

VERIFICATION & CERTIFICATION REPORT

For the GS-VER Project Activity

GS10959 VPA07 SAFE WATER PROJECT IN BANGLADESH I
GS10959 VPA08 SAFE WATER PROJECT IN BANGLADESH II
GS10959 VPA09 SAFE WATER PROJECT IN BANGLADESH III
GS10959 VPA10 SAFE WATER PROJECT IN BANGLADESH IV

UNDER POA

***" SAFE WATER PROGRAMME IN AFRICA AND
ASIA"***

(GS REF. No. GS10959)

**REPORT NO.
GS.22.VER.026**

1st Monitoring Period

VPA No.	Start date	End date
VPA07	30/07/2021	31/07/2022
VPA08	08/08/2021	31/07/2022
VPA09	11/09/2021	31/07/2022
VPA10	27/02/2022	31/07/2022

(Including both the days)

Date of this issue: 24/03/2023	KBS Ref. No.: GS.22.VER.026 MP01		
VPA Titles:	<ol style="list-style-type: none"> 1. GS10959 VPA07 Safe Water Project In Bangladesh I 2. GS10959 VPA08 Safe Water Project In Bangladesh II 3. GS10959 VPA09 Safe Water Project In Bangladesh III 4. GS10959 VPA10 Safe Water Project In Bangladesh IV 		
Organization:	KBS Certification Services Pvt. Ltd.		
Client:	Guangzhou Iceberg Environmental Consulting Services Co., Ltd.		
Monitoring Period:	VPA No.	Start date	End date
	VPA07	30/07/2021	31/07/2022
	VPA08	08/08/2021	31/07/2022
	VPA09	11/09/2021	31/07/2022
	VPA10	27/02/2022	31/07/2022

Summary:

KBS Certification Services Pvt. Ltd. has performed the 1st performance review (verification) of the GS-VER VPAs vide the reference numbers GS 11150, GS 11151, GS 11152, GS 11153. The verification includes confirming the implementation of the monitoring plan of the registered/most recent version of GS4GG PoA/VPA-DDS and the application of the applied monitoring methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption” version 3.1. A physical assessment 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/most recent version of GS4GG VPA/PoA DD and the monitoring plan and the corresponding validation opinion;
- (b) The validation report;
- (c) The applied monitoring methodology(ies);
- (d) The monitoring report to verify that it is as per the standardized format;
- (e) Monitoring results for the applied monitoring period
- (f) 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);
- (g) VER 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 following SDGs.

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved				Units/ Products
		VP A No.	Start Dates	End Dates	ERs	
SDG 13 Climate Action	Emissions Reductions	07	30/07/2021	31/12/2021	9,459	VERs
			01/01/2022	31/07/2022	12,938	
		08	08/08/2021	31/12/2021	8,952	
			01/01/2022	31/07/2022	12,999	
		09	11/09/2021	31/12/2021	7,744	
			01/01/2022	31/07/2022	14,658	
		10	27/02/2022	31/07/2022	10,294	
				Total	77,044	

SDG 3 – Good Health and Well-Being	Reduce the incidence of waterborne illness within the project area	62.90%	Percentage
SDG 5 –Achieve gender equality and empower all women and girls	Reduce the time spent to fetch and purify water by women and girls	83.97%	Women having more time for self-empowerment
SDG 6 –Ensure availability and sustainable management of water and sanitation for all.	Provide safe water to local residents	VPA07	13,929
		VPA08	12,897
		VPA09	14,368
		VPA10	13,630
		Total	54,824
Additional people using safe water			
Subject Group GS Verification Version of GS rules: GS4GG		Sectoral Scope(s): 1.1 & 3.1	
Verification Team:		Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption” version 3.1	
Team Leader, Technical Expert (1.1, 3.1)	Sanjay Kandari	Monitoring report:	
Local Expert (Bangladesh)	Syad Anwar	First version	09/10/2022
		Final version	20/02/2023
Independent Technical Reviewer Team		Verification status:	
Date:27/12/2022			
Technical Reviewer	Tushar Eknath Chaudhari	<input type="checkbox"/> Findings not closed.	
TR Expert (1.1, 3.1)	Tushar Eknath Chaudhari	<input type="checkbox"/> Draft verification opinion	
		<input checked="" type="checkbox"/> Final verification opinion	
Date:09/01/2023			
Manager T&C	Tushar Eknath Chaudhari		
Authorized Signatory:			
Date: 09/01/2023			
Managing Director	Kaushal Goyal	<input checked="" type="checkbox"/> No distribution without permission from client	
Revision history:		<input type="checkbox"/> Unrestricted distribution	
Date	Rev. No.	<input type="checkbox"/> Limited distribution	
10/01/2023	0		
25/02/2023	1		
24/03/2023	2		

Abbreviations

CAR	Corrective Action Request
CME	Coordinating & Managing Entity
CL	Clarification Request
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
CRF	Carbon Rights Form
EB	Executive Board
ER	Emission Reduction
FT	Fuel Test
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GPS	Global Positioning System
GS	Gold Standard
HH	Household
IPCC	Intergovernmental Panel on Climate Change
KPT	Kitchen Performance Test
MKS	Monitoring Kitchen Survey
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
NRB	Non-renewable biomass
OSV	On-site visit
POA DD	Programme of Activity Design Document
PP	Project proponent
PTD	Project Technology Days
QA/QC	Quality Assurance/Quality Control
SC	Sustain Cert
SD	Sustainable Development
SDG	Sustainable Development Goals
UNFCCC	United Nations Framework Convention on Climate Change
VPA	Voluntary Project Activity
VVB	Validation and Verification Body
VER	Voluntary Emission Reduction
VVS	Validation and Verification Standard for project activities
WCFT	Water consumption field test

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1. INTRODUCTION

1.1 Objective

KBS has been commissioned by Guangzhou Iceberg Environmental Consulting Services Co., Ltd. to perform an independent verification of its registered GS-VER VPAs GS 11150, GS 11151, GS 11152, GS 11153 for the monitoring period referred at the cover page of report for each VPA. 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 PoA/VPA-DDS/2/ 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 PoA/VPADD, including the monitoring plan and the corresponding validation opinion(s);
- (b) Monitoring report for the monitoring period under verification including GS VER calculations sheets and all supporting documents.
- (c) The applied monitoring methodology.
- (d) Relevant decisions, clarifications and guidance from the CMP and the Gold Standard Board.
- (e) 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 applicable version of GS4GG 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

VPA Titles:	<ol style="list-style-type: none"> 1) GS10959 VPA07 Safe Water Project in Bangladesh I 2) GS10959 VPA08 Safe Water Project in Bangladesh II 3) GS10959 VPA09 Safe Water Project in Bangladesh III 4) GS10959 VPA10 Safe Water Project in Bangladesh IV
Methodology Applied:	Gold Standard Methodology: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption". Version 3.1
Sectoral Scopes:	3.1

Start date of crediting period:	GS 11150: 30/07/2021 GS 11151: 08/08/2021 GS 11152: 11/09/2021 GS 11153: 27/02/2022
CME	Guangzhou Iceberg Environmental Consulting Services Co., Ltd.
Location of the project activity:	Bangladesh

The purpose and goal of the VPAs is to reduce emissions from burning of greenhouse gas emitting fuels, including non-renewable biomass, for water treatment. The use of non-renewable biomass such as wood for water boiling, leads to the emission of greenhouses gases, deforestation and poor indoor climate. The VPA involves installation of infrastructure, thus improving the access to safe, piped water for communities in the District of Cox’s Bazar in the Bangladesh, under the PoA, to significantly reduce the consumption of non-renewable biomass and other greenhouse gas emitting fuels for water treatment.

The VPA under the GS PoA “ Safe Water Programme in Africa and Asia ” GS 10959, are eligible for Gold Standard methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 3.1”.

The VPA involves installation of safe water technologies (access to safe water)/borehole, which will reduce the amount of firewood purifying water from unsafe sources for the local communities.

There is no public funding involved for the implementation which will result in a diversion of Official developmental Assistance as confirmed from the signed declaration for all the VPA, this was also confirmed during design review as same team of VVB has undertaken the design review part. Voluntary Project Activities will be financed by the generation and marketing of Voluntary Emission Reductions (VERs), which has been confirmed during the physical audit interview of PP/CME representatives.

It has also been confirmed that the PP/CME, in order to establish the boundary, have taken into consideration all applicable national and/or sectoral policies and regulations^{5/} within the chosen boundary.

VPA supports the provision of safe water using the safe water distribution technology to hundreds of households and reduce CO_{2e} emissions by reducing use of firewood for water purification. The water connections in the project scenario saves carbon emissions as less firewood is burnt on making water safe for consumption.

The VPA ensured that the quality of the water delivered by the the boreholes under the VPAs includes human consumption of water for the entire length of the project, which will be a minimum five years, is meeting health standards. Quarterly water quality tests will be done as per the WHO standard/17/,/18/. As per the requirement of the applied methodology TPDDTEC^{06/}, the Water quality must be tested every quarter, with the first test within 6 months of the stated project start date /9/. The WQT reports /18/ of the existing connections have been checked and found to be within the 6 months of the project start date.

The emission reductions achieved during the current monitoring period are following for the 4 VPAs:

VPA Number	SDG#13
VPA07	22,397 CO _{2e}
VPA08	21,951 CO _{2e}
VPA09	22,402 CO _{2e}
VPA10	10,294 CO _{2e}
Total	77,044

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 and GS requirements for VVB. Subsequently, after the contract is signed, the monitoring report of the project activity is reviewed in accordance with Gold Standard rules.

A desk review of the project documentation is undertaken, which is followed by a physical onsite visit by the members of verification team in accordance with the latest version of CDM AS/GS4GG requirements. 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/recent version of GS4GG 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

<i>Verification Contract (Combined contract for validation & Verification)</i>	11/06/2020
<i>onsite verification</i>	18/11/2022-20/11/2022
<i>Draft Verification Report</i>	16/12/2022
<i>Final Verification Report</i>	25/02/2023

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

Details of interviewees, topics covered and additional information presented below:

Location:	Bangladesh (Physically)
Dates:	18/11/2022-20/11/2022
Key points discussed:	Refer below table

List of households interviewed (Bangladesh)

		Location		Various Locations under Cox's Bazar District	
		Dates		18/11/2022-20/11/2022	
S. No.	Name of person interviewed	Designation, Organization	Means of interview	Key points discussed	
1.	Ji Bao	Guangzhou Iceberg Environmental Consulting Services Co., Ltd. (CME)	Physically on Skype	<ul style="list-style-type: none"> - General aspects of the project - Changes since validation / previous verification - Remaining issues from validation/ previous verification - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the Monitoring - Maintenance - Data analysis - Data Analysis - Issues in the MR - ER calculation 	
2.	Ayman	Guangzhou Iceberg Environmental Consulting Services Co., Ltd. (CME)	In person	Survey Methodology and Sampling	
3.	Mehnaj Khan	Guangzhou Iceberg Environmental Consulting Services Co., Ltd. (CME)	In person	- Survey Methodology and Sampling	
4.	Eng Babul Aktar	Social Aid	In person	<ul style="list-style-type: none"> - Project Implementation - Compliance of statutory requirements - Water Quality Tests and methodology 	
5.	Samsul Alom	Borehole user, Uttor para	In person	<ul style="list-style-type: none"> - Verification of data collected through survey - Awareness about ownership of VERs - Working condition of borehole unit - SD parameters verification 	
6.	Samaruk	Borehole user, Uttor para	In person		
7.	Jahanara Akter	Borehole user, Uttor para	In person		
8.	Sofura Akter	Borehole user, Uttor para	In person		

9.	Nur Islam	Borehole user, Uttor para	In person	
10.	Lipi Das	Borehole user, Jolodas Para	In person	
11.	Parvi Das	Borehole user, Jolodas Para	In person	
12.	Sonaly Das	Borehole user, Jolodas Para	In person	
13.	Sneha Das	Borehole user, Jolodas Para	In person	
14.	Monju Das	Borehole user, Jolodas Para	In person	
15.	Momota Das	Borehole user, Dokkin Shairakhali, Jolodash Para	In person	
16.	Pakhi Bala Das	user, Dokkin Shairakhali, Jolodash Para	In person	
17.	Condro Rekha	user, Dokkin Shairakhali, Jolodash Para	In person	
18.	Poncomi Das	user, Dokkin Shairakhali, Jolodash Para	In person	
19.	Hori Das	user, Dokkin Shairakhali, Jolodash Para	In person	
20.	Monuara Begum	Borehol user, Jafor Pollan Para	In person	
21.	Jafor Alom	Borehol user, Jafor Pollan Para	In person	
22.	Nurul Islam	Borehol user, Jafor Pollan Para	In person	
23.	Ali Ahmed	Borehol user, Jafor Pollan Para	In person	

24.	Habibur Rahman	Borehol user, Jafor Pollan Para	In person	
25.	Nur Ahmed	Borehol user, Jafor Pollan Para	In person	
26.	Abul Kalam	Borehol user, Jafor Pollan Para	In person	
27.	Arefa Begum	Borehol user, Jafor Pollan Para	In person	

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.

2.4 Verification Assessment

Based on the desk review and physical 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 GS4GG 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:

During the design review of the VPAs four FAR were raised by Sustaincert/GS. CME has responded the FARs in MR as well as in the verification findings and the response and assessment are reported in Appendix of FVR.

Findings:

FAR#0, FAR#02, FAR#03 & FAR#04 were raised based on the GS review and closed.

3.2 Compliance of project implementation with registered VPA-DDS

Discussion:

CME:	Guangzhou Iceberg Environmental Consulting Services Co., Ltd.
Project Parties:	NA being a voluntary project
Title of voluntary project activity:	<ol style="list-style-type: none"> 1. GS10959 VPA07 Safe Water Project in Bangladesh I 2. GS10959 VPA08 Safe Water Project in Bangladesh II 3. GS10959 VPA09 Safe Water Project in Bangladesh III 4. GS10959 VPA10 Safe Water Project in Bangladesh IV
GS registration No:	GS 11150, GS 11151, GS 11152, GS 11153
Baseline and monitoring methodology:	Gold Standard Voluntary Methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption” version 3.1/6/
Project Type:	Access to safe drinking water.
Location of the project activity:	Bangladesh
Project’s crediting period:	GS 11150: 30/07/2021-29/07/2026 GS 11151: 08/08/2021-07/08/2026 GS 11152: 11/09/2021-10/09/2026 GS 11153: 27/02/2022-26/02/2027 The VPA DDS mentioned the expected dates of the crediting periods as all the VPAs were not implemented at the time of VPA inclusions therefore expected date as per Paragraph 4.1.40 of Principles & Requirements (Version 1.2) was mentioned. During the verification the start date is mentioned actual date of rehabilitation of first borehole. The date is verified in compliance with the above cited para of the ‘Principles & Requirements (Version 1.2). The dates were verified with the certificates of rehabilitation of first borehole in each VPA.
Total Duration of the project:	5 years (renewal)

Period verified in this verification:	VPA No.	Start date	End date
	VPA07	30/07/2021	31/07/2022
	VPA08	08/08/2021	31/07/2022
	VPA09	11/09/2021	31/07/2022
	VPA10	27/02/2022	31/07/2022
(including both dates)			

As part of the on-site visit, the verification team was able to confirm that the project implementation is in accordance with the project description contained in the registered GS4GG POA/VPA-DDS /14//2/.

The voluntary project activities GS 11150, GS 11151, GS 11152, GS 11153 aims to reduce greenhouse gas emissions, curb deforestation and improve air quality by providing the access to safe & clean drinking water. The use of non-renewable biomass such as wood in baseline scenario for water boiling, leads to the emission of greenhouses gases, deforestation and poor indoor climate. The VPA involves installation of infrastructure, thus improving the access to safe water for communities in the District of Cox's Bazar (Bangladesh) (currently but later the project will expand) in the Bangladesh & Rwanda (Currently), under the PoA, to significantly reduce the consumption of non-renewable biomass and other greenhouse gas emitting fuels for water treatment.

The project activity is implemented in line with the registered/recent version of VPA-DDs.

There are 139 boreholes repaired in the project and verified with the database along with physically verified during site visit based on accepting sampling. In the monitoring period, the boreholes were maintained by the CME and VPA implementer, functioning well to provide enough clean water to over 50,000 local people.

The GHG offset during this monitoring period are 77,044 tCO_{2e} covering all the 4 VPAs in this current batch of verification/performance review. The list of beneficiaries by the VPA was submitted to VVB and based on the review of list, their agreement with CME, water quality test reports and other evidence inter alia, VVB concluded that the VPAs were implemented in line with the registered VPA-DDs and also in line with the framework of registered PoA.

Monitoring procedure of GHG data is found sufficient and in accordance with the procedures stipulated under the registered monitoring plan.

Any Project Design Change been sought and approved by GS Secretariat for the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA
Any Changes in the monitoring Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA
Any changes in the sustainable development monitoring plan?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA

The timeline of the project's implementation is as follow:

Milestone of the project activity	Timeline	Assessment by the verification team		
Crediting period: 1) GS 11150: 30/07/2021-29/07/2026 2) GS 11151: 08/08/2021-07/08/2026 3) GS 11152: 11/09/2021-10/09/2026 4) GS 11153: 27/02/2022-26/02/2027 The VPA DDs mentioned the expected dates of the crediting periods as all the VPAs were not implemented at the time of VPA inclusions therefore expected date as per Paragraph 4.1.40 of Principles & Requirements (Version 1.2) was mentioned. During the verification the start date is mentioned actual date of rehabilitation of first borehole. The date is verified in compliance with the above cited para of the 'Principles & Requirements (Version 1.2)'. The dates were verified with the certificates of rehabilitation of first borehole in each VPA.				
1 st monitoring period	VPA No.	Start date	End date	Verification team has verified the same from the monitoring report. Also, the monitoring period is within the first crediting period of respective VPAs. The creting periods dates also verified from the GS review forms.
	VPA07	30/07/2021	31/07/2022	
	VPA08	08/08/2021	31/07/2022	
	VPA09	11/09/2021	31/07/2022	
	VPA10	27/02/2022	31/07/2022	

The project activity was implemented, and the details of beneficiaries described in the recent version of GS4GG VPA-DDs. Based on physical site visit, interview and the reviewed project documentation along with documentary evidence, it can be confirmed that the project implementation is in accordance with realized technology. The project has been implemented and operated as described in the recent version of VPA-DDs. The monitoring and sustainable development indicators parameters are also monitored as per the recent version of VPA-DDs and GS4GG guideline and found to be appropriate.

Assessment of actual emission reductions with the estimate emission reductions in POA/VPA-DDS:

Estimated Emission Reduction as per Registered/Approved POA/VPA-DDS for the current monitoring period:	VPA07	58,696	tCO _{2e}
	VPA08	57,256	
	VPA09	51,819	
	VPA10	24,790	
	Total	192,561	
Actual Emission Reduction for the Monitoring Period	VPA07	22,397	tCO _{2e}
	VPA08	21,951	
	VPA09	22,402	
	VPA10	10,294	
	Total	77,044	
Is any increase of VER's occurred?	No		
Reason for Increase of CER's	N/A		

In summary, verification team found that the actual emission reductions are lower than to the estimate of the registered project for the current monitoring period, if the same fnrb value would have been used in baseline scenario.

Verification team considers the project description in the project activity contained in the Monitoring report to be in line with the registered POA/VPA-DDs and complete and accurate. The Monitoring report complies with the relevant methodology, tools, forms and guidance applied in the registered POA/VPA-DDS.

Sampling Plan:

During the physical verification a random sampling approach has been used by the verification team to verify the reported values of the monitored parameters as listed in the MR which are determined through sampling by PP.

Sampling approach during verification audit is conducted in accordance with “Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities, Version 04.0” and the “Standard for Sampling and Surveys for CDM Project Activities and Programme Activities, Version 09.0”/6/.

The verification team followed the “Standard for Sampling and Surveys for CDM Project Activities and Programme Activities” version 09, para 29 and 33, esp. for taking samples out of the PP’s sample. VT has adopted the acceptance sampling approach in order to verify the sampling result of the PP for the applied verification period.

For the determination of VVB’s acceptance sample size, verification team assumed the following factors:

1. Acceptable quality level (AQL) - 0.1%
2. Unacceptable Quality Level (UQL) – 20%
3. Producer risk- 5%
4. Consumer risk- 5%

Verification team has determined acceptance sample size for all the sample survey parameters based on the “Table. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks” of standard “Sampling and surveys for CDM project activities and programme of activities” version 09.0/6/. The verification team reviewed 22 sample which are over and above the minimum sample size. The supportive documents were shared by the PP during physical assessment.

The actual number of sample size where the acceptance survey was done given below:

Parameters	Total Population	PP’s sample size	Acceptance sample size (n)	Acceptance Number (z)	Sampling method used
For all monitoring parameters as per the MR (Qp, cleanboil, Qp,rawboil,y, Up,y)	8,582 (HHS) & 139 Boreholes	120 (Other than water quality)	22	1	Acceptance sampling using Random sample and weighted average of each technology.

During physical assessment, verification team interviewed sample household and commercial users of project boreholes, applying the random selection technique to cross check the data reported by PP. Verification team has checked the PP samples result with the physical assessments and interview and results, monitoring forms, technical details of the project technology, households data base as per the ER sheet and found no discrepancies. The result of the survey is given below:

Parameters	VVB Sample size (n)	No of PP’s record beyond unacceptable level (C)	Accepted/ Rejected
Monitoring parameters as per the MR (water quality not included as part of acceptance test), including	22	0	Accepted

baseline surveys.			
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PP's sampling monitoring records/data results were not found discrepant during the KBS verification physical assessment/desk review. All the physically assessed samples by verification team were showing similar result as reported by PP in its monitoring records. Physical audit results/observation is found to be in line with PP surveys and water quality test results. Further, the verification team reviewed all the primary monitoring records to assess the consistency of information in MR and ER calculation spreadsheet and found the monitoring data to be correctly transcribed. Based on that, verification team concludes that sampling results and values presented by PP in the MR and spread sheet and results of survey and water quality test are consistent with the physical assessments observation and interview with the end users.

The sample calculation was undertaken by the CME/15/ by using the CDM guidelines by using the 95/10 confidence/precision and the results of sampling were tested for the actual confidence/precision, it was observed that the the results met the desired confidence/precision.

Hence, verification team confirms that PP's survey/sampling records to be acceptable in line with the requirements of the Sampling Standard and Guidance.

Findings: CAR#01, CL#01, CL#02 & CL#06 were raised and closed satisfactorily. Refer section 7 for details of findings.

Opinion:

- a) In the opinion of assessment team, the implementation and operation of the project activity is in compliance with the description in the recent version of GS4GG VPA-DDS.
- b) The actual emission reductions for the current monitoring period are not higher rather lower as indicated in previous section with the reason.
- c) The verification team along with physical observations, objective evidence collections, data generation and recording analysis also considered the views obtained in these interviews while arriving at Verification Opinion.

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

Discussion:

The VVB verification team is able to confirm that the monitoring plan contained in the recent version of GS4GG POA/VPA-DDS//14/, /2/ is in accordance with the approved methodology applied by the project activity "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" version 3.1/6/.

The monitoring plan along with sampling & survey for baseline as well as the project case is described in the recent version of GS4GG POA/VPA-DDS.

During the verification all relevant monitoring parameters (as listed in the POA/VPA-DDS /14/, /2/) have been verified about the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures.

Findings:

CL#03, CL#04, CL#05 were raised and closed satisfactorily. Refer section 7 for details of findings.

Opinion:

The monitoring plan mentioned in the registered/recent version of GS4GG POA/VPA-DDS is in line with the applied methodology i.e. "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" version 3.1. The monitoring mechanism is in line with the methodology and is effective and reliable.

3.4 Post registration changes, if any

NA

3.5 Compliance of monitoring activities with registered monitoring plan

Discussion:

The monitoring has been carried out in accordance with the monitoring plan contained in the registered/recent version of GS4GG VPA-DDS.

During verification, all relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement/determination method and applied QA/QC procedures. It is confirmed that the monitoring parameter has been measured / determined without material misstatements. According to the methodology, a Total Sales Record, Detailed Customer Database, and Project Database are maintained.

The verification team reviewed the actual monitoring during the physical assessment and from document review and compared it against the requirements of the monitoring plan in the POA/VPA-DDS and found in line with the registered monitoring plan. The sampling plan implemented by the PP, Guangzhou Iceberg Environmental Consulting Services Co., Ltd. project team in Bangladesh in accordance with the applied approved monitoring methodology and recent version of GS4GG POA/VPA-DDS.

According to the recent version of GS4GG POA/VPA-DDs, the verification team summarize the findings of the monitoring approach applied.

Records of Beneficiaries:

Verification team has reviewed the agreement with user's records /11/ which the CME has maintained in both electronic and paper records. Verification team has crosschecked randomly selected electronic records to ensure that they accurately reflected the respective paper records of each agreements and further verified a sample of these paper agreement receipts/ carbon rights form while conducting the physical assessment.

The VPA has established 8,582 HHs, verified with the agreement and the VPA also monitors the number of persons per household, therefore the VPA are providing the access of safe water to total 54,824 persons for total 4 VPA. It is assumed that people need water every day of the year, based on the sectoral expertise of VVB, it is confirmed that the calculation is adequately reported in ER sheet.

During physical assessment and desk review, randomly names, etc. in data base cross checked with HH's agreement with CME recorded as hard/scan copies and found to be correct.

Based on above, verification team can confirm that the boreholes assessed during the physical assessment were all found to be properly labelled, and the PP has ownership right on emission reductions accrued from this project activity which was confirmed by carbon rights forms/11/. Therefore, it is concluded that the project is not a double-counting emission reduction. VVB has undertaken the acceptance sampling to verify the HH's records, project implementation records inter alia. CME also furnished the required approval from the local statutory bodies during the onsite inspection. 'Engineer Babul Aktar' shown all the compliances during the onsite inspection to team leader and local expert.

Data Management

The results of all Monitoring Usage Surveys/12/, Project Technology Days, and other parameters are collated in excel spreadsheets format. The documentation procedure that CME has devised ensures a minimum chance of original data being lost – all original copies of our project documentation are retained in office of CME. The data management was physically verified and discussed at the time of physical assessment and found correct.

Description of staff conducting monitoring activities

All surveys are administered by trained staffs of CME, local to the area and conversant in the local dialects to ensure that responses were consistent and not biased by any regional language barriers. Field staffs were provided with an English version of the questionnaire to provide for the greatest possible standardisation of responses. It was explained to the respondents that the answers to the survey are analysed as a group and that no individual names are used in this analysis; the reason to take peoples' names and addresses is so that they can be found again to conduct further monitoring tasks. The staff conducting the monitoring activities were interviewed at the time of physical assessment and found that staff is well versed and has proper knowledge of conducting the monitoring activities.

Maintenance of total water Beneficiaries

Accurate records were kept and stored both electronically and in paper format. The agreement signed with the end users were verified by the verification team and also the users were interviewed during the physical assessment by the VVB.

The data base in the following template as reproduced in MR was verified by the VVB during physical assessment. The users IDs were further verified through interviewing the HHs during the physical assessment undertaken.

The following details are recorded in the project database, refer the template below:

Bore hole ID
Rehabilitation Date
End date of MR1
Days out of work
Days of work
Hand Pump Type
Geographic Coordinates
Province
District
Cell
Sector
Village
Number of households
Number of persons

Filed Tests

Complying the VPA-DDS requirements, the following field studies were performed:

- a. Water Consumption Field Test (Surveyed by CME and verified by the VVB)
- b. Water quality tests by the third party labs.

These surveys and studies have been made available to the VVB and are the verification is summarized below.

Water Quality Tests (WQTs)

The quality of the treated water is assessed to ensure that it fits human consumption. The standard used to assess the water quality meets requirements of the applied methodology. It is conducted quarterly, with the first test conducted within 6 months of the project start date. At least once every two years, the water quality test will be performed in accredited laboratories. The samples were selected by Simple Random Sampling. We used equation (1) of “Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)” to calculate the sample size. The result is 17.76. Furthermore, according to paragraph 14 of “Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)”, a minimum sample size of 30 shall be chosen. We chose 40 samples out of 139 boreholes to ensure the precision. The water quality test has been made in the Water Quality Testing Laboratory of the NGO Forum during this monitoring period on 30/12/2021, 31/03/2022 and 30/06/2022. The detailed results of each test have been submitted to VVB and VVB found that the tests met the water quality in terms of *E.coli* and other parameters i.e. (Arsenic Arsenic and Fluorides). The third party was appointed by the CME to undertake the test, the samples were also drawn by the third party and carried out the tests as per the WHO standard. The labs test reports furnished by CME to VVB and VVB based on the local expertise concluded that the tests were adequately undertaken by the third party. VVB observed that the samples were taken higher than the desired samples and the sampling results met the desired confidence/precision as reported in the previous section. Since none of the sample tested for the WCFT failed for Ecoli and othet parameters therefore the required precision was sufficiently met.

Verification approach of water quality was undertaken by the two step approach:

- I. Review of all water quality reports issued by the third-party lab;
- II. Confirmation of the water quality sample collection through the interviews of village heads/users to confirm that the representative of third party collected the samples and villages head (primarily the custodian of boreholes) was informed or not.

Therefore, the verification of water quality test results through the review of ‘Water Quality Reports’ doesn’t fall under the acceptance sample as 100% records were verified.

Usage Survey - The Usage Survey is included in the Project Survey, there is no individual questionnaire for Usage Survey. The Project Survey was carried out between 07/08/2022 to 31/08/2022. The result from the usage survey is 100% used to calculate emission reduction. VVB undertaken the acceptance sampling test to evrify the appropriateness of CME’s survey and based on the VVB’s sampling it can be concluded that the survey undertaken by the CME were adequate as no variation found between the VVB’s survey and CME’s survey. The user survey was considered by taking a total of 120 samples and multi stage sampling approach as per the CDM sampling guidelines, since the usage was found 100% therefore VVB concluded that the desired confidence/precision was adequately met.

Water Consumption Filed Tests (WCFT)

The WCFT was carried out between 07/08/2022 to 31/08/2022. The result from the survey are averaged and the capped value of 7 liter/person is applied and the same has been verified in the subsequent section under monitoring parameters . VVB undertaken the acceptance sampling test to evrify the appropriateness of CME’s survey and based on the VVB’s sampling it can be concluded that the survey undertaken by the CME were adequate as no variation found between the VVB’s survey and CME’s survey. The WCFT survey was considered by taking a total of 120 samples and multi stage sampling approach as per the CDM sampling guidelines, since the capped value is applied therefore VVB concluded that the desired confidence/precision was adequately met.

Project Survey - Sampling according to “Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)” and “Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)” to conduct Project Survey. CME calculated that 2 was the minimum number of boreholes should be sampled to satisfy the 95/10 rule of applied methodology being a mean parameter. Hence, CME randomly chose 6 boreholes covering the all 4 VPA to maintain the representativeness. CME also randomly chose 20 user households from each borehole, i.e. 120 user households in 6 boreholes. Data collected during the project surveys explores the following characteristics:

General information - Name, address, telephone number etc.

Household socio-demographic information.

Water use characteristics.

During this monitoring period the Project Survey has been conducted between 07/08/2022 to 31/08/2022. A more detailed description of the results is made in a separate document “2-Data Recording Form for Project Survey”, and furnished to the VVB.

The project survey was considered by taking a total of 120 samples and multi stage sampling approach as per the CDM sampling guidelines, since the usage was found 100% therefore VVB concluded that the desired confidence/precision was adequately met.

Leakage - The PDD has described what sources of leakage were relevant to the VPA and what have been discounted.

The potential sources of leakage listed in the methodology have been investigated, and addressed below:

a) The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.

The displaced baseline technology is three stones. It will not be reused outside the project boundary because It is reused outside the project boundary because it is still used for cooking after the implementation of the Project” and therefore, the implementation of the Project does not lead these users to boil water with wood fuel.

b) Non-project users who previously used lower emitting energy sources with NRB or fossil fuels saved under the project activity.

The costs of low emitting water purification technologies, such as filtration and chlorination, are much higher than boiling with wood fuel. Users of these technologies are not price sensitive. Therefore, the implementation of the Project will not lead these users to boil water with wood fuel, even if the price of wood fuel becomes cheaper because of the reduction of demand caused by the Project. This leakage source can therefore be discounted.

c) The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.

Considering that the project only saves 42,316 tons ($B_{b,y}$) of biomass annually while the total amount of above-ground biomass of Bangladesh is 177 million tons¹, the Project has not affected NRB fraction.

d) The VPA population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.

The space heating effect of boiling water is negligible. Therefore it is highly unlikely that some other form of heating will be adopted for compensating the space heating effect of boiling water.

e) By virtue of promotion and marketing of new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.

The project did not promote any new technology with high efficiency. It did not stimulate people to boil water.

Therefore, a value of 0 is applied for leakage during this monitoring period.

¹ Table 18, Global Forest Resources Assessment 2015

Individual participants were selected from the borehole user data base using the random sampling process outlined in the monitoring plan. Sample sizes are in line with the Gold Standard requirements.

VVB confirms based on the above mentioned justification and also verified by VVB during the site visit that no HHs are transferring to other methods of water treatment, so argument for not accounting the leakage is reasonable.

Hygiene campaign – CME held four hygiene campaigns in four villages from four VPA respectively during this monitoring period. The first one was held in Dariar Digi village Ramu cell on 27/06/2022, the second one was held in Sonkhula village Cox’s Bazar cell on 06/07/2022, the third one was held in Dokkin Shairakhali Jolodash Para village Chakaria cell on 07/07/2022, the last one was held in Jolodas Para village Ramu cell on 08/07/2022. Each hygiene campaign was held with many habitants of villages. The agenda of campaign was:

- a) The campaign was started with greeting from village’s leader.
- b) Self-introduction of village administration committee leaders and local boreholes rehabilitation project staff.
- c) Presentation of prepared module related to Hygiene and Sanitation campaign done by an expert from the boreholes rehabilitation project.
- d) Questions, wishes and recommendations proposed by habitants.
- e) Community work of cleaning on boreholes.

The detailed description of the hygiene campaigns during this monitoring period has been provided in a separate document. The details were verified onsite by interviewing the users by using the acceptance sampling method.

The videos of the hygiene campaigns were furnished to the VVB and based on the review of videos, reconfirmation by HHs during the onsite inspection, it has been concluded that that the CME adhered the requirements of hygiene campaign.

Calculation of Emissions Reductions

Emissions reductions were calculated using the results of the, Usage Surveys and baseline survey, water quality test inter alia, taking into consideration values for NRB and leakage.

The monitoring has been carried out in accordance with the monitoring plan contained in the recent version of GS4GG POA/VPA-DDs/2/.

The verification team assessed the monitoring techniques and each monitoring value in the monitoring report; and provide a short summary on the verification of every parameter listed in the monitoring plan and used for calculation of emission reductions.

The monitored parameters of the project are in line with the recent version of GS4GG POA/VPA-DDs and the applied GS4GG methodology /6/. Brief descriptions of the monitored parameters are listed below:

Ex-Post Parameters:

3.5.1. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO₂e
Data/parameter	Q _{p,y}
Unit	Litres/person.day
Description	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day
Source of data	Water consumption field test Means of Verification by VVB:

	Database was verified by the VVB and confirmed that the capped value is used in the calculation of emission reductions. VVB undertaken the acceptance sampling to verify the appropriateness of CME's sampling during onsite inspection and concluded that the per person water consumption was higher than the capped value.
Value(s) applied	Capped at 7
Measurement methods and procedures	<p>The data obtained by WCFT through sampling survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)". The WCFT was conducted by CME and SOCIAL AID from 08/08/2022-01/09/2022. The actual value is 14.28L. According to the applied methodology, the cap value for full-day premises is 7. The actual value is much higher than the capped value. So we choose the smaller value between the cap value and the value from test for conservativeness. The result is 7.</p> <p>CME considered the 120 samples to monitor the value by taking 20 samples from each of 6 boreholes. The sampling/survey was undertaken by the trained staff of CME, the HH's selected for survey were distributed 20 litres jerrycans for water collection and then the CME's staff monitored the water consumption as part of survey.</p> <p>VVB also verified the water consumption during onsite audit and found no significant variation in both.</p> <p>Moreover the capped value of water consumption is used thus it also confirms the meeting of sampling reliability.</p>
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to no later than 29/07/2023 as per the applied methodology
QA/QC procedures	<p>Means of Verification by VVB: The trained staff of CME was deployed for the surveys and VVB interviewed the staff and found them knowledgeable and competent.</p>
Purpose of data	Calculation of CO ₂ e emissions reductions
Additional comment	-

3.5.2. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO₂e
Data/parameter	Q _{p,rawboil,y}
Unit	Litres per person per day
Description	Quantity of raw or unsafe water that is still boiled after installation of the water treatment technology.
Source of data	<p>Water consumption field test</p> <p>Means of Verification by VVB: Database was verified by the VVB and confirmed that the capped value is used in the calculation of emission reductions. VVB undertaken the acceptance sampling to verify the appropriateness</p>

	of CME's sampling during onsite inspection and concluded that the using of raw water boiling is no more in use after the rehabilitation of project boreholes.
Value(s) applied	0
Measurement methods and procedures	<p>Water Consumption Field Test</p> <p>Means of Verification by VVB: The data obtained by WCFT through sampling survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)". The WCFT was conducted by CME and SOCIAL AID from 08/08/2022-01/09/2022.</p> <p>CME considered the 120 samples to monitor the value by taking 20 samples from each of 6 boreholes. The sampling/survey was undertaken by the trained staff of CME, the HH's selected for survey were distributed 20 liters jerrycans for water collection and then the CME's staff monitored the water consumption during WCFT.</p> <p>Database was verified by the VVB and confirmed that the capped value is used in the calculation of emission reductions.</p> <p>VVB undertaken the acceptance sampling to verify the appropriateness of CME's sampling during onsite inspection and concluded that the using of raw water boiling is no more in use after the rehabilitation of project boreholes.</p> <p>VVB also verified the water consumption during onsite audit and found no significant variation in both.</p> <p>Moreover the capped value of water consumption is used thus it also confirms the meeting of sampling reliability.</p>
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to no later than 29/07/2023 as per the applied methodology.
QA/QC procedures	<p>Means of Verification by VVB: The trained staff of CME was deployed for the surveys and VVB interviewed the staff and found them knowledgeable and competent.</p>
Purpose of data	Calculation of CO ₂ e emissions reductions
Additional comment	Nil

3.5.3. Data/Parameter

Relevant SDG Indicator	SDG 13 (Climate Action), SDG 6 (Safe Water and Sanitation)
Data/parameter	$Q_{p, cleanboil, y}$
Unit	Litres per person per day
Description	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology.
Source of data	Water consumption field test

	<p><u>Means of Verification by VVB:</u> Database was verified by the VVB and confirmed that the capped value is used in the calculation of emission reductions. VVB undertaken the acceptance sampling to verify the appropriateness of CME's sampling during onsite inspection and concluded that the using of raw water boiling is no more in use after the rehabilitation of project boreholes.</p>
Value(s) applied	0
Measurement methods and procedures	<p>Water Consumption Field Test</p> <p><u>Means of Verification by VVB:</u> The data obtained by WCFT through sampling survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)". The WCFT was conducted by CME and SOCIAL AID from 08/08/2022-01/09/2022.</p> <p>CME considered the 120 samples to monitor the value by taking 20 samples from each of 6 boreholes. The sampling/survey was undertaken by the trained staff of CME, the HH's selected for survey were distributed 20 liters jerrycans for water collection and then the CME's staff monitored the water consumption during the survey. Database was verified by the VVB and confirmed that the capped value is used in the calculation of emission reductions.</p> <p>VVB undertaken the acceptance sampling to verify the appropriateness of CME's sampling during onsite inspection and concluded that the using of raw water boiling is no more in use after the rehabilitation of project boreholes.</p> <p>VVB also verified the water consumption during onsite audit and found no significant variation in both.</p> <p>Moreover the capped value of water consumption is used thus it also confirms the meeting of sampling reliability.</p>
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to no later than 29/07/2023 as per the applied methodology.
QA/QC procedures	<p><u>Means of Verification by VVB:</u> The trained staff of CME was deployed for the surveys and VVB interviewed the staff and found them knowledgeable and competent.</p>
Purpose of data	Calculation of CO ₂ e emissions reductions
Additional comment	Nil

3.5.4. Data/Parameter

Relevant SDG Indicator	SDG 6 (Clean Water and Sanitation) Indicator 6.1.1 – Proportion of population using safely managed drinking water services														
Data/parameter	Quality of the treated water														
Unit	As appropriate in alignment with QA/QC procedures														
Description	Performance of the treatment technology – less than 1 CFU of E.Coli / 100 ml of safe water														
Source of data	Water Quality Tests : [supporting documents 4,7 and 8]														
Value(s) applied	Acceptable														
Measurement methods and procedures	Water Quality Test														
Monitoring frequency	<p>Quarterly lab tests undertaken by the third party lab</p> <p>Means of Verification by VVB: The water test results were furnished to VVB and based on the submitted evidence. CME confirmed that they would undertake the tests in the accredited labs after 2 years as per the methodology to compare the results of current lab.</p> <p>Moreover, the methodology has the following monitoring requirements as the applied version 3.1 of TPDDTEC under monitoring parameter. verification approach of water quality was undertaken by the two step approach:</p> <ol style="list-style-type: none"> I. Review of all water quality reports issued by the third-party lab; II. Confirmation of the water quality sample collection through the interviews of village heads/users to confirm that the representative of third party collected the samples and villages head (primarily the custodian of boreholes) was informed or not. <p>Therefore, the verification of water quality test results through the review of 'Water Quality Reports' doesn't fall under the acceptance sample as 100% records were verified.</p> <table border="1" data-bbox="708 1352 1343 1727"> <tr> <td>Data / Parameter:</td> <td>Quality of the treated water</td> </tr> <tr> <td>Data unit:</td> <td>As appropriate in alignment with QA/QC procedures</td> </tr> <tr> <td>Description:</td> <td>Performance of the treatment technology - less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml of safe water</td> </tr> <tr> <td>Source of data:</td> <td>Water quality test</td> </tr> <tr> <td>Monitoring frequency:</td> <td>Quarterly</td> </tr> <tr> <td>QA/QC procedures:</td> <td>Transparent data analysis and reporting</td> </tr> <tr> <td>Any comment:</td> <td></td> </tr> </table> <p>Therefore, CME did not monitor the other parameters e.g pH, hard metals etc, however CME is in agreement that the all parameters shall be monitored from the next 'Performance Review. GS may raise a FAR in this regard.</p> <p>The protocol from the collection of sample till the final results are provided in the Annexure of the report and the same was verified during the onsite assessment by interviewing the personnel responsible.</p>	Data / Parameter:	Quality of the treated water	Data unit:	As appropriate in alignment with QA/QC procedures	Description:	Performance of the treatment technology - less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml of safe water	Source of data:	Water quality test	Monitoring frequency:	Quarterly	QA/QC procedures:	Transparent data analysis and reporting	Any comment:	
Data / Parameter:	Quality of the treated water														
Data unit:	As appropriate in alignment with QA/QC procedures														
Description:	Performance of the treatment technology - less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml of safe water														
Source of data:	Water quality test														
Monitoring frequency:	Quarterly														
QA/QC procedures:	Transparent data analysis and reporting														
Any comment:															

QA/QC procedures	<p>Means of Verification by VVB: The water test results were furnished to VVB and based on the submitted evidence VVB concluded that all the tests meets the requirements of methodology. Verification team also confirmed that the seasonal variance is also factored into the sampling of water quality tests as quarterly samples are taken into account, which demonstrates the coverage of representative season/s.</p>
Purpose of data	Criteria of methodology - To test water quality for safety of human consumption.
Additional comment	-

3.5.5. Data/Parameter

Relevant SDG Indicator	Value obtained in this monitoring period
Data/parameter	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p during year y
Source of data	Annual usage Surveys
Value(s) applied	100 %
Measurement methods and procedures	Field Study
Monitoring frequency	Annual, the above value is valid from 30/07/2021 to no later than 31/07/2022 as per the usage (project) survey
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of CO2 emission impact and SDG 6 impact
Additional comment	<p>$U_{p,y}$ is based on accumulative active connections at the end of the monitoring period, since it's first MP, no drop-off registered, hence $U_{p,y}$ is set to 1.</p> <p>Means of Verification by VVB: The survey results furnished to VVB and it was witnessed that no dropoff cases found. VVB also undertaken the acceptance sampling and found the similar trend during the onsite inspection.</p>

3.5.6. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO2e and SDG 6 / Indicator 6.1.1
Data/parameter	$N_{p,y}$
Unit	Persons.days
Description	Number of person.days consuming water supplied by project scenario p through year y
Source of data	D14-18 of sheet SDG13 of Excel table "1-SDG Outcomes Calculation Form-MP1st"

Value(s) applied	<table border="1"> <thead> <tr> <th>VPA No.</th> <th>Persons.days</th> </tr> </thead> <tbody> <tr> <td>VPA07</td> <td>4,393,389</td> </tr> <tr> <td>VPA08</td> <td>4,305,913</td> </tr> <tr> <td>VPA09</td> <td>4,394,453</td> </tr> <tr> <td>VPA10</td> <td>2,019,325</td> </tr> <tr> <td>Total</td> <td>15,113,080</td> </tr> </tbody> </table>		VPA No.	Persons.days	VPA07	4,393,389	VPA08	4,305,913	VPA09	4,394,453	VPA10	2,019,325	Total	15,113,080
	VPA No.	Persons.days												
	VPA07	4,393,389												
	VPA08	4,305,913												
	VPA09	4,394,453												
	VPA10	2,019,325												
Total	15,113,080													
Measurement methods and procedures	Calculated value based on the database records													
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to 31/07/2022 as per the maintenance log													
QA/QC procedures	Transparent data analysis and reporting													
Purpose of data	Calculation of CO ₂ e Emissions													
Additional comment	<p>Means of Verification by VVB:</p> <p>The data sources have been made available to the VVB. $N_{p,y}$ determined by multiplying the number of households serviced by average number of people per household in the sell D14-18 of sheet SDG13 of Excel table "1-SDG Outcomes Calculation Form-MP1st" respectively, all evidences shared with VVB. The calculation was found adequate by the VVB.</p>													

3.5.7. Data/Parameter

Relevant SDG Indicator	SDG 13/ Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	LE _{p,y}
Unit	tCO ₂ e per year
Description	Leakage in project scenario p during year y
Source of data	Baseline and monitoring surveys
Value(s) applied	0
Measurement methods and procedures	<p>Means of Verification:</p> <p>The potential sources of leakage listed in the methodology have been investigated, and addressed below:</p> <p>a) The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.</p> <p>The displaced baseline technology is three stones. It will not be reused outside the project boundary because it will still be used for cooking after the implementation of the Project. This leakage source can therefore be discounted.</p> <p>b) Non-project users who previously used lower emitting energy sources with NRB or fossil fuels saved under the project activity. The costs of low emitting water purification technologies, such as filtration and chlorination, are much higher than boiling with wood fuel. Users of these technologies are not price sensitive. Therefore, the implementation of the Project will not lead these users to boil water with wood fuel, even if the price of wood fuel becomes cheaper because of the reduction of demand caused by the Project. This leakage source can therefore be discounted.</p>

	<p>c) The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario. Considering that the project only saves 42,316 tons ($B_{b,y}$) of biomass annually while the total amount of above-ground biomass of Bangladesh is 177 million tons², the Project will not affect NRB fraction.</p> <p>d) The VPA population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology. The space heating effect of boiling water is negligible. Therefore it is highly unlikely that some other form of heating will be adopted for compensating the space heating effect of boiling water.</p> <p>e) By virtue of promotion and marketing of new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.</p> <p>The project will not promote any new technology with high efficiency. It will not stimulate people to boil water.</p> <p>Therefore, a value of 0 is applied for leakage during this monitoring period. Individual participants were selected from the borehole user data base using the random sampling process outlined in the monitoring plan. Sample sizes are in line with the Gold Standard requirements.</p> <p>VVB confirms based on the above mentioned justification and also verified by VVB during the site visit that no HHs are transferring to other methods of water treatment, so argument for not accounting the leakage is reasonable.</p>
Monitoring frequency	Biennially; the above value is valid from 30/07/2021 to no later than 31/07/2022 as per the monitoring report
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of leakage
Additional comment	No leakage

3.5.8. Data/Parameter

Relevant SDG Indicator	SDG 6 indicator 6.1.1
Data/parameter	Hygiene campaigns
Unit	Not Applicable
Description	Hygiene campaigns carried out among project technology users
Source of data	CME have held four hygiene campaigns in four villages from four VPA respectively during this monitoring period. The first one was held in Dariar Digi village Ramu cell on 27/06/2022, the second one was held in Sonkhula village Cox's Bazar cell on 06/07/2022,

² Table 18, Global Forest Resources Assessment 2015

	the third one was held in Dokkin Shairakhali Jolodash Para village Chakaria cell on 07/07/2022, the last one was held in Jolodas Para village Ramu cell on 08/07/2022.
Value(s) applied	<p>Completed</p> <p>Means of Verification:</p> <p>Through the review of videos and the interviews with the user during the onsite by asking the questions whether such campaign was undertaken or not. Moreover, the methodology of survey was also confirmed by the verification team during the onsite assessment. It was confirmed by the HHs that Hygiene campaign included the sanitation amenities, equipment and infrastructure, as well as to the behavior in respect to regular and correct use of such amenities. It also included the behavior aspects that prevents infections from water-related diseases. Which confirms the laid down requirements of methodology for 'Hygiene Campaign'</p> <p>During the assessment the verification team was also informed that the users did not suffer from any water borne illness after the use of borehole. This demonstrates the effectiveness of the campaign carried out by the CME.</p>
Measurement methods and procedures	Questionnaires and interviews are used in hygiene campaigns to assess hygienic handling of clean water.
Monitoring frequency	Annually
QA/QC procedures	
Purpose of data	Assessment of achievement of SDG 6
Additional comment	-

3.5.9. Data/Parameter

Relevant SDG Indicator	SDG 6 (Clean Water and Sanitation) Indicator 6.1.1 – Proportion of population using safely managed drinking water services													
Data/parameter	P _{p,y}													
Unit	Number													
Description	Number of persons consuming water within the project area during year y													
Source of data	Project survey													
Value(s) applied	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>VPA No.</th> <th>Py</th> </tr> </thead> <tbody> <tr> <td>VPA07</td> <td>13,929</td> </tr> <tr> <td>VPA08</td> <td>12,897</td> </tr> <tr> <td>VPA09</td> <td>14,368</td> </tr> <tr> <td>VPA10</td> <td>13,630</td> </tr> <tr> <td>Total</td> <td>54,824</td> </tr> </tbody> </table>		VPA No.	Py	VPA07	13,929	VPA08	12,897	VPA09	14,368	VPA10	13,630	Total	54,824
VPA No.	Py													
VPA07	13,929													
VPA08	12,897													
VPA09	14,368													
VPA10	13,630													
Total	54,824													
Measurement methods and procedures	<p>The data is obtained from WMC of each borehole as per Document "Sworn Statement"</p> <p>Means of Verification:</p>													

	The records verified by the VVB and also verified with the users during the onsite assessment, the sample 'Sworn Statement' also verified as part of acceptance sampling.
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to no later than 29/07/2023.
QA/QC procedures	-
Purpose of data	Calculations of CO ₂ e emission reductions
Additional comment	-

3.5.10. Data/Parameter

Relevant SDG Indicator	SDG 5
Data/parameter	T _{p,y}
Unit	Hour
Description	Time spent to fetch and purify water by women and girls per household per day in the project scenario during year y
Source of data	B128 of Excel table "2-Data Recording Form for Project Survey" Monitoring Survey
Value(s) applied	0.42
Measurement methods and procedures	The data is obtained by project survey through sampling survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)". The project survey was conducted by the CME and SOCIAL AID from 07/08/2022-31/08/2022 and the result is 0.42. Means of Verification: The records verified by the VVB and concluded that figure is correct. Based on the sectoral expertise VVB confirms that the figure is reasonable.
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to 31/07/2022 as per the project survey.
QA/QC procedures	N/A
Purpose of data	Calculation of SDGs
Additional comment	-

Relevant SDG Indicator	SDG 3
Data/parameter	I _{p,y}
Unit	Percentage
Description	Waterborne illness incidence in the project scenario during year y
Source of data	B127 of Excel table "2-Data Recording Form for Project Survey"
Value(s) applied	0
Measurement methods and procedures	The data is obtained by project survey through sampling survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and

	surveys for CDM project activities and programmes of activities (Version 04.0)". The project survey was conducted by the CME and SOCIAL AID from 07/08/2022-31/08/2022 and the result is 0. Means of Verification: The records verified by the VVB and concluded that figure is correct. The VVB also verified from the onsite inspection from the sampled HHs and it was concluded that no such cases identified. Moreover all the water quality tests undertaken by the third part also substantiates it.
Monitoring frequency	At least biennially; the above value is valid from 30/07/2021 to 31/07/2022 as per the project survey.
QA/QC procedures	N/A
Purpose of data	Calculation of SDGs
Additional comment	-

Opinion:

The adequacy and compliance of the monitoring plan in the Monitoring report was found as per the requirements laid by the monitoring methodology and the recent version of GS4GG POA/VPA-DDS. 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 applied methodology and recent version of GS4GG POA/VPA-DDS.

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

3.7.1. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e SDG 6 / Indicator 6.1.1
Data/parameter	Cj
Unit	Percentage
Description	Percentage of users of project technology who were already in baseline using a non-boiling safe water supply
Source of data	Baseline surveys The data was obtained through baseline survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)". The Baseline Survey was conducted by representative and random sampling during from 08/05/2021 to 22/05/2021. The result is 0 and validated by the validating VVB and approved by Sustaincert
Value(s) applied	0
Choice of data or Measurement methods and procedures	Deemed valid by the methodology
Purpose of data	Calculation of baseline and project emissions (SDG 13) as well as number of persons consuming safe water supplied by the Project (SDG 6)
Additional comment	

3.7.2. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	W _{b,y}
Unit	Tons/litre
Description	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of baseline scenario b during year y
Source of data	Default value
Value(s) applied	0.0004 (Default)
Choice of data or Measurement methods and procedures	The default value of W _{b,y} for firewood as per "Application of TPDDTEC Methodology to Safe Water Supply Projects"
Purpose of data	Calculation of baseline emissions
Additional comment	-

3.7.3. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	W _{p,y}
Unit	Tons/litre
Description	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of project scenario p during year y
Source of data	Default value
Value(s) applied	0.0004 (Default)
Choice of data or Measurement methods and procedures	According to the baseline and project survey, the same water boiling technology is applied in the baseline and project scenarios. So W _{b,y} and W _{p,y} are equal
Purpose of data	Calculation of project emissions
Additional comment	-

3.7.4. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	f _{NRB,b,y}
Unit	Percentage
Description	Fraction of biomass used that can be established as non – renewable biomass in the baseline scenario b during year y
Source of data	As per the "TOOL30: Calculation of the fraction of non-renewable biomass, version 3.0". Please refer to registered PDD.
Value(s) applied	95.76% (Validated by the validating VVB and approved by the Sustaincert)
Choice of data or Measurement methods and procedures	As per the "TOOL30: Calculation of the fraction of non-renewable biomass, version 3.0".

Purpose of data	Calculation of baseline emissions
Additional comment	

3.7.5. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	NCV _{i=firewood}
Unit	TJ/ton
Description	Net calorific value of firewood
Source of data	IPCC 2006 default for firewood
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by the methodology
Purpose of data	Estimation of CO ₂ e emissions reductions
Additional comment	-

3.7.6. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	EF _{b,fuel,co2}
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor of fuels used in the baseline scenario
Source of data	IPCC default value for Wood: IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion Page 2.23 Table 2.5
Value(s) applied	112
Choice of data or Measurement methods and procedures	According to the baseline survey, wood is the only fuel used in the baseline scenario.
Purpose of data	Calculation of baseline emissions
Additional comment	-

3.7.7. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	X _{boil(i)}
Unit	Percentage
Description	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary.
Source of data	Baseline survey in registered PDD
Value(s) applied	0
Choice of data or Measurement methods and procedures	The data is obtained through baseline survey as per the applied methodology as well as "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)" and "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)". The Baseline Survey was

	conducted by representative and random sampling during from 08/05/2021 to 22/05/2021. The result is 0.
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3.7.8. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	GWP _{CH4}
Unit	-
Description	Global warming potential for CH4
Source of data	IPCC Fifth Assessment Report: Climate Change 2014
Value(s) applied	28
Choice of data or Measurement methods and procedures	As per "IPCC Fifth Assessment Report: Climate Change 2014", the value is 28.

3.7.9. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	GWP _{N2O}
Unit	-
Description	Global warming potential for N2O
Source of data	IPCC Fifth Assessment Report: Climate Change 2014
Value(s) applied	265
Choice of data or Measurement methods and procedures	As per "IPCC Fifth Assessment Report: Climate Change 2014", the value is 265.

3.7.10. Data/Parameter

Relevant SDG Indicator	SDG 13 / Climate Change Mitigation measured as reduced tCO ₂ e
Data/parameter	EF _{b,fuel,non co2}
Unit	tCO ₂ /TJ
Description	Non CO ₂ emission factor of fuels used in the baseline scenario
Source of data	IPCC default value for Wood: IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion Page 2.23 Table 2.5 IPCC Fifth Assessment Report: Climate Change 2014
Value(s) applied	9.46
Choice of data or Measurement methods and procedures	According to the baseline survey, wood is the only fuel used in the baseline scenario. As per "IPCC 2006 Guidelines for National Greenhouse gas Inventories", the default emission factor of CH ₄ and N ₂ O for stationary combustion is 0.3t/TJ and 0.004t/TJ, respectively. As per "IPCC Fifth Assessment Report: Climate Change 2014", the global warming potential for CH ₄ and N ₂ O is 28 and 265, respectively. So $EF_{b,non\ co2} = 0.3 \times 28 + 0.004 \times 265 = 9.46$.

Relevant SDG Indicator		SDG 3 / Good Health and Well-Being
Data/parameter	I _b	
Unit	Percentage	
Description	Waterborne illness incidence in the baseline scenario	
Source of data	Baseline survey in the registered PDD	
Value(s) applied	62.90%	
Choice of data or Measurement methods and procedures	The data is obtained through baseline survey as per the applied methodology as well as “Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)” and “Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)”. The Baseline Survey was conducted by representative and random sampling during from 08/05/2021 to 22/05/2021. The result is 62.90%.	
Purpose of data	Calculation of reduction of waterborne illness incidence	
Additional comment	-	

Relevant SDG Indicator		SDG 5 / Gender Equality
Data/parameter	T _b	
Unit	Hour	
Description	Time spent to fetch and purify water by women and girls per household per day in the baseline scenario	
Source of data	Baseline survey in the registered PDD	
Value(s) applied	2.62	
Choice of data or Measurement methods and procedures	The data is obtained through baseline survey as per the applied methodology as well as “Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)” and “Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)”. The Baseline Survey was conducted by representative and random sampling during from 08/05/2021 to 22/05/2021. The result is 2.62.	
Purpose of data	Calculation of percentage reduction of time spent to fetch and purify water by women and girls	
Additional comment	-	

Findings:

CAR#02, CAR#03 & CAR#04 & CAR#05 were raised and closed. Refer section 7 for details of finding raised.

Opinion:

The default values applied were found to be consistent with the recent version of GS4GG POA/VPA-DDS/2/,/11/, applied methodology and other relevant sources of data. The values fixed at the time of validation were from IPCC report and few were conservative values.

3.7 Assessment of Data & calculation of GHG Emission Reductions

Discussion:

The project proponent submitted all the relevant data and parameters required to be monitored to the verification team along with the monitoring report. All the parameters required to be monitored as per the recent version of GS4GG VPA DDs/PoA DD have been monitored and reported in the monitoring report. Verification team has reviewed the calculation worksheet /3/ for the emission reduction calculation for the monitoring period as indicated at the cover page (including both the days). Verification team confirms that the formulas, conversions, aggregations and factors are consistent with the monitoring plan in the POA/VPA DDs. The reported data was checked as follows:

- All the necessary data and all the parameters required to be monitored in the recent version of GS4GG VPA-DDS //14/, /2// were reviewed to ensure accuracy.

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

VPA No.	B _{b,y}
VPA07	12,301.49
VPA08	12,056.56
VPA09	12,304.47
VPA10	5,654.11
Total	42,316.62

Parameter	Description	Unit	Value	Verification Remarks										
B _{b,i,y}	Quantity of fuel consumed in baseline scenario b during the year in tons	ton	<table border="1"> <tr> <td>VPA07</td> <td>12,301.49</td> </tr> <tr> <td>VPA08</td> <td>12,056.56</td> </tr> <tr> <td>VPA09</td> <td>12,304.47</td> </tr> <tr> <td>VPA10</td> <td>5,654.11</td> </tr> <tr> <td>Total</td> <td>42,316.62</td> </tr> </table>	VPA07	12,301.49	VPA08	12,056.56	VPA09	12,304.47	VPA10	5,654.11	Total	42,316.62	Formula in line with TPDDTEC, V3.1 Calculated value presented in ER spreadsheet, VVB confirms that the calculation complies with the methodology as well as the approach registered in VPA-DDs.
VPA07	12,301.49													
VPA08	12,056.56													
VPA09	12,304.47													
VPA10	5,654.11													
Total	42,316.62													
f _{NRB,b,y}	Fraction of biomass used that can be established as non – renewable biomass in the baseline scenario b during year y	fraction	0.9576	f _{NRB} determined by complying the tool 30 of CDM, refer the assessment above regarding appropriateness of value.										
NCV _{b,fuel}	Net calorific value of fuels used in the baseline scenario	TJ/ton	0.0156	<ul style="list-style-type: none"> IPCC 2006 default for firewood The Value is in line with PoA DD/VPA-DDS 										
EF _{p,fuel,co2}	CO2 emission factor of fuels used in the project scenario	tCO2/TJ	112.00	<ul style="list-style-type: none"> IPCC 2006 default for firewood The Value is in line with PoA DD/VPA-DDS 										
EF _{b,fuel,non co2}	Non-CO2 emission factor of fuels used in the baseline scenario	tCO2/TJ	9.46	<ul style="list-style-type: none"> IPCC 2006 default for firewood 										



				<ul style="list-style-type: none">• The Value is in line with PoA DD/VPA-DDS
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SDG 3: Good health and well-being

The outcome of SDG 3 is quantified as the reduction of waterborne illness incidence compared to baseline scenario. The waterborne illness incidence in the baseline scenario is 62.90% according to Baseline Survey and this has been validated by the validating VVB.

SDG 5: Gender equality

The outcome of SDG 5 is quantified as percentage reduction of time spent to fetch and purify water by women and girls. The time spent to fetch and purify water by women and girls per household in the baseline scenario is 2.62 hour according to Baseline Survey and this has been validated by the validating VVB.

SDG 6: Clean Water and Sanitation

The outcome of SDG 6 is quantified as number of persons consuming safe water supplied by the project, the direct outcome is calculated, section E.2 of MR and also verified by the VVB in previous sections.

Project emission: **Project Scenario**

SDG 13: Climate Action

Project Scenario Fuel Consumption Calculation

$$B_{p,y} = (1 - C_j) * N_{p,y} * W_{p,y} * (Q_{p,rawboil,y} + Q_{p,cleanboil,y}) \quad (3)$$

Where:

- $B_{p,y}$ Quantity of fuel f consumed in project scenario p during the year y in tons
- C_j Percentage of users of project technology who were already in baseline scenario using a non-boiling safe water supply; the applied value is 0 as per section D.1.
- $N_{p,y}$ Number of person.days consuming water supplied by project scenario p through year y; the applied value as per Section D.2.
- $W_{p,y}$ Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y as per baseline water boiling Test; the applied value is 0.0004 as per Section D.1.
- $Q_{p,rawboil,y}$ Quantity of raw water boiled in the project scenario p per person per day; the applied value is 0 as per Section D.2.
- $Q_{p,cleanboil,y}$ Quantity of safe water boiled in the project scenario p per person per day in year y; the applied value is 0 as per Section D.2.

As a result, $B_{p,y} = 0$ t

Project Emission Reductions:

$$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,non-CO2}) * NCV_{p,fuel} \quad (4)$$

Where:

- $BE_{b,y}$ Baseline emissions during year y
- $PE_{p,y}$ Project emissions during year y
- $B_{p,y}$ Quantity of fuel consumed in project scenario p during the year y in tons; the applied value is 0 as per calculation in this section above;
- $f_{NRB,p,y}$ Fraction of biomass used that can be established as non-renewable biomass in project scenario p during year y; the applied value is 0.9576 as per section D.1.
- $EF_{b,fuel,non-CO2}$ Non-CO₂ emission factor of fuels used in the baseline scenario; the applied value is 9.46 as per section D.1.

$EF_{p,fuel,CO_2}$	CO ₂ emission factor of fuels used in the project scenario; the applied value is 112 as per section D.1.
$EF_{p,fuel,non-CO_2}$	Non-CO ₂ emission factor of fuels used in the project scenario; the applied value is 9.46 as per section D.1.
$NCV_{p,fuel}$	Net calorific value of fuels used in the project scenario; the applied value is 0.0156 as per section D.1.
ER_y	Overall emission reductions achieved by the project activity during year y
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate; the applied value is 100% as per section D.2.
$LE_{p,y}$	Leakage from project scenario p during year y; the applied value 0 as per section D.2.

As a result, $PE_{p,y} = 0$ tCO₂e

SDG 3: Good health and well-being

The outcome of SDG 3 is quantified as the reduction of waterborne illness incidence compared to baseline scenario, which is calculated as follows:

$$I_{r,y} = I_b - I_{p,y} \quad (5)$$

Where:

$I_{r,y}$	Reduction of waterborne illness incidence in year y
I_b	Waterborne illness incidence in the baseline scenario; the applied value is 62.90% as per section D.1.
$I_{p,y}$	Waterborne illness incidence in the project scenario during year y; the applied value is 0 as per section D.2.

As a result, $I_{r,y} = 62.90\%$

SDG 5: Gender equality

The outcome of SDG 5 is quantified as percentage reduction of time spent to fetch and purify water by women and girls, which is calculated as follows:

$$T_{r,y} = (T_b - T_{p,y})/T_b \quad (6)$$

Where:

$T_{r,y}$	Percentage reduction of time spent to fetch and purify water by women and girls in year y
T_b	Time spent to fetch and purify water by women and girls per household in the baseline scenario; the applied value is 2.62 as per section D.1.
$T_{p,y}$	Time spent to fetch and purify water by women and girls per household in the project scenario during year y; the applied value is 0.42 as per section D.2.

As a result, $T_{r,y} = 83.97\%$

SDG 6: Clean Water and Sanitation

The outcome of SDG 6 is quantified as number of persons consuming safe water supplied by the Project, which is calculated as follows:

$$P_y = P_{p,y} * (1 - C_j) * U_{p,y} \quad (7)$$

Where

P_y	Number of additional persons consuming safe water supplied by the Project compared to the baseline scenario during year y
-------	---

- $P_{p,y}$ Number of persons consuming water within the project area during year y; the applied value as per section D.2.
- C_j Percentage of users of project technology who were already in baseline scenario using a non-boiling safe water supply; the applied value is 0 as per section D.1.
- $U_{p,y}$ Cumulative usage rate for technologies in project scenario p during year y; the applied value is 100% as per section D.2.

As a result, P_y is shown as follows:

VPA No.	P_y
VPA07	13,929
VPA08	12,897
VPA09	14,368
VPA10	13,630
Total	54,824

Findings:

No findings raised.

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 PoA/VPA-DDs for the duration of monitoring period.
- 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 registered PoA/VPA-DDs.
- 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.

3.8 Quality of Evidence to Determine Emission Reductions

The evidence (documents/interview/physical assessment) 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.

3.9 Management System and Quality Assurance

Verification team evaluated the management systems in place to implement the monitoring of the project activity. This included the organizational structure, roles and responsibilities, data collection, transfer and aggregation procedures, training of personnel, data storage and archiving and emergency procedures for the monitoring system. Based on physical onsite interview with the employee of CMEs/PP, involved in the project monitoring and data collection, inspection of data storage logbook & equipment's and document review. All surveys are administered by trained CME, local to the area and conversant in the local dialects to ensure that responses were consistent and not biased by any regional language barriers. Verification team can confirm that the responsibilities and authorities for monitoring and reporting are appropriate and effective for the project type and hence in accordance with monitoring plan of the registered POA/VPA-DDs and applied monitoring methodology.

3.10 Status of Stakeholder consultation & implementation of continuous input/ Grievance mechanism & feedback received

Stakeholder consultation report (SCR) verified by the VVB which was approved by GS during project design review, stakeholders of Category A-G of “Stakeholder Consultation and Engagement Requirements”. It was concluded that the relevant stakeholders have been identified and invited and validated by the validating VVB during the design certification.

According to Section B.1.1 and B.1.3 of the SCR available on the GS registry along with the validation reports of the VPAs, various inviting methods were applied for the stakeholder consultation meeting. For the convenience of villagers, an invitation letter in both English and Bengali was sent to them through broadcast in villages. For some local people, invitation letters were sent to them as formal invitation. Other invitees were invited by email.

The following was validated by the verification team during the review of validated ‘Stakeholder Consultation Report’ and the interview with CME:

- a. The first way is to use the phone and they could report problems concerning the project by phone. The following phone numbers were provided to participants:
 - a. Engr. Md. Babul Aktar: +88-01712080178
 - b. Md Maruf: 01887670849
 - c. Md Rashel: 01889528429
 - d. Md Rashed: 01827-041033
 - e. Nuri Akter: 01839566480
 - f. Md Kamal Uddin: 01818138805
- b. The second way is to put books The offices of all the villages where the VPA has been implemented. The representatives of Social Aid will monthly check the books to see the problems reported and find solutions with users:
- c. The third way is to visit physically the boreholes locations and discuss with water management committees and users onsite.

According to Section E of the SCR, a linkage (<http://www.icebergchina.com/contents/86/237.html>) has been created for providing feedback. An email was sent to stakeholders to invite them to provide feedback.

According to B.1.5 of the SCR, other means and methods to provide feedback for those who are not able to join the consultation meeting are as follows:

The following email addresses are provided for those who are not able to join the consultation meeting to provide feedback:

Iceberg: Mr. Ji BAO baoji@icebergchina.com

Social Aid: Engr. Md. Babul Aktar: ed@socialaid.org.bd

If stakeholders have no access to internet and emails, there are several ways that have been adopted to keep contact between the users of boreholes and the Iceberg and Social Aid.

There is a continuous input/grievance mechanism in place for beneficiaries to be able to give feedback on the project. No grievance received during the monitoring period as confirmed by the CME during the physical assessment and also the same has been confirmed by the end users during the physical assessment.

In Section G.1 of MR, CME listed all input and grievance mechanism and verified by the VVB during the onsite assessment. Various ways to ensure representation from all the categories under each of the 4 VPAs for inputs and grievances and approved by the GS as all the 4 VPAs were design certified and included through the VVB validation. The Continuous Input Grievance Expression Process Books have been put in all the villages where the VPA has been implemented. In addition, phone No. and emails address have been left for timely connection. Section G.1 of the MR has been revised

accordingly. A photo of a Continuous Input Grievance Expression Process Book has been submitted to VVB, VVB found that households are aware of the feedback mechanism and no grievance raised during the current verification.

4. RECOMMEDATIONS / FORWARD ACTION REQUEST

No FAR has been raised during this monitoring period.

5. VERIFICATION & CERTIFICATION STATEMENT

KBS Certification Services Pvt. Ltd. has been contracted by Guangzhou Iceberg Environmental Consulting Services Co., Ltd. to undertake independent verification and certification for the SDGs reported from the Guangzhou Iceberg Environmental Consulting Services Co., Ltd., GS 11150, GS 11151, GS 11152, GS 11153 for the monitoring period in the Monitoring Report Version 01 (first version):

VPA No.	Start date	End date
VPA07	30/07/2021	31/07/2022
VPA08	08/08/2021	31/07/2022
VPA09	11/09/2021	31/07/2022
VPA10	27/02/2022	31/07/2022

The verification is based on the registered POA/VPA-DDS 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 Guangzhou Iceberg Environmental Consulting Services Co., Ltd. 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 03 dated 27/12/2022. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Guangzhou Iceberg Environmental Consulting Services Co., Ltd.. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 03 dated 27/12/2022.

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 as stated above based on the reported emission reductions in the Final Monitoring Report Version 03 dated 27/12/2022 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, 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:

VPA No.	Start date	End date
VPA07	30/07/2021	31/07/2022
VPA08	08/08/2021	31/07/2022
VPA09	11/09/2021	31/07/2022
VPA10	27/02/2022	31/07/2022

Verified and certified SDGs in the above reporting period:

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
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SDG 13 Climate Action	Emissions Reductions	<table border="1"> <thead> <tr> <th>VP A No.</th> <th>Start Dates</th> <th>End Dates</th> <th>ERs</th> </tr> </thead> <tbody> <tr> <td>07</td> <td>30/07/2021</td> <td>31/12/2021</td> <td>9,459</td> </tr> <tr> <td></td> <td>01/01/2022</td> <td>31/07/2022</td> <td>12,938</td> </tr> <tr> <td>08</td> <td>08/08/2021</td> <td>31/12/2021</td> <td>8,952</td> </tr> <tr> <td></td> <td>01/01/2022</td> <td>31/07/2022</td> <td>12,999</td> </tr> <tr> <td>09</td> <td>11/09/2021</td> <td>31/12/2021</td> <td>7,744</td> </tr> <tr> <td></td> <td>01/01/2022</td> <td>31/07/2022</td> <td>14,658</td> </tr> <tr> <td>10</td> <td>27/02/2022</td> <td>31/07/2022</td> <td>10,294</td> </tr> <tr> <td></td> <td></td> <td>Total</td> <td>77,044</td> </tr> </tbody> </table>				VP A No.	Start Dates	End Dates	ERs	07	30/07/2021	31/12/2021	9,459		01/01/2022	31/07/2022	12,938	08	08/08/2021	31/12/2021	8,952		01/01/2022	31/07/2022	12,999	09	11/09/2021	31/12/2021	7,744		01/01/2022	31/07/2022	14,658	10	27/02/2022	31/07/2022	10,294			Total	77,044	VERs
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SDG 3 – Good Health and Well-Being	Reduce the incidence of waterborne illness within the project area	62.90%		Percentage																																						
SDG 5 – Achieve gender equality and empower all women and girls	Reduce the time spent to fetch and purify water by women and girls	83.97%		Women having more time for self-empowerment																																						
SDG 6 – Ensure availability and sustainable management of water and sanitation for all.	Provide safe water to local residents	<table border="1"> <tbody> <tr> <td>VPA07</td> <td>13,929</td> </tr> <tr> <td>VPA08</td> <td>12,897</td> </tr> <tr> <td>VPA09</td> <td>14,368</td> </tr> <tr> <td>VPA10</td> <td>13,630</td> </tr> <tr> <td>Total</td> <td>54,824</td> </tr> </tbody> </table>		VPA07	13,929	VPA08	12,897	VPA09	14,368	VPA10	13,630	Total	54,824	Additional people using safe water																												
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Location: Faridabad

Date: 02/03/2023



Kaushal Goyal

Managing Director

KBS Certification Services Pvt. Ltd.

6. REFERENCES

S. No.	Name of document
/1/	/1.1/ Initial Monitoring Report, 01 dated 09/10/2022 /1.2/ Intermediate Monitoring Report, version 02 dated 30/11/2022 /1.3/ Final Monitoring Report, version 03 dated 27/12/2022 /1.4/ Final Monitoring Report, version 04 dated 20/02/2023
/2/	- VPA Final VPA-DDs Version 09 dated 14/03/2022 - Stakeholder Consultation Reports for the VPAs
/3/	/3.1/ ER spreadsheets corresponding to initial MR /3.2/ ER spreadsheets corresponding to Final MR
/4/	<ul style="list-style-type: none"> • GS4GG Principles & Requirements, Version 1.2 dated October 2019 https://globalgoals.goldstandard.org/100-principles-and-requirements/ • GS4GG-Stakeholder Consultation and engagement Requirements Guidelines, v1.2' https://globalgoals.goldstandard.org/102-par-stakeholder-consultation-requirements/ • GS4GG 'Community Services Activity-Requirements', v1.2 https://globalgoals.goldstandard.org/standards/201_V1.2_AR_Community-Services-Activity-Requirements.pdf • Safeguarding Principles & Requirements, v1.2 https://globalgoals.goldstandard.org/103-par-safeguarding-principles-requirements/ • COVID 19 Interim measures • Gold Standard for Global Goals - Programme of Activity Requirements, Version 1.2. https://www.goldstandard.org/project-developers/standard-documents
/5/	WHO criteria for Water Quality (Rules & regulations)
/6/	<ol style="list-style-type: none"> 1) Gold Standard Methodology: "Technologies and Practices to displace decentralized thermal energy consumption" Version 03.1 https://globalgoals.goldstandard.org/407-ee-ics-technologies-and-practices-to-displace-decentralized-thermal-energy-tpddtec-consumption/ 2) "Tool for the demonstration and assessment of additionality (Version 7)" 3) https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf 4) Updated [2018] Environment Impact Assessment and Regulations, 2005 [G.N. No 349/2005] 5) "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities" version 09 6) "Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities, Version 04.0
/7/	Declaration confirming that there is no double counting
/8/	Technical specification manual of boreholes
/9/	Project database Bangladesh: VPA
/10/	Baseline surveys as part of VPA validation
/11/	Sworn Agreements signed between CME and user
/12/	Project Survey Reports/forms
/13/	Water Testing Procedures (Confirmed through Onsite Assessment)

/14/	Final PoA-DD, Version 5.0 dated 15/09/2021
/15/	Sampling and sample size sheet includes screen shot of randomizers etc
/16/	2006 IPCC Guidelines for National Greenhouse Gas Inventories volume 2, chapter 1 https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
/17/	WASH related documents
/18/	Water Quality Test (WQT) Reports issued by, 'Water Quality Testing Laboratory' Lab Code CD-28-20/40, Dhaka
/19/	http://onlinelibrary.wiley.com/doi/10.1002/2014WR016770/pdf 5 https://washdata.org/data
/20/	Reports of Hygine campaign undertaken
/21/	Maintenance Log of Boreholes
/22/	Video evidence of project surveys by the surveyors

7. FINDINGS DOCUMENT

Summary of findings	CAR	CL	FAR
	05	07	04

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

(Applicable for verification)

FAR ID	01	Section no.	GS Review Form	Date: 25/11/2022
Description of FAR				
VVB is required to check for double counting at both validation and verification stages by reviewing all relevant registries that could hold RECs/VERs/CERs from the considered project activity. CME shall furnish a declaration to this effect that the project is claiming no GHG benefits in other schemes.				
Project participant response		Date: 30/11/2022		
The CME has submitted a declaration that the project is claiming no GHG benefits in other schemes as Document 19.				
Documentation provided by project participant				
Document 19-Declaration of No Double Counting_20221130				
DOE assessment			Date: 12/12/2022	
VVB would like to clarify that the other GHG registries explored and it was found that none of the VPA covered by the monitoring report are part of any GHG scheme. Moreover VVB also surveyed the HHs as part of acceptance sampling and asked the question that whether they are registered with any other project to verify the query raised in FAR. Therefore based on the websearch and acceptance sampling VVB confirms that the VPA are not part of any GHG registries. Thus, this FAR is closed.				

FAR ID	02	Section no.	GS Review Form	Date: 25/11/2022
Description of FAR				
During the verification it also needs to be checked that the emission reductions are not claimed for the case when the borehole water is used for any other purpose than the above stated consumption (limited to drinking, cooking and basic personal hygiene). CME shall furnish the evidence of non-claiming of ERs by the other activities other than drinking water.				
Project participant response		Date: 30/11/2022		
During the water consumption field test, the purpose of water is strictly limited to drinking, food preparation and basic personal hygiene. The staff has been trained and they have explained to the users exactly.				
Documentation provided by project participant				
12-Water Consumption Field Test-Bangladesh borehole				
DOE assessment			Date: 12/12/2022	



VVB would like to clarify that acceptance sampling was used and interviews were carried out to verify that HHs are not using the water for any other purpose other than drinking and cooking. Based on the VVB's survey, PP's survey and interviews with the end user it is concluded that water for the other use is not accounted in ER calculations other the drinking and cooking purpose. **Thus, this FAR is closed.**

FAR ID	03	Section no.	GS Review Form	Date: 25/11/2022
Description of FAR				
<p>The treatment capacity limits of project technology/source are required to be monitored to ensure that the water consumption level applied for emission reductions must not be greater than the treatment capacity of the project technology/sources.</p> <p>CME shall furnish the evidence of such monitoring during the verification.</p>				
Project participant response		Date: 30/11/2022		
<p>The CME has conducted a test on capacity of project borehole. It needed about 30 seconds to fill an empty 10L bucket. So in a whole day it can supply water for 1,000 persons as per the water consumption field test. The video has been submitted as Document 13.</p>				
Documentation provided by project participant				
13-Video of water capacity test.				
DOE assessment		Date: 12/12/2022		
<p>Based on the video evidence furnished by CME, VVB itself calculated the time for filling a water bucket/jerkin. Based on the recorded evidence and onsite audit, VVB confirms that the project didn't claim any overcapacity. Moreover, the water volume for the ex-post ERs is capped as per the GS methodology. Thus, FAR is closed.</p>				

FAR ID	04	Section no.	GS Review Form	Date: 25/11/2022
Description of FAR				
<p>The PP shall monitor the accessibility of local people to all nearby boreholes from the proposed project and other existing boreholes.</p> <p>CME shall furnish the evidence of such monitoring during the verification.</p>				
Project participant response		Date: 30/11/2022		
<p>The water management committees have confirmed that the end users considered in the project only use the project boreholes rather than other existing boreholes. Households who use other water sources have been excluded from the number recorded in the MR. This situation is also reflected in Sworn Statement, which is in Document 14.</p>				
Documentation provided by project participant				
Sworn Statement				
DOE assessment		Date: 12/12/2022		
<p>During the onsite audit, VVB observed that there are no other water sources that includes boreholes, government/municipality/corporation water lines in the project areas wherein the VVB undertaken the acceptance sampling as part of onsite assessment. The boreholes are installed for the poor communities who are residing in remote locations. VVB undertaken an acceptance sampling to confirm the query raised in FAR during the site visit also confirmed through the 'Sworn Statements' signed off by the users. CME confirmed that the HHs who are using the other source are excluded from their database, this was confirmed from the question asked to user during the onsite assessment. None of project locality wherein VVB visited was found connected with any safe water access point other than the project borehole wherein the VVB visited. FAR is closed.</p>				

Table 2. CL from this validation/verification

CL ID	01	Section no.	Cover Page	Date: 25/11/2022
Description of CL				
CME has not filled the cover page pertaining to the POA as per the MR template, CME shall adhere all the section required by the MR filling guidelines.				
Project participant response				Date: 28/11/2022
The table has been added in cover page.				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date: 12/12/2022
The revised MR includes all the sections and the informaion is filled therein as per the MR filling guide. Thus, this CL is closed.				

CL ID	02	Section no.	MR Templete	Date: 25/11/2022
Description of CL				
<p>a) The version number of PoA DD and VPA DD shall be consistent with the approved versions available on the GS registry. MR states version 09 of the VPA DD however version 10 is also available on the GS registry.</p> <p>b) The date of design certification for PoA along with the CPAs covered by the monitoring report shall be reported at the cover page of MR.</p> <p>c) Annual report data is mentioned as N/A at the cover page, rationale shall be provided for the non-application.</p> <p>d) Crediting period stat date and end date both shall be reported in section A.4 of MR. Refer the MR filling guideline for the same.</p>				
Project participant response				Date: 28/11/2022
<p>a) The version of the latest is 9, which has been submitted as Document 15. Please re-check it.</p> <p>b) The dates of design certification for PoA and VPA are the same, which are reported at the cover page of MR in the latest version.</p> <p>c) We have not submitted the Annual report to GS yet. According to the related rule, if we can finish the verification by December, we do not need to submit it.</p> <p>d) The MR has been modified in section A.4.</p>				
Documentation provided by project participant				
Document 15-GS10959 VPA07 Safe Water Project in Bangladesh I VPA DD Ver 09				
DOE assessment				Date: 12/12/2022
<p>a) Version 09 has been submitted and udated in MR pertaining to VPA DDs, the correction along with submission of revised VPA DDs are addressing the finding.</p> <p>b) The dates are now reported at the cover page pertaining to the design certification. Finding is closed now.</p> <p>c) The justification is accepted, finding is closed.</p> <p>d) Section A.4 of revised MR now adhered the requirements of MR filling guide, finding is closed now.</p>				
Thus, this CL is closed.				

CL ID	03	Section no.	Section C	Date: 25/11/2022
Description of CL				
<p>CME shall clarify how the how the samples were selected for each of the monitored parameter subject to sampling. While doing so CME shall also report what criteria adopted for the sampling in terms of required confidence/precision, expected deviation, mean in terms of sampling requirements.</p> <p>The entire sampling shall also report that how CME has ensured that the chosen sample size and results met the desired confidence/precision .</p>				
Project participant response				Date: 28/11/2022
<p>The samples were selected by Simple Random Sampling in water quality test. We used equation (1) of "Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)" to calculate the sample size. The result is 17.76. Furthermore, according to paragraph 14 of "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)", a minimum sample size of 30 shall be chosen. So we chose 40 samples out of 139 boreholes to ensure the precision. For project survey and usage survey, we used systematic sampling. 120 user households from 6 boreholes can meet 95/10 as per Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0) and "Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09.0)". This part has been added in section C of the latest version of MR.</p>				
Documentation provided by project participant				
Revised MR.				
DOE assessment				Date: 12/12/2022
<p>The criteria for the sample selection is now part of updated MR. PP had considered the adequate sample size, VVB independently varified the same with the CDM sampling calculator.</p> <p>Thus, this CL is closed,based on the revised information provided and updated MR.</p>				

CL ID	04	Section no.	Section C	Date: 25/11/2022
Description of CL				
<p>It was verified during the site visit that the water quality tests were undertaken by the unaccredited lab, therefore the methodology adopted for tests is not part of lab reports. CME shall furnish the methodology adopted by the third part labs and the approval of lab/s by the competent authorities?</p>				
Project participant response				Date: 28/11/2022
<p>We will discuss with the lab to confirm if it can meet the related requirements. If not, we will test water quality by a lab with accreditation from competent authorities before two years from the start date according to the requirement of the applied methodology.</p>				
Documentation provided by project participant				
Revised MR.				
DOE assessment				Date: 12/12/2022
<p>Since the tests were undertaken in third party labs, VVB during the site visit raised this query with the project implementer. Based on the information provided by Engineer Babul Aktar, regarding the appointment of third party lab, their methodology of sample collection inter alia, VVB is staified with the results. Thus, this CL is closed.</p>				

CL ID	05	Section no.	Section C	Date: 12/12/2022
Description of CL				
<p>The CME shall clarify how the methodology requirement was met for the usage survey of borehole: "The minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited" and also report how the selected boreholes could be representative for the operational status of all boreholes. This shall be part of monitoring report.</p>				
Project participant response				Date: 28/11/2022

<p>There are two guidelines for usage survey of applied methodology. Annex 9 “Guidelines for carrying out usage surveys for projects implementing household water filtration technologies” and Annex 10 “Requirements and Guidelines for carrying out usage surveys for projects implementing improved cooking devices”, neither of them is applicable for this parameter. How the selected user households could be representative for the operational status of all boreholes is clarified in “Project Survey” part of Section C of the MR. In addition, our local partner maintains all the boreholes continuously. If they find or are noticed by the water management committees that any borehole is out of work, they will fix it as soon as possible, which has been proved by Document 5.</p>
<p>Documentation provided by project participant</p> <p>Document 5-Maintenance Log</p>
<p>DOE assessment Date: 12/12/2022</p> <p>Based on the information provided by the CME, review of the document furnished by the VVB and the dates of rehabilitation of boreholes under the projects. It was observed that the boreholes are repaired/rehabilitated in recent time therefore they doesn't constitute more than one age group. The sampling for the 1 age group is adequate in view of VVB. Thus, this CL is closed.</p>

CL ID	06	Section no.	Section C	Date: 25/11/2022
Description of CL				
CME shall submit the complete database to VVB in order to verify the monitored parameter $N_{p,y}$. SDG spreadsheet has a summary, however the complete database shall be furnished for the further verification.				
Project participant response				Date: 28/11/2022
The complete database has been submitted as document “17-Borehole Information”, please refer to it.				
Documentation provided by project participant				
17-Borehole Information				
DOE assessment				Date: 12/12/2022
CME has submitted the complete database for the verification of VVB, based on the review of database and its application in computing the SDGs, VVB close the finding. The database is complete and also verified through the acceptance test undertaken during onsite inspection. Thus, CL is closed.				

CL ID	07	Section no.	Section C	Date: 12/12/2022
Description of CL				
CME shall furnish the date of rehabilitation of the sampled borehole by VVB during the site visit, please also furnish the carbon waiver forms of the sampled HHs during the onsite inspection.				
Project participant response				Date: 28/11/2022
The document has been submitted as Document 18.				
Documentation provided by project participant				
Document 18-Bangladesh Borehole Carbon Transfer Agreements for 23 households				
DOE assessment				Date: 12/12/2022
Document-18 furnished by the CME is reviewed and compared with the database for the compliance with the acceptance sampling. There is no discrepancy between the database and the submitted carbon waivers and rehabilitation evidence. Thus, CL is closed.				

Table 3. CAR from this validation/verification

CAR ID	01	Section no.	Table 1	Date: 25/11/2022
Description of CAR				
The units of the SDG#13 is mentioned as VERs in table 1 of MR, the reporting is not align with the MR filling guidelines. The units shall be in tCO _{2e} .				
Project participant response				Date: 30/11/2022
According to the Template Guide of Monitoring Report version 1.1, the units of SDG#13 is VERs. So we use VERs in table 1. Please re-check it.				
Documentation provided by project participant				
Revised MR.				
DOE assessment				Date: 12/12/2022
The units have been revised and now the uptaed MR complying with the MR filling guide perating to the section. Thus, this CAR is closed.				

CAR ID	02	Section no.	Section D.2	Date: 25/11/2022
Description of CAR				
For the reporting of monitored parameter, 'Q _{p,y} ' default value of 7 litres/person is reported based on the conservative grounds. However, the MR doesn't include the actual value of the cited parameter monitored during the survey. The same shall be calculated and demonstrated in the SDG sheet.				
Project participant response				Date: 30/11/2022
The actual value has been calculated and demonstrated in grid L123 of latest version of document " 3-Data Recording Form for WCFT_Bangladesh". The data has also been added in Section D.2 of the MR.				
Documentation provided by project participant				
Document 3-Data Recording Form for WCFT_Bangladesh				
DOE assessment				Date: 12/12/2022
The revsied MR now includes the comparision between actual vauue monitored and then capped value. The information is adequately meeting the monitoring requirement. Thus, this CAR is closed.				

CAR ID	03	Section no.	Table 2	Date: 25/11/2022
Description of CAR				
Table 2 is not filled as per the MR filling guideline, the monitoring period is falling across two vintages 2021 & 2022, the reporting is not aligned with the vintage. Moreover, CME shall report the SDG#13 corresponding to each VPA. Refer the MR filling guideline available on GS website.				
Project participant response				Date: 30/11/2022
The table 2 has been modified.				
Documentation provided by project participant				
Revised MR.				
DOE assessment				Date: 12/12/2022
Vintagewise breakdown of VERs are now reported in MR, the quantification is adequate with respect to the vintage falling in the monitoring period. Thus, this CAR is closed.				

CAR ID	04	Section no.	Section D.2	Date: 25/11/2022
Description of CAR				
Monitoring frequency is mentioned for the monitored parameters Q _{p,rawboil,y} , Q _{p,y} etc. as biennial. CME shall further clarify in MR how the monitoring is complying with the biennial sampling with respect to the chosen monitoring period by each VPA. Moreover for the parameters U _{p,y} , I _{p,y} etc the				

monitoring frequency is annual, CME shall also report how the annual frequency complied for the parameters which were to be monitored annually.	
Project participant response	Date: 30/11/2022
The validity period of each parameter through tests and surveys has been added in Section D.2 of the MR.	
Documentation provided by project participant	
Revised MR.	
DOE assessment	Date: 12/12/2022
The information on the biennial frequency is more transparently included in the revised MR, it has been verified the monitored frequency is within the required frequency as per the registered monitoring plan. Thus, this CAR is closed.	

CAR ID	05	Section no.	Section D.2	Date: 25/11/2022
Description of CAR				
For the monitored $T_{p,y}$ the value is mentioned as 0.42 hours, however VVB couldn't trace the calculation in the SDG sheet as found that the value is punched. CME shall report the calculation in the SDG sheet for the further verification of VVB and link the same with the survey forms.				
Project participant response				Date: 30/11/2022
The question 4 of project survey is about the monitored value $T_{p,y}$, the result is recorded in grid B128 of document "2-Data Recording Form for Project Survey_Bangladesh". The grid C8 of SDG6 sheet of document "1-SDG Outcomes Calculation Form-MP1st-Ver2" is recorded the value as 0.42 hours of $T_{p,y}$. Please refer to those documents.				
Documentation provided by project participant				
Document "1-SDG Outcomes Calculation Form-MP1st-Ver2" and "2-Data Recording Form for Project Survey_Bangladesh"				
DOE assessment				Date: 12/12/2022
Based on the review of documented evidence the finding is closed and VVB verified that the value is coming through the project survey. Thus, this CAR is closed.				

Table 4. FAR from this verification

No FAR has been raised form this verification.

FAR ID		Section no.		Date: DD/MM/YYYY
Description of FAR				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

8. CERTIFICATE OF COMPETENCE

Personnel Name:		Sanjay Kandari	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
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	

Personnel Name:		Syed Anwar Hossain	
Qualified to work as:			
Team Leader	<input type="checkbox"/>	Technical Expert	<input type="checkbox"/>
Validator/Verifier	<input type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input type="checkbox"/>	Local Expert (Bangladesh)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope		Technical Area	
-		-	
Approved by (Manager C & T)		Shikha Sharma	
Approval date:		14/11/2022	

Personnel Name:		Tushar Chaudhari	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert	<input checked="" type="checkbox"/>
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	
Approved by		Manager Competency & Training	
Approval date:		02/09/2020	

9. ANNEXURE: WATER QUALITY PROTOCOL

Water Quality Testing Protocol

Prepared by Water Quality Testing Laboratory of the NGO Forum

1. Introduction

WQTL developed a comprehensive Water Quality Testing Protocol for water quality. The Protocol contained a detailed section on operational guideline for monitoring staff and was prepared based on the new information collected from local context and international experience.

2. Sampling

Collect water samples from different sources such as tube wells, hand pumps, and surface water sources. The samples should be collected in clean containers that are free of contaminants.

The required steps are described below:

- a) Wear proper protective equipment such as gloves, eye protection, and waterproof boots.
- b) Select a clean container that is appropriate for the type of analysis required. The container should be free from contaminants and have a tight-fitting lid.
- c) Approach the sampling site and ensure the surrounding area is free from any potential hazards.
- d) Rinse the container three times with the water to be sampled, and discard the rinse water each time.
- e) Submerge the container completely under the surface of the water for several seconds and then tilt it upwards to avoid capturing surface water only.
- f) Fill the container slowly, avoiding any bubbles or splashing.
- g) Once the container is full, carefully remove it from the water and immediately secure the lid.
- h) Label the container with the sampling location and time, and any other relevant information.
- i) Store the sample in a cooler with ice or in a refrigerator, depending on the analysis required.

Analyze the sample as soon as possible, or within the time frame recommended by the laboratory or sampling protocol.

3. Preservation

Preservative tablets should be added to the samples to ensure the water quality remains unchanged during transportation to the laboratory.

The required steps are described below:

- a) Choose appropriate sample container: The container used for preserving water samples should be made of a material that does not react with the water or alter the water quality. Typically, glass bottles or plastic containers made of polyethylene (PE) or polypropylene (PP) are recommended.
- b) Clean the container: Clean the container thoroughly before using it to prevent contamination. A good way to clean is to rinse the container with distilled or deionized water and let it dry.
- c) Add preservatives: Some water samples may require the addition of preservatives to prevent bacterial or chemical changes that can occur during transport and storage. The type and amount of preservative needed depend on the type of water being tested. Common preservatives include sodium thiosulfate, nitric acid, and sulfuric acid.

- d) Label the container: Label the container clearly with the date, time, location, and any other important information related to the sample.
- e) Transport and store the sample: After collecting the sample, it should be stored in an insulated container to prevent temperature changes. The sample should be transported to the lab as soon as possible, and ideally, should be analyzed within 24 hours of collection.
- f) Use appropriate containers: Make sure you have the right containers for your sample type. Glass, plastic, or metal containers with airtight seals can protect against spills or contamination.
- g) Label your sample: Label your sample with any relevant information, such as the type of sample or the date and time of collection.
- h) Transport safely: For samples that require refrigeration, use cool bags or ice packs to keep the sample at the appropriate temperature during transportation. For fragile samples, use protective packaging to prevent damage during transport.
- i) Store correctly: Follow any specific storage requirements for your sample type. Store samples in a cool, dry place away from direct sunlight or any other conditions that can cause degradation or spoilage.
- j) Monitor regularly: Check the integrity and quality of the sample regularly to ensure it has not degraded during storage.

4. Laboratory Analysis

The collected samples should be analyzed in a laboratory with the necessary equipment and expertise to perform the tests.

The required steps are described below:

- a) Gather the materials needed for the analysis, including the equipment, reagents, and samples.
- b) Follow the procedures and protocols of the lab for the specific analysis you are performing.
- c) Record all relevant data, such as the sample types, quantities, and measurements, as well as any observations made during the analysis.
- d) Monitor the equipment and reagents used in the analysis to ensure their accuracy and optimal functioning.
- e) Analyze the data obtained from the analysis and draw conclusions based on the results obtained.
- f) Report and communicate the results obtained to the appropriate stakeholders, such as fellow analysts, researchers, or clients.
- g) Dispose of any hazardous or contaminated materials used during the analysis in accordance with the laboratory's protocols and regulations.
- h) Maintain a clean, organized, and safe work environment throughout the analysis process.
- i) Results Interpretation: The results should be compared against the permissible limits and guidelines

5. Reporting

A report should be generated with the results obtained from the analysis, and the interpretation of these results.

The required steps are described below:

- a) Define the Purpose of the Report: The first step in reporting is to define the purpose of the

report. This can involve identifying the audience, gathering data, and creating a clear outline of what the report should accomplish.

- b) Gather Data: Data is a critical component of any report, so it is essential to gather and analyze relevant data. This can involve conducting research, conducting surveys, and collecting data from multiple sources.
- c) Analyze Data: Once you have gathered the data, you need to analyze it to draw meaningful insights that will help you tell the report's story. This can involve creating visual aids, such as charts or graphs, and using statistical analysis tools.
- d) Develop and Organize the Report: Once you have gathered and analyzed the data, the next step will be to develop and organize the report. This may involve writing an executive summary, creating headings and subheadings, and creating an outline.
- e) Review and Edit: Once you've created a draft of the report, you should review it carefully and edit it to ensure it is clear, concise, and free of errors. Make sure that your report fits the audience you are trying to reach.
- f) Share the Report: The final step in the reporting process is to share the report with your intended audience. You may need to present your findings in a verbal presentation, written report, or a combination of both. Be sure to explain your findings and recommendations clearly and answer any questions your audience has.

6. Information Database

It is important to note that all forms contain water quality test data and the sanitary inspection reports should be preserved as hard copy as well as soft copy. It will help to validate data and also act as a backup system.

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
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