MR are consistent. And the measure to avoid double counting has been identified and checked during the field check and found reasonable. And based on the conclusion in the report, the verification team has confirmed no events or situations occurred during the monitoring period that may have impacted the applicability of the applied methodology AMS-III.AV version 03.</p> <p>Therefore, the CL-1 was closed out.</p>	

CL ID	CL-2	Section no.	I.6.6	Date: 01/07/2016
Description of CL				
<p>The actual emission reductions achieved for CPA-2 and CPA-3 during this monitoring period are 37% and 53% respectively more than the estimations in included CPA-DDs. Please clarify whether the applicability of the methodology has been impacted.</p>				
CME response				Date: 04/07/2016
<p>This is mainly due to a higher chlorine consumption: in the CPA-DD an annual use of 9 chlorine jerricans (5 L) per dispenser was assumed while the actual annual consumption (projected to one full year) was 11.7 (CPA-2) and 13.0 (CPA-3), which are consistent with the Chlorine Delivery Records. High adoption rates, i.e. more purified water, by local communities are the reason for the increased emission reductions achieved.</p> <p>In order to be deemed additional it needs to be shown that each of the chlorine dispensers achieves an annual emission reduction equal to or less than 3,000 (i.e. 5% of the small-scale CDM threshold) as per the Methodological tool: Demonstration of additionality of small-scale project activities (Version 10.0).</p> <p>In addition, according to the Methodological tool: Assessment of debundling for small-scale project activities (Version 04.0) for determining the occurrence of debundling under a Programme of Activities (PoA)", if each of the independent subsystem/measures included in the CPA of a PoA is not larger than 1% of the small scale threshold defined by the methodology applied, than that CPA of PoA is exempted from performing de-bundling check, i.e. considered as being not a de-bundled component of a large scale activity. Hence, the annual emission reductions per dispenser shall be below 600 tCO₂. Both eligibility criteria are still fulfilled with an annual emission reduction of 62.7 CERs per dispenser (CPA-2) and 67.7 CERs per dispenser (CPA-3) respectively.</p> <p>In order to meet the small-scale threshold, the average annual emission reductions for the Type III components need to be below 60k tCO₂ per annum. If the threshold is exceeded the emission reductions shall be capped at 60k tCO₂ per annum. So far in 2015, a total of 51,986 CERs were claimed for CPA-2 (4,177 in first monitoring period and 47,809 in the second monitoring period) and 31,749 CERs for CPA-3. No more than 8,014 CERs (for CPA-2) and 28,251 CERs (for CPA-3) shall be claimed for the remaining three months of 2015 (01/10/2015 – 31/12/2015) which will be included in the third monitoring period.</p> <p>The relevant information were added to section H.6 in the monitoring report.</p>				

Documentation provided by the CME	
Monitoring Report Version 02	
DOE assessment	Date: 15/07/2016
<p>The verification team has reviewed the clarification against relevant evidence documents and methodological tools, and found the ERs increase was caused by the higher chlorine consumption, and the clarification is reasonable.</p> <p>The verification team confirmed the additionality of the PoA has not been affected, and the applicability of the methodology has not been impacted during this monitoring period. Therefore, the CL-2 was closed.</p>	

Table 3. CAR from this verification

CAR ID	CAR-1	Section no.	G.3	Date: 09/07/2016
Description of CAR				
As per Clause 429 of VVS and Clause 315 of PS Version 09.0, as of the end date of the monitoring period, all CPAs of the PoA shall be reported for this monitoring period. However, the CPA 1 (5962-0001) has not been covered in the monitoring period, and its information has not been reported in the monitoring report version 01.				
CME response				Date: 13/07/2016
According to the clauses stated above, CPAs can be grouped in up to 10 monitoring reports and requests for issuance for a monitoring period can be submitted before the CERs have been issued for all CPAs included in the PoA for the previous monitoring period, i.e. a monitoring report for CPA-2 and 3 can be submitted separately and CERs can be issued (for this and future monitoring periods) even if no monitoring report for CPA-1 has been submitted. Nevertheless, in order to keep the management of the PoA simple, CPA 1 has been included in the second monitoring report. The start date of CPA-1 (CDM# 5962-0001) is still pending (no GDM filter has been distributed as of the end of the second monitoring period) and no CERs will be claimed for CPA 1 for the indicated monitoring period.				
Documentation provided by the CME				
Monitoring Report Version 02				
DOE assessment				Date: 15/07/2016
The verification team has checked the revised monitoring report, and found the information of CPA-1 has been reported, and then CAR-1 was closed out.				

CAR ID	CAR-2	Section no.	I.4.3	Date: 01/07/2016
Description of CAR				
In order to assess the combined Reliability for parameter of Drink% in the ER spreadsheet Ver.01, the verification team found the total number of groups/dispensers is incorrect.				
CME response				Date: 04/07/2016
The number has been corrected to 2,163 (1,150 for CPA-2 and 1,013 for CPA-3) and ER spreadsheet Ver.02 submitted to the DOE. The required confidence/precision level is still fulfilled.				
Documentation provided by the CME				
Monitoring Report Version 02, ER Spreadsheet Version 02				
DOE assessment				Date: 15/07/2016
In the ER Spreadsheet Version 02, the number was corrected, and the precision was re-calculated to be 2.3%, the same as the previous result. The verification team has checked the ER spreadsheet and confirmed the calculation is correct. And then CAR-2 was closed out.				

Table 4. FAR from this verification

FAR ID	FAR-1	Section No.	I.6.6	Date: 01/07/2016
Description of FAR				
In the following verification, the emission reductions of each CPAs should be capped at 60k tCO ₂ per annum to ensure the applicability of the methodology will not be impacted.				
CME response				Date: 04/07/2016
In the following verification, the emission reductions of each CPAs will be capped at 60k tCO ₂ per annum to ensure the applicability of the methodology will not be impacted.				
Documentation provided by the CME				
N/A				

DOE assessment	Date: N/A
N/A	

Appendix 5. Findings of Data and parameters monitored

Parameter	Quantity of purified water in year y (QPW_y)																																	
Findings	<p>As per the registered CPA-DDs and methodology AMS-III.AV Version 03, the quantity of purified water is derived from the device specification, monitored number of functional project appliance, monitored number of chlorine refills, and two adjustment factors (Refill% and Drink%)</p> $QPW_y = L_P * N_y * Refill\# * Refill\% * Drink\%$ <p>L_P: Capacity of the water purification equipment (has been determined ex-ante as listed in section I.4.1.</p> <p>The other parameters have been verification in section I.4.2 of the report.</p> <table border="1"> <thead> <tr> <th></th> <th>QPW_y (L)</th> <th>L_P (L)</th> <th>N_y</th> <th>Refill#</th> <th>Refill%</th> <th>Drink%</th> </tr> </thead> <tbody> <tr> <td>CPA-1</td> <td colspan="6" style="text-align: center;">/</td> </tr> <tr> <td>CPA-2</td> <td>246,054,247</td> <td>32,971</td> <td>1,053</td> <td>7.79</td> <td>98.6%</td> <td>92.2%</td> </tr> <tr> <td>CPA-3</td> <td>173,840,224</td> <td>32,680</td> <td>970</td> <td>6.03</td> <td>98.6%</td> <td>92.2%</td> </tr> </tbody> </table> <p>As per the registered PoA-DD and CPA-DDs, the calculated value should be subject to the cap based on the number of persons supplied with purified water from each of the functional project appliances (POP_P) multiplied by the average volume of drinking water per person per day (DW_{POP}.)</p> $Cap\ CPA-2 = 1,053 * 301\ person * 3.5\ L/person/day * 242\ days = 268,561,170\ L\ (bigger\ than\ monitored\ value)$							QPW_y (L)	L_P (L)	N_y	Refill#	Refill%	Drink%	CPA-1	/						CPA-2	246,054,247	32,971	1,053	7.79	98.6%	92.2%	CPA-3	173,840,224	32,680	970	6.03	98.6%	92.2%
	QPW_y (L)	L_P (L)	N_y	Refill#	Refill%	Drink%																												
CPA-1	/																																	
CPA-2	246,054,247	32,971	1,053	7.79	98.6%	92.2%																												
CPA-3	173,840,224	32,680	970	6.03	98.6%	92.2%																												

	Cap CPA-3 = 970 * 287 person * 3.5 L/person/day * 169 days = 164,744,756 L (smaller than monitored value – cap applies)
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

Parameter	Number of functional chlorine dispensers in monitoring period (N_y)																
Findings	<p>The value is derived from regular functionality checks. In case a dispenser was found to be non-functional, the status of the respective dispenser was recorded as “non-functional” in the central database, and it will be excluded from the emission reduction calculation for the whole monitoring period.</p> <p>The verification team has checked the dispenser installed and the functionality rate with the ODK Raw Data and found consistent.</p> <p>Monitoring Frequency:</p> <p>As per the registered CPA-DDs, the physical inspection of all dispensers should be performed at least every six months for CPA-2, annual or biennial for CPA-3. The verification team has checked the spot-check records /21/, and found the spot-check has been performed in rotation and can fulfill the monitoring frequency for all the dispensers for each CPAs.</p> <p>Values of monitored parameter:</p> <table border="1"> <thead> <tr> <th></th> <th>Number of dispensers installed</th> <th>Dispenser functionality rate</th> <th>N_y</th> </tr> </thead> <tbody> <tr> <td>CPA-1</td> <td colspan="3" style="text-align: center;">/</td> </tr> <tr> <td>CPA-2</td> <td>1,150</td> <td>91.6%</td> <td>1,053</td> </tr> <tr> <td>CPA-3</td> <td>1,013</td> <td>95.8%</td> <td>970</td> </tr> </tbody> </table> <p>Through the field survey, the verification team has randomly sampled 30 dispensers and found all of them are functional, and the dispenser functionality rate in the ER calculation is conservative. And the value are consistent with the Dispenser Installation Records /27/ and spot-check records /21/.</p> <p>No CARs/CLs/FARs raised in this section.</p>		Number of dispensers installed	Dispenser functionality rate	N _y	CPA-1	/			CPA-2	1,150	91.6%	1,053	CPA-3	1,013	95.8%	970
	Number of dispensers installed	Dispenser functionality rate	N _y														
CPA-1	/																
CPA-2	1,150	91.6%	1,053														
CPA-3	1,013	95.8%	970														
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.																

Parameter	Average number of refills per functional dispenser per year (Refill#)
Findings	<p>When new chlorine is delivered to a promoter, the number of containers delivered and the number of containers in stock are recorded in the chlorine delivery records /24/. As per the registered CPA-DDs, it was assumed that the average chlorine consumption was constant between the last chlorine delivery before the cutoff date and the first chlorine delivery after the cutoff date.</p> <p>The verification team checked the Chlorine delivery records/database /24/, and found the number of refills of the functional dispensers during this</p>

	<p>monitoring period is counted and calculated correctly.</p> <p><u>Monitoring Frequency:</u></p> <p>As per the registered CPA-DDs, chlorine is delivered at least every six months, the verification team has checked the chlorine delivery records /24/, and confirmed the deliveries were periodically rotated at least every six months.</p> <p><u>Values of monitored parameter:</u></p> <table border="1" data-bbox="451 439 1437 640"> <thead> <tr> <th></th> <th>Refill# during this monitoring period</th> </tr> </thead> <tbody> <tr> <td>CPA-1</td> <td>/</td> </tr> <tr> <td>CPA-2</td> <td>7.79</td> </tr> <tr> <td>CPA-3</td> <td>6.03</td> </tr> </tbody> </table> <p>The verification team has checked the Chlorine Deliver Records /24/ and the Chlorine Usage Data and Calculation /36/, and found the value of Refill# was calculated correctly.</p> <p>No CARs/CLs/FARs raised in this section.</p>		Refill# during this monitoring period	CPA-1	/	CPA-2	7.79	CPA-3	6.03
	Refill# during this monitoring period								
CPA-1	/								
CPA-2	7.79								
CPA-3	6.03								
Conclusion	<p>The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.</p>								

Parameter	<p>Fraction of delivered chlorine available for use in dispenser (Refill%)</p>
Findings	<p>The parameter is monitored by grouped promoter survey for CPA-2 and CPA-3, and a total of 220 randomly selected promoters were interviewed with the survey question of “From the time that you receive the jerrican of chlorine to the time that the chlorine is put into the dispenser, is any chlorine lost?”</p> <p>The verification team found the sample is in line with the sample plan in the registered CPA-DDs, detail please refer to section 1.4.3 of the report.</p> <p><u>Monitoring Frequency:</u></p> <p>As per the registered CPA-DDs, the parameter should be monitored at least every 4 months. And during this monitoring period, the promoter surveys were collected every month and the results have been consolidated into one single value for this monitoring period.</p> <p>The verification team has checked the result of promoter surveys from the ODK Raw Data, and found consistent with that in the ER spreadsheet. And the monitoring frequency is complied with the requirement of the CPA-DDs and the applied methodology.</p> <p><u>Values of monitored parameter:</u></p> <p>98.6%.</p> <p>The verification team has checked the result of promoter surveys from the ODK Raw Data /22/, and found consistent with that in the ER spreadsheet /4/.</p> <p>The verification team reviewed the sample size determination and Reliability Calculation of the promoter surveys, and reproduced the same result as per the Standard: Sampling and surveys for CDM project activities and programmes of activities /47/, Guideline: Sampling and surveys for CDM project activities and programmes of activities /48/, and Sample Size</p>

	<p>Calculator /49/.</p> <p>Besides, during the DOE’s field survey, the verification team interviewed the randomly selected promoters with the same question, and found no chlorine was lost based on the interview.</p> <p>Therefore, the verification team can confirm the value of the parameter is accurate.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.</p>

Parameter	<p>Fraction of water treated with the dispenser that is actually drunk (Drink%)</p>														
Findings	<p>The parameter is monitored by grouped survey for CPA-2 and CPA-3 with multistage sampling approach. Eight randomly selected households were interviewed for each dispenser with the survey question of “What is your primary use for chlorinated water?” and “How much of your chlorinated water is used for [primary use]?” As a result, a response from 741 households (located around 222 dispensers) that had total chlorine residual in their stored drinking water were used for calculating Drink%.</p> <p>The verification team has verified the sample is in line with the sample plan in the registered CPA-DDs, detail please refer to section 1.4.3 of the report.</p> <p><u>Monitoring Frequency:</u></p> <p>As per the registered CPA-DDs, the parameter should be monitored at least every 4 months. And during this monitoring period, the Community Adoption Survey were collected every month and the results have been consolidated into one single value for this monitoring period.</p> <p>The verification team has checked the result of Community Adoption Survey from the ODK Raw Data /23/, and found consistent with that in the ER spreadsheet. And the monitoring frequency is complied with the requirement of the CPA-DDs and the applied methodology.</p> <p><u>Values of monitored parameter:</u></p> <p>Drink% is a proportional value as the response to “How much of your chlorinated water is used for [primary use]?” could be chosen by the respondent as:</p> <table border="1" data-bbox="448 1541 1442 1675"> <tr> <td>All</td> <td>Almost all</td> <td>Most</td> <td>About Half</td> <td>Some</td> <td>Little</td> <td>None</td> </tr> <tr> <td>100%</td> <td>90%</td> <td>75%</td> <td>50%</td> <td>25%</td> <td>10%</td> <td>0%</td> </tr> </table> <p>The verification team has checked the answer with corresponding proportional value, and confirmed reasonable, which was also checked against the 1st verification and found consistent.</p> <p>The verification team has checked the result of Community Adoption Survey from the ODK Raw Data /23/, and found consistent with that in the ER spreadsheet. And the value is 92.2% for the parameter during this monitoring period with the precision of 2.3%.</p> <p>The verification team reviewed the sample size determination and Reliability Calculation of the Community Adoption Survey, and reproduced the same</p>	All	Almost all	Most	About Half	Some	Little	None	100%	90%	75%	50%	25%	10%	0%
All	Almost all	Most	About Half	Some	Little	None									
100%	90%	75%	50%	25%	10%	0%									

	<p>result as per the Standard: Sampling and surveys for CDM project activities and programmes of activities /47/, Guideline: Sampling and surveys for CDM project activities and programmes of activities /48/, and Sample Size Calculator /49/.</p> <p>During the DOE's field survey, the verification team has collected 64 samples, based on which the Z-test has been conducted between the DOE's sample and PP/CME's sample, and no significant difference was observed.</p> <p>Therefore, the value of 92.2% for drink% is reliable.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.</p>

Parameter	<p>Existence of public distribution network supplying safe drinking water to the project boundary in year y</p>
Findings	<p>As per the registered PoA-DD, the parameter should be monitored at least annually by Interviews with officials, end-users, NGOs, or local experts or published reports, maps, pictures, official documents.</p> <p><u>Monitoring Frequency:</u></p> <p>The revised CPA-DD Version 04 with the monitoring frequency of the parameter "Existence of public distribution network supplying safe drinking water" in CPA-2 changed from "Biennial" to "Annual" following the FAR raised during the first verification, has been provided and will be submitted together with the verification report.</p> <p>Interviews with the technical personnel at the district bureau in Kibuku, Budaka, Manafwa and Mbale to determine if a piped water supply exists for the sub-counties included in the CPA. The information given by the technical personnel was confirmed by the Resident District Commissioners /38/. And the interview records in May,2016 were provided to the verification team /39/.</p> <p><u>Values of monitored parameter:</u></p> <p>The conclusion was found consistent as witnessed during the verification team's field survey.</p> <p>And the verification team confirmed no public distribution network supplying safe drinking water exists in the project boundary, and no dispenser has been affected.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.</p>

Parameter	Water quality
Findings	<p>As per the registered CPA-DDs, the parameter is indicated by the presence of up to 10 E.coli CFU/100ml for the purified water. Hach Color Wheel is used to determine Total Chlorine Residual (TCR) and IDEXX machine is</p>

	<p>used for testing E.coli.</p> <p><u>Monitoring Frequency:</u></p> <p>Water quality is monitored at least biennial as per registered/included registered/included CPA-DDs.</p> <p>As part of the second monitoring period water quality samples were collected monthly and the results were consolidated into one single value over the full monitoring period, with a total of 36 dispensers targeted and 686 households sampled.</p> <p><u>Values of monitored parameter:</u></p> <p>The verification team has checked the ER spreadsheet /4/ and IDEXX Sample Collection Forms /30/, and found that among the households tested for TCR, 95 households were positive, and 88 samples were found contained E.coli less than 10 CFU/100ml. Therefore, the value of 92.6% (=88/95) was calculated and considered as fraction of households with sufficient water quality.</p> <p>For the parameter of Water Quality, the verification team has interviewed the Analyst in the Lab, and found the <i>Protocol for Processing Samples</i> was strictly carried out /29/. And the Protocol of the Project is in line with the Quanti-Tray System User Manual issued by the IDEXX /31/.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.</p>

Parameter	<p>Number of persons supplied with purified water from each of the functional project appliances (POP_y)</p>
Findings	<p>This parameter is not relevant for this CPA DD as CPA-2 and CP-3 have been validated as per Case 1 /11//12/.</p>
Conclusion	<p>The parameter is not applicable in the context of CPA-2.</p>

Parameter	<p>Monitoring parameters for the project emissions from fossil fuel combustion</p>
Findings	<p>As per the applied methodology, CO₂ emissions from on-site consumption of fossil fuels due to the project activity shall be calculated as the project emissions using the latest version of the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”.</p> <p>The verification team has checked the specification of the dispensers /35/, and by the onsite inspection, and confirmed that the chlorine dispensers are operated manually and there is no consumption of fossil fuel and/or electricity for the operation of the water purification systems.</p> <p>The verification team has also reviewed the last verification report /17/ for the assessment of GHG emissions from chlorine transportation, and confirmed that emission source can be ignored for it’s not addressed in the applied methodology and the contribution is 0.25%, less than 1% of the overall average annual emissions reductions according to the Para.96 of VVS Version 09.0 /43/.</p> <p>No CARs/CLs/FARs raised in this section.</p>

Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.
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Parameter	Monitoring parameters for the project emissions from electricity consumption
Findings	<p>As per the applied methodology, CO₂ emissions from electricity consumption by the project activity shall be calculated as the project emissions using the latest version of the “Tool to calculate baseline, project and/or leakage emissions.</p> <p>The verification team has checked the specification of the dispensers /35/, and by the onsite inspection, and confirmed that the chlorine dispensers are operated manually and there is no consumption of electricity for the operation of the water purification systems.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

Appendix 6. List of Interviewees during Onsite Inspection

First Name	LAST NAME	Affiliation	Role	Gender
Mubuwe	SYLVIA	Bunamoli	Promoter	F
Ausi	MAKELBI	Bunamoli	Promoter	M
Zuraiti	NAMBOGO	Bunamoli	User	F
Geofrey	GUOOSI	Bukhamunyu	User	M
Zahabu	WAMANGA	Bukhamunyu	User	M
Shamim	LUNYOLO	Bukhamunyu	Promoter	M
Christing	KIRUYAMGA	Bukhamunyu	Promoter	F
John	NASUSIMA	Bukhamunyu	User	M
Alice	LUNYOLO	Bukhamunyu	User	F
Brenda	SHISA	Bukhamunyu	User	F
Harriet	WASIKE	Bukhamunyu	Promoter	F
Geofrey	WANDA	Bukhamunyu	User	M
Mary	KHAITSA	Bukhamunyu	Promoter	F
Leah	AMEDING	Bulalaka	User	F
Nusura	NAMALUSA	Bukomolo	User	F

Nambuju	ZAINABU	Bukaligwoko	User	F
Nadongo	BETTY	Bulalaka	User	F
Twana	LOZIYO	Bukaligwoko	Promoter	M
Mpawde	WILLIAM	Bukaligwoko	Promoter	M
Mugala	ESEZA	Kadatumi	Promoter	F
Mukama	RONALD	Bulalaka	Promoter	M
Logose	MAEIAM	bukomolo	Promoter	F
Lunyolo	NURU	Bulalaka	Promoter	F
Mundu	DOMIANO	Bulalaka	Promoter	M
Kaidu	ESTHER	Kaderuna	Promoter	F
Biryezi	PENINA	Kaderuna	Promoter	M
Kayendeke	KAWA	Kaderuna	Promoter	F
Koche	ANDREW	bukomolo	Promoter	M
Naisonga	ELINA	Buseta 1	Promoter	F
Sabawo	MADINA	Buseta 1	Promoter	F
Annet	NAIKAMBO	Buseta 1	User	F
Naaya	SOWALI	Kaderuna	User	M
Annet	NAMOJO	Kaderuna	User	F
Buraimu	WAYITILE	Kaderuna	User	M
Loy	LOGOSE	Bukomoco	User	F
Noegemu	AGNES	Bulalaka	User	F
Naula	MARGRET	Bulalaka	User	F
Alisati	NDIAYWA	Buseta 1	User	F
Dishon	KULORA	Lulongo	Promoter	M
Wabomba	JAMES	Lulongo	Promoter	M
Sam	TUMAVA	Lwandubi	User	M
Nekesa	ANNE	Lwandubi	User	F
Peter	SITUMA	Lwandubi	Promoter	M
Wanyira	GODFREY	Namirumba	Promoter	M
Hanah	KHARONO	Namirumba	User	F
Timbiti	JAMES	Mubimbi	Promoter	M
Nandutu	BIONAH	Mubimbi	User	F
Wamboka	VINCEN	Nafunani	Promoter	M
Weswa	JOHN	Nafunani	User	M
Enock	WANGOCO	Mukhuyu	User	M
Sarah	NABUGHAWO	Mukhuyu	Promoter	F

Alice	WABOMBA	Maala	User	F
Namono	ROBINAH	Maala	Promoter	F
Simon	WAFUBA	Bunabutsabwana B	User	M
Mary	NACYAKA	Bunabutsabwana B	Promoter	F
Mwima	PETWA	Namunyiri	Promoter	F
Sofiemary	NALONDO	Namunyiri	User	F
Annes	KIMONO	Mukoto	User	F
Perez	MUMASAYO	Mukoto	Promoter	M
Kabunli	GRACE	Mubimbi	User	F
Simiyu	PATRICK	Bwatwa	Promoter	M
Watenyeni	CHARLES	Bwatwa	User	M
Yananma	KIBONE	Mukhuyu	Promoter	F
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