VERIFICATION & CERTIFICATION REPORT

Aqua Clara Foundation

AQUA CLARA WATER FILTRATION PROGRAM IN KENYA

(GS Ref. No. 1078)

Third Monitoring Period

19/02/2016 – 18/02/2017 (Including both the days)

REPORT NO.

GS.17.VER.004 MP03

Date of this issue: 12/01//2018	KBS Ref. No.: GS.17.VER.004.MP03
Project Title:	Aqua Clara Water Filtration Program in Kenya
Organization:	KBS Certification Services Pvt. Ltd.
Client:	Aqua Clara Foundation
Monitoring Period:	19/02/2016 – 18/02/2017 (including both dates)

Summary:

KBS Certification Services Pvt. Ltd. has performed the 3rd periodic verification of the GS project Aqua Clara Water Filtration Program in Kenya and Gold Standard Ref. Number 1078. The verification includes confirming the implementation of the monitoring plan of the registered PDD and the application of the monitoring methodology as per "Technologies and Practices to Displace Decentralized Thermal Energy Consumption". A site visit was conducted to check the implementation of registered monitoring plan and verify the data submitted in the monitoring report. KBS confirms the following has been reviewed;

(a) The registered PDD, GS passport and the monitoring plan, and the corresponding validation opinion;
(b) The validation report;
(c) Previous verification reports, if any;
(d) PRC validation Opinion;
(e) The applied monitoring methodology(ies);
(f) The monitoring report to verify that it is as per the standardized format;
(g) Any other information and references relevant to the project activity's emission reductions (e.g. IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations);
(h) ER calculations sheets and all supporting documents;

KBS Certification Services Pvt. Ltd. Confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 25,897 tCO2e emission reductions during period 19/02/2016 – 18/02/2017 (Including both the days).

Subject Group:	*Sectoral Scope(s):*	*Methodology:*
GS Verification	1, 03, 13	Technologies and Practices to Displace Decentralized Thermal Energy Consumption

Verification Team:		***Monitoring report:***	
Team Leader, Technical Expert (1.1, 3.1 & 13.1), Local Expert	Sanjay Kandari	First version	27/06/2017
		Final version	02/08/2017

Independent Technical Reviewer Team		***Verification status:***
Date:25/08/2017		
Technical Reviewer	Chetan Swaroop Sharma	☐ Findings not closed.
Technical Expert (1.1, 3.1, 13.1)	Chetan Swaroop Sharma	☐ Draft verification opinion
Manager T&C	Chetan Swaroop Sharma	☒ Final verification opinion
Date	03/11/2017	
Authorized Signatory:		
Date:		
Managing Director	Kaushal Goyal	☒ No distribution without permission from client
Revision history:	07/09/2017	

Date	*Rev. No.*	☐ Unrestricted distribution ☐ Limited distribution
22/08/2017	*0*	
29/08/2017	*1*	
13/10/2017	*2*	
03/11/2017	*3*	
12/01/2018	*4*	

Abbreviations

ACF	Aqua Clara Foundation
BE	Baseline Emissions
BSF	Bio Sand Filter
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CL	Clarification Request
CO2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
GIS	Geographic Information System
GS	Gold Standard
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
PE	Project Emissions
PDD	Project Design Document
QA/QC	Quality Assurance/Quality Control
SAM	Sand and Membrane Filter
SD	Sustainable Development
VCS	Voluntary Carbon Standard
VVS	Validation & Verification Standard

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1. INTRODUCTION

1.1 Objective

KBS has been commissioned by "Aqua Clara Foundation" to perform an independent verification of its registered GS project "Aqua Clara Water Filtration Program in Kenya", GS: 1078 for the reported GHG emission reductions for the given monitoring period 19/02/2016 – 18/02/2017 (both dates included). The Gold Standard projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Gold Standard Voluntary Emission Reductions (GS VERs).

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

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

1.2 Scope

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

(a) The registered PDD, including the monitoring plan, GS passport and the corresponding validation opinion(s);
(b) Previous verification reports, deviation requests, requests for revision of monitoring plan;
(c) Monitoring report for the monitoring period under verification including GS VER calculations sheets and all supporting documents;
(d) The applied monitoring methodology;
(e) Relevant decisions, clarifications and guidance from the CMP and the Gold Standard Board;
(f) All information and references relevant to the project activity's resulting in emission reductions

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

KBS has, based on the recommendations in the latest version of Gold Standard Toolkit and CDM Validation and Verification Standard, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

1.3 Description of the Project Activity

Title of project activity:	Aqua Clara Water Filtration Program in Kenya
Gold Standard Id:	GS 1078
Applied methodology:	Technologies and Practices to Displace Decentralized Thermal Energy Consumption
Start date of crediting period:	28/12/2011
Project Participants:	Aqua Clara Foundation
Location of the project activity:	Kenya, The project activity is spread across 23 Counties.

The project activity aims at GHG reduction through implementation of the ACF Bio Sand Filter (BSF), Household Hollow Fibre filter and the Sand and Membrane (SAM) large-scale filter. These ACF water purifiers displace the use of firewood fuel traditionally used to boil water for domestic consumption and in the alternative offer an affordable, long-term solution for households that typically consume raw water from turbid sources. The project activity seeks to introduce approximately 7,424 BSF purifiers, 4 FHFFs and 1,842 household Hollow fibre filters with a capacity of up to 15-100 litres per day and 425 Institutional/commercial-use HFF units with a production capacity of 100 – 400 litres of water per day throughout the 10-year crediting period in rural and peri-urban Kenya.

The project technologies offer an affordable, clean, efficient and easy-to-use alternative for water purification within the rural area that the project activity seeks to operate in. In addition the project activity will actively reduce CO_2 emissions and diminish the associated risks of Indoor Air pollution.

To date the PP has installed a total of 3,480 Bio Sand, 680 domestic HHFF, 53 institutional/ Commercial-use HFF units used for domestic and institutional use in the project boundary.

The emission reductions achieved during the current monitoring period starting from 19/02/2016 – 18/02/2017 (including both days) is 25,897tCO2e.

2. METHODOLOGY

KBS follows a rule based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the monitoring report of the project activity is made available at Gold Standard registry as per CDM procedures in accordance with Gold Standard rules. Since the Gold Standard prescribes the application of CDM rules and guidelines which are followed along with the Gold Standard rules.

A desk review of the project documentation is undertaken, which is followed by an onsite visit by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and latest version of CDM VVS, to capture the assessment of applicable CDM requirements viz., latest version of CDM Project Standard, registered PDD, applied methodology/ies and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities, if any. The verification protocol is an internal document, and is available on request. Following are the major milestones for the verification under consideration.

Duration of verification

Verification Contract	24/06/2017
On site verification	19/07/2017 & 20/07/2017
Draft Verification Report	22/08/2017
Final Verification Report	12/01/2018

2.1 Review of Documentation

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

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section ‘References’

2.2 Site Visits

A site visit is undertaken by members of verification team, involving but not limited to,

- An assessment of the implementation and operation of the proposed CDM project activity as per the registered PDD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources;
- A check of the monitoring equipment, including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;

- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The site visit for this verification assessment was undertaken by Sanjay Kandari (Team Leader, Local Expert & Technical Expert) and details are mentioned below;

Location	Kenya, Kissi County	
Dates	19/07/2017 & 20/07/2017	
Key points discussed	Name of person interviewed	Designation, Organization
Operational data Data collection QA/QC procedures	Douglas Makora Mokong'u	Incharge, Aqua Clara Foundation
	Douglas Makora Mokong'u	Incharge, Aqua Clara Foundation
	Douglas Makora Mokong'u	Incharge, Aqua Clara Foundation
	Douglas Makora Mokong'u	Incharge, Aqua Clara Foundation
Calculation of Ers	Sally Gakii	Consulatnt, Viability Africa
GS requirements	Sally Gakii	Consulatnt, Viability Africa
Monitoring Survey and GS Indicators*	Kulungwa Jane	Household and end user
	Majti Rodger	Elimu Acadamy
	Vennah M Philip	Jkuat Kissi CBD
	Jacqueline Opiyo	Chairperson, Kissi Chilbrnes Home
	Zachamah Makori	Household and end user
	Joshphine	Household and end user
	Hyline Momayi	Household and end user
	Evcoline Ojecto	Household and end user

2.3 Reporting of Findings

During the course of verification the findings may be raised as under;

CAR is raised if one of the following occurs:

- Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

FAR is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

The verification report contains (section 7) all CARs, CLs and FARs raised during this verification in transparent manner and provides clear information of the issues raised, response received and its resolutions, including the changes in the documents. Additionally, major changes between the webhosted MR and final MR are presented under Section 6 (below the Reference) for easy reference.

* List is indicative, many other households interviewed.

2.4 Verification Assessment

Based on the desk review and site visit the team leader follows the verification protocol to identify and record the findings in the context of the project activity. The findings are communicated to the client in the findings document (section 7 of report). The project documentation, including responses to the findings is reviewed by the team leader in consultation with team members, wherever appropriate. The team leader prepares the draft verification report subject to closure or non-closure of the findings.

2.5 Internal Quality Control

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to Gold Standard. The final decision is taken by the Manager Technical and Certification. The technical reviewer and Manager T&C can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager T&C.

3. VERIFICATION FINDINGS

3.1 Remaining Issues (FARs from Previous Validation or Verification)

Discussion:

Two FARs were raised during the 2nd periodic verification by GS and during post registration change. The same FAR were communicated to PP as FAR#01, FAR#02 and FAR#03 during the current verification. The response provided by PP were assessed adequate by the verification team and therefore closed the FARs.

Findings:

FAR#01 and FAR#02 were raised based on the GS review document in 2nd verification. This is discussed in detail in section 7 of this report.

Opinion:

The project activity is in compliance with the revised PDD.

3.2 Compliance of project implementation with registered PDD

Discussion:

The project activity consists of implementation of water filters in the households across 23 counties across the host country Kenya. To date the PP has installed a total of 3,473 Bio Sand, 680 domestic HHFF, 53 institutional/ Commercial-use HFF units used for domestic and institutional use in the project boundary. There are no operational large scale SAM filters during this monitoring period. The same has been checked from the project sales record and also during site visit.

Annual BSF Filter sales since start date of the project:

- July 2009 to June 2010: 400 filters
- July 2010 to June 2011: 617 filters
- July 2011 to June 2012: 1010 filters
- July 2012 to June 2013: 787 filters
- July 2013 to June 2014: 345 filters
- July 2014 to June 2015: 115 filters
- July 2015 to June 2016: 143 filters
- July 2016 to February 2017: 56 filters

Annual HFF filters sales start date of the project:

- 1st Nov 2013 to 31st Oct 2014: 110 filters
- 1st Nov 2014 to 31st Oct 2015: 179 filters
- 1st Nov 2015 to 31st Oct 2016: 330
- 1st Nov 2016 to Feb 2017: 61 filters

Annual Institutional/ Commercial-use HFF sales start date of the project:

- June 2014 to July 2015: 37 filters
- June 2015 to July 2016: 11 filters
- June 2016 to Feb 2017: 5 filters

The current verification includes monitoring period starting from 19/02/2016 – 18/02/2017 (Including both the days). The project started commercial operation in July 2009. The company has its distribution network that involves the use of Community Development Officers (CDOs) and Community Health Promoters (CHPs) who work within the various communities under which Aqua Clara serves. At the time of installations of BSF/HHFF filters, households are issued with receipts and each filter is assigned a unique identification number to avoid double counting. The same has been evidenced during the site visit.

PP has not claimed VERs from the IHFF filters as PP was unable to demonstrate that the water usage from these filters has not exceeded 7l/p/d. The approach is considered conservative.

Sampling Plan:

As per the sampling approach defined in the revised PDD, Simple Random Sampling method was used to determine the random test subjects from the total sales record.

a) The monitoring surveys cover the duration from 19th February 2016 to 18th February 2017.
b) The usage survey was carried out from 15th February to 22nd May 2017.
c) A total of 264 households for the Bio Sand Filters, 137 households for the household HHFF and 53 for Institutional HFF were initially selected for this monitoring period.

Project participant again tried to contact Replaced households and a conclusion was take whether the replaced household are user or non-user and considered accordingly in the usage survey calculation. The final frame for usage rate was considering the original households and the new households selected for the compensation against the replaced households. During the follow ups of original households, some household were found to be not traceable and hence not considered for the usage rate calculation. Final weighted usage rate is calculated considering all these factors. The calculation of the sample size for the monitoring surveys for the BSF units was based upon a 0.7 Coefficient of Variation under a 90/10 approach as mentioned in the PDD and also in Table 3 of Annex 4 of the approved Gold Standard baseline and monitoring methodology.

In accordance with the §26(a) of Standard for "Sampling and surveys for CDM project activities and programmes of activities" (version 07.0)[13/] and based on verification team's professional judgment, the verification team has chosen a sample size of 61 households covering each type of water filters. 20 samples were selected for HFF, 30 HH were selected using BSF and 11 samples were selected for the institutional HFFs.Further, the verification team has confirmed the following sampling approach –

- The sample size is based on the Acceptable Quality Level (AQL) of 1% and Unacceptable Quality Level (UQL) as 10% (as per §26b and §27 of Standard for "Sampling and surveys for CDM project activities and programmes of activities" (version 07.0)).

- The sample size considered appropriate as the Table 1 of Standard for "Sampling and surveys for CDM project activities and programmes of activities" (version 07.0)[13/] has already provided the sample size for verifying PP's data to be 61, for AQL=1% and UQL=10%.

- The maximum errors associated with the determination indicated in §27 of Standard for "Sampling and surveys for CDM project activities and programmes of activities" (version 05.0) is considered as 5% for producer's risk and 5% for consumer's risk.

Based on the sampling approach the verification team has selected the household's. The household sampled in the survey during site visit, were cross verified with the sales record as well as with monitoring survey record to confirm the correctness of the data gathered at the time of survey. The result of verification team's observation based on the chosen sample are found consistent with the sales record. No discrepancy was found during on site visit. Thus, according to the result of verification team's random sampling as a part of the on site visit, the water filters were found installed and operating as per PP's sales records.

Findings:
CAR#01 and CAR#02 were raised and closed. This is discussed in detail in section 7 of this report.

Opinion:

a) In opinion of the assessment team the implementation and operation of the project activity is in compliance with the description in the revised PDD/1/. However, the filters sold are less than the estimated in the PDD for the corresponding period.

b) To date the PP has installed a total of 3,480 Bio Sand, 680 domestic HHFF, 53 institutional/ Commercial-use HFF units used for domestic and institutional use in the project boundary The filters installed during this verification period as verified from the sales records.

c) The verification team reviewed the revised PDD, including the monitoring plan and the corresponding validation report and the applied monitoring methodology, relevant decisions from the CMP and the CDM EB and found that the MR for this monitoring period is line with all the above mentioned documents.

d) The actual emission reductions for the current monitoring period are 27,918 tCO_2e which are lower than the estimated ERs for the comparable period. The difference in the actual emission reduction is due to lower sales of the water filter per annum than the estimated in the revised PDD.

3.3 Compliance of monitoring plan with the monitoring methodology including applicable tool(s)

Discussion:

The monitoring plan mentioned in the monitoring report/4/ is in line to the revised PDD/1/ and passport/3/ and in accordance with the approved methodology applied by the project activity, i.e. Technologies and Practices to Displace Decentralized Thermal Energy Consumption" (V1.0)/5/. All the ex-post monitoring parameters as per the applied methodology/5/ are included in the monitoring report/4/ and ER sheet/6/..

Also the registered PDD refers to the frequency of conducting the WCFT as annually however the PP would like to amend this frequency to every other year (biennially). The methodology employed for this project, i.e. 'Technologies and Practices to Displace Decentralized Thermal Energy Consumption - 11/04/2011' states:

'For each baseline scenario and project scenario the BFT and PFT is updated every two years, Respectively'[*],

At registration, the PP had chosen a conservative approach of annually monitoring this parameter, however, the PP now wishes to conduct this as per the methodological threshold of once every 2 years. Seeing as the PP has conducted this exercise the past 2 monitoring periods back to back, the parameters related to this exercise would remain fixed in the next verification.

Findings:

CL-01 was raised and closed successfully. This is discussed in detail in section 7 of this report.

Opinion:

The monitoring plan mentioned in the revised PDD is in line with the applied methodology i.e. Technologies and Practices to Displace Decentralized Thermal Energy Consumption (V1.0)/6/. The monitoring mechanism is in line with the methodology and is effective and reliable

3.4 Post registration changes, if any

The PP proposed 2 permanent changes to the registered monitoring plan and approved by GS before the 2nd issuance:
1. Cj Factor fixed ex-ante:
The Cj factor that was previously a monitored parameter is now fixed ex-ante. This is in compliance with the registration review FAR that stated:

[*] Page 22 of the referenced methodology

"The PP shall conduct a post registration baseline survey/water boiling tests prior to 2nd issuance considering in a representative way the target population in the project boundary and considering households prior to adopting the project technology"

The PP conducted the baseline testing in accordance to the Gold Standard methodology. The Household Cj factor is 18%, fixed ex-ante.

2. Biennial Monitoring of the Water Consumption per filter end user per day:
The registered PDD refers to the frequency of conducting the WCFT as annually. The PP would like to amend this frequency to every other year (biennially). The methodology employed for this project, i.e. 'Technologies and Practices to Displace Decentralized Thermal Energy Consumption - 11/04/2011' states:

'For each baseline scenario and project scenario the BFT and PFT is updated every two years, Respectively',

At registration, the PP had chosen a conservative approach of annually monitoring this parameter, however, the PP now wishes to conduct this as per the methodological threshold of once every 2 years. Seeing as the PP has conducted this exercise the past 2 monitoring periods back to back, the parameters related to this exercise would remain fixed this verification as the Gold Standard Foundation has approved this permanent deviation.

No PRC initiated during the current verification.

3.5 Compliance of monitoring activities with registered monitoring plan

Discussion:

During the verification all relevant monitoring parameter have been verified with regard to the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. It is confirmed that the monitoring parameter has been measured / determined without material misstatements.The monitoring parameters involved in the project activity as per revised PDD/1/ are analysed in detail in the subsections below:

3.5.1. Data/Parameter, Unit: Qp,y_{BSF}, Litres per person per day

Quantity of safe water in litres consumed in the project scenario p and supplied by BSF project technology per person per day

	Discussion and verification assessment
Purpose of data	Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially, 3 consecutive days of the monitoring exercise with exception of Holidays
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The Water Consumption Field Test results were collected for three consecutive days in each household included in the sample frame. An average of this was then obtained. The figure was then divided by the average number of people in the household.

Verified value	6.78
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.
QA/QC procedures applied	*The enumerators were provided with calibrated buckets to ensure they took accurate measurements during the WCFT protocol*

3.5.2. Data/Parameter, Unit: Qp,y_{HHFF}, Litres per person per day

Quantity of safe water in litres consumed in the project scenario p and supplied by HHFF units

	Discussion and verification assessment
Purpose of data	Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially, 3 consecutive days of the monitoring exercise with exception of Holidays
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The Water Consumption Field Test results were collected for three consecutive days in each household included in the sample frame. An average of this was then obtained. The figure was then divided by the average number of people in the household.
Verified value	2.44
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.
QA/QC procedures applied	*The enumerators were provided with calibrated buckets to ensure they took accurate measurements during the WCFT protocol*

3.5.3. **Data/Parameter, Unit:** Qp,y_{IHFF}, Litres of safe water produced per day from project technology

Quantity of safe water supplied in the project scenario p using the Large Scale Community SAM Filter

	Discussion and verification assessment
Purpose of data	Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Large scale SAM Filter has been distributed during this monitoring period
Measuring/Reading/	Biennially, 3 consecutive days of the monitoring exercise with exception

Recording frequency	of holidays and weekends
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The Water Consumption Field Test results were collected for three consecutive days in each institution included in the sample frame. An average of this was then obtained.
Verified value	57.39
Cross checks	This has been cross checked from the total sales record that No SAM filters has been sold during this monitoring period, So this parameter is not monitored
QA/QC procedures applied	NA

3.5.4. Data/Parameter, Unit: Qp, clean,boil,y_{BSF}, Litres per person per day

Quantity of safe water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The amount of filtered water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. An average of this amount was then obtained and divided by the average number of people in the household.
Verified value	0.0
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate
QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.5. Data/Parameter, Unit: Qp, clean,boil,y_{HHFF}, Litres per person per day

Quantity of safe water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class,	Calibrated Buckets for measuring water

serial number, calibration frequency, date of last calibration, validity)	
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The amount of filtered water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. An average of this amount was then obtained and divided by the average number of people in the household and thereafter the number of people in the sample frame.
Verified value	0.23655914
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate
QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.6. Data/Parameter, Unit: Qp, rawboil,y_{BSF}**,** Litres per person per day

Quantity of raw water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The amount of raw water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. An average of this amount was then obtained and divided by the average number of people in the household. (There were no households boiling water in the project scenario)
Verified value	There were no households boiling water in the project scenario
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.
QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.7. Data/Parameter, Unit: Qp, clean,boil,y_{HHFF} **,** Litres per person per day

Quantity of safe water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The amount of raw water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. An average of this amount was then obtained and divided by the average number of people in the household. (There were no households boiling water in the project scenario)
Verified value	0.23655914
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.
QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.8. Data/Parameter, Unit: $Qp, clean,boil,y_{IHFF}$ **,** Litres per person per day

Quantity of safe water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The amount of filtered water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. Amount is measured and recorded.
Verified value	0
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.

QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.9. Data/Parameter, Unit: Qp, rawboil,y_{HHFF}, Litres per person per day

Quantity of raw water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The amount of raw water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. An average of this amount was then obtained and divided by the average number of people in the household. (There were no households boiling water in the project scenario)
Verified value	There were no households boiling water in the project scenario
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.
QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.10. Data/Parameter, Unit: Qp, rawboil,y_{IHFF}, Litres per person per day

Quantity of raw water boiled in the project scenario p per person per day

	Discussion and verification assessment
Purpose of data	Project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Calibrated Buckets for measuring water
Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation	The amount of raw water boiled was obtained for the three consecutive days during the water consumption field test before the water was poured into the boiling pot. An average of this amount was then obtained and divided by the average number of people in the household. (There were

and reporting)	no households boiling water in the project scenario)
Verified value	0
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate.
QA/QC procedures applied	The enumerators were trained how to accurately measure this parameter using calibrated buckets.

3.5.11. Data/Parameter, Unit: Np,y_{BSF}, Person.days

Number of persons consuming water supplied by project scenario p through year y

	Discussion and verification assessment
Purpose of data	Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Equipment Used, Calculated from the results of Monitoring survey
Measuring/Reading/ Recording frequency	Biennial
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Households were asked the number of people living in their household for that particular day in the three consecutive days during the water consumption field test. An average of this number was then obtained for each household and an average of total obtained. The figure was multiplied by 365 days in a year to obtain the figure.
Verified value	1978
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate
QA/QC procedures applied	NA

3.5.12. Data/Parameter, Unit: Np,y_{HHFF}, Person.days

Number of persons consuming water supplied by project scenario p through year y

	Discussion and verification assessment
Purpose of data	Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Equipment Used, Calculated from the results of Monitoring survey
Measuring/Reading/	Biennial

Recording frequency	
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Households were asked the number of people living in their household for that particular day in the three consecutive days during the water consumption field test. An average of this number was then obtained for each household and an average of total obtained. The figure was multiplied by 365 days in a year to obtain the figure.
Verified value	2555
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate
QA/QC procedures applied	NA

3.5.13. Data/Parameter, Unit: Up,y_{BSF}, Percentage

Usage rate in project scenario p during year y. This data will be used to account for households which discontinue use of the filters from the monitored sample frame and thereafter be extrapolated across the total sales record.

	Discussion and verification assessment
Purpose of data	Calculation of total emission reductions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Equipment Used, Calculated from the results of survey
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The usage parameter for each vintage was calculated by getting the fraction of users in the sample frame for that vintage and getting the percentage in relation to the total in the sample frame. Thereafter, the weighted average per vintage was obtained by extrapolating the usage in the sample per vintage into the entire population of the TSR for that particular vintage. Each of the usage rates for each vintage was then used for calculation of emission reduction The PP has provided excel based calculations that demonstrate the calculation of the usage parameter.
Verified value	74%
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate
QA/QC procedures applied	The guidance questions in the usage survey clearly determined the operational and non-operational filters in the project scenario.

3.5.14. Data/Parameter, Unit: $Up,y_{BSF(waterquality)}$, Percentage

Usage rate based solely on water quality. This data will be used to account for households which failed in the water quality test.

	Discussion and verification assessment
Purpose of data	Calculation of total emission reductions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Equipment Used, Calculated from the results water quality test analysis
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	There were 204 water quality tests carried out for the BSF filters, with 204 samples demonstrating safe water standards. To determine usage rate, the PP divided the number of safe water samples with the total number of samples collected. The PP has provided excel based calculations that demonstrate the calculation of the usage parameter.
Verified value	100%
Cross checks	-
QA/QC procedures applied	-

3.5.15. Data/Parameter, Unit: Up,y_{HHFF}, Percentage

Usage rate in project scenario p during year y. This data will be used to account for households which discontinue use of the filters from the monitored sample frame and thereafter be extrapolated across the total sales record.

	Discussion and verification assessment
Purpose of data	Calculation of total emission reductions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Equipment Used, Calculated from the results of survey
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The usage parameter for each vintage was calculated by getting the fraction of users in the sample frame for that vintage and getting the percentage in relation to the total in the sample frame. Thereafter, the weighted average per vintage was obtained by extrapolating the usage in the sample per vintage into the entire population of the TSR for that particular vintage. Each of the usage rates for each vintage was then used for calculation of emission reduction The PP has provided excel based calculations that demonstrate the calculation of the usage parameter.
Verified value	96201695.21% 2017- 94
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the figures mentioned in the survey sheet/11/ and considered for emission reduction are appropriate

QA/QC procedures applied	The guidance questions in the usage survey clearly determined the operational and non-operational filters in the project scenario.

3.5.16. Data/Parameter, Unit: $Up,y_{HHFF(waterquality)}$, Percentage

Usage rate based solely on water quality. This data will be used to account for households which failed in the water quality test.

	Discussion and verification assessment
Purpose of data	Calculation of total emission reductions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No Equipment Used, Calculated from the results water quality test analysis
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	There were 130 water quality tests carried out for the BSF filters, with 130 samples demonstrating safe water standards. To determine usage rate, the PP divided the number of safe water samples with the total number of samples collected. The PP has provided excel based calculations that demonstrate the calculation of the usage parameter.
Verified value	Users = 100% Non-users = 0%
Cross checks	-
QA/QC procedures applied	-

3.5.17. Data/Parameter, Unit: Quality of the treated $water_{BSF}$, NA

Performance of the project technologies shall be based on percentage reduction of E.Coli examined through field tests in the project boundary .

	Discussion and verification assessment
Purpose of data	Sustainable development Monitoring; Methodological Requirement
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Field Laboratory Tests
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The water quality tests were conducted using 3M Petrifilm Plate instructions/16/. Water samples were collected from raw water and water filtered using the project technologies to determine coliform levels in both water samples.
Verified value	The complete data set is provided in Monitoring Summary Sheet/7.1/

Cross checks	This has been cross checked from the laboratory test results/15/ of the surveyed household and found correct.
QA/QC procedures applied	NA

3.5.18. Data/Parameter, Unit: Quality of the treated water $_{IHFF}$, NA

Performance of IHFF filters shall be based on percentage reduction of E.Coli in the IHFF Filters examined through field tests in the project boundary.

	Discussion and verification assessment
Purpose of data	Sustainable development Monitoring; Methodological Requirement
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Field Laboratory Tests
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The water quality tests were conducted using 3M Petrifilm Plate instructions. Water samples were collected from raw water and water filtered using the project technologies to determine coliform levels in both water samples
Verified value	The complete data set is provided in Monitoring Summary Sheet/7.1/
Cross checks	This has been cross checked from the laboratory test results/15/ of the surveyed samples and found correct.
QA/QC procedures applied	NA

3.5.19. Data/Parameter, Unit: $Up,y_{IHFF(waterquality)}$

Usage rate based solely on water quality.

	Discussion and verification assessment
Purpose of data	Sustainable development Monitoring; Methodological Requirement
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Water Quality test analysis
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	There were 53 water quality tests carried out for the IHFF filters, with 53 samples demonstrating safe water standards. To determine usage rate, the PP divided the number of safe water samples with the total number of samples collected. The representative test results verified to confirm the appropriateness.

Verified value	Users = 100% Non-users = 0%
Cross checks	This has been cross checked from the laboratory test results/15/ of the surveyed household and found correct.
QA/QC procedures applied	NA

Data/Parameter, Unit: Quality of the treated water$_{HHHFF}$, NA

Performance of the project technologies shall be based on percentage reduction of E.Coli examined through field tests in the project boundary.

	Discussion and verification assessment
Purpose of data	Sustainable development Monitoring; Methodological Requirement
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Field Laboratory Tests
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The water quality tests were conducted using 3M Petrifilm Plate instructions/16/. Water samples were collected from raw water and water filtered using the project technologies to determine coliform levels in both water samples.
Verified value	The complete data set is provided in Monitoring Summary Sheet/7.1/
Cross checks	This has been cross checked from the laboratory test results/15/ of the surveyed household and found correct.
QA/QC procedures applied	NA

3.5.20. Data/Parameter, Unit: Water Treatment Practices in the baseline scenario, Treatment Descriptions

Water Treatment Practices in the baseline scenario

	Discussion and verification assessment
Purpose of data	Calculation of baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Monitoring Survey
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation,	Households were asked their baseline water treatment before they obtained the water filter. Appropriate answers were then put in the survey

aggregation, to recording, calculation and reporting)	sheet/13/.
Verified value	NA
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the response of households mentioned in the survey sheet/11/ and considered for emission reduction are appropriate
QA/QC procedures applied	Multiple options in an open ended questionnaire were used, so as to eliminate any possibility of bias.

3.5.21. Data/Parameter, Unit: $Up,y_{IHFF(waterquality)}$

Usage rate based solely on water quality

	Discussion and verification assessment
Purpose of data	Sustainable development Monitoring; Methodological Requirement
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Field Laboratory Tests
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The water quality tests were conducted using 3M Petrifilm Plate instructions/16/. Water samples were collected from raw water and water filtered using the project technologies to determine coliform levels in both water samples.
Verified value	Users = 100% Non-users = 0%
Cross checks	This has been cross checked from the laboratory test results/15/ of the surveyed household and found correct.
QA/QC procedures applied	NA

3.5.22. Data/Parameter, Unit: LEp,y, t_CO2e per year

Leakage in project scenario p during year y

	Discussion and verification assessment
Purpose of data	*Leakage Emission*
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	NA

Measuring/Reading/ Recording frequency	Biennially
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Literature Review
Verified value	0
Cross checks	There are no perceived monitoring requirements for leakage emissions for this project. The same has been cross checked from the revised PDD/1/ also.
QA/QC procedures applied	NA

Gold Standard Sustainable Development Indicators

3.5.23. Data/Parameter, Unit: Water quality and quantity: + Positive score, %

This is the quality of filtered water with regards to presence of coliforms in the water. Water quality was assessed by comparing the levels of coliforms in water from raw water and filtered water of the same sample.

	Discussion and verification assessment
Purpose of data	Sustainability Indicator
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	3M Petrifilm
Measuring/Reading/ Recording frequency	Annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The enumerators were provided with cooling jars which were collected from the field within six hours of collection of the samples and then tested with the 3M plates to ensure quality results. The total samples showing reduction/increment/no change in coliform levels divided by the total number of samples in the sample frame, multiplied by 100. The results were then recorded in the monitoring survey sheet.
Verified value	Out of the 204 tests done for BSF filters, 130 tests for HHFF units and 53 tests done for IHFF: **BSF:** 204 tests were conducted. Out of these, 204 samples (100%) had less than 10% E. Coli. i.e. they all had 0% E. Coli in filtered water. **HHFF:** 130 tests were conducted, out of this 130 of them (100%) had 0% E.Coli in filtered water. **IHFF:** 53 tests were conducted, out of this 53 of them (100%) had 0% E.Coli in filtered water.
Cross checks	This has been cross checked from the laboratory test results/15/ of the surveyed household and found correct.
QA/QC procedures	NA

applied	

3.5.24. Data/Parameter, Unit: Quality of Employment+ Positive score**, NA**

Improvement in the skill level of the community members within the project boundary

	Discussion and verification assessment
Purpose of data	Sustainability Indicator
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Attendees list/14/
Measuring/Reading/ Recording frequency	Monitored annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The trainees from the community are trained by highly skilled personally on various aspects of the project e.g. sales, assembly of the project technology, etc.
Verified value	NA
Cross checks	This has been cross checked by interviewing the enumerators during site visit and from the Attendees list/14/
QA/QC procedures applied	NA

3.5.25. Data/Parameter, Unit: Livelihood of the poor + Positive score, Percentage

The parameter refers to the number of people in the project activity whose livelihoods had improved in terms of savings of money used to get fuel and the time used to collect firewood. Households in the sample frame were asked these questions to attesting the same.

	Discussion and verification assessment
Purpose of data	Sustainability Indicator
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	NA, Calculated
Measuring/Reading/ Recording frequency	Monitored annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Households were asked if there was reduction of time and money used to acquire fuel in the project scenario. The answers were recorded in the monitoring survey sheet. Percentages were obtained from the answers provided.
Verified value	**For time**: 63% of the households interviewed from the HFF users reported to have had a reduction in the amount of time spent in acquiring fuel since they began using the water filters, while 34% of the households using the same filters reported having seen no change in the amount of time spent

	in acquiring fuel 6% were no longer using the filter. 67% of the BSF users reported that they noticed a reduction in the amount of time spent in collecting fuel, 27% reported that they did not notice any change in the expenditure of time in gathering or acquiring fuel while 11% were no longer using the filter. On the other hand, 43% of the IHFF users reported that they noticed a reduction in the amount of time spent in collecting fuel, 57% reported that they did not notice any change in the expenditure of time in gathering or acquiring
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the response of households mentioned in the survey sheet/11/ are appropriate.
QA/QC procedures applied	NA

3.5.26. Data/Parameter, Unit: Livelihood of the poor + Positive score, Percentage

The parameter refers to the number of people in the project activity whose livelihoods had improved in terms of savings of money used to get fuel.
Households in the sample frame were asked these questions to attesting the same.

	Discussion and verification assessment
Purpose of data	Sustainability Indicator
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	NA, Calculated
Measuring/Reading/ Recording frequency	Calculated
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Households were asked if there was reduction of time and money used to acquire fuel in the project scenario. The answers were recorded in the monitoring survey sheet. Percentages were obtained from the answers provided.
Verified value	BSF: 34% reported no change in the amount of money spent to acquire fuel, while 63% reported that the amount of money spent on the same reduced since they started using the water filter 6% were no longer using the filter. HFF: 27% of those interviewed reported that the amount of money spent on getting household fuel didn't change since they started using the filter, while 67% of the households interviewed said the amount of money reduced to acquire household fuel 11% were no longer using the filter hence N/A IHFF 57% of those interviewed reported that the amount of money spent on getting household fuel didn't change since they started using the filter,

	while 43% of the households interviewed said the amount of money reduced to acquire household fuel
Cross checks	This has been cross checked by surveying the households during the verification site visit. The household surveyed during the monitoring survey by project participant were interviewed by the verification team and It has been confirmed that the response of households mentioned in the survey sheet/11/ are appropriate.
QA/QC procedures applied	NA

3.5.27. Data/Parameter, Unit: Access to affordable and clean energy services + Positive score

This parameter refers to the number of people who have had access to affordable and clean energy services in the project scenario.

	Discussion and verification assessment
Purpose of data	Sustainability Indicator
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/Reading/ Recording frequency	Monitored annually
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The PP tracks the number of filters sold in the project boundary. This data is kept in form of hard copies which are then transferred into an electronic sheet. The PP then submits these data sheets to the carbon asset development consultant, who verifies the information to make sure the data meets the carbon asset standards.
Verified value	3480 households BSF units and 316 HHFF units
Cross checks	The value has been cross checked from the sales record/10/ and found correct.
QA/QC procedures applied	NA

Opinion:

The adequacy and compliance of the monitoring plan in the Monitoring report/4/ was found as per the requirements laid by the GS Passport, monitoring methodology/5/ and the registered PDD/1/. The information flow (from data generation, aggregation, to recording, calculation and reporting) is already included under respective parameter above. The verification team has verified all the data and collected evidence as per the required monitoring frequency and found to be correct and appropriate meeting the requirements of the GS Passport, applied methodology and registered PDD. The sustainability parameters were also reviewed and the assessment team is of the opinion that the project elevates the living standard of the rural population and aids in better health by reducing the exposure to water borne diseases.

3.6 Compliance with the calibration frequency requirements for measuring instruments

The monitoring for the project activity is done through the surveys conducted for the sample population. The data from the survey sheets is transferred to the excel sheet which is further used for calculation of emission reductions. Therefore there are no instruments involved in monitoring.

3.7 Data not monitored (ex-ante or external parameters)

3.7.1. Data/Parameter, Unit: Wb,y**,** Tonnes/litre

Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b

	Discussion and verification assessment
Purpose of data	Calculation of Baseline Emissions
Verified value	Households – 0.00054960 Institutions/commercial facilities – 0.00054458
Source of value	Baseline water Boiling test The value provided above was derived from water boiling tests as recommended by the methodology. The value selected is the mean value derived from 144 households and 62 institutions/commercial facilities respectively.
Justification	The value applied is consistent with the Revised PDD/1/

3.7.2. Data/Parameter, Unit: EFb,fuel,CO2**,** tCO2/TJ

CO2 emission factor of the wood fuel

	Discussion and verification assessment
Purpose of data	Baseline and Project emissions
Verified value	112
Source of value	IPCC Default emission factor
Justification	The value is conservative as IPCC values are prescribed by the applied Methodology/21/.

3.7.3. Data/Parameter, Unit: NCV_b**,** TJ/ton

Net calorific value of wood fuel used in the baseline

	Discussion and verification assessment
Purpose of data	Baseline and Project emissions
Verified value	0.015
Source of value	IPCC default value
Justification	The value is conservative as IPCC values are prescribed by the applied methodology/21/.

3.7.4. Data/Parameter, Unit: EFb,fuel,CH4**,** tCH4/TJ

CH4 emission factor of the wood fuel

	Discussion and verification assessment
Purpose of data	Calculation of baseline missions
Verified value	0.300
Source of value	IPCC Default value
Justification	The value is conservative as IPCC values are prescribed by the applied methodology/21/.

3.7.5. Data/Parameter, Unit: EFb,fuel, N2O, t N2O /TJ

N2O emission factor of the wood fuel

	Discussion and verification assessment
Purpose of data	Calculation of baseline missions
Verified value	0.004
Source of value	IPCC Default value
Justification	The value is conservative as IPCC values are prescribed by the applied methodology/21/.

3.7.6. Data/Parameter, Unit: GWP, Fraction

Global Warming Potential of CH4

	Discussion and verification assessment
Purpose of data	Calculation of baseline missions
Verified value	25
Source of value	IPCC Fourth Assessment Report: Climate Change 2007/21/
Justification	The PP has used the value 25 for the period after 1st January 2013. This is in accordance to Gold Standard rule on GWP for project activities.

3.7.7. Data/Parameter, Unit: GWP, Fraction

Global Warming Potential of N2O

	Discussion and verification assessment
Purpose of data	Calculation of baseline missions
Verified value	298
Source of value	IPCC Fourth Assessment Report: Climate Change 2007/21/
Justification	The PP has used the value 25 for the period after 1st January 2013. This is in accordance to Gold Standard rule on GWP for project activities.

3.7.8. Data/Parameter, Unit: Cj, %

Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it

	Discussion and verification assessment
Purpose of data	Calculation of baseline missions
Verified value	18% - Households 76% - Institutions and commercial facilities
Source of value	Baseline Surveys
Justification	The value is consistent with Baseline Testing Survey (July 2015) Summary /19/

Opinion:

The default values applied were found to be consistent with the revised PDD and the source.

3.8 Assessment of Data & calculation of GHG Emission Reductions

Discussion:

The emission reductions for the project activity are calculated based on the data from the survey sheets. The formulae used for the calculations are in line to the revised PDD and in accordance to the applied methodology as checked by the assessment team. The data from the sheets is transferred to the excel sheet and emission reductions are obtained. A brief description on the calculation of emission reductions is as follows:

Baseline emissions

As described in section A3.1 of the Gold Standard methodology, the baseline scenario wood fuel consumption is back calculated by multiplying the safe water consumption of end users observed in the project scenario by the amount of fuel required to boil a specific quantity of water. The equation below therefore draws on this premise to calculate baseline emissions.

$$BE_{b,y} = B_{b,y} * ((f_{NRB,b,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b\ fuel}$$

Where

$$B_{b,y} = (1 - C_j) * N_{j,y} * W_{i,y} * (Q_{j,y} + Q_{j,rawboil,y})$$

Vintage Year 2016:
BEy= Bby*(fNRB,b,y* EFb,fuel,CO2)+(EFb,fuel,CH4+ Efb,fuel,N2O)* NCV bfuel

fNRB, b, y=0.92
EFb, fuel, CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVb, fuel=0.015

=10.1446 tCO_2e (per filter, per year)

Vintage Year 2017:
BEy= Bby*(fNRB,b,y* EFb,fuel,CO2)+(EFb,fuel,CH4+ Efb,fuel,N2O)* NCV bfuel

fNRB, b, y=0.92
EFb, fuel, CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVb, fuel=0.015

=10.1446 tCO_2e (per filter, per year

Baseline Emissions HHFF filters:

Vintage Year 2016:
BEy= Bby*(fNRB,b,y* EFb,fuel,CO2)+(EFb,fuel,CH4+ Efb,fuel,N2O)* NCV bfuel

fNRB, b, y=0.92
EFb, fuel, CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVb, fuel=0.015

=4.704 tCO_2e (per filter, per year)

Vintage Year 2017:
BEy= Bby*(fNRB,b,y* EFb,fuel,CO2)+(EFb,fuel,CH4+ Efb,fuel,N2O)* NCV bfuel

fNRB, b, y=0.92

EFb, fuel, CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVb, fuel=0.015

=4.704 tCO_2e (per filter, per year

Baseline Emissions IHFF filters:

Vintage Year 2016:
BEy= Bby*(fNRB,b,y* EFb,fuel,CO2)+(EFb,fuel,CH4+ Efb,fuel,N2O)* NCV bfuel

fNRB, b, y=0.92
EFb, fuel, CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVb, fuel=0.015

=0.013 tCO_2e (per filter, per year) (PP has not claimed VERs during this monotoring period)

Vintage Year 2017:
BEy= Bby*(fNRB,b,y* EFb,fuel,CO2)+(EFb,fuel,CH4+ Efb,fuel,N2O)* NCV bfuel

fNRB, b, y=0.92
EFb, fuel, CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVb, fuel=0.015

=0.013 tCO_2e (per filter, per year) (PP has not claimed VERs during this monotoring period)

Project emissions

Project Emissions are calculated as follows:

$$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$$

$$B_{p,y} = (1 - C_j) * N_{p,y} * W_{b,y} * (Q_{p,rawboil,y} + Q_{p,cleanboil,y})$$

Nj, y= 5.42 *365=1978
Cj= 18%
Wpy= 0.00055
Qp, clean boil, y= 0
Qp, rawboil, y=0

Bp,y is therefore calculated as:

= (1-0.18)*1978*0.000549*(0+0)
=0 tonnes

Project Scenario Fuel Consumption HHFF Filters:
Nj, y= 7*365=2555
Cj= 18%

Wpy= 0.00055
Qp, clean boil, y= 0.2366
Qp, rawboil, y=0
Bp, y is therefore calculated as:

= (1-0.18) *2555*0.000549*(0+0.2366)
= 0.456 tonnes

Project Scenario Fuel Consumption IHFF Filters:
Cj= 76%
Wpy= 0.000549
Qp, clean boil, y= 0
Qp, rawboil, y=0
Bp, y is therefore calculated as:

= (1-0.18) *0.000549*(0+0.2366)
= 0 tonnes

Project Emissions BSF Filters:

Vintage Year 2016

PE,y= Bp,y*(fNRB,b,y*EFb,fuel,CO2)+(EFb,fuel,CH4+Efb,fuel,N2O)*NCVbfuel

fNRB, b,y=0.92
EFb, fuel,CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVbfuel=0.015

=0 tCO_2e (per filter, per year)

Vintage Year 2017

PE,y= Bp,y*(fNRB,b,y*EFb,fuel,CO2)+(EFb,fuel,CH4+Efb,fuel,N2O)*NCVbfuel

fNRB, b,y=0.92
EFb, fuel,CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVbfuel=0.015

=0 tCO_2e (per filter, per year)

Project Emissions HHFF:

Vintage Year 2016

PE,y= Bp,y*(fNRB,b,y*EFb,fuel,CO2)+(EFb,fuel,CH4+Efb,fuel,N2O)*NCVbfuel

fNRB, b,y=0.92
EFb, fuel,CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVbfuel=0.015

= 0.456 tCO_2e (per filter, per year)

Vintage Year 2017

PE,y= Bp,y*(fNRB,b,y*EFb,fuel,CO2)+(EFb,fuel,CH4+Efb,fuel,N2O)*NCVbfuel

fNRB, b,y=0.92
EFb, fuel,CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVbfuel=0.015

Project Emissions IHFF:

Vintage Year 2016

PE,y= Bp,y*(fNRB,b,y*EFb,fuel,CO2)+(EFb,fuel,CH4+Efb,fuel,N2O)*NCVbfuel

fNRB, b,y=0.92
EFb, fuel,CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVbfuel=0.015

= 0 tCO_2e (per filter, per year)

Vintage Year 2017

PE,y= Bp,y*(fNRB,b,y*EFb,fuel,CO2)+(EFb,fuel,CH4+Efb,fuel,N2O)*NCVbfuel

fNRB, b,y=0.92
EFb, fuel,CO2=112
EFb, fuel, CH4=7.5(0.3*25)
Efb, fuel, N2O=1.192 (0.004*298)
NCVbfuel=0.015

= 0 tCO_2e (per filter, per year)

Leakage:

PP has provided the assessment for leakage, details reasoning provided by PP with the evidences provided therein. Verification team reviewed the leakage assessment provided by PP and reviewed the supporting evidences and concluded that there are no leakage associated with the project activity.

Emission Reductions:

The overall GHG reductions are calculated as follows:

$$ERy = (\Sigma BEb,y - \Sigma PEp,y) * Up,y - \Sigma LEp,y$$

Period	BSF	HFF	IHFF
From 19/2/2016-31/12/2016	20,835	1,629	(Conservatively not undertaken by PP)
From 1/1/2017-18/2/2017	3,069	364	(Conservatively not undertaken by PP)

Total Emission Reduction (tCO2e)	25,897

Opinion:
The verification team confirms that

a) The complete data set for the monitoring parameters was available as mentioned in the monitoring plan in the revised PDD for the duration of 19/02/2016 – 18/02/2017.
b) The cross checks were undertaken for all the parameters indicated in the respective sections and were found complying with the requirements of the monitoring plan of the revised PDD;
c) Appropriate methods and formulae for calculating baseline emission, project emissions and leakage have been followed;
d) The claimed emission reductions are free from material errors, omissions or misstatements, with a reasonable level of assurance.

3.9 Quality of Evidence to Determine Emission Reductions

The evidences (Documents/interview/site visit) referred for verification of individual monitoring parameter and fixed parameters are defined section 3.5 and section 3.7 respectively. It can be confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in section 6 of this report.

3.10 Management System and Quality Assurance

Aqua Clara Foundation has developed GHG emission reduction management system for management of the project. The procedures cover the quality assurance of the monitoring systems for the project activities. The monitoring is in the purview of The Carbon Asset Development Consultant, Viability Africa.

Out of the total installed filters, the verification team has chosen a sample size of 61 filters. The household sampled in the survey during site visit, were cross verified with the sales record as well as with monitoring survey record to confirm the correctness of the data gathered at the time of survey. The result of verification team's observation based on the chosen sample is found consistent with the sales record. No discrepancy was found during on site visit. Thus, according to the result of verification team's random sampling as a part of the on site visit, the water filters were found installed and operating as per PP's sales records.

4. RECOMMEDATIONS / FORWARD ACTION REQUEST

This is the 3rd periodic verification. There is no FAR is raised during this monitoring period.

5. VERIFICATION & CERTIFICATION STATEMENT

KBS Certification Services Pvt. Ltd. has been contracted by "Aqua Clara Foundation" to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the "Aqua Clara Water Filtration Program in Kenya", GS Id. 1078 for the monitoring period 19/02/2016 – 18/02/2017 in the Monitoring Report Version 01 (first version) dated 27/06/2017.

The verification is based on the registered PDD, GS Passport and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the Gold Standard Board.

The management of the "Aqua Clara Foundation" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report Version 09 dated 15/12/2016. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the "Aqua Clara Foundation". The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 06 dated 05/01/2018.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the monitoring period 19/02/2016 – 18/02/2017 based on the reported emission reductions in the Final Monitoring Report Version 06 dated 05/01/2018for the same period.

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

KBS confirms the following;

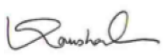
Reporting period: From 19/02/2016 – 18/02/2017 (Including both the days)

Verified and certified emission in the above reporting period:

Period	**BSF**	**HFF**	**IHFF**
From 19/2/2016-31/12/2016	20,835	1,629	0
From 1/1/2017-18/2/2017	3,069	364	0
Total Emission Reduction (tCO2e)	25,897		

Location: Faridabad

Date: 12/01/2018



Kaushal Goyal

Managing Director

KBS Certification Services Pvt. Ltd.

6. REFERENCES

S.No.		
/1/	Revised Project Design Document (Version 24, dated 25/05/2016)	
/2/	Design Change Assessment Report issued by Carbon Check India Private Limited (Revision no. 7, dated 31/05/2016)	
/3/	Revised Gold standard passport (Version: 10, date: 4/4/2016)	
/4/	Monitoring report version 01, dated 27/06/2017	
	Monitoring report version 02, dated 02/08/2017 (Final)	
	Monitoring report version 04, dated 02/11/2017	
	Monitoring report version 05, dated 08/11/2017	
	Monitoring report version 06, dated 05/01/2018 (Final)	
/5/	GS methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (Version 1.0; Dated 11/04/2011)	
/6/	Emission Reduction (ER) Sheets	
	/6.1/	ER Sheets corresponding to version 01
	/6.2/	ER Sheets corresponding to final version
/7/	Worksheets	
	/7.1/	Monitoring Survey Excel sheet records
	/7.2/	Usage rate calculation-excel sheet
	/7.3/	Outlier calculation excel sheets
/8/	The Gold standard Toolkit Version 2.2	
/9/	CDM Validation and Verification Standard version 9.0	
/10/	Aqua Clara foundation: total sales record for the filters sold till the end of this monitoring period i.e. 18/02/2017	
/11/	ACF: Monitoring Survey Template and Filled forms	
/12/	VER right transfer sheets	
/13/	Sampling and surveys for CDM project activities and programme of activities version 05.0	
/14/	Training issued by Aqua Clara Foundation	
/15/	Laboratory test results for the water samples collected from the surveyed households	
/16/	3M Petri film Instructions manual	
/17/	Technical specification of the water filters	
/18/	GS clarification/approval regarding delaying the annual monitoring	
/19/	Baseline Testing Survey Summary pertaining to third monitoring period.	
/20/	Default values of fraction of non-renewable biomass http://cdm.unfccc.int/DNA/fNRB/index.html	
/21/	IPCC Fourth Assessment Report: Climate Change 2007 http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html	
/22/	Markit Environmental Registry: 1. http://www.markit.com/sites/en/products/environmental/markit-environmental-registrypublic-view.page 2. https://products.markit.com/home/index.jsp#REGISTRY.ProjectIssuance.ProjectIssuance	
/23/	Gold Standard Foundation: http://www.cdmgoldstandard.org	

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7. FINDINGS DOCUMENT

Summary of findings	CAR	CL	FAR From Previous Verification/PRC
	2	1	3

FAR Raised by GS in previous verification:

FAR ID	01	Section no.		Date: 31/07/2017
Description of CAR				
Please refer the following FAR raised by GS in previous verification, PP need to confirm the action taken: *PP shall conduct a Project Survey meeting the requirements of the methodology in time for next issuance, or on an annual basis – whichever is sooner.*				
Project participant response				**Date:** 02/08/2017
PP would like to confirm that project survey was conducted during the monitoring exercise. Project survey questions were included in the surveys. PP has provided sample surveys as evidence.				
Documentation provided by project participant				
Scanned sample surveys				
DOE assessment				**Date:** 22/08/2017
The confirmation provided by the project participant has been verified from the survey evidences submitted. The requirement complies with the FAR raised by GS. FAR is closed.				

FAR ID	02	Section no.		Date: 31/07/2017
Description of CAR				
Please refer the following FAR raised by GS in previous verification, PP need to confirm the action taken: *PP shall ensure that the methodology requirements of 30 samples per filter age with a minimum total sample size of at least 100 shall be obtained in time for next issuance, or on an annual basis – whichever is sooner. Now that previous FARs have been addressed, PP shall also calculate a single weighted usage parameter.*				
Project participant response				**Date:** 02/08/2017
PP fulfilled this requirement for all the filter technologies and sample frame has been provided.				
Documentation provided by project participant				
Sample frame.				
DOE assessment				**Date:** 22/08/2017
Survey records submitted verified and cross interviewed during the site visits by the represntataives of different types of filters users. The sample size used during the sirvey complies the minimum sample requirement and found adequete by the verification team. FAR is closed.				

FAR ID	03	Section no.		Date: 02/11/2017
Description of CAR				

Please refer the following FAR raised by GS in PRC of project activity: PP shall undertake stakeholder consultation activities for a representative range of institutions and commercial facilities prior to next issuance and submit supporting documentation along with the next issuance.
Project participant response **Date:** 03/11/2017
PP conducted the stakeholder consultations as per the FAR and support documents have been provided.
Documentation provided by project participant
LSC documents.
DOE assessment **Date:** 03/11/2017
The response provided by PP along with the supporting documents furnished demonstrates that LSC was undertaken adequately and address the FAR resisted by GS. Supporting documents assessed by verification team and found that the LSC comply with the applicable requirement. Represenatatve stakeholders were interviewed during site visit and all were satisfied with the project.

Table 2. CL from this validation

CL ID	01	**Section no.**		**Date:** 31/07/2017
Description of CAR				
Following documents/evidences required for verifying the information provided in monitoring report. a) Training imparted to field surveyors as mentioned page 10 of MR;				
Project participant response				**Date:** 02/08/2017
PP has attached the participant's list for the training conducted for the field enumerators.				
Documentation provided by project participant				
Participant's list.				
DOE assessment				**Date:** 22/08/2017
The list of participant submitted and it was also confirmed during site viist by interviewing the attendess of training that trainings were provided. CL is closed.				

Table 2. CAR from this validation

CAR ID	01	**Section no.**		**Date:** 31/07/2017
Description of CAR				
a) The estimated ERs at the cover page of monitoring report are not rounded down. (Refer MR filling guideline). b) Latest version of MR available on UNFCCC website is not used for the current monitoring period.				
Project participant response				**Date:** 02/08/2017
PP has rounded down the ERs as requested to 27,744 *PP has used version 5.1 which is the latest version on the UNFCCC website.*				
Documentation provided by project participant				
Monitoring report				
DOE assessment				**Date:** 22/08/2017

a) The MR is updated by the PP for the sought correction. CAR is closed. b) The latest verssion of MR has been used by PP. CAR is closed.

CAR ID	02	**Section no.**		**Date:** 31/07/2017
Description of CAR				
The project implementation status in actual vs proposed in the counties needs to be incorporated in section B.1 of MR. (Refer MR filling guidelines)				
Project participant response				**Date:** 02/08/2017
Currently the project has been implemented in 13 out of 23 proposed counties namely: Uasin Gishu, Nyamira, Kisii, Nakuru, Bomet, Homabay, Kisumu, Migori, Kericho, Kakamega, Nyeri, Nairobi and Nandi. The PP has indicated the same on the monitoring report.				
Documentation provided by project participant				
Monitoring Report				
DOE assessment				**Date:** 22/08/2017
The MR has been updated to include the actual implimentation. CAR is closed.				

8. CERTIFICATE OF COMPETENCE

Personnel Name:		**Chetan Swaroop Sharma**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
Approved by (Manager C & T)		Gagandeep Kakkar	
Approval date:		09/10/2015	

Personnel Name:		**Sanjay Kandari**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒

Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy Industries (renewable/non-renewable sources)		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Energy demand		TA 3.1. Energy Demand	
Waste Handling and Disposal		TA 13.1 Waste Handling and Disposal TA 13.2 Manure	
Approved by (Manager C & T)		Akhilesh Joshi	
Approval date:		11/12/2015	

History of the document

Version	Date	Nature of revision	Reviewed by	Approved by
4.0	14/12/2013	Guidance included/improved	Manager CDM Quality 23/12/2013	Managing Director 23/12/2013
3.1	29/10/2012	Updated for EB69 Annex6	Manager CDM Quality 29/10/2012	Managing Director 29/10/2012
3.0	31/08/2012	Revised for VVS Track	Manager CDM Quality 08/09/2012	Managing Director 10/09/2012
2.0	21/12/2011	Comprehensively revised	Manager CDM Quality 21/12/2011	Managing Director 21/12/2011