Verification and certification report form for GS project activities

(Version 04.0)

BASIC INFORMATION	
Title and GS4GG reference number of the project activity	Water for Climate Rwanda Project (GS ID 6598)
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	1.5
Completion date of the verification and certification report	25/09/2025
Monitoring period number and duration of this monitoring period	5th Monitoring Period. Duration: 01/01/2023 to 29/02/2024 (including both days)
Version number of the monitoring report to which this report applies	v5.0 of 22/09/2025
Crediting period of the project activity corresponding to this monitoring period	01/03/2019 to 29/02/2024
Project participants	CO2logic
Host Party	Rwanda
Applied methodologies and standardized baselines	Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1
Mandatory sectoral scopes	Sectoral Scope 03: Energy Demand
Conditional sectoral scopes, if applicable	N/A
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	64,558 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	92,633 tCO_2e (50,565 tCO_2e - capped value, refer section G)
SDG Impacts:	1 – SDG 1: No Poverty 2 – SDG 3: Good Health and Well-Being 3 – SDG 5: Gender 4 – SDG 6: Clean Water and Sanitation 5 – SDG 13: Climate Action
Name and UNFCCC reference number of the VVB	E-0052: Carbon Check (India) Private Limited

Name, position and signature of the approver of the verification and certification report	 Amit Anand, CEO

SECTION A. Executive summary

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The Project Participant, CO2logic has appointed /10/ the Validation & verification body (VVB), Carbon Check (India) Private Ltd. to perform 5th periodic verification of the GS Project Activity "Water for Climate Rwanda Project" in Rwanda (hereafter referred to as "Project Activity"). The project activity "Water for Climate Rwanda Project" involves Water Access Rwanda (WAR) together with CO2logic and Mkaarbon safari implementation of a project to provide safe drinking water to communities in the districts of Rusizi, Ngoma, Rwamagana, Bugesera, Kirehe and Nyagatare.

The project consists of the repair of damaged and defunction boreholes, the drilling of new boreholes and new water points belonging to a stand-pipe system. The rehabilitation of boreholes or provision of new safe water supply points reduces the need for households to boil water as a means of purification or to consume unsafe water being the scenario prior to implementation of the project activity. Boreholes consists of only one water point (being at the location of the borehole) or several water points if a stand-pipe system is connected to a borehole.

This report summarises the findings of the verification of the project, performed on the basis of Gold standard for global goals (GS4GG), as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the Gold Standard. Verification is required for all registered GS project activities intending to confirm their achieved emission reductions and proceed with request for issuance of ERs. This report contains the findings and resolutions from the verification and a certification statement for the verified emission reductions.

Verification is the periodic independent review and ex-post determination of both quantitative and qualitative information by a Validation & Verification body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.

Certification is the written assurance by a Validation & Verification body (VVB) that, during a specific period, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the "Water for Climate Rwanda Project" in the host country "Rwanda" for the current monitoring period 01/01/2023 to 29/02/2024 (including both the days).

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in anthropogenic emissions by sources, is sufficient, definitive and presented in a concise and transparent manner. Carbon Check's objective is to perform a thorough, independent assessment of the registered project activity.

In particular, the monitoring plan, monitoring report and the project's compliance with relevant GS and host Party criteria are verified in order to confirm that the component project/s has/have been implemented in accordance with the previously registered project design and conservative assumptions, as documented. It is also confirmed if the monitoring plan is in compliance with the registered PDD and the approved monitoring methodology.

Scope:

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered PDD /09/
- To verify the implemented monitoring plan with the registered PDD /09/ and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.

- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

Verification process:

The verification comprises a review of the monitoring report /01/ over the monitoring period from 01/01/2023 to 29/02/2024 and based on the revised/registered PDD/09/ in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

Onsite interviews are also performed as part of the verification process.

Conclusion:

The verification team assigned by the Validation & Verification body (VVB) concludes that the monitoring report /01/, meet all relevant requirements of the Gold Standard as per the requirements of GS4GG /B01/. The verification has been conducted in-line with the GS4GG requirements.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan and the registered PDD /09/. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. The following table provides the resulted emission reduction from the project as verified through the document review and onsite interviews by the verification team.
Carbon Check (India) Pvt. Ltd. as a Validation & Verification body (VVB) is therefore pleased to issue a positive verification opinion expressed in the Certification statement.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	Onsite inspection	Interviews	Verification findings
1.	Team Leader/ Technical Expert	IR	Raj	Piyush	Carbon Check (India) Pvt. Ltd.	X	X	X	X
2.	Local Expert	ER	Emmanuel	Ndahiro	Carbon Check (India) Pvt. Ltd.	NA	X	X	NA

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	ER	Seshan	Ranganathan	Carbon Check (India) Pvt. Ltd.
2.	Approver	IR	Anand	Amit	Carbon Check (India) Pvt. Ltd.

SECTION C. Application of materiality

The threshold of materiality was evaluated based on "GS4GG – Validation and Verification standard, version 2.0 para. 9.6.3 /B01-b/. It was concluded that the materiality threshold applicable to the project activity based on actual emission reductions achieved is 2% of 92,633 tCO_2e which is equal to 1,853 tCO_2e.

In planning the verification, verification team took cognizance of para. 9.6.3 of the "GS4GG – Validation and Verification standard, version 2.0" / B01-b / and a materiality threshold of 1,853 tCO_2e is determined for the current verification of the project activity.

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human Error: Recording and reporting of the information in the ER spreadsheet.	Medium	All the ER spreadsheet data of the safe drinking water, determination of parameters for safe water per person per day including data calculation. This includes all the parameters to be monitored ex-post as per the PDD	The risk was mitigated by reviewing the training records of the personnel involved in the data capture and calculations. The monitoring responsibilities will be reviewed. Also, the ER data/calculations was cross-checked to insure error-free data.
2.	Information System: Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security	Medium	The data is recorded in spreadsheets based on the raw data collected during the field visits. Access to the spreadsheets for calculation of ERs, monitoring and sales database and baseline project & baseline, and other test records.	The identified risk was mitigated by reviewing the management of access to the records. It was confirmed through interviews whether the raw data is collected by the field personnel and then transmitted and stored electronically to the PD's office. The data quality control to be checked.
3.	Sample	Medium	The sample size is not suitable, or the surveyed plants are not random (If applicable)	Cross-check the procedure to identify the sample size against the sampling guideline and standard and confirm the sample size is calculated correctly.
4.	Competence of personnel involved in conducting Interviews..	Medium	Interview of the personnel involved and check the training records/accreditation certificates involved in conducting such tests.	The risk was mitigated by reviewing the training records of the personnel conducting such tests and following the monitoring responsibilities. For institutions involved in conducting such tests, their accreditation certificates will be checked to establish their

				competence. The training records and certificates will be reviewed which was also confirmed during the onsite interviews.

C.2. Consideration of materiality in conducting the verification

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In line with the GS4GG – Validation and Verification standard, version 2.0 para. 9.6.2 /B01-b/ in verification, a reasonable level of assurance is defined for the verification of the project by complete verification of all the monitoring records was checked by the verification team and compared with the values indicated in the emission reduction spreadsheet.

Some inconsistencies were identified and subsequently finding was raised. These findings are detailed in Appendix 4.

SECTION D. Means of verification

D.1. Desk/document review

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The verification was performed primarily based on the review of the Monitoring report /01/ and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology. Documents reviewed or referenced during the verification are listed in Appendix 3.

D.2. On-site inspection

Onsite physical audit has been performed. The Team leader and local expert has conducted the on-site inspection from 25/03/2025 to 26/03/2025 and in particular the acceptance sampling.

Furthermore, VVB has considered the Site Visit and Remote Audit Requirements and Procedures, version 2.0 /B02/ for conducting the onsite visit in accordance with the requirements provided in the para. 3.1.1(b) of the Site Visit and Remote Audit Requirements and Procedures, version 2.0 /B02/.

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Noppen	Herman	CO2logic	25/03/2025 to 26/03/2025	Project implementation and operation, monitoring procedure, data and information flow, VER calculation and completeness of monitoring report, QA/QC Procedures, Quality Assurance – Management and operating system	Piyush Raj Ndahiro Emmanuel
	Timmermans	Alexia	CO2logic			
2.	Hategekimana	Vanessa	Water Access Rwanda (WAR)			
3.	Iradukunda	Didier	WAR			
4.	Iragena	Aurore	WAR			
5.	Francdise	Makamanq	Local Health Authority	25/03/2025	E-coli test procedure (Wet Season)	
6.	Josiane	Uwambayinema	Kisok Attendant (WAR)	25/03/2025	E-coli test, training & operational of water points	Piyush Raj Ndahiro Emmanuel
7.	Jean Felix	Sibomana	Household	25/03/2025	Project survey, WCFT, Grievances mechanism, leakage assessment, campaigns, and project's SD impacts	
8.	Dative	Nyirahabineza	WASH committee head	25/03/2025	Project survey, Grievances mechanism, leakage assessment, trainings, campaigns, WCFT and project's SD impacts	
9.	Damarise	Nyiraharprimana	Household	25/03/2025	Project survey, WCFT, Grievances mechanism, leakage assessment, campaigns, WCFT and project's SD impacts	
10.	Muhorakeye	Pelage	Surveyors	25/03/2025	Usage survey, trainings	
11.	Beatriq	Musaberole	Kisok Attendant (WAR)	25/03/2025	E-coli test, training & operational of water points	

12.	Finepo	Murueutaorzi	Kisok Attendant (WAR)	25/03/2025	E-coli test, training & operational of water points	Piyush Raj Ndahiro Emmanuel
13.	Laetitia	Niyibaho	Household	25/03/2025	Project survey, WCFT, Grievances mechanism, leakage assessment, campaigns and project's SD impacts	
14.	Jeannette	Mukabahizi	Household	25/03/2025	Project survey, WCFT, Grievances mechanism, leakage assessment, campaigns and project's SD impacts	
15.	Chantal	Yankurije	Household	26/03/2025	Project survey, WCFT, Grievances mechanism, leakage assessment, campaigns and project's SD impacts	
16.	Juliane	Bazubagira	WASH committee	26/03/2025	Project survey, Grievances mechanism, leakage assessment, campaigns and project's SD impacts	
17.	Donath	Tugirimana	Household	26/03/2025	Project survey, WCFT, Grievances mechanism, leakage assessment, campaigns and project's SD impacts	
18.	Jean De Dieu	Manizabayo	WASH committee	26/03/2025	Project survey, Grievances mechanism, leakage assessment, campaigns and project's SD impacts	Piyush Raj Ndahiro Emmanuel
19.	Evoriste	Habimama	Kisok Attendant (WAR)	26/03/2025	E-coli test, training & operational of water points	

20.	Leoncie	Mukanoheri	Household	26/03/2025	Project survey, WCFT, leakage assessment, campaigns, Grievances mechanism and project's SD impacts	
21.	Charles	Mugiraneza	Household	26/03/2025	Project survey, WCFT, leakage assessment, campaigns, Grievances mechanism and project's SD impacts	
22.	Adrien	Hakuzimana	WASH committee	26/03/2025	Project survey, leakage assessment, campaigns, Grievances mechanism and project's SD impacts	
23.	Kanamugire Viview	Ngabo	Local Health Authority	26/03/2025	E-coli test procedure (Wet Season)	

D.4. Sampling approach

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PD's sampling approach:

PD has proposed simple random sampling plan using 90/10 as confidence / precision for annual monitoring. This is in line with the applied methodology /B05/. The sample size for each parameter is determined following guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0 (EB86, Annex 4) /B06/.

The monitoring parameters monitored through the sampling plan are:

1) Number of person days consuming water supplied by project scenario p through year y
2) Quantity of safe water supplied in the project scenario p during the year y, using the "zero or low" emissions' clean water supply technology
3) Quantity of raw or unsafe water that is still boiled after installation of the water treatment technology.
4) Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology
5) Usage rate in project scenario p during year y
6) Leakage in project scenario p during year y
7) Performance of the treatment technology – less than 1 Colony Forming Unit (CFU) of E-Coli / 100 ml of safe water
8) Proportion of households perceiving less often incidence of water borne diseases like cholera, diarrhea, typhoid fewer or Hepatitis A/E since the start of the project in year y
9) Proportion of women in households perceiving reduced amount of time and effort spent for collecting water and wood fuel since the start of the project in year y

Carbon Check's verification sampling approach:

As per para. 25 of the Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0) /B07/, the verification team has to verify whether the project participant

have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

(a) Whether the required confidence/precision has been met;
(b) Whether the selected sample was representative of the population.

In line with para. 26 of the Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0) /B07/, the verification team has applied a sampling approach for onsite surveys as part of verification. Since PD had applied a sampling approach, theverification team has chosen acceptance sampling for monitoring parameters in accordance with para. 28 of the Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0) /B07/.

Carbon Check has considered para. 39 (a) of "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0" /B07/ for determining the sampling size to be visited by VVB. In case of the current verification, the estimated emission reduction is 64,558 tCO_2e per year, the verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' version 09.0 /B07/: Considering Acceptable Quality Level (AQL): 0.5% Unacceptable Quality Level (UQL): 20% and producer risk of 5% and consumer risk of 20% a sample size of 8 was required as per table 2 in the referred Standard /B07/. Acceptance number (c) thus determined for the sample size is 0. Carbon Check choose 8 samples to verify the project activity. The verification team selected random samples from PD's sample list. The operational status of project systems was checked during the onsite audit for the identified samples. The water point details (unique serial number, date of commissioning, technology, name of user and address) were also checked and found to be consistent with that reported in the installation database. This assessment of the selected samples was done to ascertain the implementation status of the project activity with respect to. the operational of water points, serial number, location, consumption of safe water from water points etc.

D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	CAR 01	-
Compliance of the project implementation and operation with the registered PDD	CL 01 CL 02	-	-
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	CAR 02	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
Assessment of reported sustainable development co-benefits	-	CAR 03	-
Global stakeholder consultation	-	-	-
Others (please specify) Previous Verification FAR	-	-	-
Total	02	03	-

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Desk Review & Interview
Findings	CAR 01 was raised and closed satisfactorily. Kindly refer appendix 4 for more details.
Conclusion	VVB confirms that the monitoring report version 5.0 of 22/09/2025 /01/ and earlier versions are prepared using GS4GG monitoring report template version 1.1 of 14/10/2020 /B03/ which is the latest available template and completed with relevant information as per the template requirement.

E.2. Remaining forward action requests from validation and/or previous verifications

Means of verification	Desk Review and Interview
Findings	No finding raised.
Conclusion	There was no forward action requests from the previous verification.

E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	Desk Review and Interview
Findings	CL 01 & CL 02 were raised and closed satisfactorily. Kindly refer appendix 4 for further details.
Conclusion	Carbon Check by means of onsite interviews and document review, assessed that all the features (technology, project equipment and monitoring) of the registered PDD /09/ are in place and that the project participants have operated the project as per the registered PDD /09/. The location of the project activity is clearly defined in the registered PDD /09/. Water Access Rwanda (WAR) together with CO2logic and mkaarbon safari has implemented a project to provide safe drinking water to communities in the districts of Rusizi, Ngoma, Rwamagana, Bugesera, Kirehe and Nyagatare in Rwanda /09/. The company SPADEL has provided the funding for the project. The project consists of the repair of damaged and defunct boreholes, the drilling of new boreholes and new water points belonging to a stand-pipe system. The rehabilitation of boreholes /11/ or provision of new safe water supply points reduces the need for households to boil water as a means of purification or to consume unsafe water being the scenario prior to implementation of the project activity. Boreholes consist of only one water point (being at the location of the borehole) or several water points if a stand-pipe system is connected to a borehole. In case of a standpipe system water is pumped from the borehole to different water points using solar energy. In case solar energy is not available, diesel generators are used. No grid electricity has been used during this monitoring period. The project has implemented 61 water points /04/ out of which 12 water points belong to 2 stand-pipe systems, with 7 water points (Rukoronko standpipe system in Bugesera). These water points consist of either boreholes or standpipe system. The stand-pipe system is operated by Solar PV during the reported monitored period and the same was confirmed during the onsite interview with PD. Thus, there was no grid electricity, however for one diesel generators (in the standpipe systems Rukoronko) have been used from time to time as a back-up to solar energy during this monitoring period by the project and PD has appropriately accounted for the project emission on account of same. The district wise /04/ breakup of the water points are as below: ○ Rusizi: 16 water points

	○ Rwamagana: 8 water points ○ Ngoma: 9 water points ○ Bugesera: 12 water points ○ Kirehe: 12 water points ○ Nyagatare: 4 water points The start date of the project activity is 03/10/2018 as per the registered PDD /09/, that is the date on which the first borehole has been rehabilitated /11/ under this project activity. This is the real action taken by the PD in accordance with the "Glossary of CDM term". As verified through document review and onsite interviews, the project implementation and operation, all physical features of the project comply with the project design document /09/. Verification team has checked the information in the monitoring report /01/ and compared against the registered PDD /09/ and found consistent. Verification team-based review of provide documents and onsite interviews has checked the project location, implementation, technology applied, project equipment, physical features and monitoring system against the information in the registered/revised PDD /09/. The verification team based on onsite interviews and document review, was able to conclude that the project activity has been commissioned and implemented as per the registered PDD /09/ and that physical features of the project are in place. Verification team confirms that: a) The project activity is implemented as per registered PDD /09/. b) The actual operation of the proposed CDM project activity is in line with the registered PDD /09/. c) It has reviewed the registered PDD /09/ including the monitoring plan, the applied monitoring methodology and found that the final MR /01/ for this monitoring period is in line with all the above-mentioned documents. Verification team of Carbon Check has also reviewed the following documents, which confirms that a robust and effective grievance addressable mechanism is in place and the same is being followed by the PD and also during the reported monitoring period: 1. Grievance Register /06/ which includes summary of grievance received/recorded during the monitoring period. 2. Records of Grievance handled during the monitoring period /06/. The addressal of Grievance is being done in a way to resolve any technical issue. The technical improvements at the water points to address any Grievance was also checked during the onsite interviews of the sample water points. In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered PDD /09/.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[1]

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Verification team based on review of the monitoring report and onsite interviews confirms the following deviations during the reported monitoring period:

Some of the water points were tested for E. coli with delays, i.e., some of them exceeded the 6 months for the 1st test after rehabilitation/drilling or start of commissioning (in case of standpipe water points) or the 3 months for subsequent E. coli tests. In such cases the project technology days have been only considered in the ER calculation, if the 2 consecutive tests were E. coli negative. No project technology days and hence no emission reductions have been accounted for in the period between a negative and a subsequent positive test or a positive and a subsequent negative test. No project technology days and hence no emission reductions would have been accounted for in the period between a negative and a subsequent positive test or a positive and a subsequent negative test. The worksheet tab 'E. coli delays' in the Project Water Point Database /03/ provides an overview of when E. coli tests would have been due and when they have been finally conducted. However, since there were no positive E. coli tests during this monitoring period, it was not needed to discount any project technology days due the delay of E. coli tests.

In the opinion of verification team, the approach opted by the PD for the deviation is appropriate as well as conservative (for section above) and thus acceptable to the verification team.

E.4.2. Corrections

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Not Applicable

E.4.3. Changes to the start date of the crediting period

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Not Applicable

E.4.4. Inclusion of a monitoring plan

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Not Applicable

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

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Following are the permanent deviation from the registered monitoring plan in the initial registered PDD:

1) To record diesel consumption using rulers or weighing scales as stated in the monitoring plan was not the actual monitoring system at the water point site. Instead, the hours and minutes are continuously recorded for the diesel generators and the Diesel fuel consumption is then calculated by multiplying the time (HH:MM) the diesel generators are switched on by the calculated hourly consumption (based on manufacturer's specifications and load factor). The calculated diesel fuel consumption is compared with the purchase receipts and in case that

[1] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

the value based on the purchase receipts is higher, the latter one is used for conservativeness.

2) The fNRB value was updated from 89.68% to 98.00% through a design change memo submitted on 30/08/2020 /22/.
3) The geographical boundary of the project in four districts Rusizi, Ngoma, Rwamagana and Bugesera was extended to include an additional district namely Kirehe and Nyagatare through a design change memo submitted on 03/03/2021/22/.

In the opinion of verification team, the monitoring approach opted by the PD is appropriate l and also represents the actual practice at the site and thus acceptable to the verification team. Verification team has reviewed the records /13/ to operation of DG set at two standpipe systems along with the calculation and receipt of diesel purchased. Based on this review, it can be confirmed that PD has opted the higher value of diesel (as per the purchase receipt) /13/ to account for the project emission and the same is deemed a conservative approach.

E.4.6. Changes to the project design

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The project participant has added diesel generators as additional back-up option besides grid electricity. Any emissions from diesel consumption would be taken into account in the ER calculation as soon as they are material, i.e., consist of more than 5% of the overall project emissions. VVB has verified this permanent change at the time of 1st issuance. No GSTAC approval or GS Design Change is needed. Since this design change is not considered to be material. Furthermore, as per the review of monitoring report /01/, revised PDD/09/ emission reduction spreadsheet/02/ and response received from GS on this clarification /09/ it can be verified that project emission from diesel generator /13/ cannot be considered as design change since it is expected to be lower than 5%.

E.4.7. Changes specific to afforestation and reforestation project activities

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Not Applicable

E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	Desk Review and Interviews
Findings	No findings raised.
Conclusion	The verification team has checked the actual monitoring plan against the registered monitoring plan /09/ and monitoring methodology /B05/ and applicable tools. Furthermore, the verification team has checked monitoring system by means of comparison with the information given in the monitoring plan and monitoring methodology. The monitoring plan is completely in accordance with the approved methodology /B05/ applied by the registered PDD /09/.

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	Desk Review and Interviews
Findings	No findings raised.
Conclusion	Verification team confirms that the data and parameters fixed ex ante are in compliance with the registered PDD /09/ and monitoring plan. Please refer to the Annex 1 for assessment of each parameter.

E.6.2. Data and parameters monitored

Means of verification	Desk Review and Interviews
Findings	CAR 02 was raised and closed satisfactorily. Kindly refer appendix 4 for more details.
Conclusion	The verification team confirms that the data and parameters monitored are in compliance with the registered PDD /09/ and the monitoring plan. It is confirmed that the verification team assessed the data / information flow from the point of monitoring to emission reduction calculation and found no gap in the same. Detailed assessment of each parameter has been provided in Annex 2.

E.6.3. Implementation of sampling plan

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The Vérification team has noted that as per the registered monitoring plan the following sampling is involved. The assesment for each of the parameter has been provided below. **<u>Leakage assessment</u>** As per the MR/01/ and Interview, Leakage assessment carried out from 30/05/2022 to 20/06/2022 is applicable to the fifth (5^{th}) performance certification i.e., from 01/01/2023 to 29/02/2024, for the leakage assessment as per monitoring frequency mentioned in registered PDD /09/. 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 verification team find that above point is not applicable for the subject project. As per the MR/01/ the baseline technologies are referred to the devices used for water boiling which are three stone fires, traditional cookstoves and to a minor extent improved cookstoves and confirmed in a leakage survey in which 97% of the households confirmed to continue using the device for cooking and 3% confirmed to have destructed the device which was previously used for boiling (see excel file “220614 W4C-Leakage survey_clean_final.xlsx” /20/ for more details. Whereas, the verification Team crosscheck during the onsite audit and finds that the acceptance sampling confirmed the survey result provided by the PD and is deemed to be consistent and correct. All the interviewed /12/ HHs are using the Borehole. So, verification Team finds the project has no leakage. b) Non-project users who previously used lower emitting energy sources use the non renewable biomass or fossil fuels saved under the project activity. Not applicable and the verification team confirms that the no leakage is accounted for the subject project because the energy source used in the baseline for water boiling is firewood /09/. As per the MR/01/ and onsite audit /12/ of the leakage assessment, the verification team did not find any HHs using the non-GHG emitting methods like chlorine treatment for water purification. 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. Not applicable. Due to the relatively small size of the project, it’s not expected that it will have significant influence on the national NRB fraction.

d) The project 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.

Not applicable. As it was confirmed in the leakage survey, none of the interviewed households has applied the boiling of drinking water at the same time for space heating.

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.

Not applicable.

The verification Team finds that the project has no leakage through crosschecking the leakage survey Report /20/ and Interviews of HHs /12/.

Usage/Monitoring Survey

As per the applied methodology/registered monitoring plan, the minimum total sample size for Usage/Monitoring Survey is 100, with at least 30 samples for project technologies of each age being credited. Verification team confirms that PD has conducted simple random sampling and selected 120 samples (household) with 30 samples (household) from each age group of water points i.e., AG 2-3, AG 3-4, AG 4-5 & AG 5-6.

Usage survey has been conducted together with the monitoring survey. Verification team based on review of sample list confirms that the samples were randomly selected /15/ by the PD.

Simple random sampling was the applied as sampling method. The sampling frame consisted of all the households which were recorded in end-user lists by the WASH committees using the project water points.

A random number generator tool (https://www.randomdraws.com/random-sequence-generator/) was used to generate a random sample list amongst all households. Those households which were at the top of the list were selected for the survey, going down the list until the pre-defined sample size was reached.

The methodology requires to sample at least 100 households with 30 samples from each group, accordingly the PD has selected 120 samples with 30 from each age group, hence 120 households were visited /05/ in person.

Water Consumption Field Test (WCFT)

As per the applied methodology/registered monitoring plan, two valid options are allowed for the statistical analysis of the WCFT. In all cases, the sample size must be greater than 20:

1. 90/10 rule. When the sample size is large enough to satisfy the “90/10 rule”, i.e. the endpoints of the 90% confidence interval lie within +/- 10% of the estimated mean, overall emission reductions can be calculated on the basis of the estimated MEAN of each of the respective variables measured through the WCFT.

2. When the sample size is such that the results do not meet the“90/10rule”,the result used for each of the respective variables measured through the WCFT is not the mean (or average) test result, but a lower value, i.e. the lower bound of the one- sided 90% confidence interval (in order to reach a conservative estimate) is used for the

	paramters and Qp,y and Qp,y, rawboil,y and a higher value, i.e. the upper bound of the one-sided 90% confidence interval (in order to reach a conservative estimate) is used for the parameter Qp,cleanboil,y. Moreover, VVB wants to confirm that the usage survey was conducted during this verification and WFCT Test was conducted during last verification. And on the basis of review of MR, registered PDD /09/ and also with the interview /12/ with the PD. It is confirmed that usage survey to be conducted annually and WFCT needs to be conducted biennially and thus the PD has conducted usage survey in the current/this monitoring period/verification. The verification team selected 08 random samples from PD's sample list to verify usage survey (explained in section D.4). Furthermore, verification team interviewed those who conducted the survey as well as checked the training records and it is based on this confirms the following: • Enumerators were trained by the carbon consultants, both in form of a theoretical and practical training • A QA/QC system is in place to check for plausibility and consistency after the raw data had been received from the Enumerators. Please also refer to appendix 3 of verification report. **Water quality testing** Verification team noted that PD provided the E. Coli test results /17/ and confirm that all results are negative (not shown any presence of E. coli) which is conducted by the WAR own mWater presence/absence test of E. coli. Moreover, Verification Team confirms that the water quality must be tested every quarter, with the first test within 6 months of the stated project start date. The start date of project is the date of rehabilitation/drilling dates of each water point which are provided in the Excel sheet "W4C MP5 Project Water Point Database_.xlsx" by the PD. And for those water points which were rehabilitated within the last 6 months of the monitoring period, or which were not functional in the rainy season, no E. coli tests in the presence of the local health authority were conduct. All of the E. coli tests were negative, or in other words did not show any presence of E.coli in the water.

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	There is no monitoring equipment involved in monitoring of the required parameters. Hence, no calibration requirement applicable for the project activity.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The equations for baseline emissions, as provided in the monitoring report /01/ and confirmed with the registered PDD /09/, the methodology Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1/B05/ and supporting tools are: **Calculation of baseline value for SDG 13 outcome** **The equation used to calculate the baseline fuel consumption is calculated in line with the applied methodology and registered PDD and is as follows:**

	$B_{b,y} = (1 - X_{boil}) * (1 - C_j) * N_{p,y} * W_{b,y} * (Q_{p,y} + Q_{p,rawboil,y})$ Where: $B_{b,y}$ Quantity of fuel consumed in baseline scenario b during the year in tonnes (L/p/d) X_{boil} Percentage of premises that in the absence of the project activity would have used non-GHG emitting emitting technologies like chlorine treatment techniques (if available) in the project boundary C_j Percentage of users of project safe water supply who were already in baseline using a non-boiling safe water supply $N_{p,y}$ Number of person.days consuming water supplied by project scenario p through year y $W_{b,y}$ Quantity of fuel in tonnes required to treat 1 litre of water using technologies representative of baseline scenario b in year y as per Baseline Water Boiling Test. $Q_{p,y}$ Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day in year y $Q_{p,rawboil,y}$ Quantity of raw water boiled in the project scenario p per person per day

E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The equations for project emissions, as provided in the monitoring report /01/ and confirmed with the registered PDD /09/. The methodology /B05/ are: **Calculation of project value or estimation of project situation of each SDG outcome** The equation used to calculate the project fuel consumption is calculated in line with the applied methodology and registered PDD and is as follows: $B_{p,y} = (1 - C_j) * N_{p,y} * W_{p,y} * (Q_{p,rawboil,y} + Q_{p,cleanboil,y})$ Where : $B_{p,y}$ - Quantity of fuel f consumed in project scenario p during the year y in tonnes C_j - Percentage of users of project safe water supply who were already in baseline using a non-boiling safe water supply $N_{p,y}$ - Number of person. Days consuming water supplied by project scenario p through year y $W_{b,y}$ - Quantity of fuel in tons required to treat 1 liter of water using technologies representative of baseline scenario b in year y as per Baseline Water Boiling Test. $Q_{p,rawboil,y}$- Quantity of raw water boiled in the project scenario p per person per day $Q_{p,cleanboil,y}$- Quantity of safe water boiled in the project scenario p per person per day in year y **Project emissions from possible grid electricity consumption**

	$PE_{EC,y} = EF_{grid,y} \times EC_y$ PE_{EC} - Project emissions from grid electricity consumption during year y in tCO_2e $EF_{grid,y}$ - CO_2 emission factor of the grid electricity in year y EC_y - Quantity of grid electricity consumed for pumping water in a standpipe system to the different water points in year y **Project emissions from possible diesel consumption** $PE_{FC,y} = EF_{CO2,diesel,y} \times FC_{diesel,y} \times NCV_{diesel,y} \times Density_{diesel}$ $PE_{FC,y}$ - Project emissions from diesel consumption during year y in tCO_2e $EF_{CO2,diesel,y}$ - CO_2 emission coefficient of diesel in year y $FC_{diesel,y}$ - Quantity of diesel consumed for pumping water in a standpipe system to the different water points or any other water point in year y $NCV_{diesel,y}$ - Net calorific value of diesel in year y $Density_{diesel}$ - Density of diesel in year y (only relevant in case that volume of diesel consumption is measured) The transparent calculations of the outcome of SDG 13 (i.e. CO_2e reductions) are provided in a separate excel sspreadsheet /02/ uploaded to GS4GG Registry. For the used data/parameters, see the sections D.1 and D.2. in this monitoring report.

E.8.3. Calculation of leakage GHG emissions

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The verification team confirms there is No leakage emission has been accounted for the current monitoring period as per the MR/01/, which is crosschecked by the interviews of HHs/end users /12/ and leakage survey report/20/. The verification team finds Leakage survey results/20/, is deemed to be consistent with the interview of HHs/end users which is done by the VVB through the acceptance sampling. The leakage assessment has been carried out at this 5th performance certification /01/ by the PD which is conducted between 30/05/2022 and 20/06/2022 along with a re-assessment of the information provided in the PDD and revealed that there is no leakage (for details see excel spreadsheet "220614 W4C-Leakage survey_clean_final.xlsx".

E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The emission reductions in this monitoring period are: $ER_y = BE_y - PE_y - LE_y$ Where, ER_y is the total emission reductions of the project activity during the year y in tCO_2e; BE_y is the baseline emissions for the project activity during the year y in tCO_2e; PE_y is the emissions for the project activity during the year y in tCO_2e; LE_y is the leakage emissions for the project activity during the year y in tCO_2e. As explained in section E.8.1 above, the resulted Baseline emissions (BE_y) for the monitoring period is 114,141 tCO_2e. Similarly, as explained in section E.8.2 and

	section E.8.3 project emission is 12,702 tCO_2e for the monitoring period and leakage emissions are accounted considering an adjustment factor 1.0 (multiplying with BE_y). Therefore, resulted emission reduction for the monitoring period is 92,633 tCO_2e (roundown value) /02/. The data presented in the monitoring report /01/ and emission reduction worksheet /02/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidences were presented and verified by VVB for the reported emission reductions as listed above.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring period as per the PDD /09/ is 64,558 tCO_2e and the actual emission reductions achieved for the monitoring period is 92,633 tCO_2e. Actual emission reductions are higher by 43.48% of the estimated one for the current monitoring period. The monitoring report provides reason for increase in the actual emission reduction and the same was confirmed by the verification team by interviewing /12/ the representatives of PD and by reviewing the actual implementation status of the project activity. The emission reduction calculations provided in the spreadsheet /02/ have been verified to be correct and in line with the registered PDD /09**/.**

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring period as per the registered PDD /09/ is 64,558 tCO_2e and the actual emission reductions achieved for the monitoring period is 92,633 tCO_2e. For SDG 13, since actual emission reduction is higher than the estimated value due higher consumption of water from project water point and hence it is acceptable to the verification team. The monitoring report provides reason for increase in the actual emission reduction and the same was confirmed by the verification team by interviewing /12/ the representatives of PD and by reviewing the actual implementation status of the project. For other SDG parameters, PD has provided justification in the Monitoring report and assessment of the same is provided below:

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
SDG 13	64,558 tCO_2e	92,633 tCO_2e
SDG 1	80,482,500 l/monitoring period	102,726,229 l/monitoring period
SDG 3	80%	99%
SDG 5	90%	96% (less time needed for women to collect water) 89% (less time needed for women to collect wood fuel)
SDG 6	70 Campaign[2]	61 Campaigns

- SDG 13: The actual value exceeds than the estimated value.
- SDG 3: The actual value slightly exceeds than the estimated value.
- SDG 5: The actual value slightly lower than the estimated value.
- SDG 6: Verification team based on review of documents and interview with PD confirms that the actual value of this SDG exceeds the estimated value taking into account the sum of WASH campaigns carried out for communities and trainers and thus acceptable to the verification team.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	Desk Review and Interviews
Findings	No finding raised.
Conclusion	

GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
NA	92,633 tCO_2e (50,565 – Capped Value)
Year-wise breakup of emission reductions:	
Year	Emission Reductions (tCO_2e)
2023 (01/01/2023 to 31/12/2023)	79,141 (43,201 – Capped Value)
2024 (01/01/2024 to 29/02/2024)	13,492 (7,364 – Capped Value)

The emission reduction calculations provided in the ER spreadsheet /02/ have been verified to be correct and in line with the final PDD /09/, also the values are consistently reported in the MR for this monitoring period.

E.9. Assessment of reported sustainable development co-benefits

Means of verification	Desk Review and Interviews
Findings	CAR 03 was raised and closed satisfactorily. Kindly refer appendix 4 for more details.
Conclusion	The verification team verified that whether the Sustainable development co-benefits are reported in MR /01/. Further, it is also confirmed that Project Developer has monitored the sustainable development co-benefits.

[2] It was foreseen to conduct one campaign per water point.

SDG	SDG Impact	Baseline estimate	Project estimate	Net Benefit	VVB Assessment
1	Total quantity of safe water in litres per year supplied by the rehabilitated/newly drilled boreholes of the project to the communities	0 Litres of Clean water	102,726,229 litres of clean (safe) water has been provided during the monitoring period.	102,726,229 litres of clean (safe) water has been provided during the monitoring period.	VVB has reviewed the ER sheet /02/ monitoring survey /05/, database /03/ and WCFT survey /04/. The same has been verified during onsite audit /12/ and found the value appropriate.
3	Proportion of households perceiving less often incidence of water borne diseases like cholera, diarrhea, typhoid fewer or Hepatitis A/E since the start of the project	0 %	Less people (99%) suffering of diarrhea and other water-borne diseases in the project scenario compared to the baseline scenario.	Less people (99%) suffering of diarrhea and other water-borne diseases in the project scenario compared to the baseline scenario.	VVB has reviewed the ER sheet /02/ monitoring survey /05/, database /03/ and WCFT survey /04/. The same has been verified during onsite audit /12/ and found the value appropriate.
5	Proportion of women in households perceiving reduced amount of time and effort spent for collecting water since the start of the project Proportion of women in households perceiving reduced amount of	0%	More than 96% and 89% of the women need less time and efforts to collect water and wood fuel respectively.	More than 96% and 89% of the women need less time and efforts to collect water and wood fuel respectively.	VVB has reviewed the ER sheet /02/ monitoring survey /05/, user database /03/ and WCFT survey /04/. The same has been verified during onsite audit /12/ and found the value appropriate.

	time and effort spent for collecting wood fuel since the start of the project				
6	Number of organized Water Sanitation and Hygiene trainings	0	4,891 people in 61 Community campaigns have been trained.	4,891 people in 61 Community campaigns have been trained.	VVB has reviewed the ER sheet /02/ monitoring survey /05/, user database /03/ and Training records /16/. The same has been verified during onsite audit /12/ and found the value appropriate.
13	Certified Emissions Reductions/Removals	114,141 tCO_2e 62,307 tCO_2e (with capped $W_{b,y}/W_{p,y}$ value)	12,702 tCO_2e 6,934 tCO_2e (with capped $W_{b,y}/W_{p,y}$ value)	92,633 tCO_2e 50, 565 tCO_2e (Capped Value, refer section G for explantation)	VVB has reviewed the ER sheet /02/ monitoring survey /05/, user database /03/ and WCFT survey /04/. The same has been verified during onsite audit /12/ and found the value appropriate.

E.10. Global stakeholder consultation

Means of verification	Not Applicable
Findings	Not Applicable.
Conclusion	Not Applicable.

SECTION F. Internal quality control

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The verification report passed a technical review before being submitted to the Gold Standard. The technical review is performed by a technical reviewer qualified in accordance with Carbon Check's qualification scheme for CDM validation and verification.

SECTION G. Verification/ Certification opinion

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Carbon Check (India) Private Ltd. has performed the 5th periodic verification of the registered CDM Project Activity "Water for Climate Rwanda Project" GS 6598.

The verification team assigned by the VVB concludes that the project activity as described in the PDD (Version 5.4, date 30/08/2021) /09/ and the Monitoring report (version 5.0, dated 22/09/2025) /01/, meets all relevant requirements of the Gold Standard. The verification has been conducted in-line with the GS4GG requirements /B01-a/ project activities.

Verification methodology and process

The Verification team confirms the contractual relationship /10/ signed on 31/12/2024 between the VVB, Carbon Check (India) Private Ltd. and the Project Participant CO2Logic. The team assigned to the verification meets the Carbon Check's internal procedures including the UNFCCC/GS requirements for the team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and Carbon Check's procedures and requirements.

The verification has been performed as per the requirements described in the GS4GG and constitutes the review and completion of the following steps:

- Reviewing the registered PDD (Version 5.4 dated 30/08/2021) /09/, including the monitoring plan and the corresponding validation report.
- Desk review of the verification report of last MP /08/, current MP MR /01/ and other relevant documents including documents related to the project activities in emission reductions.
- Review of the applied monitoring methodology (Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1 /B05/;
- Onsite interviews/inspection (25/03/2025 to 26/03/2025)
- Resolution of CARs and CLs raised during verification.
- Issuance of Verification Report

The project activity was correctly implemented according to selected monitoring methodology, monitoring plan and the registered PDD /09/. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the document review and onsite interviews, the verification team confirms that the project activity has resulted in the 92,633 tCO_2e emission reductions /02/ during the 5th monitoring period.

This statement covers verification period from 01/01/2023 to 29/02/2024 (including both the dates).

The VVB has raised 02 clarifications and 03 corrective action requests, all of which are closed appropriately. No FAR raised in this verification.

The VVB considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan contained in the registered PDD /09/ are fairly stated.

The VVB, hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 92,633 tCO_2e equivalent and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records.

SWS Grievance Resolution

PD has provided an explanation in section E.4 of the MR. As per this explanation, the revised ERs have been calculated based on the default value of 0.0004 tons/litre for the “Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies” and this is the amount which claimed 50,565 tCO_2e /B10/.

The ERs based on the “Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies” value of the registered PDD results in 92,633 tCO_2e. The PD requests an issuance of the full amount (92,633 tCO_2e), however makes sure that 42,068 tCO_2e carbon credits from another GS project will be compensated /19/ prior to issuance to account for the difference.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CH_4	Methane
CL	Clarification Request
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
EB	CDM Executive Board
EF	Emission Factor
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MWh	Mega Watt Hour
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
OSV	On Site Visit
PE	Project Emissions
PD(s)	Project Developer(s)
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VVB	Validation & verification body
WAR	Water Access Rwanda

Appendix 2. Competence of team members and technical reviewers

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Piyush Raj

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Validator/Verifier (Trainee)	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG Expert	☐ Expert Social aspect	☐ Expert Environmental Aspect	☐ Health Expert
☒ Regional Expert for India		☒ FOEN Approved Technical Expert	☐ FOEN Approved Quality officer

in the following Technical Areas:

☒ TA 1.1	☒ TA 1.2	☒ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☐ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date	Expiry Date
06th February 2025	31st December 2025

Mr. Vikash Kumar Singh
Director - Compliance

Revision History of the document:

Revision Date	Summary of changes
Jan 2025[1]	Revised as per latest organogram
Feb 2025	Revised to include FOEN requirements

CCIPL_FM 7.9 Certificate of Competency_V8.0_05022025

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Ndahiro Emmanuel

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☐ Validator	☐ Verifier	☐ Team Leader	☐ Technical Expert
☐ Technical Reviewer	☐ Validator/Verifier (Trainee)	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG Expert	☐ Expert Social aspect	☐ Expert Environmental Aspect	☐ Health Expert
☒ Regional Expert for Rwanda		☐ FOEN Approved Technical Expert	☐ FOEN Approved Quality officer

in the following Technical Areas:

☐ TA 1.1	☐ TA 1.2	☐ TA 2.1	☐ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☐ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

06th February 2025

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CCIPL_FM 7.9 Certificate of Competency_V8.0_05022025

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon Check (India) Private Limited

Certificate of Competency

Mr. S Ranganathan

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☒ Technical Reviewer	☐ Validator/Verifier (Trainee)	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☒ Financial Expert	☐ Environmental, Health and Safety financial matters
☒ SDG Expert	☒ Expert Social aspect	☒ Expert Environmental Aspect	☐ Health Expert
☒ Regional Expert for India		☐ FOEN Approved Technical Expert	☐ FOEN Approved Quality officer

in the following Technical Areas:

☒ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☒ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☒ TA 13.1	☒ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

06th February 2025

Expiry Date

31st December 2025

Mr. Vikash Kumar Singh
Director - Compliance

Revision History of the document:

Revision Date	Summary of changes
Jan 2025[1]	Revised as per latest organogram
Feb 2025	Revised to include FOEN requirements

CCIPL_FM 7.9 Certificate of Competency_V8.0_05022025

[1] Please refer to previous version of FM 7.9 for the revision history

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/01/	CO2Logic	a) Initial MR: GS6598_MR_5th issuance_v1.0. b) Final MR: GS6598_MR_5th issuance_v2.0_clean	V1.0 dated-11/02/2025 V5.0, dated 22/09/2025	PD
/02/	CO2Logic	a) Initial ER sheet: ER calculation_5th issuance_Water for Climate Rwanda_v0.1 b) Final ER sheet: 2024_ER calculation_5th issuance_Water for Climate Rwanda_v2	v0.1, dated - 11/02/2025 v2, dated - 22/09/2025	PD
/03/	CO2Logic	Water point and user Database		PD
/04/	CO2Logic	WCFT survey	09/08/2022 to 20/08/2022	PD
/05/	CO2Logic	Monitoring/Usage survey records	18/06/2024 to 04/07/2024	PD
/06/	CO2Logic	Grievance and maintenance records		PD
/07/	CO2Logic	Proof of carbon waiver		PD
/08/	GS4GG	Previous MP verification records		PD
/09/	CO2Logic	Registered PDD	v5.4, dated 30/08/2021	PD
/10/	Carbon Check (India) Pvt. Ltd.	Verification contract (PD & Carbon Check)	31/12/2024	VVB
/11/	CO2Logic	Borehole rehabilitation form		PD
/12/	Carbon Check (India) Pvt. Ltd.	Onsite audit records		VVB
/13/	CO2Logic	Fuel consumption & project emission calculation	01/01/2023 to 29/02/2024	PD
/14/	CO2Logic	Agreement between CO2logic & WAR (Implementation team)	30/05/2018	PD
/15/	CO2Logic	Evidence for randomness of sample taken		PD
/16/	WAR	Training records (WASH refresher training, MS training)	June to October 2023	PD
/17/	WAR	E. coli test records		PD
/18/	WAR	Borehole ownership		PD
/19/	CO2Logic	SWS compensation request form		PD
/20/	CO2Logic	Leakage survey	30/05/2022 to 20/06/2022	PD
/21/	CO2Logic	Annual report as per GS4GG requirements	17/03/2025	PD

/22/	CO2Logic	Permanent deviations	30/08/2020 & 03/03/2021	PD

Background Documents

No.	Author	Title	References to the document	Provider
/B01/	GS4GG	a) GS4GG "Principles & Requirements", version 2.1 b) GS4GG "Validation and Verification standard", version 2.0	www.goldstandard.org	Publicly Available
/B02/	GS4GG	Gold Standard - Site visit and remote audit requirements & procedures v2.0	www.goldstandard.org	Publicly Available
/B03/	GS4GG	GS Monitoring Template v1.1	www.goldstandard.org	Publicly Available
/B04/	GS4GG	GS Community Activity Requirements v1.2	www.goldstandard.org	Publicly Available
/B05/	UNFCCC	Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1	http://cdm.unfccc.int/	Publicly Available
/B06/	UNFCCC	Guidelines: Sampling and surveys for CDM project activities and programmes of activities (version 04.0)	http://cdm.unfccc.int/	Publicly Available
/B07/	UNFCCC	Standard: Standard for sampling and surveys for CDM project activities and Programme of Activities (version 09.0)	http://cdm.unfccc.int/	Publicly Available
/B08/	Ministry of Natural Resources, Rwanda	Second National Communication under the UNFCCC by Republic of Rwanda (Ministry of Natural Resources)		Publicly Available
/B09/	IPCC	IPCC 2006, volume 2, chapter 1		Publicly Available
/B10/	GS4GG	Application of TPDDTEC methodology to safe water supply projects	Version 3.0, 30/06/2022	Publicly Available

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

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

No FAR from previous verification.

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

Table 2. CL from this verification

CL ID	01	**Section no.**	E.3	**Date:** 04/04/2025
Description of CL				
PD is requested to provide following documents: *a) Calculation of Emissions from diesel consumption and supporting purchase records.* *b) Training and Hygiene campaign records.* *c) Records of WASH committee members.* *d) Monitoring survey forms.* *e) Grievance logbook/records for the current MP.* *f) SWS compensation request form of last MP.* *g) Yield test report.* *h) Accredited laboratory test records.* *i) Leakage survey records.*				
CME response				**Date:** 23/04/2025
All this documentation will be provided alongside this reply.				
Documentation provided by CME				
a) See 'rukoronko fuel' and supportive documentation in the 'project emissions'-folder. *b) 'WASH refresher trainings'-folder* *c) '2023_2024_MP5 WASH Metrics'* *d) '2024_GS6598_W4CR_Usage Monitoring survey analysis_MP5_v0.3'* *e) 'Grievances'-folder* *f) 'SWS_Compensation_Request Form_GS6598_MP4_Signed'* *g) 'Yield test'-folder* *h) 'E.Coli'-folder. Manufacturer's instructions have been added as well, related to the analysis of the samples to determine whether a result can be marked as 'positive' or 'negative'.* *i) 'Leakage'-folder*				
VVB assessment				**Date:** 02/05/2025
PD has provided all requested documents which VVB reviewed and found it appropriate. Hence, the CL point is closed.				

CL ID	02	Section no.	E.3	Date: 04/04/2025
Description of CL				
In monitoring survey spreadsheet, PD has provided details of 68 water points in "Water point coordinates" sub-sheet however in section A.1 of the MR of the MR, 61 water points are mentioned as implemented under the project activity. PD is requested to clarify the no. of water points implemented and operational for the current monitoring period.				
CME response				**Date:** 23/04/2025
This was indeed a mistake. The correct list has been provided in "Water point coordinates" sub-sheet.				
Documentation provided by project participant				
'2024_GS6598_W4CR_Usage Monitoring survey analysis_MP5_v0.3'				
VVB assessment				**Date:** 02/05/2025
PD has provided revised survey sheet with actual no. of water points rehabilitated and operational during the current monitoring period which VVB reviewed and confirmed that there are 61 water points in the project activity. Hence, the CL point is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	E.1	Date: 04/04/2025
Description of CAR				
1) *The monitoring period number mentioned in KPI section of MR is not consistent with section B.1 and the last MP records. PD is requested to maintain consistency for the same.* 2) *In table 2 of the MR, the PD has not provided breakup of product vintages in years falling under the current MP i.e., 01/01/2023 to 29/02/2024. PD is requested to provide the required information as the template filling guideline.* 3) *In section C of the MR, PD has referred to the water point database of the last MP for the details of the E. coli tests. PD is requested to rectify the same and provide current MP details.* 4) *The water point database shared by PD for the information related to E. coli test, WASH & ToT training details and working hours of water points is not appropriate as it contains information of last MP. PD is requested to provide rectified water point database inline with current MP.*				
Project participant response				**Date:** 23/04/2025
1) *The monitoring period number has been adapted* 2) *Break-up in product vintages has been done in the MR, ER and database.* 3) *This has been modified and the correct database has been mentioned.* 4) *Necessary changes have been made in the water point database.*				
Documentation provided by project participant				
'2024 W4C MP5 Project Water Point Database-Final' *'GS6598_MR_5th issuance_v1.0'* *'2024_ER calculation_5th issuance_Water for Climate Rwanda_v2'*				
VVB assessment				**Date:** 02/05/2025
1) *PD has rectified the number of monitoring period in KPI section of the MR which found to be consistent with section B.1 of the MR. Hence, the CAR point is closed.* 2) *PD has made the required changes in table 2 of the MR. Hence, the CAR point is closed.* 3) *PD has made the required changes in section C of the MR. Hence, the CAR point is closed.* 4) *PD has provided rectified water point database which VVB reviewed and found appropriate w.r.t current monitoring period. Hence, the CAR point is closed.*				

CAR ID	02	Section no.	E.6.2	Date: 04/04/2025
Description of CAR				
1) *In ER sheet, the usage rate considered by PD is not consistent with MR and usage survey sheet. PD is requested to maintain consistency for the same.* 2) *The value of monitoring parameter Np.y mentioned in ER sheet is not consistent with MR and water point database sheet. PD is requested to maintain consistency for the same.*				

3) *PD has not provided value of Hygiene campaigns in section D.2 of the MR. PD is requested to provide the details for the current MP.*

4) *The value mentioned for Monitoring parameters "$Q_{tot,p,y}$, $P_{IWBD,\ y,}$ $P_{ITEC,y}$" is not consistent with monitoring survey for the current MP. PD is requested to rectify the same.*

5) *PD has not provided value of the monitoring parameter $N_{WASH,\ y}$ in section D.2 of the MR. PD is requested to provide value for the current MP.*

CME response	**Date:** 23/04/2025

1) *This value has been replaced by the correct usage rate from the usage survey.*
2) *This value has been update in ER, MR and database.*
3) *The value of hygiene campaigns have been added to the MR.*
4) *These values have been updated in the MR.*
5) *The value of N_{WASH} had been added to the monitoring report.*

Documentation provided by project participant

'2024 W4C MP5 Project Water Point Database-Final'
'GS6598_MR_5th issuance_v1.0'
'2024_ER calculation_5th issuance_Water for Climate Rwanda_v2'

VVB assessment	**Date:** 02/05/2025

1) *PD has rectified the usage rate in ER sheet which is found to be consistent with monitoring/usage survey. Hence, the CAR point is closed.*

2) *PD has rectified value of monitoring parameter Np,y in MR, ER sheet and it found to be consistent with water point database spreadsheet which VVB reviewed and found appropriate. Hence, the CAR point is closed.*

3) *PD has provided details of monitoring parameter "Hygiene Campaigns" in section D.2 of the MR which VVB reviewed and found appropriate. Hence, the CAR point is closed.*

4) *PD has rectified the value of monitoring parameters "$Q_{tot,p,y}$, $P_{IWBD,\ y,}$ $P_{ITEC,y}$" in section D.2 of the MR which VVB reviewed and found appropriate. Hence, the CAR point is closed.*

5) *PD has provided value of monitoring parameter $N_{WASH,\ y}$ which VVB reviewed and found appropriate. Hence, the CAR point is closed.*

CAR ID	03	**Section no.**	E.9	**Date:** 04/04/2025

Description of CAR

1) *In sections D.3, E.4 and E.5 of the MR, PD has not provided value of SDG 6 of the current MP. PD is requested to provide appropriate information as per MR template filling guideline.*

2) *In ER spreadsheet under "Comparison with PDD" sub-sheet, PD has mentioned last MP details. PD is requested to rectify the same.*

3) *In ER sheet under "input data" sub-sheet, the value mentioned for monitoring parameter "$FC_{diesel.y}$" is not consistent with the information provided in column of data source of the parameter. PD is requested to rectify the same.*

CME response	**Date:** 23/04/2025

1) *The values of SDG6 have been provided in the mentioned sections.*
2) *These values have been updated and corrected in the ER sheet*
3) *This value had been updated and corrected in the ER sheet.*

Documentation provided by project participant

'GS6598_MR_5th issuance_v1.0'
'2024_ER calculation_5th issuance_Water for Climate Rwanda_v2'

VVB assessment	**Date:** 02/05/2025

1) *PD has rectified the value of SDG 6 in section D.3, E.4 and E.5 of the MR which VVB reviewed and found appropriate. Hence, the CAR point is closed.*

2) *PD has rectified the ER spreadsheet and provided current MP details for SDG contribution which VVB reviewed and found appropriate. Hence, the CAR point is closed.*

3) *PD has rectified the value of monitoring parameter in both MR and ER sheet which VVB crosschecked with respective supporting documents and found it appropriate. Hence, the CAR point is closed.*

Table 4. FAR from this verification

No FAR from this verification.

FAR ID	xx	**Section No.**		**Date:** DD/MM/YYYY
Description of FAR				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
VVB assessment				**Date:** DD/MM/YYYY

Annex 1: Assessment of data and parameters fixed ex-ante at the time of validation

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Percentage of users of project safe water supply who were already in the baseline using a non-boiling safe water supply (C_j)
Data unit	Percentage
Default values used	18.8 %
Purpose of data	Estimation of emission reductions
Source of verification of the source	Baseline survey records

Relevant SDG Indicator	SDG 13, Climate action
Parameter	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 **(X_{boil})**
Data unit	Percentage
Default values used	6.5%
Purpose of data	Estimation of baseline emissions
Source of verification of the source	Baseline survey records

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of baseline scenario b during year y **($W_{b,y}$)**
Data unit	Tonnes/Litre
Default values used	0.00073277 (0.0004 - Capped value)
Purpose of data	Estimation of baseline emissions
Source of verification of the source	Baseline Water Boiling Test (BWBT)

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of project scenario b during year y **($W_{p,y}$)**
Data unit	Tonnes/Litre
Default values used	0.00073277 from registered PDD, 0.0004 (capped value) /B10/
Purpose of data	Estimation of project emissions
Source of verification of the source	Baseline Water Boiling Test (BWBT)

Relevant SDG Indicator	SDG 13, Climate action
Parameter	CO_2 emission factor arising from use of fuels in baseline scenario **($EF_{b, CO2}$)**
Data unit	tCO_2/TJ
Default values used	112
Purpose of data	Estimation of baseline emissions
Source of verification of the source	IPCC default value for wood

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Non-CO_2 emission factor arising from use of fuels in baseline scenario **($EF_{b, non\text{-}CO2}$)**
Data unit	tCO_2/TJ
Default values used	8.692
Purpose of data	Estimation of baseline emissions
Source of verification of the source	IPCC default value for wood

Relevant SDG Indicator	SDG 13, Climate action
Parameter	CO_2 emission factor arising from use of fuels in project scenario **($EF_{p, CO2}$)**
Data unit	tCO_2/TJ
Default values used	112
Purpose of data	Estimation of baseline emissions
Source of verification of the source	IPCC default value for wood

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Non-CO_2 emission factor arising from use of fuels in project scenario **($EF_{p,non\text{-}CO2}$)**
Data unit	tCO_2/TJ
Default values used	8.692
Purpose of data	Estimation of project emissions
Source of verification of the source	IPCC default value for wood

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Non-renewability status of woody biomass fuel in scenario I during the year y **($f_{NRB,i,y}$)**
Data unit	tCO_2/TJ
Default values used	0.98
Purpose of data	Estimation of emission reductions
Source of verification of the source	MINIRENA (Ministry of Natural Resources of Rwanda, 2016): Projection Scenario of Supply/Demand of Woody Biomass in Rwanda from 2015 to 2026. Department of Forestry and Nature Conservation (DFNC), Rwanda Natural Resources Authority (RNRA), MINIRENA, Kigali

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Net calorific value of the fuels used in the baseline **($NCV_{b,fuel}$)**
Data unit	TJ/tonne
Default values used	0.0156
Purpose of data	Estimation of baseline emissions
Source of verification of the source	IPCC default value for wood

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Net calorific value of the fuels used in the project (**$NCV_{p,\ fuel}$**)
Data unit	TJ/tonne
Default values used	0.0156
Purpose of data	Estimation of project emissions
Source of verification of the source	IPCC default value for wood

Relevant SDG Indicator	SDG 13, Climate action
Parameter	CO_2 emission factor of diesel fuel in year y **($EF_{CO2,\ diesel,y}$)**
Data unit	tCO_2/TJ
Default values used	74.1
Purpose of data	Estimation of project emissions
Source of verification of the source	The value has been verified by reviewing IPCC 2006, volume 2, chapter 1, Table 1.4 /B09/

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Density of diesel fuel **($Density_{diesel}$)**
Data unit	kg/l
Default values used	0.84
Purpose of data	Estimation of project emissions
Source of verification of the source	The value has been verified by reviewing second National Communication under the UNFCCC by Republic of Rwanda (Ministry of Natural Resources), page 40 /B08/.

Relevant SDG Indicator	SDG 13, Climate action
Parameter	Net calorific value of diesel fuel in year y **($NCV_{diesel,y}$)**
Data unit	TJ/tonne
Default values used	0.043
Purpose of data	Estimation of project emissions
Source of verification of the source	The value has been verified by reviewing IPCC 2006, volume 2, chapter 1, Table 1.2/B09/

Annex 2: Assessment of data and parameters monitored

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$N_{p,y}$ Number of persons. days consuming water supplied by project scenario p through year y
Measuring frequency/Time Interval:	At least biennially
Reported value & Unit:	15,774,597 Persons days (2023 – 13,477,030 2024 – 2,297,567)
Verified Source of Data	Verification team has cross checked the following documents: • End-user lists /03/ • Borehole/Standpipe water point maintenance records /06/ • E. coli test results /17/ • mWater database /03/ • Onsite audit records /12/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the parameter is calculated. It was checked by the verification team that the parameter has been calculated multiplying the technology days by the number of people indicated in the end-user list /03/ for the respective water point. The technology days again have been calculated taking into account the start and end date of the monitoring period, any days the water point was down /16/ and the days for which the water could not be ensured to be E. coli /08/ free or during which the E. coli tests were on delay. In the opinion of verification team, the approach used for the calculation of the parameter is appropriate as well conservative.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$Q_{p,y}$ Liters per person per day (l/person/day)
Measuring frequency/Time Interval:	At least biennially
Reported value & Unit:	6.512 l/person/day
Verified Source of Data	Verification team has cross checked the following documents:

	81 WCFT /04/ in randomly selected households have been conducted in person in the period between 09/08/2022 and 20/09/2022.The sample size was sufficient to comply with the 90/10 rule, hence the mean value, being 5.698 t/p/day of the 90% confidence interval has been applied. The relative precision achieved was 3.34%. VVB also reviewed Yield test report /21/ of sample water points and pump manual /23/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the parameter is based on WCFT /04/ and the same is deemed acceptable to the verification team.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$Q_{p,y,\ rawboil,y}$ Liters per person per day (l/person/day)
Measuring frequency/Time Interval:	At least biennially
Reported value & Unit:	0.52, Liters per person per day (l/person/day)
Verified Source of Data	WCFT /04/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above for WCFT. The sample size was not sufficient to comply with the 90/10 rule, hence the upper bound of the 90% confidence interval, being 0.52 l/p/day has been applied and the same is deemed acceptable to the verification team.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$Q_{p,cleanboil,y}$ Liters per person per day (l/person/day)

Measuring frequency/Time Interval:	At least biennially
Reported value & Unit:	0.21, Liters per person per day (l/person/day)
Verified Source of Data	WCFT /04/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above for WCFT. During WCFT, none of the households consumed water from jerrycan 3, hence the water consumption from jerrycan 3 was zero and no statistical analysis was necessary, and the same is deemed acceptable to the verification team.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$U_{p,y}$ Usage rate in project scenario p during year y
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	91.32%
Verified Source of Data	Verification team has cross checked the following documents: Survey records for the usage rate and Impact parameters /05/. This survey has been verified through acceptance sampling during the onsite interviews, please refer to the assessment in section C.4 of this report. Usage/monitoring survey was conducted from 18/06/2024 to 04/07/2024.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place. VVB has crosschecked the usage monitoring survey /05/ and ER sheet /02/ and found appropriate.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$LE_{p,y}$ (Leakage in project scenario p during year y)
Measuring frequency/Time Interval:	Every Two Year
Reported value & Unit:	0 tCO_2e /year
Verified Source of Data	Verification team has cross checked the document Monitoring (Leakage) Survey conducted from 30/05/2022 to 20/06/2022 and report by doing the Acceptance sampling.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above. The monitoring frequency provided by the PD is two.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	Quality of the treated water
Measuring frequency/Time Interval:	The first test within 6 months of the stated project start date, afterwards quarterly
Reported value & Unit:	Positive or Negative based on the test results, E.Coli / 100 ml
Verified Source of Data	Verification team has cross checked the following documents: 1. E-Coli test records /17/ records for each water points 2. Project Water Point Database/03/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, The verification Team confirms that for this monitoring period, all water points have been tested for E-coli and for those, where needed, as well in the presence of a local health authority in the rainy season when there is a higher risk of contamination. These are as test conducted by an accredited laboratory during last monitoring period (to be tested biennially) and project water points found E. coli free /17/. E. coli test results /17/ have been submitted to the VVB. For those water points which were rehabilitated within the last 6 months of the monitoring period, or which were not functional in the rainy season, no E. coli tests in the presence of the local health authority were conducted. All of the E. coli tests were negative, or in other words did not show any presence of E. coli in the water.

Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	mWater E. coli test kits
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	Hygiene campaigns
Measuring frequency/Time Interval:	Annual hygiene campaigns results
Reported value & Unit:	61 Campaigns
Verified Source of Data	Verification team has cross checked the following documents by reviewing the records of wash trainings /16/ and committee /16/;
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	Treatment capacity of the project technology/improved sources
Measuring frequency/Time Interval:	Once at the time of registration or at inclusion of new technology
Reported value & Unit:	Liters per day
Verified Source of Data	Verification team has cross checked the following documents: W4C Project Water Point Database /03/ mWater database platform /03/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above

Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$EF_{grid,y}$ CO_2 emission factor of the grid electricity in year y
Measuring frequency/Time Interval:	At the time of issuance
Reported value & Unit:	0.654 tCO_2e/MWh
Verified Source of Data	Verification team has cross checked the following documents: https://pub.iges.or.jp/pub/iges-list-grid-emission-factors Furthermore, verification team has noted that no grid electricity has been consumed for pumping water in a standpipe system to the different water points.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$EC_{,y}$ Quantity of grid electricity consumed for pumping water in a standpipe system to the different water points in year y.
Measuring frequency/Time Interval:	Continuous monitoring and at least monthly recording (provided that there is consumption of grid electricity)
Reported value & Unit:	0 MWh
Verified Source of Data	Verification team has noted that no grid electricity has been consumed for pumping water in a standpipe system to the different water points.

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter: (as in monitoring plan of PDD):	$FC_{diesel,y}$ Quantity of diesel consumed for pumping water in a standpipe system to the different water points or any other water point in year y
Measuring frequency/Time Interval:	Continuous monitoring and at least monthly recording (provided that there is diesel consumption)
Reported value & Unit:	1,515.67 Liters 2023 – 1,182.78 Liters 2024 – 332.89 Liters
Verified Source of Data	One diesel generators (in the standpipe systems Rukoronko) /13/ have been used from time to time as a back-up to solar energy during this monitoring period. The diesel consumption has been calculated based on the time (HH:MM) the diesel generators were active (see excel spreadsheet‘ rukoronko fuel_v2’/13/) and the calculated diesel fuel consumption per hour (see detailed calculation in the excel spreadsheet ‘rukoronko fuel_v2’) /13/. This calculated diesel consumption has been compared with the purchase receipts /13/ and the higher value based on purchase receipts has been used for conservativeness.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption	NA

theoretically possible been applied or has a request for deviation been approved?	

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 1, No poverty
Data / Parameter: (as in monitoring plan of PDD):	$Q_{tot,p,y}$ Total quantity of safe water in litres per year supplied by the rehabilitated/newly drilled boreholes of the project to the communities in year y
Measuring frequency/Time Interval:	At least biennially
Reported value & Unit:	102,726,229 l/monitoring period
Verified Source of Data	Verification team has cross checked the following documents: Lists supplied by the WASH committee responsible for the water points, New Wash trainings, W4C Wash Training and WASH committees /04,05/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Calculated as: $Qtot,p,y = Np,y * Qp,y$ Where Np,y = Number of person.days consuming water supplied by project scenario p through year y Qp,y = Quantity of safe water supplied in the project scenario p during the year y, using the “zero or low” emissions’ clean water supply technology $Qtot,p,y = 15,774,597 * 6.512 = 102,726,229$ l/monitoring period
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 3, Good health and well-being
Data / Parameter: (as in monitoring plan of PDD):	$P_{IWBD, y}$ Good health and well-being
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	Amongst the households using the project water point: 99% reported a decrease

	01% reported no change
Verified Source of Data	Verification team has cross checked the following documents during the onsite interviews: Survey records for the usage rate and Impact parameters /05/. This survey has been verified through acceptance sampling during the onsite interviews, please refer to the assessment in section C.4 of this report.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 5, Gender equality
Data / Parameter: (as in monitoring plan of PDD):	$P_{ITEC, y}$ Gender equality
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	Amongst the households using the project water point: In terms of time required to collect water: 96% reported a decrease 02% reported no change 02% reported an increase In terms of effort spent for collecting wood fuel: 89% reported a decrease 09% reported no change 02% reported an increase
Verified Source of Data	Verification team has cross checked the following documents: Survey records for the usage rate and Impact parameters /05/. This survey has been verified through acceptance sampling during onsite interviews, please refer to the assessment in section D.4 of this report.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.

In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 6, Clean water and sanitation
Data / Parameter: (as in monitoring plan of PDD):	$N_{WASH, y}$
Measuring frequency/Time Interval:	Annual hygiene campaigns results
Reported value & Unit:	4,891 people in 61 Community campaigns have been trained
Verified Source of Data	Verification team has cross checked the following documents during the document review and onsite interviews: Records of wash trainings /16/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA