"Validation Report" for renewal of crediting period and Assessment of Design change for a large-scale project Activity	
Basic Information	
VALIDATION REPORT	
Title of the project activity	**Eritrea Community Boreholes GSID 5125**
Scale of the Project Activity	☒ Large-scale ☐ Small-scale
Version number of the validation report	02
Completion date of the validation report	19/09/2023
Version number of registered PDD to which this report applies	Version: 04 Date: 29/08/2023
Coordinating/managing entity	Vita Ireland - Registered Charity No: 20024192
Project participants and any communities involved	CO2balance UK Ltd, Vita Ireland, Local communities in Debub and Anseba regions
Host Party	State of Eritrea
SDG Impacts:	SDG 1: No Poverty SDG 4: Quality Education SDG 5: Gender Equality SDG 7: Access to affordable and clean energy SDG 13: Climate Change SDG 15: Life on land
Sectoral scope(s) and selected methodology(ies)	Sectoral Scope 3: 3.1- 'Energy demand'. Methodology: Emission Reductions from Safe Drinking Water Supplies v1
Name of VVB.	Carbon Check (India) Private Limited
Name, position and signature of the approver of the validation report	Vikash L. Sinha

	Vikash Kumar Singh, Compliance Officer

SECTION A. Executive summary

Purpose and general description

The Project Participant CO2 balance UK ltd. has appointed the VVB, Carbon Check (India) Private Ltd. to perform an independent validation of the Design Certification Renewal of the Gold Standard Large scale Project Activity "Eritrea community boreholes" in the host country of Eritrea (hereafter referred to as "project activity"). This report summarises the findings of the validation of the Design Certification Renewal of the project and as well as the design change, performed on the basis of Gold Standard criteria for registration, UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. This report contains the findings and resolutions from the validation and a validation opinion.

As per the PDD, the project activity "Eritrea community boreholes" involves rehabilitations of broken boreholes so that they deliver clean, safe water. The projects will ensure that the quality of the water delivered by the boreholes is fit for human consumption in Eritrea. The project activity aims of the project is to make measurable and sustainable improvements in water supply, sanitation, hygiene, and the overall environment in the communities.

The project will support the provision of safe water to thousands of households in Zoba Debub using borehole technology. By providing safe water, thereby removing the need to boil water, the project will ensure that households consume less firewood during the process of water purification and as a result there will be a reduction in carbon dioxide.

Project activity will reduce emission reduction of 73,427 tonnes of annual CO_2e during the 5-year renewal crediting period. The project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project in accordance with the Gold Standard requirements for additionality.

The purpose of a validation is to have a thorough and independent assessment of the proposed project activity against the applicable Gold standard and CDM requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant UNFCCC and Gold standard for Global Goals criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all Gold Standard for Global Goals Voluntary projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of voluntary emission reductions (VERs).

Location

The project activity "Eritrea community boreholes" is located in the country Eritrea.

Scope of the validation

The validation scope is defined as an independent and objective review of the project design document. The PDD is reviewed against the relevant criteria (see above) and decisions by the gold standard secretariat and CDM Executive Board, including the approved baseline and monitoring methodology /B02/. The validation team has, based on the recommendations in the CDM Validation and Verification Standard and GS4GG Principles and Requirements, version 1.2 employed a rule-based approach, focusing on the identification of significant risks for project implementation and the generation of VERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

While carrying out the validation of the Design Certification Renewal, CCIPL determines if the project activity complies with the requirements of the applicability conditions of the selected methodology, guidance issued by the Gold Standard and also assesses the claims and assumptions made in the PDD without limitation on the information provided by the project participants.

The Validation team confirms the contractual relationship signed on dated: 09/03/2023 between the VVB, Carbon Check (India) Private Ltd. and the Project Developer/ Project Representative /05/. The team assigned to the validation meets the Carbon Check (India) Private Ltd.'s internal procedures including the UNFCCC/Gold Standard for Global Goals requirements for the team composition and competence. The projects team has conducted a thorough contract review as per UNFCCC and Carbon Check procedures and requirements.

Validation methodology

The validation has been performed as described in the VVS version 1.0/B01/and constitutes the following steps:

- Document review of data and information (PDD version 4 /01/and the relevant documents including the reference to information relating to projects or technologies similar to the proposed project activity and review based on the approved methodology being applied and of the appropriateness of formulae and accuracy of calculations).
- Cross checks between information provided in the PDD Version 4 /01/ and information from other sources.
- Follow up actions for cross checking data and on-site assessment.
- Reference to available information
- Issuance of Validation Report.

Validation Process

The validation consists of the following four phases:

I. A desk review of the project design documents.
   - A review of data and information.
   - Cross checks between information provided in the PDD and the information from sources with all the necessary means without limitations to the information provided by the project proponent.
   - Confirmation of the site visit dates and Validation work plan.

II. Physical site visit and follow-up interviews with the project stakeholders
   - Interviews with the relevant stakeholders in the host country with personnel having knowledge with the project development during on-site visits.
   - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent.

III. Reference to available information's relating to projects or technologies similar projects under validation and review based on the approved methodology being applied of the appropriateness of formulae and accuracy of calculations.

IV. The resolution of outstanding issues and the issuance of the final validation report and opinion.

The report is based on the assessment of the PDD/01/ undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, site visit, and stakeholder interviews, review of the applicable/applied methodology/B02/ and its underlying formulae and calculations.

This report contains the findings and resolutions from the validation and a validation opinion on the proposed project thus confirming the project design as document is sound and reasonable and meets the stated requirements and identified criteria.

The validation protocol describes a total of 20 findings which include:

- Sixteen (16) Corrective Action Requests (CARs);

- Three (03) Clarification Requests (CLs);
- One (01) Forward Action Requests (FARs)

All (16) CARs and (03) CLs closed during validation process, VVB has raised 01 FAR for 1st verification under CP2.

Conclusion

Carbon Check (India) Private Ltd. concludes the validation of the Design Certification Renewal and assessment of design change with a positive-opinion and that the Project Activity "Eritrea community boreholes" in Eritrea, as described in the PDD/01/, meets all applicable gold standard and CDM requirements, relevant methodologies, tools, and guidelines.

The selected baseline and monitoring methodology is applicable to the project and correctly applied. Carbon Check (India) Private Ltd. therefore recommends the project to the Gold Standard for Global Goals for registration.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation 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	Site Visit	Interviews	Verification findings
1	Team Leader/ Technical Expert/ Validator/ Local Expert	IR	Sharma	Harish	CCIPL	X			X
2	Trainee Assessor	IR	Yadav	Shalini	CCIPL	X	X	X	X
3	Local Expert	ER	Michael	Mehreteab	CCIPL		X	X	

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g., name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	C.	Indumathi	CCIPL
2.	Approver	IR	Singh	Vikash Kumar	CCIPL

As per the GS4GG VVS version 1.0/B01/, section 6.3.3 (C) ii, a physical site visit for the "Design certification renewal of a standalone project activity" by the VVB is not mandatory. The VVB voluntarily chose to conduct a physical site visit in Eritrea for validation of standalone project, accompanied by a team of 3 member i.e., Trainee assessor and Local expert.

Trainee assessor and Local expert conducted the onsite visit whereas the Team Leader coordinated and supervised the onsite audit remotely.

SECTION C. Means of validation

C.1. Desk review

List of all documents reviewed or referenced during the validation is provided in Appendix-3.

C.2. On-site inspection

GS4GG Principal and requirement version 1.2/B03/ and GS4GG VVS version 1.0/B01/, section 6.3.3 (C) ii, a physical site visit for the "Design certification renewal of a standalone project activity" by the VVB is not mandatory however VVB voluntarily chose to conduct a physical site visit in Eritrea for validation of large-scale standalone project. Furthermore, an on-site visit is done for the validation of project activity. The following activities have been carried out during on-site visit.

The validation n team has carried out on-site interviews with enumerators involved in monitoring to assess the information included in the project design document, and stakeholder consultation report. During the desk review, the relevant records related to project design, implementation and operation were checked, stakeholders engaged, and implementing agency and on-site beneficiary interviews were taken on a sampling basis.
The validation team applied a sampling approach for on-site interviews as part of validation in accordance with paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programs of activities, Version 09.0/B05/. In accordance with paragraph 28 of the sampling standard, acceptance sampling has been chosen by the verification team, and accordingly, the steps listed in paragraph 29 of the sampling standard were followed. So, in accordance with paragraph 39 (c) of the sampling standard the Verification team opted for AQL of 0.5% and UQL of 20%; producer risk of 10 %, and consumer risk of 5 % in determining the VVB's sample size for which the sample size (n) is 16 with acceptance number (c) 0.

C.3. Interviews with PD and end-user

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Chiara	Martin	CO2 balance	10/07/2023	• Project Design • Organisation background • Project Implementation plan • Crediting period start date and Project Location • Project background information • Baseline studies/ literature • Water boiling test • FNRB calculation • Baseline Scenario • Baseline Identification and Additionality • Monitoring and reporting documentation • Qualification and Training • Quality Assurance – Management and operating system • Social and Environmental Impacts • Compliance with relevant laws • Roles and responsibility • Observations of established practices Sampling	Shalini yadav, Mehreteab Michael
3.	Zecarias	Tesfai	Vita Ireland	10/07/2023	Project implementation, Project description, sampling, Grievance mechanisms.	Shalini yadav, Mehreteab Michael
4.	Misghina	Kibrom				
5	Weldetinsae	Zere				

SR. No	Users Name	Survey Date	Subject	Team Member
1	Tsgereda Tekletsien Dawit	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
2	Yemane Fasil Habtu	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
3	Fetien Ghebreamlak (wife for Araya Weldeysus Tsegay)	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
4	Selamawit Hiruy	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
5	Asgedet Mesfun	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
6	Helen Mikael Ghebremesqel (Daughter of Mikael Mehari Gebremesqel)	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
7	Medhn Brhane Tsegay	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
8	Letay Yemane Fasil	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
9	Shenhat Welday Tekleab	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
10	Rahiel Kflay Tekleab	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
11	Jmaa Dawd Umer	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael

12	Kflay Tekleab Kafl	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
13	Medina Abdu Mehamed	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
14	Hiryti Yosief	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
15	Fagr Hamid Abdela	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael
16	Semhar Aron	10/07/2023-12/07/2023	Interviews with the end user, stakeholders and onsite inspection	Shalini yadav, Mehreteab Michael

SECTION D. Validation findings

D.1. Design change assessment

Details of proposed design change

PP assessment: With the introduction of ERSWDS methodology the ERs generated per borehole reduced. Significantly from TPDDTEC. To enable the continuation of the safe water projects implemented by Vita/co2balance in Eritrea, PD has decided to include in GS5125 all boreholes rehabilitated in 2 other project regions developed by Vita-co2balance under the Gold Standard. The boreholes in these VPAs will transition into GS5125 in line with their respective first Crediting Period end dates, thus there will be not double counting of impacts. The new instances being added to the standalone largescale project are the part of already certified microscale project. CME has got an approval form GS for the inclusion of the microscale VPAs to the project GS5125 during this renewable crediting period.

Details of projects that will be incorporate under GS5125 are reported below:

Anseba Region MS projects: GS5951-55 and 6041-42 are still in their first crediting cycle; CME represented that once these VPAs (GS5951-55 and GS6041-42) end their first Crediting Period, they will not be further revalidated as individual VPAs and their technologies start crediting under GS5125. Therefore, the estimation of VERs in the project will start the day after the VPA Crediting Period 1 ends:
GS5951: 02/11/2024 transitioning to GS5125
GS5952: 04/11/2024 transitioning to GS5125
GS5953: 03/11/2024 transitioning to GS5125
GS5954: 11/11/2024 transitioning to GS5125
GS5955: 08/11/2024 transitioning to GS5125
GS6041: 17/02/2027 transitioning to GS5125

Debub Region MS projects: GS5038-43-55, GS5825-27 and 7030-36 are still in their first crediting cycle; CME represented that once these VPAs (GS5038-43, GS5825-27 and 7030-36) will end their first Crediting Period, they will not be further re-validated under respective VPAs, but their technologies will start crediting under GS5125. Therefore, the estimation of the VER in the project will start the day after the VPA Crediting Period 1 ends.

GS5038: 20/10/2023 transitioning to GS5125
GS5039: 20/10/2023 transitioning to GS5125
GS5040: 22/10/2023 transitioning to GS5125
GS5041: 22/10/2023 transitioning to GS5125
GS5042: 25/10/2023 transitioning to GS5125
GS5043: 21/10/2023 transitioning to GS5125
GS5825: 07/05/2024 transitioning to GS5125
GS5826: 04/05/2024 transitioning to GS5125
GS5827: 04/05/2024 transitioning to GS5125
GS7330: 28/10/2023 transitioning to GS5125
GS7331: 03/01/2024 transitioning to GS5125
GS7332: 17/01/2024 transitioning to GS5125
GS7333: 23/02/2024 transitioning to GS5125
GS7334: 31/01/2024 transitioning to GS5125
GS7335: 25/10/2023 transitioning to GS5125
GS7336: 29/12/2023 transitioning to GS5125

The amalgamation of these VPAs will not affect the end date of GS5125, which remains as 7 years for CP1 twice renewable (5+5).

The Design Change will not affect the type of technology included in the project, but only an increase in the total number of technologies. This increase in numbers will not affect the scale of the project, remaining within the threshold for the corresponding Large-scale project type.

New re-validation baselines surveys were carried out to assess the baseline situation in the project area for both Debub and Anseba regions.

The Ex-antes before and after inclusion of the BHs from the MS projects are reported below:

- 38,384 tCO2 per year before inclusion.
- 73,427 tCO2 per year after the complete transition of the BHs of the MS project into the LS project, transition that will happen gradually according to the MS VPAs CP1 ending.

VVB assessment:

23 Microscale VPAs transitioning to project activity GS5125					
GSID No. & VPA No.	No of boreholes	start date of VPA	Crediting period dates	CP number	methodology with version
GS5951:VPA 122	66	02-11-2017	03/11/2017-02/11/2024	CP1 variable	GS TPDDTEC v 1.
GS5952: VPA 123		04-11-2017	05/11/2017-04/11/2024	CP1 variable	GS TPDDTEC v 1.

GS5953: VPA 124		03-11-2017	04/11/2017 - 03/11/2024	CP1 variable	GS TPDDTEC v 1.
GS5954: VPA125		11-11-2017	12/11/2017 - 11/11/2024	CP1 variable	GS TPDDTEC v 1.
GS5955: VPA 126		08-11-2017	09/11/2017- 08/11/2024	CP1 variable	GS TPDDTEC v 1.
GS6041: VPA 129		17-02-2020	18/02/2020 - 17/02/2027	CP1 variable	GS TPDDTEC v 1.
GS6042: VPA 130		17-02-2020	18/02/2020 - 17/02/2027	CP1 variable	GS TPDDTEC v 1.
GS5038: VPA 65		20-10-2016	21/10/2016 20/10/2023	CP1 variable	GS TPDDTEC v 1.
GS5039: VPA 66		20-10-2016	21/10/2016- 20/10/2023	CP1 variable	GS TPDDTEC v 1.
GS5040: VPA 67		22-10-2016	21/10/2016 - 20/10/2023	CP1 variable	GS TPDDTEC v 1.
GS5041: VPA 68		22-10-2016	23/10/2016- 22/10/2023	CP1 variable	GS TPDDTEC v 1.
GS5042: VPA 69		25-10-2016	26/10/2016 - 25/10/2023	CP1 variable	GS TPDDTEC v 1.
GS5043: VPA 70		21-10-2016	22/10/2016 - 21/10/2023	CP1 variable	GS TPDDTEC v 1.
GS5825: VPA 119		07-05-2017	08/05/2017 - 07/05/2024	CP1 variable	GS TPDDTEC v 1.
GS5826: VPA 120		04-05-2017	05/05/2017- 04/05/2024	CP1 variable	GS TPDDTEC v 1.
GS5827: VPA 121		04-05-2017	05/05/2017- 04/05/2024	CP1 variable	GS TPDDTEC v 1.
GS7330: VPA 176		28-10-2016	29/10/2016 - 28/10/2023	CP1 variable	GS TPDDTEC v 1.
GS7331: VPA 177		03-01-2017	04/01/2017- 03/01/2024	CP1 variable	GS TPDDTEC v 1.
GS7332: VPA 178		17-01-2017	18/01/2017 - 17/01/2024	CP1 variable	GS TPDDTEC v 1.
GS7333: VPA 179	87	23-02-2017	24/02/2017- 23/02/2024	CP1 variable	GS TPDDTEC v 1.

GS7334: VPA 180		31-01-2017	01/02/2017 - 31/01/2024	CP1 variable	GS TPDDTEC v 1.
GS7335: VPA 181		25-10-2016	26/10/2016- 25/10/2023	CP1 variable	GS TPDDTEC v 1.
GS7336: VPA 182		29-12-2016	30/12/2016 - 29/12/2023	CP1 variable	GS TPDDTEC v 1.

As per the above database VVB assessed that 23 micro-scale VPAs as tabulated above, are merging with the large scale of "GS5125 Eritrea community boreholes". The validation team has checked the Mail communication/06/ between CME and Gold standard regarding the inclusion of the microscale VPAs to the project GS5125 during this renewable crediting period and hence accepted the change.

In line with §4.1 of "Design Change Requirement" Version 1.1, /B03/ VVB has assessed the impact of this incremental capacity design change to the given large scale project activity on the following aspects.

Describe the impacts of design change on the following.

a. Additionality

PP assessment: The design change will have no impact on project additionality. Please refer to Section B.5 of this PDD

VVB assessment: VVB based on review of the revised PDD /01/, confirms that the Design Change does not have any impact on the additionality of the project. The project continues to be considered as deemed additional, as the project activity complies to the para 4.1.9 of the GS community activity requirement/B03/ and Project activities are located in Eritrea which is an LDC and therefore does not require to prove financial additionality.

b. Applicability of methodology and other methodological regulatory documents with which the project activity has been certified.

PP assessment: The Design change will not have impacts on the applicability of ERSWDS methodology: once the VPAs will transition into the Large-scale project will comply with the regulations defined by the methodology and the PDD.

Ex- ante ERs calculations and SDGs assessment provided during this revalidation review are in line with the methodology requirements.

New re-validation baselines surveys were carried out to assess the baseline situation in the project area.

VVB assessment: VVB based on review of the revised PDD /01/, confirms that the Design Change hasn't any impact on the applicability of the methodology. The added boreholes are in compliance with applicability conditions §2.2.1 of the applied methodology/B02/. The baseline results have been updated following a new baseline survey/14/ conducted between 21/02/2023 and 04/03/2023.The VVB confirms that, even with the addition of new boreholes, the project continues to meet the applicability conditions of the methodology.

c. Compliance with the monitoring plan of the applied methodology

PP assessment: Monitoring and reporting will continue according to existing plans, with monitoring of the large-scale project following the same plan. Once the technologies from the Micro Scale project will enter the Large Scale, they will be monitored as per monitoring plan according to ERSWDS methodology.

VVB assessment: Based on the review of the certified PDD, transitioning VPAs, and the applied methodology /B02/, it is assessed that the design change i.e., addition of new boreholes, don't affect the monitoring plan of the existing project. The same monitoring plan will be applicable to the added boreholes as well which is in compliance with the monitoring plan as prescribed by the applied methodology. /B02/

d. Level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan.

PP assessment: Monitoring and reporting will continue according to existing plans, with monitoring of the large-scale project following the same plan. Once the technologies from the Micro Scale project will enter the Large Scale, they will be monitored as per Large Scale monitoring plan.

VVB assessment: Based on the review of the monitoring plan detailed in certified PDD /03/and comparing it with the revised PDD /01/, VVB assessed monitoring and reporting procedures and confirms that the transitioning technologies from the Micro-Scale project to the Large-Scale project maintained a consistency and alignment with certified monitoring plan. VVB through its assessment confirms that the Design Change don't have any impact on the level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan.

e. Scale of the project activity

PP assessment: The design change will have no impact on project scale.

VVB assessment: VVB based on review of the revised PDD /01/ and the Emission Reduction sheet /02/, confirms that the design Change does not have any impact on the project scale. Since the project had been already registered as large-scale project and continues as large-scale project.

f. Stakeholder consultation

PP assessment: There is no need for stakeholder feedback on the design change because the project boundaries have not changed being and the project activities are not expanding into project areas or technologies for which baseline studies do not already exist.

VVB assessment:

In accordance with the requirement, VVB has conducted an assessment regarding the necessity of conducting a separate local stakeholder consultation for the proposed design change. The findings of our assessment indicate that a separate consultation is not required for the following reasons:

Project Continuity and Consistency: The project boundaries have remained unchanged, and the project activities are not expanding into new geographical areas or introducing novel technologies for which baseline studies do not already exist. This continuity in project scope mitigates the need for an additional local stakeholder consultation.

Prior Stakeholder Engagement: The initial local stakeholder consultation has previously been conducted for the individual program(s) from which the new technologies are being transitioned. This prior engagement has ensured that the local stakeholders are informed and have had the opportunity to provide input.

Ongoing Stakeholder Engagement Mechanisms: The CME has established mechanisms for ongoing stakeholder complaint redressal and continuous feedback collection. These mechanisms are designed to maintain an open

channel of communication with local stakeholders, address their concerns, and incorporate their feedback into project decisions. As a result, the existing stakeholder engagement processes are adequate in ensuring ongoing communication and satisfaction.

In conclusion, VVB's assessment supports the view that a separate local stakeholder consultation for the proposed design change is not warranted. The existing project boundaries, prior stakeholder engagement, and established feedback mechanisms effectively address the concerns and needs of local stakeholders.

g. Sustainable development criteria

PP assessment: An Ex-antes assessment of SDG Impacts has been provided with this PDD. The transitioning of the technologies from the MS projects into the large scale will not have any impacts on the Safeguarding Assessment.

VVB assessment:

In compliance with §7.9 of GS4GG VVS Version 1/B01/, VVB has diligently assessed the potential impact of the proposed design change on the sustainable development assessment and criteria of the project activity. This assessment has yielded the conclusion that the design change does not alter the sustainable development criteria for the following reasons:

a. Comprehensive Documentation: The Project Developer(s) have meticulously listed all assumptions and data used in project development within the Project Design Document (PDD)/01/. Furthermore, references and sources for these assumptions and data have been transparently documented. The borehole added also comply with the SDG assumptions.
b. Primary and Intentional SDG Impacts: The SDG impacts tool /08/ associated with the proposed project are primary effects which are equally applicable to the new instances being added, intentionally designed, and directly linked to the project's objectives.
c. Baseline Scenario Comparison: The proposed project has identified potential SDG Impacts through a comparison between the project scenario and the baseline scenario. This comparison establishes that the SDG impacts represent a positive effect beyond what would reasonably occur in the absence of the project, as evidenced by multiple relevant baseline scenarios when necessary. The same SDG impact would be applicable to the additional boreholes and the design change does not alter the baseline or existing scenario of the project.
d. Monitoring Framework: The proposed project has diligently identified relevant monitoring indicators and/or monitoring parameters and has provided a description of the monitoring approach in the PDD/01/. This framework is equally applicable to the instances being included into the project and design change does not alter the monitoring framework.

In summation, VVB's assessment establishes that the proposed design change does not impact the sustainable development criteria of the project activity. The robust documentation, intentional SDG impacts tool /08/, baseline scenario comparison, comprehensive monitoring framework, and expert stakeholder involvement collectively affirm the project's alignment with sustainable development objectives.
This assessment is conducted in accordance with §7.9 of GS4GG Validation and Verification standard version 1/B01/.

h. Safeguarding assessment

PP assessment: An updated Safeguarding Assessment has been provided in this PDD. The transitioning of the technologies from the MS projects into the large scale will not have any impacts on the Safeguarding Assessment.

VVB assessment:

In accordance with §7.7 of GS4GG VVS Version 1 /B01/, VVB has conducted an assessment to determine whether the proposed design change has any discernible impact on the sustainable development assessment of the project activity. Our assessment has identified that the design change has no such impact, and this conclusion is substantiated by the following reasons:

Project Boundary Continuity: The project boundaries have remained consistent, and the project activities have not extended into new geographical areas or introduced technologies for which baseline studies have not previously been conducted. This continuity in project scope ensures that the fundamental aspects relevant to sustainable development assessment remain unchanged.

Socio-Economic Stability: Given the continuity in project boundaries, the socio-economic conditions of the local stakeholders have also remained stable. The absence of significant changes in the stakeholder environment further supports the conclusion that the sustainable development assessment remains unaffected by the design change.

Safeguarding Assessment: It is important to emphasize that the transitioning of technologies from the microscale projects into the large scale has been assessed and determined to have no discernible impacts on the safeguarding assessment. The safeguards and measures in place continue to effectively address any potential adverse impacts on the environment, communities, and project stakeholders.

In summation, the VVB assessment concludes that the proposed design change does not impact the sustainable development assessment of the project activity and is in conformity with §7.7 of GS4GG VVS Version.1/B01/

i. Compliance with applicable legislation

PP assessment: No new approvals or licenses are needed from any environmental or regulatory agencies.

VVB assessment: VVB based on review of the revised PDD/01/, confirms that the Design Change VVBs not have any impact on the legislation as the additional boreholes added to the large-scale project are part of the already certified GS POAID 1247 Based on its assessment, VVB confirms that the design change doesn't impact the necessary compliance with Eritrean legislation.

In conclusion, VVB finds that the design change doesn't impact the aforementioned conditions of the existing project and is In line with §4.1 of "Design Change Requirement" Version 1.1.

D.2. Description of project activity

Means of validation	Document Review, Interview
Findings	--
Conclusion	The PDD /01/ contains a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. The location of the project activity is clearly defined in the PDD. The project is located in Eritrea. The project will support the provision of safe water to thousands of households in Zoba Debub and Zoba Anseba using borehole technology. By providing safe water, thereby removing the need to boil water, the project will ensure that households consume less firewood during the process of water purification and as a result there will be a reduction in carbon dioxide.

	The project was registered with the first crediting period of 21/09/2016 – 20/09/2023. The crediting period for the registered GS large scale project activity is being renewed (21/09/2023– 20/09/2028) in accordance with the §5.1.1 (d) of the GS4GG Principles and Requirements version 1.2. The original project rehabilitated 120 boreholes between the 21st September 2016 and 17th February 2018. An additional 43 boreholes were rehabilitated from 5th December 2018 and 4th June 2020 which have been included within the project during CP2. The project design documents were assessed through onsite audit activity and through the review of documents. The validation team also interviewed representative of the project participant Vita Ireland and CO2 balance to understand the maintenance/rehabilitations of the borehole implementation of project activity and other SDG's.

D.3. Application of selected baseline and monitoring methodology and selected standardized baseline.

D.3.1. Applicability of methodology and standardized baseline

Means of validation	Document Review, Interview
Findings	--
Conclusion	Please refer to the assessment in Appendix 5 of the VR.

D.3.2. Deviation from methodology

Means of validation	NA
Findings	--
Conclusion	Not Applicable.

D.3.3. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	Document Review, Interview
Findings	--
Conclusion	Please refer to the assessment in Appendix 5 of the VR

D.3.4. Project boundary

Means of validation	Document Review, Interview
Findings	--
Conclusion	The project boundary comprises the physical, geographical sites of the project technology (safe water) and baseline and project fuel collection, in accordance with the Gold Standard Emission Reductions from Safe Drinking Water Supplies v1.

D.3.5. Establishment and description of baseline scenario

Means of validation	Document Review, Interview

<table>
<tr><td>Findings</td><td>NA</td></tr>
<tr><td>Conclusion</td><td>
The validation team confirms that the baseline scenario opted by the project activity /01/ is in accordance with the requirements of the methodology, Emission Reductions from Safe Drinking Water Supplies v.1. In accordance with the methodology, it is assumed that in the absence of the project activity, the baseline scenario would be cooking fuels used and/or fuels used for water boiling in the project boundary. Thus the re -assessment of the baseline scenario has been performed by PP in line with GS4GG “Principles and Requirements” as per section 5.1.47.

The baseline scenario has been re-evaluated during the renewal of period crediting as per the step 1 of the CDMTool11 “Assessment of the validity of the original/current baseline and update of the renewal of the crediting period”.

The baseline scenario is assessed through use of the Baseline Project Survey/14/. In accordance with the GS4GG Gold Standard Methodology for Emission Reductions from Safe Water Supplies v.1.0, /B02/ baseline surveys/14/ are carried out using representative and random sampling. In-line with Gold Standard methodology requirements, the Baseline Project Survey provides critical information on target population characteristics, water and fuel consumption needed to purify water, suppressed demand and leakage.

The survey comprised of questions covering broad topic areas such as household characteristics, water use before and after the safe water project and wood fuel use in the area. Information collected to inform the baseline includes household information, household characteristics, where drinking water is obtained and whether it has to be treated to be safe for consumption. Further questions inquire about cooking methods and fuel types used and how these acquired, and time spent on these tasks.

The survey found that respondents, in absence of the project borehole, would have gathered their water from unprotected wells and surface water mainly, and collect rainwater, if available, during the rainy season. The burden of collected water falls overall on women 88% of the time (female adult 61%, female child 27%) and takes on average 63 minutes per trip. 80% of households use a traditional stove while 20 an ICS stove as their main stove for boiling water, and 100% of households use wood as their main fuel for boiling water. The updated baseline parameters in CP2 are:

<table>
<tr><td>C_b</td><td>Expressed as a percentage, proportion of project households who in the baseline were already using a safe water supply that did not require boiling it.</td><td>0%</td></tr>
<tr><td>$P_{b,\ boil}$</td><td>Percentage of persons boiling water for purification in the baseline scenario.</td><td>100%</td></tr>
<tr><td>fNRB</td><td>Fraction of non-renewable biomass</td><td>79 %</td></tr>
<tr><td>$T_{b,y}$</td><td>Time spent collecting water per household per day prior to project</td><td>1.06 hours</td></tr>
<tr><td>$X_{f,wood}$</td><td>Proportion of fuel f used in the baseline (fraction)</td><td>100 %</td></tr>
</table>

The assessment of the fNRB value has been checked by the validation team on the basis of the review of the fNRB calculation sheet /07-a/ and fNRB report /07-b/ provided by the PP and confirms that the calculation of fNRB value is as per the requirement provided in the CDM Tool 30 version 04 /B06/ and is deemed to be acceptable. (Detailed assessment of fNRB has been added in the Annex1 of this document).
</td></tr>
</table>

D.3.6. Demonstration of additionality

Means of validation	Document Review, Interview
Findings	--
Conclusion	The proposed Project activity is a large-scale activity as annual generation of emission reductions is 73,427 tonnes of CO2eq. The PA is deemed additional as a whole according to the GS4GG Community-Services Activity Requirements section 4.1.9 (b) (Projects located in LDC and hence, deemed additional). Validation team has assessed that as per Community Services Activity Requirements (Version 1.2)/B03/, paragraph 4.1.9: "Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification: Positive list (Annex B) Projects located in LDC, SIDS, LLDC Micro-scale projects The validation team confirms that the project activity meets the criterion I "Projects located in LDC, SIDS, LLDC" of section 4.1.9 of the Community Services Activity Requirements, version 1.2/B03/ as the project activity is located in Eritrea which is an LDC. Therefore, the project Activity is considered as deemed additional and therefore does not require to prove financial additionality. Ongoing Financial Need: Finance derived from Gold Standard Certification funded the implementation and certification of the project. This income funds the ongoing implementation and enhancement of the following key project costs; repairs, maintenance, sensitisation campaigns, water quality tests/11/, water treatment, technician fees, logistics, training and overheads, and recurring Gold Standard Certification fees. The only revenue for the operation and maintenance of the boreholes is from the sale of VERs. Therefore, to meet the operational expenses the ongoing need of carbon revenue is must to survive the project. The information was cross verified by the validation team during the on-site interviews and thus accepted.

D.3.7. Eligibility criteria for project Activity

Means of validation	Document Review, Interview
Findings	--

Conclusion

Sl. No	Eligibility criterion	Description/Required condition	VVB Assessment
1.	Types of Projects	Eligible Projects shall include physical action/implementation on the ground. Pre-identified eligible Project types are identified in the Eligibility	On the basis of the interview with the PP and review of the PDD, the validation team confirms that project involves the rehabilitation and maintenance of safe water sources. will be

			Principles and Requirements section.	implemented within the geographical boundary of POA which is the country of Eritrea. The project type is eligible under Community Services Activity Requirements sections 3.1.1(b) and 3.1.1(d)./B03/
	2.	Location of Project	Projects may be located in any part of the world.	On the basis of the desk review and onsite visit with the PP and implementation team as mentioned in the section A.4.4 of the PDD/01/, each project device will have a unique identification number under each regions i.e. Anseba and Debub. Which has been cross verified during the site visit.
	3	Project Area, Project Boundary and Scale	The Project Area and Project Boundary shall be defined. Projects may be developed at any scale although certain rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements. In order to avoid double counting the Project shall not be included in any other voluntary or compliance standards programme unless approved by Gold Standard (for example through dual certification). Also, if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature, the project shall demonstrate that there is no double counting	On the basis of the desk review and onsite visit with the PP and implementation team as mentioned in the section A.4.4 of the PDD/01/, each project device will have a unique identification number under each regions i.e. Anseba and Debub. Which has been cross verified during the site visit. Furthermore, Validation team has assessed the double counting declaration/09/ provided by PP.

			of impacts at design and performance certification (for example use of similar technology or practices through which the potential arises for double counting or misestimation of im	
	4.	Host Country Requirements	Projects shall be in compliance with applicable Host Country's legal, environmental, ecological, and social regulations.	The validation team concluded that the project type is eligible under Community Services Activity Requirements sections 3.1.1(b) and 3.1.1(d)./B03/ and in compliance with applicable host country .
	5.	Contact Details	As part of the Project Documentation the Project Developer shall provide (i) name and (ii) contact details of all Project Participants; AND in case of an organization (iii) the legal registration details and (iv) documentation by the governing jurisdiction that proves that the entity is in good standing (defined as being a legal or other appropriate entity registered in or allowed to operate within the required jurisdiction and with no evidence of insolvency or legal/criminal notices placed against it or any of its Directors). Gold Standard retains the right (at its own discretion) to refuse use of the Standard where reputational concerns are highlighted.	Validation team has confirm that the Contact details of the Project Developer are included in Appendix 2 of PDD/01/ is correct.
	6.	Legal Ownership	Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification, (for example	On the basis of desk review document and onsite visit in Eritrea Validation team confirm that Carbon Transfer Form (CTF) is signed

			carbon credits) shall be demonstrated. Where such ownership is transferred from project beneficiaries this must be demonstrated transparently and with full, prior and informed consent (FPIC). Note that for certain Project types there is a requirement for full and uncontested legal land title/tenure to be demonstrated. These are contained within specific Activity or Product Requirements. All projects shall immediately report to Gold Standard any land title/tenure disputes arising.	and uploaded to PP database. Form stating that the rights to the carbon credits will lie with Vita CO2balance UK Ltd. An elected representative from each water resources committee responsible for a borehole will sign a CTF on behalf of all users thereof.
	7.	Other Rights	As well as legal title and ownership, the Project Developer shall also demonstrate where required uncontested legal rights and/or permissions concerning changes in use of other resources required to service the Project (for example, access rights, water rights etc.). Any known disputes or contested rights must be declared immediately to Gold Standard by the Project Developer and resolved prior to further Project implementation in affected areas.	On the basis of desk review Validation team by reviewing the declaration /10/ concluded that there are no disputes or contested rights that have been identified in relation to rights relevant to the project activity.
	8.	Official Development Assistance (ODA) Declaration	All Project Developers applying for project activities located in a country named by the OECD Development Assistance Committee's ODA recipient list and seeking Gold Standard	On the basis of desk review Validation team concluded PP has provided a declaration confirming that there is no diversion of ODA /04/.

			Certification for carbon credits shall declare the Official Development Assistance (ODA) support. The Project Developer shall follow the GHG Emissions Reduction & Sequestration Product Requirements and submit the declaration at the time of Design Certification.	
	9.	Factor of Non-Renewable Biomass (VR)	Reference from where fNRB shall be calculated for projects shall be included in the eligibility criteria to avoid confusion at the time of project inclusion and for consistency. .	Project representative CO2 Balance UK Ltd. has prepared fNRB report for a study and calculation of fNRB as per CDM Methodological Tool: "Calculation of fraction of non- renewable biomass" (v04.0). The validation team confirms that it has checked fNRB calculation report/07-a/ and spreadsheet/07-b/ prepared by CO2 Balance UK Ltd.
	10.	Test for Wb,y parameter (VR)	The test for fixed parameter Wb,y is based on the water boiling test.	On the basis of desk review validation team concluded that The updated SWS Gold Standard Methodology no longer includes parameter Wb,y. Instead, specific energy required to boil water (kJ/L) is used (SEw,b,y).
	11.	Water Project Treatment Capacity (VR)	The treatment capacity limits of project technology/source are required to be monitored to ensure that the water consumption level applied for emission reductions must not be greater than the treatment capacity of the project technology/sources.	On the basis of desk review validation team concluded project includes community water supply technologies (CWS) only, not in household water treatment technologies (HWT), or Institutional water treatment technologies (IWT). The project involves the rehabilitation/maintenance of boreholes pumps only as specified in section A.3 of PDD./01/

	13.	Double Counting	Conditions to confirm that the projects neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered.	On the basis of desk review PP has provide the Declaration/09/ stating that the project is neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered.
	14.	Technical Specification	Specification of the technology/measure, such as the level and type of service, as well as performance specification based on, inter alia, testing/certification. .	On the basis of desk review the validation team confirm that PDD includes technical specifications of the Project Technology. An overall description of the technical specifications of the project technologies are reported in section A.3 of this PDD/01/.
	15.	Start Dates	Conditions to check the start dates of projects through documentary evidence.	On the basis of desk review the validation team confirm that the start date of projects is confirmed by certified CP1 PDD /03/ s. Start date is included in Section C of PDD/01/
	16	Applicability	Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines, and the other applied methodological regulatory documents.	On the basis of desk review validation team concluded that the applicability of the project activity is in accordance with the Gold Standard Methodology for Emission Reductions from Safe Water Supply v.1.0/B02/, specifically community water supply technologies (CWS).
	17.	Additionality	Conditions to ensure that project meet the requirements for demonstration of additionality.	On basis of the desk review and onsite inspection validation team concluded that Eritrea is an LDC so the project is deemed additional by the relevant activity requirement.
	18	LSC and EIA	Conditions related to undertaking local stakeholder consultation and environmental impact analysis.	On basis of the desk review and onsite inspection validation team concluded that local stakeholder consultation has been done

				in the CP1 of certified PDD/03/
	19	Target Group	Target group (e.g. domestic/commercial/indus trial, rural/urban, grid-connected/offgrid), and where applicable, distribution mechanisms (e.g. direct installation).	On basis of the desk review and onsite inspection validation team concluded that Both women and men benefit from the project activities, no group is excluded from participating in the project activities and the water sources are open to the whole community.
	20	Sampling	Sampling approaches are set out will follow the ERSDWS v1.0 methodology.	Sampling approaches and will follow the Safe Water methodology. Confidence and precision levels are considered to ensure suitable sample sizes are applied and data is representative of project area.
	21	Crediting period	All projects submitted for inclusion after the first crediting cycle of such PoA and completion of transition to GS4GG shall follow the GS4GG Certification Cycle (i.e. 5 years renewals).	The crediting period start date is included in Section C of PDD/01/.

D.3.8. Emission reductions

Means of validation	Document Review, Interview
Findings	--
Conclusion	According to the applied methodology, emission reductions under project activity would be calculated as follows: Where: ERy = Emission reductions in year y (t CO2e/yr) BEy = Baseline emissions in year y (t CO2e/yr)

PEy = Project emissions in year y (t CO2e/yr)

LEy = Leakage emissions in year y (t CO2e/yr)

Baseline emission

$BEy = EFb \times (1 - Cb - Xcleanboil,y) \times Qy \times Mq$,y

73,427= 0.0003 * (1-0 – 0) * 255,920,474* 0.90

Where :

BEy = Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO2e)

73,427

Cb = Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling (%)

0%

$Xcleanboil,y$ = Proportion of project end-users that boil safe water in the project year y (%)

05

Qy = Quantity of safe drinking water provided by the project in year y (L)

Qy = min (Qm, y, Qpop,y)

255,920,474= min (255,920,474)

Where:

$Q_{m,y}$	=	Monitored quantity of safe water provided by the project in year y (L).
$Q_{pop,y}$	=	Quantity of safe drinking water that could be consumed by project end-users in year y (L)

Mq, y = Modifier for the water quality in year y

0.90 (estimated)

Project emission

$PEy = PEff,p,y + PEec,p,y$

0=0+0

Where:

PEy = Project emissions in year y (tCO2)

$PEff,p,y$ = Project emissions from fossil fuel use in year y (tCO2)

$PEec,p,y$ = Project emissions from electricity use in year y (tCO2)

Leakage

Leakage related to non-renewable biomass shall be assessed as a developer must conduct a leakage investigation every two years using relevant methods. For example, surveys to determine parameters

for the leakage calculation may be combined with project monitoring surveys, as applicable. The leakage emission during year y is 0.

Thus ,

$ERy = BEy - PEy - LEy$

73,427= 73,427– 0 – 0

Year	Baseline estimate	Project estimate	Net benefit
Year 1	73,427tCO2e emitted	0 tCO2e emitted	Emissions reduced by 73,427tCO2e
Year 2	73,427tCO2e emitted	0 tCO2e emitted	Emissions reduced by 73,427tCO2e
Year 2	73,427tCO2e emitted	0 tCO2e emitted	Emissions reduced by 73,427tCO2e
Year 4	73,427tCO2e emitted	0 tCO2e emitted	Emissions reduced by 73,427tCO2e
Year 5	73,427tCO2e emitted	0 tCO2e emitted	Emissions reduced by 73,427tCO2e
Total	**367,135**	**0**	**367,135**

The Ex-antes before and after inclusion of the BHs from the MS projects are reported below:

- 38,384 tCO2 per year before inclusion.
- 73,427 tCO2 per year after the complete transition of the Bore Holes of the Micro scale project into the LS project, transition that will happen gradually according to the MS VPAs CP1 ending.

CME has got an approval form GS for the inclusion of the microscale VPAs to the project GS5125 during this renewable crediting period. The validation team has checked the Mail communication/06/ between CME and Gold standard regarding the inclusion of the microscale VPAs to the project GS5125 during this renewable crediting period and hence accepted the change. Detail assessment is in provided in sec D.1.

D.3.9. Monitoring plan

Means of validation	Document Review, Interview
Findings	--
Conclusion	The outcome of SDG 13 is used to monitor the total emission reductions generated from the large-scale project activity. SDG 13 shall be monitored through the monitoring methodologies Emission reduction from safe drinking water supplies. Version1 The project uses the methodologies Emission reduction from safe drinking water supplies V1. All the parameters as listed in the PDD v.9 dated 12/11/2019 /03/ have to be monitored.

	The certified PDD /03/ provides the roles and responsibilities under monitoring organization. The monitoring organization structure for the project has been provided. The QA/QC procedures have also been provided in the PDD v.9 dated 12/11/2019 /03/. Detailed information about the monitoring plan is provided in the PDD for the 1st crediting period PDD. V9 dated 12/11/2019 /03/ The Project activity has undergone transition as per the GS4GG transition requirement which is verified on the basis of the transition document v.1.1 provided by the project participant /04/. The The borehole installation/rehabilitation records were checked by the validation team during site visit. The following ongoing monitoring studies are in place and it will be checked during periodic verification. • **Water consumption field test** - • **Quality of the treated water** • **Usage Survey** - The annual usage survey will be conducted using a minimum sample size of 100. The results from the usage survey are used to determine the proportion of beneficiaries that use the borehole which is factored into the emission reduction calculations • **Project Survey** – Conducted on a minimum sample size of 100 households, surveying end users currently using project technologies to explore changes in project scenario over time. • **Leakage** - The leakage assessment will be conducted biennially. • **WASH Reporting** – Annual WASH training takes place once a year. • **Quantity of safe drinking water provided by the project** – The project will not be applying Qm,y as the required technology is not yet available. As soon as the required technology is available and reliable it will be implemented. Until this time Qpop,y will be applied. **Sampling Plan:** PDD has mentioned about the random sampling method. Out of those boreholes, households will be randomly sampled, complying with the minimum sample size for the particular survey/test. The Project surveys below will be monitored under the cross sampling approach; The Water Consumption Field Tests will be completely biennially unless the default value will be applied. The surveys will be conducted so as to ensure that they are within the end date of the respective monitoring periods. Thus the Validation team confirms that the monitoring plan and the sampling plan complies with the requirements of the methodology, Emission reduction from safe drinking water supplies v1./B02/, the monitoring arrangements described in the monitoring plan are feasible within the project design and that the PP is able to implement the described monitoring plan.

	The relevant Ex-ante parameters and monitoring parameters are assessed in appendix 6.

D.4. Duration and crediting period

Means of validation	Document Review, Interview
Findings	--
Conclusion	The start date of the crediting period for the project activity is 21/09/2016 . This is the second crediting period (21/09/2023– 20/09/2028) for the large-scale project activity and is after the expiry of the first crediting period from 21/09/2016 – 20/09/2023. Start date of the crediting, expected operational lifetime and duration of the crediting period, have been provided in the PDD v.4/01/; checked and found appropriate to the validation team.

D.5. Environmental impacts

Means of validation	Document Review, Interview
Findings	NA
Conclusion	The project activity involves Design Certification Renewal and thus this is not applicable to the project activity.

D.6. Local stakeholder consultation

Means of validation	Document Review, Interview
Findings	--
Conclusion	Assessment has been added in appendix 6.

SECTION E. Internal quality control

The validation report has passed a technical review and quality review before being submitted to the project participant and UNFCCC Executive Board. The technical review was performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification.

SECTION F. Validation opinion for RCP and Design change.

CO2 balance UK limited has appointed the VVB, Carbon Check (India) Private Ltd., (CCIPL) to perform the validation (renewal of crediting period) and design change of the GS project "Eritrea community boreholes" GSID 5125.

The validation was performed in accordance with latest GS4GG rule and requirements and UNFCCC criteria for the Clean Development Mechanism, latest version 1, of the Validation and Verification Standard/B01/, related Standards/Guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change, as stated in certified PDD /03/. In the opinion of the validation team, the project meets all relevant GS4GG, UNFCCC, CDM criteria and all relevant host country criteria.

The review of the updated PDD/01/ and the subsequent follow-up interviews have provided validation team with sufficient evidence to determine the validity of the original baseline. The PDD correctly applies the latest version of the methodology: Emission reduction for safe drinking water supplies, Version 1/B02/ and meets all relevant criteria therein. The monitoring arrangements described in the monitoring plan are feasible within the project, and it is validation team's opinion that the project implementer is able to implement the monitoring plan and it is deemed likely that the forecasted emission reductions of GS 5125: 73,427 tCO_2per year from the project during the second crediting period will be achieved, given that the underlying assumptions do not change. Validation team further opines that the design change related to the inclusion of interventions from 23 microscale VPAs to the given large-scale project activity doesn't impact on the overall operation/ability of the project to deliver emission reductions, SDG Impacts, and the revised estimation of emission reductions due to the change takes into account the applicable limits in accordance with GS4GG requirements and procedures as there is no impact on the scale of the large scale project activity due to change in emission reduction estimates. additionally, the design change doesn't impact the applicability of the methodology, monitoring plan and any of applicability criteria §4.1 of "Design Change Requirement" Version 1.1,/B03/

During the course of validation four (16) CARs and four (03) CLs and 01 FARs were identified on initially submitted revised PDD/01/. All the CARs and CL have been resolved by project proponent.

In summary, it is validation team's opinion that the project "Eritrea community boreholes" GSID 5125 meets all relevant GS4GG and UNFCCC requirements for the renewal of the crediting period. Hence CCIPL requests the renewal of the project activity for the second crediting period from 21/09/2023– 20/09/2028.

Appendix 1. Abbreviations

Abbreviations	Full texts
BAU	Business As Usual
CA	Corrective Action / Clarification Action
CDM	Clean Development Mechanism
VER	Verified Emission Reduction
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
VER	Verified Emission Reduction
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DR	Document review
DVR	Draft Validation Report
EB	Executive Board
EF	Emission Factor
EI	External individual
FA	Final Approval
FAR	Forward Action Request
FVR	Final validation Report
LSC	Local stakeholder consultation
GHG	Greenhouse gas(es)
GS4GG	Gold standard for global goals
I	Interview
EIA	Environmental Impact Assessment
IPCC	Intergovernmental Panel on ClimateChange
IR	Internal resource
ER	External Resource
WRD	Water resource department
POA-DD	Project Design Document
PP	Project Participant
OSV	On Site Visit
QC/QA	Quality control /Quality assurance
SS	Sectoral Scope
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Gold Standard Validation and Verification Body

VVS	Validation and Verification Standard
LDC	Least Developed Country
MS	Micro-scale
LLDC	Landlocked Developing Countries
SIDS	Small Island Developing States

Appendix 2. Competence of team members and technical reviewer

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Harish Sharma

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), 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	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	☐ CCB Expert
☐ Financial Expert	☒ Local Expert for India		

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			

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.1_012023

Carbon Check (India) Private Limited

Certificate of Competency

Ms. Indumathi C

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), 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	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	☐ CCB Expert
☒ Financial Expert	☒ Local Expert for India and Sri Lanka		

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			

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.1_012023

Appendix 3. Documents reviewed or referenced.

Ref no.	Reference Document
/01/	PDD, version 4.0, dated 29/08/2023
/02/	ER sheet. 1.GS5125_Ex_Ante_calcs_v1 dated:04/07/2023 a) GS5125_Ex_Ante_calcs_v2 dated:08/08/2023. b) GS5125_Ex_Ante_calcs_v3 dated:08/08/2023. 2. Re-val Baseline Debub_2023_V1, dated:04/07/2023 3. Re-val Baseline Survey_Anseba 2023_V1, dated :04/07/2023
/03/	PDD for 1st crediting period v. 9 dated 12/11/2019
/04/	GS5125_ODA-Declaration-Form-signed
/05/	Letter of engagement between CO2 balance and CCIPL signed on 09/03/2023
/06/	Design change approval from SC/GS mail communication.
/07/	Supporting Documents for calculation of fraction of non-renewable biomass (fNRB): a. Eritrea fNRB Calculation 2023_v1_ 04.08.2023 b. Eritrea fNRB Calculation Report 2023 v1. 04.08.2023
/08/	LS Eritrea SDG tool v2 dated :08/08/2023
/09/	Declaration of non-double counting.
/10/	Declaration of no legal disputes- signed
/11/	WQTs LS MP3
/12/	FAO forest report Eritrea: Eritrean Environment Protection, Management and Rehabilitation Framework Proclamation, No. 179 of 2017 | FAOLEX

/13/	Global Ecological Zones for FAO forest Reporting: 2010 Update. Available at: https://data.apps.fao.org/catalog/dataset/2fb209d0-fd34-4e5e-a3d8-a13c241eb61b/resource/63fcc575-6248-4fec-8211-1d971102ef64
/14/	**SDWS Baseline Survey_Reval Maekel_Final_v1**

Background documents

Ref no.	Reference Document
/B01/	1. Validation and Verification Standard version 01 under GS4GG
/B02/	Applied baseline and monitoring methodology: Emission Reductions from Safe Drinking Water Supplies v1
/B03/	1. Gold Standard Principles and Requirements version 1.2, 2. Gold Standard Programme of Activity Requirements version 2, 3. GS Validation & Verification Body Requirements version 2.0, 4. GS community activity requirement and Project activities version 1.2 5. Design Change Requirement" Version 1.1
/B04/	Community Services Activity Requirements (version 1.2) under GS4GG https://globalgoals.goldstandard.org/200-gs4gg-community-services-activity-requirements/
/B05/	1. Standard for sampling and surveys for CDM PAs and PoAs, version 09 2. Guidelines for sampling and surveys for CDM project activities and programme of activities (version 04.0).
/B06/	CDM Tool 30: Calculation of the fraction of non-renewable biomass v.4.0

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

Table 1. FAR from this validation

FAR ID	01	Section no.	NA	Date: 18/09/2023
Description of FAR				
During first verification, the verifying VVB shall verify that the technologies added during the renewable crediting period through respective VPAs shall start accounting the VERs from a day after the completion of first crediting period of such VPAs."				

Table 2. CL from this validation

CL ID	1	Section no.	A.1.1	Date: 17/07/2023
Description of CL				
PP to clarify that how they are ensuring that the technology used in the project scenario will not be included in any carbon standard.				
Project participant response				Date: 18/07/2023
PP will provide a Declaration signed by the Water Resources Department directors of Anseba and Debub Regions confirming that the Vita-Co2balance boreholes included in the project are the only Carbon Credit project in the project area.				
The documentation provided by project participant				
NA				
GS VVB assessment				Date: 07/08/2023
VVB has assessed the database of the boreholes and found that each borehole has unique ID and an unique geo- coordinate therefore, the inclusion of the boreholes in other program can be identified. VVB has found that the PP has some certified VPAs in the host country therefore the database of the other VPAs or any other project with any other standard shall be submitted to cross check the double counting. Furthermore, PP has submitted a declaration, stating that safe water sources are rehabilitated and maintained in both Anseba and Debub regions which are not part of any other carbon credit project nor any other standard, VVB observed that there was no project ID mentioned in declaration making it hard to identify for which project the undertaking is being provided. CL is open till the complete declaration has been provided. **CL#1 is open.**				

Project participant response	Date: 08/08/2023
PP has provided an updated declaration stating clearly the carbon projects with their GS IDs operating in the project area (GS5125, -GS5038-43, GS5825-27, and GS7330-36-, - GS5951-55, GS6041 and GS6042-). Vita is the only entity working on carbon credit projects in the 2 regions as confirmed by the declaration. The ID of the projects and of the water points included in the project are specified also in the Section A.1 and Design Change Appendix 4 of the PDD.	
The documentation provided by project participant	
Declaration	
GS VVB assessment	Date: 08/09/2023
VVB has assessed that in the updated Declaration CME has mentioned the GS IDs of the project for which the undertaking is being issued. CL is closed.	

CL ID	2	Section no.	B.2	Date: 17/07/2023
Description of CL				
Under section B.2 of the PDD, PP to clarify that how the existing project technology is involved in rehabilitation of borehole and how they identified the non -functional borehole. however, PP need to submit the evidence during its first verification.				
Project participant response				Date: 18/07/2023
The technologies included in this project are part of exiting projects, which are ending their first Crediting Period. PP will provide this for first Verification, but can PP request the reviewer to review their statement because it's unclear?				
The documentation provided by project participant				
NA				
GS VVB assessment				Date:07/08/2023
Response incomplete CAR open.				
Project participant response				Date: 08/08/2023
The technologies included in this project are part of existing projects, which are ending their first Crediting Period. PP will submit it in time for Next Verification, please raise it as a FAR.				
The documentation provided by project participant				
NA				

GS VVB assessment	Date:
CME clarified and VVB assessed that the project instances added to the project are already existing technologies included in other micro-scale VPAs. The unique technology/boreholes can be identified through the database of microscale VPA IDs GS GS5951: 02/11/2024 transitioning to GS5125 GS5952: 04/11/2024 transitioning to GS5125 GS5953: 03/11/2024 transitioning to GS5125 GS5954: 11/11/2024 transitioning to GS5125 GS5955: 08/11/2024 transitioning to GS5125 GS6041: 17/02/2027 transitioning to GS5125 GS5038: 20/10/2023 transitioning to GS5125 GS5039: 20/10/2023 transitioning to GS5125 GS5040: 22/10/2023 transitioning to GS5125 GS5041: 22/10/2023 transitioning to GS5125 GS5042: 25/10/2023 transitioning to GS5125 GS5043: 21/10/2023 transitioning to GS5125 GS5825: 07/05/2024 transitioning to GS5125 GS5826: 04/05/2024 transitioning to GS5125 GS5827: 04/05/2024 transitioning to GS5125 GS7330: 28/10/2023 transitioning to GS5125 GS7331: 03/01/2024 transitioning to GS5125 GS7332: 17/01/2024 transitioning to GS5125 GS7333: 23/02/2024 transitioning to GS5125 GS7334: 31/01/2024 transitioning to GS5125 GS7335: 25/10/2023 transitioning to GS5125 GS7336: 29/12/2023 transitioning to GS5125 CL#2 is closed.	

CL ID	3	Section no.	B.2	Date: 17/07/2023
Description of CL				
Under section B.2 of the PDD, PP shall clarify, how they are claiming that the project only involves the CWS technology and not the HWT or IWT, same needs to be addressed in the section B.2 of the applicability of methodology e)				
Project participant response				Date: 18/07/2023
PP has clearly stated in section B.2 point e) that the project involves only rehabilitation/maintenance of Boreholes pumps.				
The documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB assessed that the comment was raised for B.2 (a) which erroneously typed as e) in earlier CL. The VVB has corrected the reference to applicability criteria a). As the PP has updated the applicability criteria in section B.2 (a) and (e) both, the CL Is closed.				

Table 3 CARs from this validation

CAR ID	1	Section no.	KPI	Date: 17/07/2023
Description of CAR				
PP to mention the representative name along with the project participant under Key performance section of PDD.				
Project participant response				Date: 18/07/2023
PP has added the name of CO2balance representative				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB has reviewed the PDD version 03 and found that PP has updated the representative name along with the project participant under Key Performance section of the PDD hence CAR is closed.				

CAR ID	2	Section no.	Table 1	Date: 17/07/2023
Description of CAR				
PP shall correct the unit used for the time saved collecting water per trip in minutes not in percentage under Table 1 of the PDD.				
Project participant response				Date: 18/07/2023
We are currently revalidating the PDD and PP would like to keep the Unit for the time saved as a proportion (%) and not minutes.				
Documentation provided by project participant				
NA				
GS VVB assessment				Date:07/08/2023
After reviewing the updated PDD version 03, VVB has determined that the project activity's time spent collecting water has expressed as a percentage/proportion in accordance with SDG 5 on Gender Equality which follows SDG impact tool version 1.2, hence CAR is closed.				

CAR ID	3	Section no.	A.1.1	Date: 17/07/2023
Description of CAR				
As per the GS4GG principle and requirement document under design renewal certification section 5.1.42 and 5.1.47 (a) to (e). PP to incorporate this section in the PDD under section A.1 of general eligibility criteria.				
Project participant response				Date: 18/07/2023
PP has included in section A.1 the assessment related to points a) to e) from section 5.1.47 GS4GG Principles and Requirements.				
Documentation provided by project participant				

NA
GS VVB assessment | Date:07/08/2023
VVB has assessed that all required applicability criteria have been provided in the relevant sections of the updated PD. This complies to the GS4GG principle and requirement document under design renewal certification section 5.1.42 and 5.1.47 (a) to (e) and the applicability criterion of methodology. CAR is closed.

CAR ID	4	Section no.	NA	Date: 17/07/2023
Description of CAR				
PP is to submit the Carbon transfer form on a sample basis for the new region.				
Project participant response | Date: 18/07/2023				
PP has provided a Carbon Transfer sample for Anseba Region signed at the beginning of Crediting Period 1. Once the VPAs will end their first Crediting Period, instead revalidating the VPAs, the technologies will be merged into GS5125 and will continue crediting under GS5125. This is explained in the Design Change in Appendix 4 of the PDD.				
Documentation provided by project participant				
NA				
GS VVB assessment | Date:07/08/2023				
VVB has assessed the appendix 4 and found that the new technologies being added to the existing project "GS 5125" are being sourced from different VPAs. However, the given project is seeking renewable crediting period, therefore, PP shall clarify how the inclusion of VPAs to a stand-alone project is conceived, considering. 1. "GS4GG Principles and Requirements" V1.2, and "POA Requirements" V.2, don't provide any guideline for the inclusion of the technologies under VPAs into the standalone project. 2. PP shall further justify that how the crediting period of VPAs being included in the project are aligned with the crediting period of the given project. **CAR is open.**				
Project participant response | Date:08/08/2023				
The technologies included in the VPAs will move to the Large Scale once their first crediting periods will end. The VPAs will not be revalidated, and they will then stop crediting (this will ensure that not double counting will occur as the MS VPAs will be no longer crediting). The technologies of the VPAs (once their CP1 ends) will move to the GS5125 and align with the Crediting Period of GS5125, this ensures that the technologies will not claim carbon for more than 5 years. New CTFs forms will be renewed once VPAs CP1 will end. The ownership of credits on the CTFs will remain the same as the technologies will be maintain by Vita. R2 : As confirmed by SC/GS any Design Change (as per provided email communication) is allowed: technologies from VPAs can be included in the Large scale, making sure that t the transition is not breaking any rules, and the crediting of the boreholes is in line with the VPAs Crediting Period end dates and large scale requirements.				
The documentation provided by project participant				
SC/GS mail attachment				

GS VVB assessment	Date:18/09/2023
1. The new instances being added to the standalone largescale project are the part of already certified microscale project. CME has got an approval form GS for the inclusion of the microscale VPAs to the project GS5125 during this renewable crediting period. 2. CME has represented that the technologies of the VPAs, once their CP1 ends, will move to the GS5125 and align with the Crediting Period of GS5125, this ensures that the technologies can claim VERs till the crediting period of the project and not beyond it. Also, the crediting of the VERs for newly added instances will start a day after the end date of the CP1 of respective VPAs. However, to ensure the compliance during next verification period VVB has raised FAR 1 for the verifying VBB. CAR is closed	

CAR ID	5	Section no.	A.1.1	Date: 17/07/2023
Description of CAR				
PP is to provide proof against the double counting declaration stating that VPAs are neither registered as CDM project activities, included in another registered POAs, nor the project activities that have been deregistered.				
Project participant response				Date: 18/07/2023
PP will provide Declaration signed by the Water Resources Department directors of Anseba and Debub Regions confirming that the Vita-Co2balance boreholes included in the project are the only Carbon Credit project in the project area.				
Documentation provided by project participant				
NA				
GS VVB assessment				Date:07/08/2023
VVB has thoroughly reviewed the declaration provided by the PP stating that safe water source are rehabilitated and maintained in both Anseba and Debub regions and are not part of any other carbon credit project or any other standard, VVB observed that no project ID is mentioned in the declaration. **CAR is open**				
Project participant response				Date:08/08/2023
PP has provided an updated declaration stating clearly the carbon projects with their GS IDs operating in the project area (GS5125, -GS5038-43, GS5825-27, and GS7330-36-, - GS5951-55, GS6041 and GS6042). Vita is the only entity working on carbon credit projects in the 2 regions as confirmed by the declaration. The ID of the projects and of the water points included in the project are specified also in the Section A.1 and Design Change Appendix 4 of the PDD.				
The documentation provided by project participant				
Declaration, Revised PDD				
GS VVB assessment				Date:30/08/2023
VVB has assessed that in the updated Declaration CME has mentioned the GS IDs of the project for which the undertaking is being issued. CAR is closed.				

CAR ID	6	Section no.	A.2	Date: 17/07/2023
Description of CAR				
PP to provide geo-coordinates along with the regions under section A.2 location of project of the PDD.				
Project participant response				Date: 18/07/2023
PP has provided.				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB has assessed the updated PD and found that Geo -coordinates have been mentioned under section A.2 of the PPD for both Anseba and Debub region, CAR is closed.				

CAR ID	7	Section no.	A.3	Date: 17/07/2023
Description of CAR				
under section A.3, PP to add a footnote to indicate the source of reference for the technical specification				
Project participant response				Date: 18/07/2023
PP has added				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB has assessed the updated PD version 03 and found that PP has provided the reference footnote for the technical specification, CAR is closed.				

CAR ID	8	Section no.	B.2	Date: 17/07/2023
Description of CAR				
Under section B.2, the provided explanation lacks clarity regarding the technology used and how PP will ensure filtration and chlorine intervention. PP is requested to provide further clarification on these aspects under section B.2 of the applicability of methodology (a).				
Project participant response				Date: 18/07/2023
PP has updated.				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023

VVB has reviewed the PDD version 03 and found that PP has mentioned the filtration process is done by WQTs carried out and chlorination interventions were taken if the test result were not satisfactory are explained clearly hence CAR is closed.

CAR ID	9	Section no.	B.5	Date: 17/07/2023
Description of CAR				
Under Section B.5 of the PDD, PP is to provide the correct reference for the community service activity requirement in order to meet the criteria 2(b) project located in LDC to prove financial additionality.				
Project participant response				Date: 18/07/2023
PP has corrected				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB has reviewed the PDD version 03 and found that PP has corrected the reference for the community service activity requirement in order to meet the criteria 2(b) project located in LDC to prove financial additionality. hence, CAR is closed**.**				

CAR ID	10	Section no.	B.6.1	Date: 17/07/2023
Description of CAR				
Under section B.6.1 of the PDD, PP is to correct the SDGs calculations and should be in proper format as pp has provided the snapshots.				
Project participant response				Date: 18/07/2023
PP has corrected.				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB has reviewed the PDD version 03 and found that PP has corrected the SDGs calculation hence CAR is closed.				

CAR ID	11	Section no.	B.6.2	Date: 17/07/2023
Description of CAR				
Under section B.6.2 of the PDD, fNRB value 0.79 has been considered, PP shall submit the source of fNRB estimation and fNRB Calculation sheet.				
Project participant response				Date: 18/07/2023

PP has provided the fNRB report and calculations.
Documentation provided by project participant
Fnrb report and calculation sheet.
GS VVB assessment | Date:07/08/2023
VVB has reviewed the calculations and formulas used in the fNRB calculation spreadsheet and report provided by PP, CAR is closed.

CAR ID	12	Section no.	B.6.2	Date: 17/07/2023
Description of CAR				
Under section B.6.2 of the PDD, PP must explicitly state the chosen option for the SDWS 24 parameter, either WCFT or the Default value 4L.				
Project participant response | Date: 18/07/2023				
This is a monitored parameter; the value will be determined in time for CP2 first Verification.				
Documentation provided by project participant				
NA				
GS VVB assessment | Date:07/08/2023				
PP to provide the technology used for the parameter and not the value obtained PP to clearly mention either WCFT or Default value 4L to determine the monitored parameter, hence **CAR is open**.				
Project participant response | Date: 08/08/2023				
The Methodology doesn't explicitly state that at validation either of the options needs to be chosen, this is a monitored parameter and will be assessed in time for first verification of CP2. This approach is in line with other recently validated projects from SDWS methodology by GS (https://platform.sustain-cert.com/public-project/1188).				
The documentation provided by project participant				
Revised PDD				
GS VVB assessment | Date:08/09/2023				
VVB has assessed that CME has updated the given parameter to the default value 4L which is In line with the parameter SDWS 24 "Volume of drinking water per person per day for premises type p" for full time premises prescribed in the applied methodology version 1, Hence CAR is closed.				

CAR ID	13	Section no.	Appendix 1	Date: 17/07/2023
Description of CAR				
PP should rectify the formatting of the Social Safeguarding principal table and remove the "Error reference not found" under Appendix 1 of the PDD. The template has coding issues and PP has tried to				
Project participant response | Date: 18/07/2023				

PP has tried to correct the error multiple times and in different ways, but the errors keep coming back. PP believes the template has some sort of error in the hyperlinks and PP is not able to solve the problem. PP has reported the issue to Gold Standard.
Documentation provided by project participant
Revised PDD

GS VVB assessment	Date:07/08/2023
VVB has gone through the latest template of PDD, and email communication provided by the PP from the GS which concludes that PP to use word template as the same issue is not being faced with word template. VVB observed that GS advice is not followed. **CAR is open**.	
Project participant response	Date: 08/08/2023
PP will share the word doc without the error once received last Round of feedback.	
The documentation provided by project participant	
NA	

GS VVB assessment	Date:30/08/2023
PP has provided the updated PDD without error hence CAR is closed.	

CAR ID	14	Section no.	Appendix 3	Date: 17/07/2023
Description of CAR				
PP should either remove the LUF additional information table or clearly state "NA" (Not Applicable), under Appendix 3 of the PDD.				
Project participant response				Date: 18/07/2023
PP has corrected.				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
VVB has reviewed the updated PDD Version 03 and found that correction has been updated under Appendix 3 of the PDD hence, CAR is closed.				

CAR ID	15	Section no.	Onsite findings	Date: 17/07/2023
Description of CAR				
During the onsite visit, it is observed that unique IDs for boreholes were missing. PP to clarify how double counting is being ensured for each borehole being considered under project activity.				
Project participant response				Date: 18/07/2023
PP will provide a Declaration signed by the Water Resources Department directors of Anseba and Debub Regions confirming that the Vita-Co2balance boreholes included in the project are the only Carbon Credit				

project in the project area. The Tags were removed during some maintenance done recently: the in-country partner confirmed that they will re-apply the tags on the pumps. PP will provide evidence in time for first verification.
Documentation provided by project participant
Revised PDD

GS VVB assessment	Date:07/08/2023
As this is the combined validation and verification PP shall provide the evidence as claimed in the response. **CAR is open**	
Project participant response	Date: 08/08/2023
PP has provided the declaration while regarding the Tags, PP will provide evidence in time for the next Verification. Please raise this as a FAR.	

The documentation provided by project participant
NA

GS VVB assessment	Date:30/08/2023
VVB has observed that all the sampled boreholes have not imprinted its UIN on it , However, VVB has taken the geo-coordinates during the site visit which matched with the geo-coordinates provided in the project databased referenced emission Reduction spreadsheet, CAR is closed	

CAR ID	16	Section no.	NA	Date: 17/07/2023
Description of CAR				
PP to clarify how the changes in the project technology & capacity increase are complying with section 3 of the GS Design change requirement v1.1. Furthermore, PP is to provide the design change approval from the GS for further validation.				
Project participant response				Date: 18/07/2023
As per new GS requirements, Design Change is to be included in the PDD, thus PP has filled in Appendix 4 for DOE revision.				
Documentation provided by project participant				
Revised PDD				
GS VVB assessment				Date:07/08/2023
As per the section 3 of the design change requirement version 1.1 –"Changes that alter the project design and are permanent in nature are considered as a permanent change. The permanent change may impact the certified project design with regards to one or more of following project aspects, but not limited to; applicability of the methodology, compliance with the design certified monitoring plan, scale of the project , safeguarding assessment, stakeholder consultation, sustainable development impact, applicable legal requirements etc." as the inclusion of the technology/ boreholes is being requested from VPAs which were registered and monitored as per guideline given for Multicounty microscale POA GS1247, however the current project activity(GS5125) is a large scale standalone project. Furthermore, PP shall clarify the guideline allowing the inclusion of microscale VPAs during RCP Validation of large-scale standalone project. **CAR is open.**				

Project participant response	Date: 30/08/2023
The MS VPAs are not going to be included in the Large Scale project: the technologies will be moved from the MS VPAs to the Large Scale once the first Crediting period of the MS VPAs will end. The MS VPAs will not be revalidated, and they will then stop crediting (this will ensure that not double counting will occur as the MS VPAs will be no longer crediting). This approach is necessary to enable the continuation of the safe water projects implemented by Vita/co2balance in Eritrea as, with the introduction of ERSWDS methodology, the ERs generated per borehole reduced significantly from TPDDTEC making the projects not viable. Once the technologies will be included in the Large Scale, they will be in line with ERSWDS methodology and GS4GG Principles & Requirements as per GS5125 Project Design Document. The MS VPAs have always been successfully verified by Gold Standard and issued the credits. PP has revised the PDD and Appendix 4 of the PDD, assessing the Design Change parameters as per Standard Documents of the Design Change requirements. The Inclusion of the MS Boreholes into the Large Scale will be assessed by SustainCert during Design Change review. As confirmed by SC/GS any Design Change (as per provided email communication) is allowed: technologies from VPAs can be included in the Large scale, making sure that the transition is not breaking any rules, and the crediting of the boreholes is in line with the VPAs Crediting Period end dates and large scale requirements.	
The documentation provided by project participant	
Revised PDD including design change appendix	
GS VVB assessment	Date:18/09/2023
As per the mail approval from GS/SC provided by PP for design change to include 23 micro-scale vpa's to large scale project activity, VVB has done the assessment and confirm that design change is allowed , however PP has provide the assessment of design change in appendix 4 of the PDD which is further assessed by VVB in FVR section D.1 of the design change assessment which is in line with the requirement of section 3 of the design change requirement version 1.1. hence CAR is closed	

Appendix 5: Methodology Applicability

The large-scale project applies the approved monitoring methodology Emission reduction from safe drinking water supplies v1 /B02/. Applicability criteria for the baseline methodologies /B02/ are assessed by the validation team by means of document review and interview. It is agreed in the validation team's opinion that the project activity fully meets the criteria as described below:

Applicability criteria as per methodology	**Means of Validation**
Eligible household water treatment technologies (HWT), institutional water treatment technologies (IWT), and community level water treatment technologies (CWT) include bleach/chlorine, water filter (ceramic, sand, composite, membrane, etc.), UV disinfection, etc.	As verified during the onsite audit inspection and review of PDD, /02/ validation team confirms that the project activity WQT/11/ are carried out bt the Water resource department of the Ministry of Land and environment and if the test was not

	satisfactory chlorine intervention are being taken The chlorination is supervised by the Water Resource Department, who distributes chlorine through the water resources representatives to the Zobas (Regions) and provide technical advice.
2) Eligible community water supply technologies (CWS) include new installation of new borehole hand-pumps, borehole hand-pumps rehabilitation, solar powered drinking water pumps, etc. Water pumps powered by fossil-fuel engines are not eligible, with the exception of backup fossil–fuel engines that are used for no more than 10% of operating hours (parameter SWDS 33).	The validation team based on review of PDD /02/ and onsite audit inspection confirms that the project activity involves rehabilitating and maintaining non-functioning borehole hand pumps. On the basis of the review of the PDD and onsite audit, the validation team confirms that the project boundary is the physical, geographical sites of the project technology and potentially of the baseline and wood fuel collection to boil the water and make it safe for drinking. Therefore, the PDD has met this applicability criteria
3. All projects involving CWT and CWS technologies must also include ongoing maintenance and repair of the project technology	The validation team based on review of PDD /02/ and onsite audit inspection confirms that the project activity involves rehabilitation and maintenance of non-functioning borehole The handpumps are monitored and reactive repairs are conducted if there is an issue with the handpump. Repairs are logged and recorded at each village which has been checked by the validation team during the onsite visit in Eritrea.
4. Where the project involves the rehabilitation of an existing technology, the project developer shall provide evidence that the existing technology is non-operational and that there is no planned maintenance or repair for at least 3 months after the date it became non-operational (parameter SWDS 2).	The validation team based on review of PDD/02/ and onsite audit inspection confirms that technical assessment of existing technologies are carried out by WRD of Eritrea to determine the spare parts requirements /needed for the maintenance, also validation team check all the CTFs and RCF which was signed by Water resource committee. through desk review validation team concluded that
5) This methodology allows for project activities to include safe water treatment and/or supply technologies implemented for end-users in households, and/or commercial premises such as shops or institutional premises including half or full day/boarding schools, prisons, army camps & refugee camps.	This project includes community water supply technologies (CWS) only, not in household water treatment technologies (HWT), or Institutional water treatment technologies (IWT). In fact, the project involves the rehabilitation/maintenance of boreholes pumps only as specified in section A.3 of this PDD. No other treatment technologies will be included.

6) In cases where the safe water is retrieved at the CWT or CWS location, the water in its improved form shall be available within a distance of 1 km or less from the endusers, as demonstrated by satellite imaging or GPS coordinates of each CWT or CWS location. Alternatively, as a proxy, a total collection time of 30 minutes or less for a round trip, including queuing, using the travel modes of walking or pedaling may be demonstrated (parameter SDWS 1).	The distance that each household is from the CWS is collected in the user lists, and the GPS coordinates are recorded for each CWS.
7) Project technology performance level (CWT and CWS): For each individual CWT or CWS, it shall be demonstrated at the start of each crediting period with water quality testing reports that the water directly supplied by the project water technology/source achieves both: i. microbial quality in line with either (i) national standards or guidelines for microbial quality of drinking water, or in the absence of such requirements, (ii) the guideline values for verification of microbial quality from the Guidelines for drinking-water quality (Table 7.10, WHO, 2017); and ii. Compliance with (i) national standards or guidelines on priority chemical contamination and physical and aesthetic aspects, or in the absence of such requirements, (ii) international standards or guidelines on priority chemical contamination and physical and aesthetic aspects. (parameter SWDS 3).	The Water Resource Department (part of the Ministry of Land, Water and Environment) follows the WHO guidelines and certifies the water quality of the water supply. WQTs /11/for the technologies included in the project are tested at the beginning of the Crediting Period to confirm that are supplying the communities with safe water in line with methodology requirements.
8) The project must conduct annual water hygiene education campaigns for the end-users. (Parameter SDWS 20).	Annual WASH training takes place once a year at each waterpoint. The training involves sensitization on principles of WASH, household water management and preventing pollution of the ground water. The annual surveys follow the core questions set out by the JMP (https://washdata.org/monitoring/methods/core-questions)
9) A project applying this methodology may make SDG claims if relevant monitoring parameter(s) is included in the monitoring plan to demonstrate and confirm the project's contributions to SDGs. See parameter SDWS 19.	SDG 1, 4, 5, 7, 13 & 15 are monitored in this project. SDG impacts are calculated (shown in the ex-antes) to quantify the projects impact on these SDGs.

Appendix 6: Sustainability Validation Report

1. Project type eligibility screen

The proposed project "Eritrea community boreholes" is a large-scale project implemented in Eritrea. The project is applying the GS methodology Emission reduction from safe drinking water supplies v1.

The project activity involves rehabilitate and install the boreholes and deliver the maintenance programme for all the boreholes included in the project activity to ensure that the quality of the water delivered by the boreholes is fit for human consumption for the entire length of the project, which will be a minimum of five years., in Eritrea. The project is eligible under GS according to clause 3.1.1 of the GS4GG Principles and Requirements document. Furthermore, clause 4.1.3 states that '*A project type is automatically eligible for GS Certification if there are approved GS Activity Requirements and/or GS Impact Quantification Methodologies associated with it or as referenced in GS Product Requirements*'. The GS has published the Community Services Activity Requirements which include end-use energy efficiency projects, under which the project activity falls. Hence, the project activity falls under the automatic eligibility list of projects.

2. Preliminary review under Gold Standard for the Global Goals

The project involves validation of Design Certification Renewal for a registered large scale project activity. A preliminary review is not required for Design Certification Renewal.

3. Sustainability Development Goals (SDG) outcomes

As per the PDD, the relevant SDG targets are.

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact **Indicator (Proposed or SDG Indicator)**
SDG 1 – No Poverty	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services

SDG 4 Quality Education	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	Number of employees provided skill development training
SDG 5 - Gender Equality	5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.	5.4.1 Total reduction time spent collecting water for project activity in year y
SDG 7 Affordable and clean energy	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1 Total No of households with access to Safe Water from a clean treatment technology
SDG 13 – Climate Action	13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing states, including focusing on women, youth and local and marginalized communities.	Total project emissions reductions
SDG 15 – Life on Land	15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	Total non-renewable firewood saved in the project scenario

The validation team confirms that the outcome for SDG 13 will be quantified as CO2 emission reductions by applying the methodologies Emission Reduction from safe drinking Water supplies v1. The project proponent has opted for SDG 13 outcome to be certified as 'Certified SDG 13 Impact Statement' allowing the generation of carbon credits (VERs). The quantifications of the other SDG outcomes were verified from "GS5125_Ex_Antes_calcs", tab SDG Impacts (full MP)and deemed acceptable.

The estimated SD contributions are:

SUSTAINABLE DEVELOPMENT GOALS TARGETED	SDG IMPACT (DEFINED IN B.6)	ESTIMATED ANNUAL AVERAGE	UNITS OR PRODUCTS
1 No Poverty	Proportion of population living in households with access to basic services (water treatment)	20%	Percentage
4 Quality Education	Number of employees provided skill development training	5	Number of employees
5 Gender Equality	Total reduction time spent collecting water for project activity in year y	53%	Percentage
7 Affordable and clean energy	Total No of households with access to Safe Water from a clean treatment technology	35,483	Number of households
13 Climate Action (mandatory)	Total project emissions reductions	73,427	tCO2e
15 Life on Land	Total non-renewable firewood saved in the project scenario	37,550	Tonnes/year

4. DATA AND PARAMETERS FIXED EX-ANTE

Relevant SDG Indicator	SDG 13, (Climate Action), SDG 1 (No Poverty), SDG4 (Quality Education), SDG 5(Gender Equality), SDG 7(Affordable and clean energy), SDG15 (Life on Land)
Data/parameter - Description	**SDWS 1** Number of households/institutions per CWT/CWS
Unit/Value	125 (estimate) GPS coordinates for each individual water point location Number of eligible households/institutions for each water point collected in user lists

Verified Source of data	End users premises (e.g. household, institutions) within 1km distance of project water source. Recorded for each CWT/CWS installation ex-ante at the time of start of crediting period. In case of progressive installation – for new CWT/CWS units before 1st issuance for new units
Assessment	The description of the parameter is given in the section A.1 of the PDD v.4.0 .The parameter is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team

Relevant SDG Indicator	**SDG 13, Climate Action SDG 1 (No Poverty), SDG4 (Quality Education), SDG 5(Gender Equality), SDG 7(Affordable and clean energy), SDG15 (Life on Land)**
Data/parameter - Description	**SDWS 2** Project technology description
Unit/Value	N/A
Verified Source of data	CWT and CWS: Any of the following sources shall be used: - Manufacturer specifications - Commercial guarantee - Technical reports from the installer - Third-party certification by a qualified entity, for example recognized certification agency by National/ International Standard body Rehabilitated technologies: - Sources mentioned for CWT and CWS above and - Technical reports from a qualified entity that undertakes the rehabilitation Professional opinion or expert opinion is not accepted as a source for this parameter
Assessment	The description of the parameter is given in the section A.1 of the PDD v.4.0 .The parameter is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team

Relevant SDG Indicator	**SDG 1 (No Poverty), SDG 7 (affordable and clean energy) , SDG 15 (life on Land)**
Data/parameter - Description	SDWS 3 Project technology performance level

Unit/Value	Laboratories used for water quality testing must be approved by local health authorities and/or have quality accreditation; and The laboratory used shall have evidence to demonstrate that it has an adequate quality management plan in place which addresses both quality assurance and quality control test procedures. Table 4.6 Checklist for effective analytical quality assurance of WHO Guidelines, 1997 may be used as a guideline for laboratory compliance with quality assurance practices.
Verified Source of data	Water quality test report /11/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 1 (No Poverty), SDG 7 (affordable and clean energy) , SDG 15 (life on Land)**
Data/parameter - Description	SDWS 4 Regulatory framework for safe water supply
Unit/Value	N/A
Verified Source of data	National, sub-national, and local authorities
Assessment	The parameter is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 1 (No Poverty), SDG 7 (affordable and clean energy) , SDG 15 (life on Land)**
Data/parameter - Description	SDWS 5 Water sources in the project boundary
Unit/Value	21 – 100% unimproved (estimated)
Verified Source of data	Baseline Study/14/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action and SDG 15 (life on Land)**
Data/parameter - Description	SDWS 6 Stove technologies used in the project boundary
Unit/Value	N/A

Verified Source of data	80 % are Traditional Stoves, 20% are Improved Woodfuel Stoves Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"/02/
Assessment	The parameter is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action**
Data/parameter - Description	SDWS 7 Expected technical life of project technology
Unit/Value	Water Sources are designed to last for up to 20-50 years with adequate maintenance.
Verified Source of data	**CWS/CWT**: Any one of the following sources shall be used: - Manufacturer specifications - Guarantee from the installer - Third-party certification by a qualified entity, for example recognised certification agency by a National/ International Standard body If none of the required sources mentioned above are available, report of representative and robust field study results may be acceptable. **Rehabilated technologies:** Guarantee from a qualified entity that undertakes the rehabilitation Professional opinion or expert opinion is not accepted as a source for this parameter.
Assessment	The parameter is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action ,SDG 15 (life on Land) and SDG 7 (Affordable and clean Energy)**
Data/parameter - Description	SDWS 8 Xf :Percentages of fuel f use in target population
Unit/Value	Wood: 100%
Verified Source of data	Re-validation Baseline Survey:Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1" Q35/02/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action**
Data/parameter - Description	SDWS 9 EFb,f,CO2: CO2 emission factor from use of fuels

Unit/Value	112 tCO2/TJ
Verified Source of data	IPCC defaults; Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5; https://www.ipccnggip.iges.or.jp/public/ 2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustio n.pdf
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action**
Data/parameter - Description	SDWS 10 EFb,f,nonCO2: non-CO2 emission factor from use of fuels, in case the baseline fuel is biomass or charcoal
Unit/Value	9.46 tCO2e/TJ
Verified Source of data	IPCC defaults: Non-CO2 Emissions from Stationary Combustion. Annex 1, Table 2 and Table 3. https://www.ipccnggip.iges.or.jp/public/gp/bgp/2_2_NonCO2_S tationary_Combustion.pdf Global Warming Potential: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10- 2.html#table2-14
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action and SDG 15 (life on Land)**
Data/parameter - Description	SDWS 11 ***ηwb*** : Weighted average efficiency of the baseline water boiling devices
Unit/Value	0.1 % for traditional stoves and 0.2% for improved cookstoves
Verified Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"/02/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	SDG 13. Climate Action, SDG 15 (Life on Land), and SDG 7 (affordable and clean energy)
Data/parameter - Description	SDWS 14 NCV_f: Net calorific value of fossil fuel f
Unit/Value	0
Verified Source of data	IPCC defaults
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	SDG 13. Climate Action, SDG 15 (Life on Land), and SDG 7 (affordable and clean energy)
Data/parameter - Description	SDWS 15 **Cb**: Proportion of project households who in the baseline were already using a safe water supply that did not require boiling it (%)
Unit/Value	0 %
Verified Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"/02/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	SDG 5 (gender equality)
Data/parameter - Description	SDWS 19 $T_{b,y}$: Time spent collecting water per household per trip prior to project
Unit/Value	63.35 minutes (1.06 hours)
Verified Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"/02/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	SDG 15 (Life on Land),

Data/parameter - Description	SDWS 19 $P_{b,\,boil}$: Percentage of persons boiling water in the baseline
Unit/Value	100%
Verified Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"/02/
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action, and SDG 15 (Life on Land),**
Data/parameter - Description	fNRB: Fractional non-renewability status of woody biomass fuel during year y, in case the baseline fuel is biomass or charcoal
Unit/Value	0.79 %
Verified Source of data	- CDM TOOL30 v.4/B06/, Calculation of the fraction of non-renewable biomass
Assessment	The parameter is used for the calculation of emission reduction. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action, and SDG 15 (Life on Land),**
Data/parameter - Description	*Baseline :basic* Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing
Unit/Value	0%
Verified Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"/02/
Assessment	The parameter is used for the calculation of emission reduction This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

5. DATA AND PARAMETERS TO BE MONITORED

Relevant SDG Indicator	**SDG 1. No poverty and SDG 7 (affordable and clean energy)**

Data/parameter - Description	SDWS18 Mq,y: Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country.
Unit/Value	0.90 (estimated value)
Measurement methods, procedures	The National Water Quality Reference Laboratory has certified each water supply in line with national standards.
Measurement frequency	Annual sampling, and the first round of testing shall be conducted at least after six months from the start date. - 1 full water quality test annually - 3 partial water quality tests quarterly
Assessment	The parameter is used to monitoring SDG 1 and SDG 7 thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 1. No poverty, SDG 4(quality education) , and SDG 7 (affordable and clean energy)**
Data/parameter - Description	SDWS 20 Water hygiene education campaigns
Unit/Value	N/A
Measurement methods, procedures	WASH training activities Hygiene campaigns carried out among project safe water end users. The following guidelines apply for conducting these campaigns: - Hygiene refers to access to sanitation amenities, equipment and infrastructure, as well as to the behaviour in respect to regular and correct use of such amenities. It also refers to behaviour that prevents infections from water-related diseases. - The project developer shall report the activities conducted each year in a detailed "Report of annual hygiene campaigns results" and summarize the results in the project monitoring reports. - Any major changes in the health status of the water users as a result of contaminated water (e.g., an outbreak of water related disease) must be reported and, if relevant, a strategy put in place to address it through the subsequent hygiene campaign. - The detailed method used to assess hygienic handling of clean water must be provided with the PDD and verified by the VVB. - The details of the method should be adjusted to suit the circumstances of each project and also to suit learning year on year.
Measurement frequency	Annually

Assessment	The parameter is used to monitoring SDG 1 4, and 7 thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate change**
Data/parameter - Description	SDWS 22 Xcleanboil,y : Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y.
Unit/Value	0
Measurement methods, procedures	SDG 7 (Affordable and Clean Energy) 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services. SDG 13 (Climate Action), 13B: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities. SDG 15 (Life on Land) 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.
Measurement frequency	Annually
Assessment	The parameter is used to monitoring SDG 13 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate change**
Data/parameter - Description	SDWS 23 Qm,y: Monitored quantity of safe water provided by the project in year y
Unit/Value	To be measured
Measurement methods, procedures	Follow manufacturer, sector, national or international standards or guidelines for calibration and maintenance of the measurement device Determine quantity of safe water provided by the project in year The project will not be applying Qm,y as the required technology is not yet available. As soon as the required technology is available and reliable it will be implemented. Until this time Qpop,y will be applied.

Measurement frequency	Annually
Assessment	The parameter is used to monitoring SDG 13 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 1 (No poverty) and SDG 13 (climate change)**
Data/parameter - Description	SDWS 24 QPWp : Volume of drinking water per person per day for premises type p
Unit/Value	4L (default value)
Measurement methods, procedures	Deemed valid by methodology. Determine volume of drinking for quantity of safe drinking water calculations
Measurement frequency	Biennial
Assessment	The parameter is used to monitoring SDG 13& 1 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13 climate change**
Data/parameter - Description	SDWS 25 HNp,y : Number of individuals per premises type p in the project boundary in year y
Unit/Value	4.68 (from re-validation baseline survey)
Measurement methods, procedures	Household questions in survey
Measurement frequency	Annually
Assessment	The parameter is used to monitoring SDG 4 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 7 (affordable and clean energy and SDG 13 (climate change)**
Data/parameter - Description	SDWS 26 HHp,y: Number of premises type p served by the project in year y
Unit/Value	39,426 (estimated value)

Measurement methods, procedures	Household questions in survey and user lists
Measurement frequency	Annually
Assessment	The parameter is used to monitoring SDG 7, 13 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13 (climate change) and SDG 15 (life on land)**
Data/parameter - Description	SDWS 27 DOp,y: Days the project technology is operational for end-users in premises p in year y
Unit/Value	347 days (To be monitored)
Measurement methods, procedures	Maintenance log
Measurement frequency	Annually
Assessment	The parameter is used to monitoring SDG 15 &13 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG5 (gender equality)**
Data/parameter - Description	SDWS 19 Tp,y: Time spent collecting water per household per day in project
Unit/Value	30 minutes (0.5 hours) (To be monitored)
Measurement methods, procedures	survey database
Measurement frequency	Annually
Assessment	The parameter is used to monitoring SDG 5 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 1 (No poverty)**

Data/parameter - Description	SDWS 19 Paccess: Proportion of population living in HHs with access to basic service (safe water)
Unit/Value	20% (to be monitored)
Measurement methods, procedures	Proportion of access in the project compared to the baselines.
Measuring frequency	Annually
Assessment	The parameter is used to monitoring SDG 1 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 5 (Gender equality)**
Data/parameter - Description	SDWS 19 TRy: Total reduction time spent collecting water for project activity in year y (%)
Unit/Value	52.6% (estimated)
Measurement methods, procedures	Calculate the average amount of time spent collecting water in the project scenario and compare to the pre-project scenario
Monitoring frequency	Annual
Assessment	The parameter is used to monitoring SDG 5 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Relevant SDG Indicator	**SDG 13. Climate Action**
Data/parameter - Description	SDWS 35 LEy: Leakage emissions during year y
Unit/Value	0
Measurement methods, procedures and frequency	Assessed every two years using baseline and monitoring surveys
Monitoring frequency	Biennial
Assessment	The parameter is used to monitoring SDG 5 and thus acceptable to the validation team. This is in accordance with the applied methodology Emission reduction from safe drinking water supplies v.1/B02/ and thus acceptable to the validation team.

Annex 1: Assessment of fNRBi, y

Project representative CO2 Balance UK Ltd. has prepared fNRB report for a study and calculation of f_{NRB} as per CDM Methodological Tool: "Calculation of fraction of non- renewable biomass" (v04.0). The validation team confirms that it has checked f_{NRB} calculation report/07-a/ and spreadsheet/07-b/ prepared by CO2 Balance UK Ltd.

As per the applied methodological tool, In the case of ex ante calculation of $f_{NRB,}$ the parameter f_{NRB} shall be estimated using the most recent historical year for which data is available. Review of f_{NRB} report /07-a/ prepared by CO2 balance UK Ltd. revealed that all the data used for the calculation is latest available data at the time of validation.

Review of f_{NRB} calculation report/07-a/ and spread sheet /07-b/ prepared by CO2 Balance UK Ltd. Fraction of Non-renewable biomass (fNRB) is the quantity of wood harvested in excess of the incremental growth rate (Non-renewable biomass; NRB) expressed as a fraction of the total harvest (Bailis et al., 2015). Following guidance from the CDM Tool 30 v4.0, a fraction of non-renewable biomass (fNRB) value of 0.79 was calculated for Eritrea for the year 2023. This value is derived from a woody biomass consumption of 1,669,512 tDM and a renewable biomass of 349,854 tDM which is deemed appropriate to the VVB.

In Eritrea, three ecological zone has been found i.e., Tropical dry forest, Tropical moist forest, Tropical shrubland the same was verified by referring the FAO data through web-research. VVB has noted that in the f_{NRB} report /07-a/ geospatial data products for Eritrea were analyzed in R to estimate Eritrea's renewable biomass. The woody cover from all areas defined as "forest" (>10%) cover "other wooded land" (5-10% cover) as well as "other land" (<5% cover).

The woody cover was disaggregated according to the FAO global ecological zones and the total woody cover extent was calculated for each ecological zone, within the protected areas and within areas that are either accessible or geographically remote. The woody cover is estimated as a percentage for the whole country within 30 x 30 m resolution grid cells. The woody cover extent for each cell is therefore calculated as the woody cover percentage multiplied its area (0.9 ha).

Table below provides Annual increment (tonnes/ha/year) in forest areas and other land areas in the following Global Ecological Zones (GEZ; UN FAO, 2012) in Eritrea: tropical shrubland, tropical desert, tropical mountain system

Global Ecological Zone	Total forest cover (ha)	Protected cover (ha) and inacessable area (ha)	GEZ description	ΣMAI_F	ΣMAI_P
14	7,076,214	6,167,052	Tropical shrubland	976,822	847,622
15	1,960,958	1,752,931	Tropical Desert	162,882	144,132

16	2,278,757	1,631,332	Tropical Mountain system	791,775	589,871

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilization in Eritrea is , therefore, validated as 1,669,512 tDM. The fraction of non-renewable biomass is the quotient of the non-renewable and the total biomass. The fraction of non-renewable biomass for Eritrea is, therefore, validated as 0.79.

From the review of this report/07-a/ and spread sheet /07-b/ and interviews with the CME, validation team confirms the following:

- The detailed methodology (including the calculation) of conducting the study has been provided in the report /spreadsheet/07-b/.
- The study has been done in accordance with the CDM Methodological Tool 30: "Calculation of fraction of non-renewable biomass" (v04.0) including the equitation used and the data source as required by the tool.
- All the reference and data source used for the calculation/study has been listed and assessed by the VVB.

In the opinion of validation team, the calculation and placement of f_{NRB} is correct and in line with the CDM Methodological tool 30: Calculation of the fraction of non-renewable biomass (v04.0) and thus acceptable to the validation team.