

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT – **TEMPLATE GUIDE Monitoring Report v. 1.1**

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Key Project Information

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KEY PROJECT INFORMATION

Programme of Activity Information – (delete below table if N/A)

GS ID of Programme	GS1247
Title of Programme	Improved Kitchen Regimes Multi-Country PoA (GS1247)
Version of POA-DD applicable to this monitoring report	Version 9
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	VPA 122 – GS 5951 VPA 123 – GS 5952 VPA 124 – GS 5953 VPA 125 – GS 5954 VPA 126 – GS 5955 VPA 129 - GS 6041 VPA 130 – GS 6042

Key Project Information

GS ID (s) of Project (s)	VPA 122 – GS 5951 VPA 123 – GS 5952 VPA 124 – GS 5953 VPA 125 – GS 5954 VPA 126 – GS 5955 VPA 129 - GS 6041 VPA 130 – GS 6042
Title of the project (s) covered by monitoring report	GS1247 VPA 122 Zoba Anseba Community Safe Water (GS5951) GS1247 VPA 123 Zoba Anseba Community Safe Water (GS5952) GS1247 VPA 124 Zoba Anseba Community Safe Water (GS5953) GS1247 VPA 125 Zoba Anseba Community Safe Water (GS5954) GS1247 VPA 126 Zoba Anseba Community Safe Water (GS5955) GS1247 VPA 129 Zoba Anseba Community Safe Water (GS6041) GS1247 VPA 130 Zoba Anseba Community Safe Water (GS6042)
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	Version 2 (All VPAs)
Version number of the monitoring report	Version 2
Completion date of the monitoring report	07/07/2023
Date of project design certification	04/04/2018

Date of Last Annual Report	13/12/2022
Monitoring period number	MP5, MP3
Duration of this monitoring period	GS5951: (01/12/2021) to (30/11/2022) MP5 GS5952: (01/12/2021) to (30/11/2022) MP5 GS5953: (01/12/2021) to (30/11/2022) MP5 GS5954: (01/12/2021) to (30/11/2022) MP5 GS5955: (01/12/2021) to (30/11/2022) MP5 GS 6041: (01/12/2021) to (30/11/2022) MP3 GS 6042: (01/12/2021) to (30/11/2022) MP3
Project Representative	Rebecca Barton, CO2balance UK Ltd Chiara Martin, CO2balance UK Ltd
Host Country	Eritrea
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	TPDDTEC v.1 Technologies and Practices to Displace Decentralized Thermal Energy Consumption v.1
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

For all VPAs

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 3 Good Health and Well-being	Variation in household smoke (All VPAs)	95.00% decrease in household smoke (All VPAs)	Percentage
SDG 5 Gender Equality	Variation of time spent on firewood collection	0.61 decrease in hours spent collecting firewood per household per day (All VPAs)	Hours
SDG 6 Clean Water and Sanitation	People gain access to safe water	Additional people gain access to safe water: GS 5951: 2,402 GS 5952: 1,920 GS 5953: 1,793	Number of people

		GS 5954: 1,808 GS 5955: 1,610 GS 6041: 3,452 GS 6042: 3,082 Total: 16,066	
SDG 13 Climate Action	Emission Reductions	SDG 13: tCO ₂ e/y per VPA	VERs
		GS5951: 4,260 GS5952: 3,404 GS5953: 3,181 GS5954: 3,206 GS5955: 2,856 GS6041: 6,127 GS6042: 5,467 Total: 28,501	

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	VERs
01/12/2021	31/12/2021	GS5951: 361 tCO ₂ e GS5952: 287 tCO ₂ e GS5953: 269 tCO ₂ e GS5954: 270 tCO ₂ e GS5955: 241 tCO ₂ e GS6041: 519 tCO ₂ e GS6042: 462 tCO ₂ e
01/01/2022	30/11/2022	GS5951: 3,899 tCO ₂ e GS5952: 3,117 tCO ₂ e GS5953: 2,912 tCO ₂ e GS5954: 2,936 tCO ₂ e GS5955: 2,615 tCO ₂ e GS6041: 5,608 tCO ₂ e GS6042: 5005 tCO ₂ e

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

>> In Eritrea over 45% of the rural population do not have access to safe water and rely exclusively on unprotected wells, lakes and other open water sources that are highly susceptible to contamination. Annexed from Ethiopia in 1962, the country has experienced periodic conflict and continuing tensions in the region.

Armed conflict, mandatory military service and external migration, takes men away from their villages and means that many rural families are headed by women, often widows. Female headed households in Eritrea face several disadvantages and as a result they cultivate less land and have fewer assets. These women then bear the burden of producing food as well as providing care for their families, including travelling to collect firewood and water.

Many existing boreholes in Eritrea have fallen into disrepair because maintenance programmes have been poorly managed, or proven too expensive leaving people without access to clean water. CO2balance's project partner Vita has worked to identify broken down boreholes, renovate them and supply a maintenance programme to ensure that clean, safe water is delivered as a result of this project. The boreholes included under the project are entirely human operated and fitted with hand pump models that are commonly used in the area such as Afridev, U3 Modified and India Mark II pumps.

Zoba Anseba is a largely rural district in which many local people typically use wood fuel on inefficient three stone fires to purify their drinking, cleaning and washing water. This process results in the release of greenhouse gas emissions from the combustion of wood which can be avoided if a technology that does not require fuel (wood or fossil) supplies clean water desired by households. By providing safe water this project ensures that households consume less firewood during the process of water purification and therefore reduce greenhouse gas emissions from the combustion process.

In total 66 boreholes were rehabilitated as part of this project between the 2nd November 2017 and 17th March 2020. The date, location and number of people served by each borehole are given in the table below, which forms the project database. In line with the GS BAMG report, the users per borehole are capped to 300 people.

VP A ID	GS ID	Borehole ID	Borehole Model	Village name	Latitude	Longitude	Date of rehab	People	Capped people
122	5951	ZA002	Mark II	Etharewyatat	16.26033	38.40542	02/11/2017	310	300
122	5951	ZA003	Mark II	Kedhat	16.17030	38.42163	03/11/2017	318	300
122	5951	ZA012	Mark II	Balwa	15.67374	38.69865	10/11/2017	541	300
122	5951	ZA017	Mark II	Aditafila	15.61317	38.62729	17/11/2017	217	217
122	5951	ZA020	Mark II	Bekushemnuk	15.59462	38.64577	18/11/2017	196	196
122	5951	ZA021	Mark II	Wasdamba 1	15.65963	38.57862	21/11/2017	242	242
122	5951	ZA035	Mark II	Kush	16.14950	38.05349	08/12/2017	104	104
122	5951	ZA037	Mark II	Orota	16.17624	37.95590	12/12/2017	369	300
122	5951	ZA039	Mark II	Shirara 2	15.81786	38.86357	16/12/2017	282	282
122	5951	ZA041	Mark II	Weledteshim	16.15750	38.07294	19/12/2017	287	287
123	5952	ZA005	Mark II	Karibosa	15.80716	38.38365	04/11/2017	210	210
123	5952	ZA010	Mark II	Jertem	15.68129	38.61430	09/11/2017	276	276
123	5952	ZA027	Mark II	Ghergher	15.77427	38.68305	26/11/2017	588	300

123	595 2	ZA030	Mark II	Deghedeg	15.58268	38.77090	28/11/2017	103	103
123	595 2	ZA031	Mark II	Glass	15.71860	38.31357	30/11/2017	232	232
123	595 2	ZA033	Mark II	Asmat	16.15725	38.07292	08/12/2017	319	300
123	595 2	ZA038	Mark II	Shirara 1	15.81800	38.86359	16/12/2017	304	300
123	595 2	ZA042	Mark II	Dighi	15.75369	38.48991	21/12/2017	340	300
124	595 3	ZA004	Mark II	Guluy	16.19030	38.41542	03/11/2017	241	241
124	595 3	ZA006	Mark II	Robto	15.74029	38.66324	07/11/2017	134	134
124	595 3	ZA007	Mark II	Garalebu	15.73062	38.67674	07/11/2017	135	135
124	595 3	ZA009	Mark II	Jemberek	15.75284	38.66217	08/11/2017	198	198
124	595 3	ZA015	Mark II	Hamrehamare b 1	15.62318	38.62206	17/11/2017	1349	300
124	595 3	ZA019	Mark II	Firkutu	15.628	38.65469	18/11/2017	271	271
124	595 3	ZA029	Mark II	Marat	15.86812	38.67113	27/11/2017	199	199
124	595 3	ZA036	Mark II	Embelday	16.33935	37.78753	09/12/2017	109	109
124	595 3	ZA040	Mark II	Shindwa	15.61528	38.71335	18/12/2017	360	300
125	595 4	ZA013	Mark II	Haddishadi 1	15.64937	38.57620	11/11/2017	729	300
125	595 4	ZA018	Mark II	Tuumkofa	15.62773	38.62445	17/11/2017	322	300
125	595 4	ZA024	Mark II	Iratahtai 2	15.6922	38.73472	22/11/2017	144	144
125	595 4	ZA025	Mark III	Hashishay 1	15.78612	38.14242	24/11/2017	259	259
125	595 4	ZA028	Mark II	Gherbet	15.83531	38.74289	27/11/2017	370	300
125	595 4	ZA032	Mark II	Golagul	15.57881	38.79442	05/12/2017	451	300
125	595 4	ZA034	Mark II	Hawish	16.19937	38.06788	08/12/2017	362	300
126	595 5	ZA008	Mark II	Adkom	15.75306	38.64642	08/11/2017	334	300
126	595 5	ZA011	Mark II	Habrenkeka	15.64808	38.70981	09/11/2017	110	110
126	595 5	ZA014	Mark II	Haddishadi 2	15.64992	38.62321	13/11/2017	618	300
126	595 5	ZA016	Mark II	Hamrehamare b 2	15.62401	38.62231	17/11/2017	1339	300
126	595 5	ZA022	Mark II	Wasdemba 2	15.66615	38.57717	21/11/2017	248	248
126	595 5	ZA023	Mark II	Iratahtai 1	15.69231	38.73512	22/11/2017	149	149

126	595 5	ZA026	Mark II	Hashishay 2	15.78601	38.13548	24/11/2017	288	288
129	604 1	ZA044	Mark II	Kerecha	15.69565	38.70827	17/02/2020	1400	300
129	604 1	ZA045	Mark II	Derkunoq	15.67422	38.47146	19/02/2020	486	300
129	604 1	ZA046	Mark II	Libena	15.8816	38.36962	20/02/2020	248	248
129	604 1	ZA047	Mark II	Shirarwa	15.8631	38.37806	20/02/2020	1968	300
129	604 1	ZA048	Mark II	Habena	15.8259	38.75315	25/02/2020	713	300
129	604 1	ZA049	Mark II	Bosa-Begu	15.72878	38.46433	26/02/2020	229	229
129	604 1	ZA050	Mark III	Ferhen	15.80188	38.56108	26/02/2020	434	300
129	604 1	ZA053	Mark II	Enchinaq	15.73324	38.32682	28/02/2020	696	300
129	604 1	ZA059	Mark II	Jengenait	15.93877	38.27981	05/03/2020	613	300
129	604 1	ZA064	Mark II	Yigar	15.73264	38.60712	11/03/2020	1444	300
129	604 1	ZA065	Mark II	Jufa	15.75237	38.46888	14/03/2020	185	185
129	604 1	ZA066	Mark II	Abdura	15.86134	38.38472	16/03/2020	312	300
129	604 1	ZA067	Mark II	Caedakirak	15.86133	38.38485	17/03/2020	272	272
130	604 2	ZA043	Mark II	Habrenkeka	15.64887	38.71166	17/02/2020	126	126
130	604 2	ZA051	Mark II	Dobiat	15.70677	38.32415	27/02/2020	304	300
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130	604 2	ZA054	Mark II	Hawatsi	16.13941	38.13591	01/03/2020	357	300
130	604 2	ZA055	Mark II	Embelday	16.35044	37.96732	01/03/2020	118	118
130	604 2	ZA056	Mark III	Forto	15.75237	38.46888	03/03/2020	334	300
130	604 2	ZA057	Mark II	Kertset	16.1273	38.22351	03/03/2020	2297	300
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130	604 2	ZA060	Mark II	Gerbet	16.00402	38.25826	05/03/2020	1270	300
130	604 2	ZA061	Mark II	Hilet	16.01433	38.21915	05/03/2020	1500	300
130	604 2	ZA062	Mark II	Gam	15.91106 1	38.49687	09/03/2020	1028	300

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ZA024

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ZA021

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ZA051

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ZA052

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ZA053

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ZA054

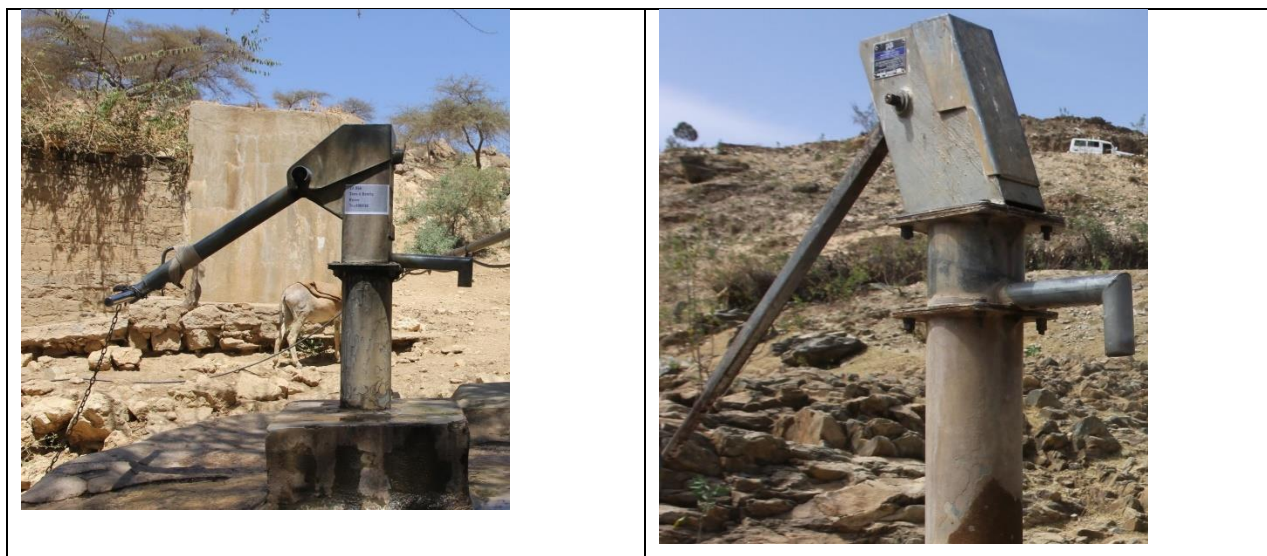
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15.73264	38.60712				
15.75237	38.46888				
ZA066 <table border="1" data-bbox="165 1700 654 1744"> <tr> <td>15.86134</td><td>38.38472</td></tr> </table>	15.86134	38.38472	ZA067 <table border="1" data-bbox="807 1700 1295 1744"> <tr> <td>15.86133</td><td>38.38485</td></tr> </table>	15.86133	38.38485
15.86134	38.38472				
15.86133	38.38485				

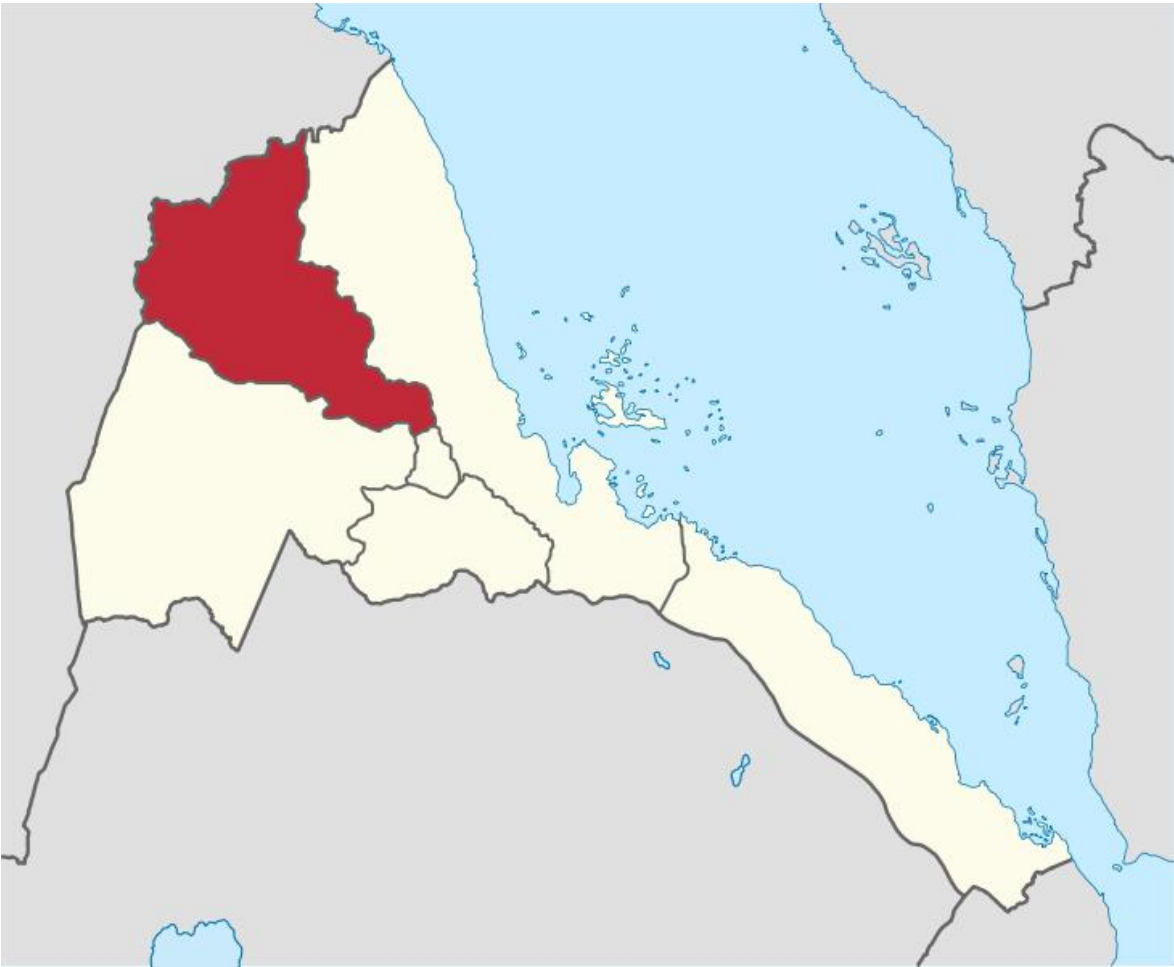


The date of rehabilitation was confirmed by a Repair Confirmation Form which was signed by the mechanic carrying out the repair along with a village administrator from the local community. The date of rehabilitation was used as the start date of operation and crediting for each borehole; we have conservatively assumed that the first day of crediting is not counted.

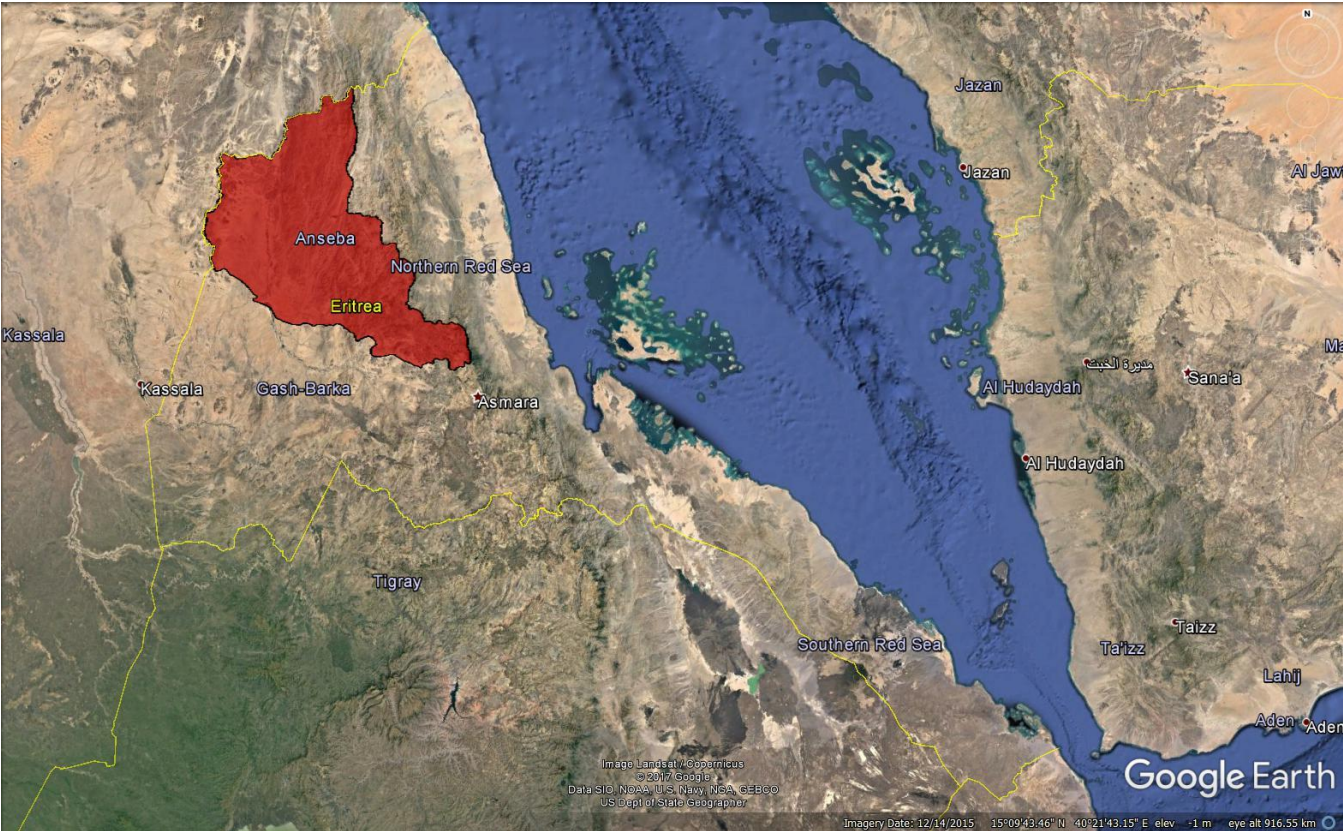
The number of days each borehole credited for in this monitoring period was multiplied by the number of people using the borehole to give the total number of project technology days for that borehole. The individual project technology days for each borehole were totaled to give the total number of project technology days for this monitoring period.

A.2. Location of project

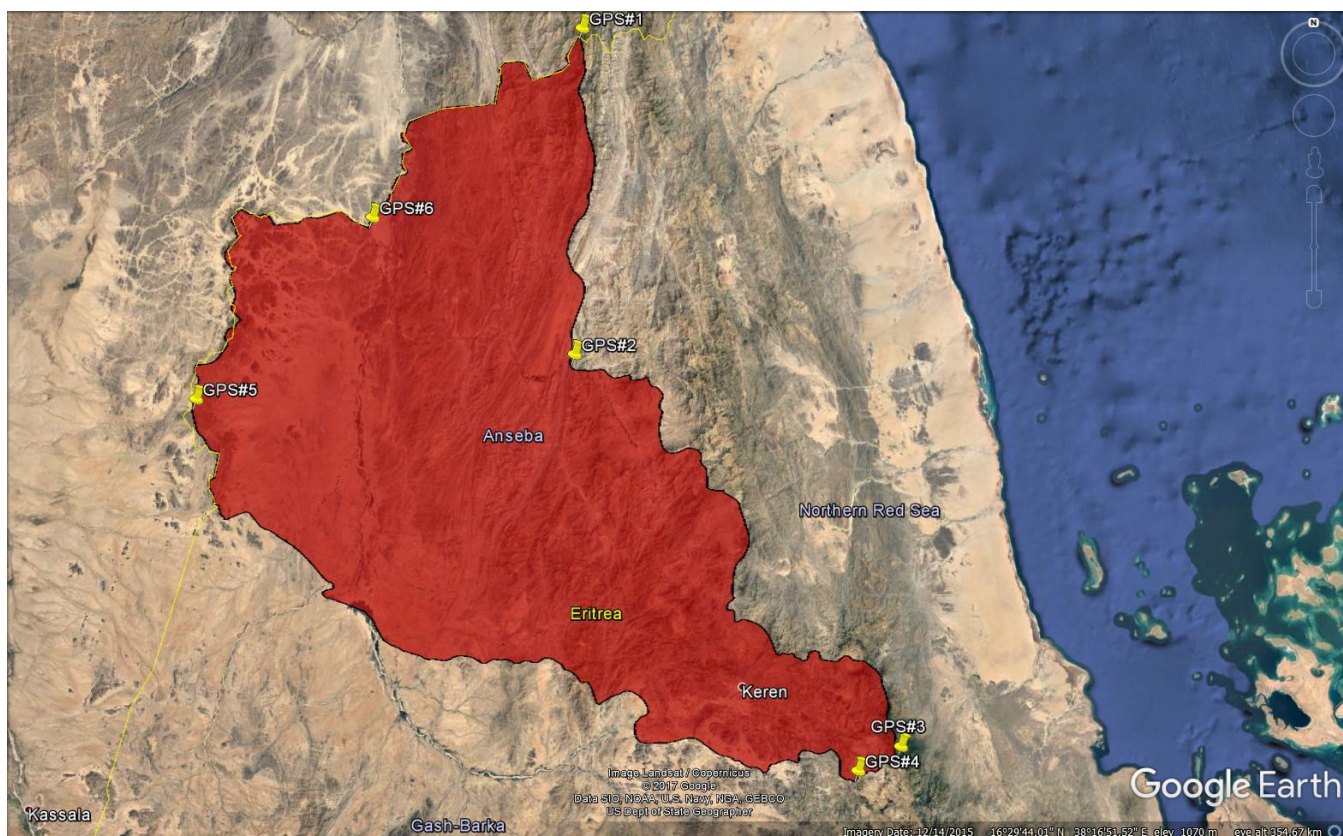
>> Below is the geographic reference to allow unique identification of the project boundary for the project. The district Zoba Anseba, Eritrea is marked in red on the Google Earth images. The target area and the fuel collection area are defined as being contained within project boundary, with the outer limits of the project boundary being clearly defined below. As the majority of beneficiaries collect their wood fuel locally in close proximity to their homesteads, the woodfuel collection area and target area are considered the same.



Map 1 showing in red the district of Zoba Anseba, Eritrea.



Map 2 showing in red the district of Zoba Anseba, Eritrea



Map 3 showing in red the district of Zoba Anseba, Eritrea and the GPS coordinates of the project boundary.

Project Area Coordinates		
	Latitude	Longitude
GPS1	17°33'14.79"N	38° 0'28.27"E
GPS2	16°39'54.06"N	37°58'31.30"E
GPS3	15°35'2.36"N	38°53'15.55"E
GPS4	15°31'10.73"N	38°45'57.03"E
GPS5	16°33'6.39"N	36°53'18.85"E
GPS6	17° 2'46.75"N	37°23'56.05"E

A.3. Reference of applied methodology

>> This project utilises the Gold Standard Methodology ‘Technologies and Practices to Displace Decentralized Thermal Energy Consumption V.01’.

A.4. Crediting period of project

>> The date of rehabilitation was used as the start date of operation. It was conservatively assumed that the first day of crediting is not counted and the crediting period begins the following day after the borehole is

rehabilitated. The length of the crediting period is to be 7 years, twice renewable totaling 21 years as per the approved PDD.

Please find the start dates for the projects below (crediting period begins the following day):

Project ID	Start Date	Crediting period start date	Crediting period end date
5951	02/11/2017	03/11/2017	02/11/2024
5952	04/11/2017	05/11/2017	04/11/2024
5953	03/11/2017	04/11/2017	03/11/2024
5954	11/11/2017	12/11/2017	11/11/2024
5955	08/11/2017	09/11/2017	08/11/2024
6041	17/02/2020	18/02/2020	17/02/2027
6042	17/02/2020	18/02/2020	17/02/2027

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

Vita has rehabilitated 66 Mark II boreholes as part of these projects and all boreholes under the VPAs are in good working order. The implementation of the project is in line with the approved PDD and all boreholes are fully operational as per design to ensure water demand is met for end users. For boreholes that went through technical problems and that were not functional during this entire monitoring period, the non-functional days have been discounted from the ERs. The table below summarises the maintenance and breakdown details for when the boreholes were not operational in this monitoring period.

GS ID	VPA	BH ID	Breakdown Start Date	Breakdown End Date	Days	Description
GS5952	123	ZA030	12/07/2022	14/07/2022	3	Replacement of the Cylinder
GS5953	124	ZA004	31/01/2022	03/02/2022	4	Replacement of the Cylinder
GS5953	124	ZA004	19/09/2022	22/09/2022	4	Replacement of the Cylinder
GS5954	125	ZA028	02/07/2022	04/07/2022	3	Rod and chain replaced
GS5955	126	ZA026	14/03/2022	17/03/2022	4	Rod and chain replaced
GS6041	129	ZA049	22/01/2022	25/01/2022	4	Pipe, rubber ring replaced
GS6041	129	ZA049	11/09/2022	14/09/2022	4	Replacement of pipes

All boreholes undergo annual water quality testing to ensure the water is safe for human consumption as WHO drinking water standards. The water quality is approved by the Ministry of Land, Water and Environment in Zoba Anseba. Monitoring surveys are conducted in compliance with the latest available sampling and monitoring guidelines, according to TPDDTEC v1 methodology.

Requirements within TPDDTEC v1 methodology for monitoring surveys are as follows:

Relevant Section	Requirement(s)	Compliance
3.1.C	Monitoring surveys are completed annually, beginning 1 year after project registration	Monitoring Surveys have been completed annually, beginning 1 year after project registration in the first monitoring period.
3.1.C – Monitoring Survey Representativeness	End users from a given project scenario are selected using representative sampling techniques to ensure adequate representation of users with technologies of different ages. Common sampling approaches such as clustered random sampling are allowed and geographic distribution should be factored into selection criteria. End users can be surveyed at any time(s) throughout the year with care taken to collect information pertaining to seasonal variations in technology and fuel use patterns.	A random sampling approach was used to select representative users for the monitoring surveys. Surveys are conducted through use of a Random Sample Group (RSG) generated from all boreholes that are being cross-sampled during this monitoring period. The size of the sample group is selected so the number of boreholes samples satisfies 90/30 precision. Using a sample size calculator, it was determined that a sample of 6 boreholes aged 2-3 years and 7 boreholes aged 4-5 years were required. The households are then randomly selected (through a random

number generator process)
from the RSG of
boreholes to comply with
minimum sample size
requirements for each
survey.

PP has uploaded an Excel
document displaying the
Random Sample Process.
This document displays
the locations identified for
sampling. Screenshots of
the age-wise sampling are
below.

All monitoring surveys
took place between
09/08/22 and 18/08/22,
the specific date and
location of each survey is
included in the monitoring
result spreadsheets
submitted to GS.

3.1.C – Monitoring Survey
sample sizing and data
collection

The monitoring survey is only
conducted with end users
representative of the project scenario
and currently using the project
technology.

The monitoring surveys
include questions which
determine if the
respondent is
representative of the
project scenario. If not,
then the respondent is not
included in the survey
results.

The minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited.

The sample size for the monitoring period was 120, satisfying sample size requirements.

For the WCFT, TPDDTEC v1 guidance on representativeness, sample sizing and variability from section II.4 is applicable:

Relevant Section	Requirement(s)	Compliance
2.7 – Representativeness	The [WCFT] must be designed to ensure monitoring is representative of typical technology and [water] use practices. Households must behave and consume [water] normally. [WCFTs] are always required so as to capture the potential use of the baseline technologies as backup, or potential introduction of an emitting backup technology introduced in parallel.	The WCFT survey introduction stresses the importance of normal household activity being maintained throughout the survey. The WCFT contains survey questions designed to capture any continued baseline practices, such as boiling water or collecting from unsafe sources.
2.7 – Sample Sizing and Statistical Estimate of the Fuel or Emission Savings	Sample sizes must be greater than 20. The 90/30 rule is to be complied with when sample sizes are large enough.	The sample size for the WCFT was 40 meaning the 90/30 rule was used.

Annex 4	Applicable sections to WCFT within steps 1-8.	1. A random sampling method determined survey participants. 2. This survey was carried out between (15/08/2022 – 18/08/2022). This was an appropriate time of year where normal practices could be observed. 3. The WCFT survey introduction stresses the importance of normal household activity being maintained throughout the survey. 7. The WCFT results contain an outlier analysis
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Furthermore, grievance expression process books placed at all boreholes have received only positive feedback and Vita field staff have not received any other feedback during this monitoring period from the borehole users on damage or breaking of boreholes therefore it can be assumed that the project is running as planned.

B.1.1 Forward Action Requests

Forward Action Request # 1: The duplication check for user lists for boreholes and its outcome shall be demonstrated by the PD in the next verification.

PP runs duplicate checks for all user lists, in this way double counting of the users is avoided.

Forward Action Request # 2: PD shall submit the evidence regarding grievance received for this and next monitoring period during the next verification.

PP has submitted the comments received please refer to "log Comments Translated Anseba" and "Log comments Original Anseba" pdf files.

B.2. Post-Design Certification changes

>> NA

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

>>NAB.2.2. Corrections

>> NA

B.2.3. Changes to start date of crediting period

N/A

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

NA

B.2.5. Changes to project design of approved project

>> NA

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

All surveys are administered by trained staff that are local to the area and conversant in the local dialects to ensure that the responses are consistent and not biased by any regional language barriers. Each participant is provided with a briefing on the purpose of the survey and is assured that no individual names are used in the analysis.

The results of the surveys are collated in excel spreadsheets by a minimum of two Eritrea Vita staff involved in typing up the monitoring data into excel and cross-checking the data. The excel data is then stored on a central server in an electronic format and sent to the UK head office for data analysis. The documentation procedure ensures a minimum chance of original data being lost – all original copies of our project documentation are retained in the Eritrean office and are available scanned upon request of the UK team. UK staff use scanned copies to check data input and quality control before submitting for verification.

In accordance with the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption, the survey samples are randomly selected from the borehole user record and are determined in accordance with the required confidence/precision. The size of the sample is dependent on the methodological requirements and variance of the parameter being monitored to ensure the parameters measured satisfy 90/30 precision (90% confidence interval and 30% margin of error). The sample is reselected for every monitoring period to ensure the selection remains random.

Below is a summary of the key information that has been collected and monitored as part of this project;

Borehole database

The borehole installation/rehabilitation record includes the following information:

- Date of installation/rehabilitation
- Quantity of boreholes installed
- The total number of people obtaining their water from each borehole

The total number of households using each borehole has been determined through the lists supplied by the community group and or district water officer responsible for that borehole. Using this method, the total number of people using each borehole has been determined and hence a figure for person days can be calculated.

Ongoing Monitoring Studies

The following ongoing monitoring studies were conducted; the results are given in the parameter boxes tables in Section 6.

- **Water consumption field test** (Equation parameters $Q_{p,y}$ and $Q_{p,rawboil,y}$) – Completed prior to first verification and then biennially after first verification.
- **Quality of the treated water** – The quality of the treated water will be assessed to ensure that it is fit for human consumption. The parameters used to assess the water quality will be in line with Eritrean standards for potable water and all parameters will be shown to be within levels considered acceptable for domestic human consumption. The Water Resource Department from the Ministry of Land, Water & Environment has certified each water supply as in line with national standards. The Eritrean standards are based on the WHO standards.
- **Usage Survey** – As all boreholes have been installed within 1 year of the start of the crediting period and are expected to last the lifetime of the project, minimum samples of 30 for different aged technologies will not be necessary. Therefore, 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 120 households, surveying end users currently using project technologies to explore changes in project scenario over time. Data collected during the project surveys explores the following characteristics:
 - General information – Name, address, telephone number etc.
 - Household socio-demographic information.
 - Water use and purification characteristics.
 - Sources and availability of fuel.
- **Leakage Assessment** – The PDD has described which sources of leakage detailed within the methodology are relevant to this project and which have been discounted.

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

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

In all cases the baseline technologies displaced are three stones; these have no market value and are not a product as such. There is nothing limiting the use of three stone cooking across the country (the technology is lowest rung on the energy ladder and the price is zero), which is why this cooking method is so widespread. In any case the primary purpose of these three rocks is for cooking so they will not be replaced/displaced in their entirety as a result of this project – which means they will not be reused outside the project boundary. This leakage source can therefore be discounted.

b) The non-renewable biomass or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.

There is no evidence to suggest significant (if any) use of renewable energy for purifying water in the project region as found in the Baseline Water Surveys. As solar purification devices are not used, renewable energy used for purifying water would likely be animal dung or crop residues which will be used due to ease of availability/proximity to the home rather than due to a shortage of wood fuel, therefore it is an independent factor. This leakage source can therefore be discounted.

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

As the majority of participants collect wood from within the project boundary, it is not expected that the NRB in other areas will be affected. There are currently no other CDM or VER projects in the project area.

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

The space heating effect of boiling water for purification purposes will be minimal, as the predominant use of baseline technology is for cooking. Therefore it is highly unlikely that another technology will be used for heating when users no longer boil water.

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

This project is not marketing efficient technology; it is eliminating the need for a fuel based technology to deliver pure water. Lower emission technology substitution within households is therefore not possible and this leakage source can therefore be discounted. Therefore, a value of 0 is applied for leakage.

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

Cross Sampling

The project proponent has elected to cross-sample technologies across all its homogenous borehole VPAs located within Zoba Anseba (GS 5951-55, 6041-42). The samples for the survey listed below are randomly selected from the borehole information databases using the RSG procedure in line with the minimum sample size requirements as defined by the methodology. Cross sampling will be applied to the following surveys;

- Project Surveys- Completed annually,
- Usage Surveys- Completed annually,
- Water Consumption Field Tests- Completed biennially

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	C_j
Unit	Percentage
Description	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply.
Source of data	Baseline study.
Value(s) applied)	0.00%
Choice of data or measurement methods and procedures	The portion of safe water users is determined through the baseline project survey and refers to the number of users that already use safe water from water sources such as boreholes. Deemed valid by Methodology.
Purpose of data	Calculation of emission reductions and SDG 6 impact.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$EF_{b,co2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in baseline scenario
Source of data	IPCC default value
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology.

Purpose of data	Calculation of baseline emissions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	EF _{p,co2}
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor arising from use of wood fuel in project scenario
Source of data	Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology.
Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)																							
Data/parameter:	EFp,non co2																							
Unit	tCO ₂ e/TJ																							
Description	Non-CO ₂ (CH ₄ and N ₂ O) emission factor arising from use of wood fuel in baseline scenario																							
Source of data	Default emissions factor: https://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_2_Non-CO2_Stationary_Combustion.pdf 1. https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf 2. Global Warming Potential: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14																							
Value(s) applied)	9.46																							
Choice of data or measurement methods and procedures	Deemed valid by Methodology <table border="1"> <thead> <tr> <th>Gas</th><th>Default Emissions factor (kg_gas/TJ_{NCV})</th><th>GWP of gas</th><th>Default Emissions factor (kg_CO₂e/TJ_{NCV})</th><th>Default Emissions factor (t_CO₂e/TJ_{NCV})</th></tr> </thead> <tbody> <tr> <td>CH₄</td><td>300</td><td>28</td><td>8400</td><td>8.4000</td></tr> <tr> <td>N₂O</td><td>4</td><td>265</td><td>1,060</td><td>1.060</td></tr> <tr> <td></td><td></td><td></td><td>Total</td><td>9.46</td></tr> </tbody> </table>				Gas	Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})	CH ₄	300	28	8400	8.4000	N ₂ O	4	265	1,060	1.060				Total	9.46
Gas	Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})																				
CH ₄	300	28	8400	8.4000																				
N ₂ O	4	265	1,060	1.060																				
			Total	9.46																				
Purpose of data	Calculation of emission reductions.																							
Additional comments	This value corresponds with updated AR5 GWP value. AR5 - https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf																							
Relevant SDG Indicator	SDG 13.B.1 (Climate Action)																							
Data/parameter:	NCV _b																							
Unit	TJ/ton																							
Description	Net calorific value of the wood fuel used in the baseline																							
Source of data	http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf#Table_1.2																							
Value(s) applied)	0.0156																							
Choice of data or measurement methods and procedures	Deemed valid by Methodology.																							
Purpose of data	Calculation of emission reductions.																							
Additional comments	-																							

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	NCV _p
Unit	TJ/ton
Description	Net calorific value of the wood fuel used in the project
Source of data	http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf Table 1.2
Value(s) applied)	0.0156
Choice of data or measurement methods and procedures	Deemed valid by Methodology.
Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	f _{NRB,i,y}
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	CDM Default stated in following document: https://cdm.unfccc.int/Panels/ssc_wg/meetings/035/ssc_035_an20.pdf
Value(s) applied)	0.97
Choice of data or measurement methods and procedures	Default values of fraction of non-renewable biomass as outlined by the UNFCCC CDM.
Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	W _{b,y}
Unit	T/litre
Description	Quantity of wood fuel that is used to treat 1 litre of water in the baseline scenario b during year y
Source of data	Baseline Water Boiling Test (Baseline Water Boiling Test_v1), BAMG report
Value(s) applied)	0.0004 (0.000577 original)

Choice of data or measurement methods and procedures	The baseline water boiling test is used to determine the amount of wood used to purify 1 litre of water by boiling. This data is gathered according to: <i>Technologies and Practices to Displace Decentralized Thermal Energy Consumption</i> Version 1, <i>Draft General Guidelines On Sampling And Surveys</i> ; EB37 Annex 27; and <i>Standard For Sampling And Surveys For CDM Project Activities and Programme of Activities</i> (Version 02); EB65 Annex 2. The value applied was derived from the BWBT was 0.000577, as referenced in the PDD, but it has since been capped at 0.0004 in line with GS requirements of the BAMG report.
Purpose of data	Calculation of emission reductions and impact on SDG 3.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	$W_{p,y}$
Unit	T/litre
Description	Quantity of wood fuel that is used to treat 1 litre of water in the project scenario p during year y
Source of data	Baseline Water Boiling Test (Baseline Water Boiling Test_v1), BAMG report
Value(s) applied)	0.0004 (0.000577 original)
Choice of data or measurement methods and procedures	The baseline water boiling test is used to determine the amount of wood used to purify 1 litre of water by boiling. This data is gathered according to: <i>Technologies and Practices to Displace Decentralized Thermal Energy Consumption</i> Version 1, <i>Draft General Guidelines On Sampling And Surveys</i> ; EB37 Annex 27; and <i>Standard For Sampling And Surveys For CDM Project Activities and Programme of Activities</i> (Version 02); EB65 Annex 2. The value applied was derived from the WBT but has been capped at 0.0004 in line with GS requirements.
Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	Xboil Non Suppressed Demand
Unit	Percentage
Description	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary.
Source of data	Baseline study (Zoba Anseba Baseline Survey Final). Credible literature, studies, survey, reports, relevant to the project target area
Value(s) applied)	2%
Choice of data or measurement methods and procedures	Suppressed demand will be determined through a set of questions in the project survey that establish the method households use to purify their water, if any, and how they would choose to purify if they were not subject to monetary and access barriers. This is in line with the Gold Standard principles of suppressed demand outline in annex 2. A fixed suppressed demand baseline has been opted for, however, in the event the project surveys show a substantial change in fuel use characteristics, a new baseline shall be conducted.

Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	$T_{b,y}$
Unit	Hours
Description	Baseline time spent collecting firewood per household per day
Source of data	Baseline survey (Zoba Anseba Baseline Survey Final)
Value(s) applied)	2.26
Choice of data or measurement methods and procedures	Established through questions in the baseline on a representative sample of the end users.
Purpose of data	To measure the % decrease in hours spent collecting firewood, a responsibility falling disproportionately on women, as an indicator of reduced time poverty of women. For SDG 5 target.
Additional comments	-

Relevant SDG Indicator	SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	$P_{b,y}$
Unit	Kg/person
Description	Quantity of fuel that is consumed in the baseline scenario b during year y (kg/person-day)
Source of data	Baseline Survey
Value(s) applied)	2.8
Choice of data or measurement methods and procedures	Baseline Water Boiling Test Result.
Purpose of data	Calculating quantity of fuel used in the baseline scenario.
Additional comments	-

D.2 Data and parameters monitored

>>

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	$N_{p,y}$
Unit	Project Technology Days
Description	Number of persons consuming water supplied by project scenario p through year y
Measured/calculated/default	calculated
Source of data	Borehole Project Database (GS5951-55 6041-42_ERs_calcs_2) (Sales_Record_Confidential_2023_v1)

Value(s) of monitored parameter	GS 5951: 876,584 (Downdays: 0 days, 0%) (uncapped 993,786) GS 5952: 700,782 (Downdays: 3 days, 0.11%) (uncapped 822,491) GS 5953: 654,317 (Downdays: 8 days, 0.24%) (uncapped 1,038,863) GS 5954: 659,865 (Downdays: 3 days, 0.12%) (uncapped 914,380) GS 5955: 587,741 (Downdays: 4 days, 0.16%) (uncapped 1,070,071) GS 6041: 1,260,090 (Downdays: 8 days, 0.17%) (uncapped 3,120,750) GS 6042: 1,124,857 (Downdays: 0 days, 0.00%) (uncapped 3,304,181)
Monitoring equipment	Project Database
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Sum of the total number of people using each borehole in the project multiplied by the number of days crediting each borehole earns in a given monitoring period. The number of people per borehole is capped at 300 in line with the GS BAMG report, although the uncapped figures can also be seen. The non-functional days are discounted before calculating the number of crediting days and a functionality cap of 95% is applied for conservativeness.
QA/QC procedures:	If a borehole dose not pass the water quality tests, the borehole is discounted from the project numbers. During this monitoring period there was no incident of this.
Purpose of data:	Calculation of emission reductions.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 6.1.1 (Clean Water and Sanitation), SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p through year y
Measured/calculated/default	calculated
Source of data	Usage Survey (Usage Survey_Anseba_BHs_22_Final)
Value(s) of monitored parameter	95.00% (100% usage rate as per the Usage Survey, however, a self-imposed cap of 95% is applied for conservativeness)
Monitoring equipment	Usage Survey
Measuring/reading/recording frequency:	Annual (conducted 09/08/2022 – 13/08/2022)
Calculation method (if applicable):	The usage survey has been carried out by trained local staff to meet the specific requirements of the methodology. The training took place on 08/08.2022. Details can be seen in pdf ‘Anseba AM training of team members 22’.
QA/QC procedures:	All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Purpose of data:	Calculation of usage.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	$Q_{p,y}$
Unit	Litres per person per day

Description	Quantity of safe water supplied in the project scenario p during the year y using the zero or low emissions clean water supply technology
Measured/calculated/default	Measured
Source of data	Water Consumption Field Test (WCFT) (WCFT_Anseba_BHs_22_Final)
Value(s) of monitored parameter	7.09
Monitoring equipment	WCFT Survey
Measuring/reading/recording frequency:	Biennial (last conducted 15/08/2022 – 18/08/2022)
Calculation method (if applicable):	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. Volume would be capped at a maximum of 7.5 litres per person per day as per the methodology, however, a cap was not needed as the value is below this number. The WCFT was carried out by trained local staff to meet the specific requirements of the methodology.
QA/QC procedures:	All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Purpose of data:	Calculation of emission reductions.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	$Q_{p, \text{cleanboil}, y}$
Unit	Litres per person per day
Description	Quantity of safe water boiled in the project scenario p during the year y using the zero or low emissions clean water supply technology
Measured/calculated/default	measured
Source of data	Water Consumption Field Test (WCFT) (WCFT_Anseba_BHs_22_Final)
Value(s) of monitored parameter	0
Monitoring equipment	WCFT Survey
Measuring/reading/recording frequency:	Biennial (last conducted 15/08/2022 – 18/08/2022)
Calculation method (if applicable):	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT has been carried out by trained local staff to meet the specific requirements of the methodology.
QA/QC procedures:	All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Purpose of data:	Calculation of emission reductions.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$Q_{p, \text{rawboil}, y}$
Unit	Litres per person per day

Description	The raw of unsafe water that is still boiled after installation of the water treatment technology
Measured/calculated/default	Measured
Source of data	Water Consumption Field Test (WCFT) (WCFT_Anseba_BHs_22_Final)
Value(s) of monitored parameter	0
Monitoring equipment	WCFT Survey
Measuring/reading/recording frequency:	Biennial (last conducted 15/08/2022 – 18/08/2022)
Calculation method (if applicable):	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT has been carried out by trained local staff to meet the specific requirements of the methodology.
QA/QC procedures:	All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Purpose of data:	Calculation of emission reductions.
Additional comments:	-

Relevant SDG Indicator	SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	Quality of Treated Water
Unit	Parameters as per national standards
Description	Performance of the treatment technology
Measured/calculated/default	Measured
Source of data	Laboratory Tests (WQT Anseba 2022_Checked)
Value(s) of monitored parameter	All boreholes were tested with a 100% Pass rate. Date of final report is 12/07/2022.
Monitoring equipment	Laboratory equipment
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	The Water Resource Department from the Ministry of Land, Water & Environment has certified each water supply as in line with national standards.
QA/QC procedures:	The tests results are approved by the Water Resource Department from the Ministry of Land, Water & Environment . The results are checked against the national standards. (Water quality Standards - Eritrea 2004)
Purpose of data:	To test water quality for safety of human consumption.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	LE _{p,y}
Unit	tCO ₂ e per year
Description	Leakage in project scenario p during year y
Measured/calculated/default	0
Source of data	Baseline and Monitoring surveys

Value(s) of monitored parameter	0
Monitoring equipment	Desk based research
Measuring/reading/recording frequency:	Biennial
Calculation method (if applicable):	Assessed every two years using baseline and monitoring surveys.
QA/QC procedures:	N/A
Purpose of data:	Calculation of leakage.
Additional comments:	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	$T_{p,y}$
Unit	hours
Description	Project time spent collecting firewood per household per day (hours)
Measured/calculated/default	Measured
Source of data	Project Survey (Project Survey_Anseba_BHs_22_Final)
Value(s) of monitored parameter	1.65
Monitoring equipment	Project Survey
Measuring/reading/recording frequency:	Annual (conducted 09/08/2022 – 13/08/2022)
Calculation method (if applicable):	Assessed every year using Project Survey
QA/QC procedures:	N/A
Purpose of data:	Calculation of SDG 5.
Additional comments:	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	TR_y
Unit	hours
Description	Total reduction in time spent collecting firewood per day for project activity in year y (hours)
Measured/calculated/default	Calculated
Source of data	Project Survey (Project Survey_Anseba_BHs_22_Final) and baseline survey (Zoba Anseba Baseline Survey Final)
Value(s) of monitored parameter	0.61
Monitoring equipment	Project Survey
Measuring/reading/recording frequency:	Annual

Calculation method (if applicable):	Assessed every year using Project Survey. Calculate the average amount of time spent collecting firewood in the project scenario and compare to the pre-project scenario
QA/QC procedures:	N/A
Purpose of data:	To quantify whether the project has contributed to a reduction in the amount of time spent collecting firewood compared to the pre-project scenario towards SDG 5 target.
Additional comments:	-

Relevant SDG Indicator	SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	HAPR,y
Unit	percentage
Description	Total reduction in Household Air Pollution for project activity in year y (%)
Measured/calculated/default	Calculated
Source of data	Project Survey (Project Survey_Anseba_BHs_22_Final) and baseline survey (Zoba Anseba Baseline Survey Final)
Value(s) of monitored parameter	95.00%
Monitoring equipment	Project Survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Review the number of people using the borehole according to the household lists for each VPA and multiply by the usage rate to calculate the number of people now using a safe water source in order to calculate the amount of biomass that would have been burnt to purify the water in the baseline scenario. Deduct from this any individuals that still boil water in the project scenario.
QA/QC procedures:	The user lists are obtained through the local administration and transferred to an excel by the partner. These are then checked by CO2balance UK Ltd, and any households further than 1km away from the boreholes are removed. Duplicate checks are also run, and duplicate households are removed.
Purpose of data:	To calculate the additional number of persons who have access to safe water in the project activity compared to the baseline scenario and to calculate from that the percentage decrease in biomass used to purify water through boiling for SDG 3 target.
Additional comments:	-

Relevant SDG Indicator	SDG 3.9.1 (Good Health and Well-Being)
Data/parameter:	Pp,y
Unit	Kg/person
Description	Quantity of fuel that is consumed in the project scenario p during year y (kg/person-day)
Measured/calculated/default	Calculated

Source of data	Baseline (Baseline Water Boiling Test_v1) and Project Survey (Project Survey_Anseba_BHs_22)
Value(s) of monitored parameter	0
Monitoring equipment	Baseline Water Boiling Test, Project Survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using usage survey determining the number of people boiling water in the project scenario.
QA/QC procedures:	N/A
Purpose of data:	Calculation of SDG 3
Additional comments:	Monitoring date was 9-12 th August 2022.

Relevant SDG Indicator	SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	P _{access}
Unit	Number of people
Description	Number of additional persons having access to safe water in the project activity compared to the baseline scenario
Measured/calculated/default	Calculated
Source of data	Project Survey (Project Survey_Anseba_BHs_22_Final), and usage survey(Usage Survey_Anseba_BHs_22_Final), and Household list (Sales record), (Sales_Record_Confidential_2023_v1)
Value(s) of monitored parameter	GS 5951: 2,402 GS 5952: 1,920 GS 5953: 1,793 GS 5954: 1,808 GS 5955: 1,610 GS 6041: 3,452 GS 6042: 3,082
Monitoring equipment	Project Survey, Usage Survey and Household list (Sales record)
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using Project Survey, Usage Survey and Household list. Review the number of people using the borehole according to the household lists for each VPA and multiply by the usage rate to calculate the number of people now using a safe water source. The usage rate in this monitoring period was 100% but has been capped at 95%.
QA/QC procedures:	The user lists are obtained through the local administration and transferred to an excel by the partner. These are then checked by CO2balance UK Ltd, and any households further than 1km away from the boreholes are removed. Duplicate checks are also run, and duplicate households are removed.
Purpose of data:	To calculate the additional number of persons having access to safe water in the project activity compared to the baseline scenario for SDG 6 target.
Additional comments:	-

Relevant SDG Indicator	SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	P,y
Unit	Number of people
Description	Number of persons having access to safe water in the project activity
Measured/calculated/default	Measured
Source of data	Usage Survey (Usage_Survey_Anseba_BHs_22_Final) and Household List (Sales record) (Sales_Record_Confidential_2023_v1)
Value(s) of monitored parameter	GS 5951: 2,528 GS 5952: 2,021 GS 5953: 1,887 GS 5954: 1,903 GS 5955: 1,695 GS 6041: 3,634 GS 6042: 3,244
Monitoring equipment	Usage Survey and Household list (Sales record)
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using Project Survey, Usage Survey and Household list (Sales record)
QA/QC procedures:	The user lists are obtained through the local administration and transferred to an excel by the partner. These are then checked by CO2balance UK Ltd, and any households further than 1km away from the boreholes are removed. Duplicate checks are also run, and duplicate households are removed.
Purpose of data:	Calculation of SDG 6 and SDG 13
Additional comments:	-

D.3. Comparison of monitored parameters with last monitoring period

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
N _{p,y}	GS5951: 876,584 GS5952: 700,782 GS5953: 654,317 GS5954: 659,865 GS5955: 587,741 GS6041: 1,260,090 GS6042: 1,124,857	GS5951: 956,683 GS5952: 741,352 GS5953: 737,884 GS5954: 686,218 GS5955: 635,940 GS6041: 1,278,121 GS6042: 1,136,421
U _{p,y}	95.00%	92.27%
Q _{p,y}	7.09	7.5
Q _{p,cleanboil,y}	0	0

$Q_{p,rawboil, y}$	0	0
Quality of Treated Water	Pass	Pass
$LE_{p,y}$	0	0
$T_{p,y}$	1.65	0.97
$TR_{,y}$	0.61	1.29
$HAPR_{,y}$	95.00%	92.27%
$P_{p,y}$	0	0
P_{access}	GS 5951: 2,402 GS 5952: 1,920 GS 5953: 1,793 GS 5954: 1,808 GS 5955: 1,610 GS 6041: 3,452 GS 6042: 3,082	GS5951: 2,546 GS5952: 1,973 GS5953: 1,964 GS5954: 1,826 GS5955: 1,692 GS 6041: 3,401 GS 6042: 3,032
$P_{,y}$	GS5951: 2,528 GS5952: 2,021 GS5953: 1,887 GS5954: 1,903 GS5955: 1,695 GS6041: 3,634 GS6042: 3,244	GS5951: 2,759 GS5952: 2,138 GS5953: 2,128 GS5954: 1,979 GS5955: 1,834 GS 6041: 3,758 GS 6042: 3,286

D.4. Implementation of sampling plan

For the surveys, households were selected at random from the household lists. First, the hand pumps were randomly selected for monitoring; secondly, households served by those hand pumps were randomly selected for surveying. See excel file 'RS_AM_2022' for screenshots of the process.

Sample sizes are chosen to meet the minimum requirements set in the methodology requirements.

WATER CONSUMPTION FIELD TEST

The Water Consumption Field Test is carried out every two years. The last Water Consumption Field Test was conducted in this Monitoring Period in August 2022. Please the excel see 'WCFT_Anseba_BHs_22_V3', sheet 'Borehole H20 Results Sheet'.

The Water Consumption Field Test was carried out on a randomly selected sample of 40 households from the borehole user list. This complied with the recommended minimum sample size of 30 in the Gold

Standard requirements. Furthermore, the sample confidence interval is within 10% of the mean. The test over a period of four days (1 day preparation and 3 days measurement) following a similar method as the Kitchen Performance Test, and all tests were conducted between 15/08/2022 – 18/08/2022. The total litres of water consumed each day was measured and divided by the number of people consuming water in that day – this measurement was repeated over 3 consecutive days and an overall average per household was calculated. The results showed that on average 7.09 litres of non-boiled clean water used only for drinking, hand washing and food preparation and 0 litres of boiled clean water is consumed per person per day. The total amount of water credited for in this monitoring period is equal to the average amount of clean non-boiled water consumed per person per day (7.09l), minus the average amount of boiled clean water consumed per person per day (0).

USAGE SURVEY

The usage survey establishes the proportion of beneficiaries that use the boreholes, a key parameter in the emission reduction calculations. Age-wise sampling was used to meet the methodological requirements of a minimum of 30 samples for each age group of technologies included within these VPAs. 45 households using 2-3 year aged technologies and 75 households using 4-5 year old technologies were randomly selected. Therefore, the annual usage survey has been conducted using a minimum sample size of 120. Please see excel ‘Usage Survey_Anseba_BHs_22_Final’, and ‘Analysis sheet’.

The usage surveys in this monitoring period were carried out by field staff between 09/08/2022 – 12/08/2022. The households that participated in the survey were randomly selected from the borehole user lists. The results confirmed that the Usage Rate is 95.00%, and it’s calculated as an average between the Dry and Wet season .

PROJECT SURVEY ANALYSIS

Project surveys were conducted 09/08/2022 – 12/08/2022 on 120 randomly selected households from across the homogenous VPAs in Zoba Anseba to explore changes in the project scenario (demographics, water use and purification practices etc) over time. Please see ‘Project Survey_Anseba_BHs_22_Final’

Data collected during the project surveys includes the following:

- General information - Name, address, telephone number etc.
- Household socio-demographic information.
- Water use and purification characteristics.
- Sources and availability of fuel.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Details of equations used to estimate baseline values for SDG outcomes appear below. Calculation is provided in the corresponding Emission Reductions calculations in the ‘SDG Calculations’ Sheet.

Outcomes for SDG 3 (Good Health and Wellbeing):

Providing access to safe water and removing the need to boil, reduces the amount of non-renewable biomass burned. Therefore, the amount of safe water provided can be taken as a proxy indicator of how these VPAs contribute towards the SDG 3 target of substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

The quantity of biomass used in the baseline is calculated as follows:

$$P_{b,y} = W_{b,y} * Q_{p,y}$$

$$2.8 = 0.4 * 7.09$$

Where:

- $P_{b,y}$ Quantity of fuel that is consumed in the baseline scenario b during year y (kg/person-day)
- $W_{b,y}$ Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representative of baseline scenario b during year y (BAMG report)
- $Q_{p,y}$ Quantity of safe water supplied in the project scenario p during year y, using the “zero or low” emissions’ clean water supply technology. Please see Excel file WCFT_Anseba_BHs_22_V3 (Borehole H2O Results Sheet).

Outcome for SDG 5 (Gender Equality):

The average time spent gathering firewood ($T_{b,y}$) per household in hours will be taken as a proxy contribution towards the SDG target. The baseline parameter for time spent collecting firewood per household per day is monitored in the baseline project survey.

$$T_{b,y} = 2.26 \text{ (Baseline survey) (Zoba Anseba Baseline Survey Final)}$$

Outcomes for SDG 6 (Clean Water and Sanitation):

The outcome for SDG 6 is quantified as the additional number of persons having access to safe water in the project activity compared to the baseline scenario. The baseline parameter for this SDG includes C_j which is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it (expressed as a percentage).

$$C_j = 0 \text{ (Baseline survey)}$$

Outcomes for SDG 13 (Climate Action):

CO₂ emission reductions are the indicator to demonstrate that the project has raised capacity for effective climate change-related planning and management. This outcome is measured using the emission reduction calculations. The baseline indicators are detailed in Section D.1 and are as follows:

Baseline Emissions:

$$BE_{b,y} = B_{b,y} * \left((fNRB_y * EF_{b,fuel,co2}) + EF_{b,fuel,nonco2} \right) * NCV_{b,fuel}$$

$$GS5951: 4,578 = 2,485 * ((0.97 * 112) + 9.46) * 0.0156$$

$$GS5952: 3,660 = 1,987 * ((0.97 * 112) + 9.46) * 0.0156$$

$$GS5953: 3,417 = 1,855 * ((0.97 * 112) + 9.46) * 0.0156$$

$$GS5954: 3,447 = 1,871 * ((0.97 * 112) + 9.46) * 0.0156$$

$$GS5955: 3,069 = 1,666 * ((0.97 * 112) + 9.46) * 0.0156$$

$$GS6401: 6,582 = 3,573 * ((0.97 * 112) + 9.46) * 0.0156$$

$$GS6402: 5,877 = 3,190 * ((0.97 * 112) + 9.46) * 0.0156$$

Where:

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

$$GS5951: 2,485 = (1 - 0) * 876,584 * 0.0004 * (7.09 + 0)$$

$$GS5952: 1,987 = (1 - 0) * 700,782 * 0.0004 * (7.09 + 0)$$

$$GS5953: 1,855 = (1 - 0) * 654,317 * 0.0004 * (7.09 + 0)$$

$$GS5954: 1,871 = (1 - 0) * 659,865 * 0.0004 * (7.09 + 0)$$

$$GS5955: 1,666 = (1 - 0) * 587,741 * 0.0004 * (7.09 + 0)$$

$$GS6401: 3,573 = (1 - 0) * 1,260,090 * 0.0004 * (7.09 + 0)$$

$$GS6402: 3,190 = (1 - 0) * 1,124,857 * 0.0004 * (7.09 + 0)$$

Where:

$N_{j,y}$	Number of person days consuming water supplied by project scenario p through year y. Please see Excel GS5951-55 6041-42_ERs_calcs_v1
C_j	Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it. See Excel Zoba Anseba Baseline Survey Final.
$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during the year y in tons. Please see Excel GS5951-55 6041-42_ERs_calcs_v1
$Q_{p,y}$	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day. Please see Excel file WCFT_Anseba_BHs_22_V3 (Borehole H20 Results Sheet).
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day. Please see Excel Project Survey_Anseba_BHs_22_Final, sheet labelled 'Report'.
$W_{b,y}$	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during the project year y, as per Baseline Water Boiling Test. See 'Baseline Water Boiling Test_v1'

E.2. Calculation of project value or estimation of project situation of each SDG Impact

Details of equations used to calculate project value for SDG outcomes appear below. Calculation is provided in the corresponding Emission Reductions calculations in the 'SDG Calculations' Sheet.

Outcomes for SDG 3 (Good Health and Wellbeing):

Providing access to safe water and removing the need to boil, reduces the amount of non-renewable biomass burned. Therefore, the amount of safe water provided can be taken as a proxy indicator of how these VPAs contribute towards the SDG 3 target of substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. Calculations are as follows:

$$HAPR_y = ((P_{b,y} - P_{p,y}) / P_{b,y}) * U_{p,y}$$

$$95.00\% = ((0.0028 - 0) / 0.0028) * 0.95$$

Where:

$HAPR_y$ Total reduction in Household Air Pollution for project activity in year y (%)

$P_{b,y}$ Quantity of fuel that is consumed in the baseline scenario b during year y (kg/person-day). See 'Baseline Water Boiling Test_v1'.

$P_{p,y}$ Quantity of fuel that is consumed in the project scenario p during year y (kg/person-day), Project Survey_Anseba_BHs_22_Final

$U_{p,y}$ Usage rate in project scenario p during year y. Usage Survey_Anseba_BHs_22_Final

$$P_{b,y} = W_{b,y} * Q_{p,y}$$

$$0.0028 = 0.4 * 7.09$$

Where :

$W_{b,y}$ Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representative of baseline scenario b during year y. See 'Baseline Water Boiling Test_v1'.

$Q_{p,y}$ Quantity of safe water supplied in the project scenario p during year y, using the "zero or low" emissions' clean water supply technology. See Excel file WCFT_Anseba_BHs_22_V3, (Borehole H2O Results Sheet).

$$P_{p,y} = W_{b,y} * Q_{p, \text{cleanboil}, y}$$

$$0 = 0.4 * 0$$

Where :

$W_{b,y}$ Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representative of baseline scenario b during year y. See 'Baseline Water Boiling Test_v1'.

$Q_{p, \text{cleanboil}, y}$ Quantity of safe water boiled in the project scenario p during year y , after installation of the project technology. See Excel Project Survey_Anseba_BHs_22_Final, sheet labelled ‘Report’.

Outcome for SDG 5 (Gender Equality):

The overall reduction in time spent collecting firewood in the project activity is calculated as follows:

$$TR_y = T_{b,y} - T_{p,y}$$

$$0.61 = 2.26 - 1.65$$

Where:

TR_y Total reduction time spent collecting firewood per day for project activity in year y (hours)

$T_{b,y}$ Baseline time spent collecting firewood per household per day (hours). See ‘Zoba Anseba Baseline Survey Final.’

$T_{p,y}$ Project time spent collecting firewood per household per day (hours). Project Survey_Anseba_BHs_22_Final, sheet labelled ‘Report’.

Outcomes for SDG 6 (Clean Water and Sanitation):

The outcome for SDG 6 is quantified as the additional number of persons having access to safe water in the project activity compared to the baseline scenario. Calculations are as follows:

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

$$\text{GS5951: } 2,402 = 2,528 * (1 - 0) * 0.95$$

$$\text{GS5952: } 1,920 = 2,021 * (1 - 0) * 0.95$$

$$\text{GS5953: } 1,793 = 1,887 * (1 - 0) * 0.95$$

$$\text{GS5954: } 1,808 = 1,903 * (1 - 0) * 0.95$$

$$\text{GS5955: } 1,610 = 1,695 * (1 - 0) * 0.95$$

$$\text{GS6401: } 3,452 = 3,634 * (1 - 0) * 0.95$$

$$\text{GS6402: } 3,082 = 3,244 * (1 - 0) * 0.95$$

Where:

P_{access}	Number of additional persons having access to safe water in the project activity compared to the baseline scenario. Sales_Record_Confidential_2023_v1
P_y	Number of persons having access to safe water in the project activity. GS5951-55 6041-42_ERs_calcs_v1.
C_j	Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it. Zoba Anseba Baseline Survey Final.
$U_{p,y}$	Usage rate in project scenario p during year y. Usage Survey_Anseba_BHs_22_Final (Analysis Sheet)

Outcome for SDG 13 (Climate Action):

CO₂e emission reductions are the indicator to demonstrate that the project has raised capacity for effective climate change-related planning and management contributing to SDG 13. The emissions reductions for the current monitoring period can be found in the corresponding Emission reductions excel document and in section E.3 below.

E.3. Calculation of leakage

The project does not result in leakage and therefore the value is 0 as can be seen in the assessment on pg. 15 – 16.

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 3 Good Health	Variation in household smoke (All VPAs)	0% reduction in exposure to Household Air Pollution due to boiling water	95.00% reduction in exposure to Household Air Pollution due to no longer boiling water	95.00% additional reduction in exposure to Household Air Pollution due to no longer boiling water

and Well-being

SDG 5	Variation			0.61 decrease in hours spent
Gender	of time	2.26 hours spent collecting	1.65 hours spent collecting	collecting firewood per household
Equality	spent on	firewood per household per day	firewood per household per day	per day (All VPAs)
	firewood			
	collection			
SDG 6			People with access to safe	Additional people with access to safe
Clean			water:	water:
Water and	People gain		GS 5951: 2,528	GS 5951: 2,402
Sanitation	access to	0 people with access to safe	GS 5952: 2,021	GS 5952: 1,920
	safe water	water	GS 5953: 1,887	GS 5953: 1,793
			GS 5954: 1,903	GS 5954: 1,808
			GS 5955: 1,695	GS 5955: 1,610
			GS 6041: 3,634	GS 6041: 3,452
			GS 6042: 3,244	GS 6042: 3,082
SDG 13		GS5951: 5,284tCO2-e	GS5951: 0 tCO2-e/y	
Climate		GS5952: 4,095tCO2-e	GS5952: 0 tCO2-e/y	GS5951: 4,260 tCO2-e
Action		GS5953: 4,074tCO2-e	GS5953: 0 tCO2-e/y	GS5952: 3,404 tCO2-e
		GS5954: 3,789tCO2-e	GS5954: 0 tCO2-e/y	GS5953: 3,181 tCO2-e
	Emission	GS5955: 3,511tCO2-e	GS5955: 0 tCO2-e/y	GS5954: 3,206 tCO2-e
	reductions	GS6041: 7,059tCO2-e	GS6041: 0 tCO2-e/y	GS5955: 2,856 tCO2-e
		GS6042: 6,293tCO2-e	GS6042: 0 tCO2-e/y	GS6041: 6,127 tCO2-e
				GS6042: 5,467 tCO2-e

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of	Actual values ¹ achieved during this monitoring period
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¹ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

approved PDD for this monitoring period		
SDG 3 Good Health and Well- being	80% reduction in exposure to Household Air Pollution due to boiling water	95.00% reduction in exposure to Household Air Pollution due to boiling water
SDG 5 Gender Equality	At least 0.5 hours per trip per household time saved	Time spent collecting firewood has decreased during this monitoring period by 0.61 hours
SDG 6 Clean Water and Sanitation	GS5951: 1,919 GS5952: 1,543 GS5953: 1,481 GS5954: 1,538 GS5955: 1,478 GS 6041: 2,932 GS 6042: 2,855 Total: 13,746 people	GS 5951: 2,402 GS 5952: 1,920 GS 5953: 1,793 GS 5954: 1,808 GS 5955: 1,610 GS 6041: 3,453 GS 6042: 3,082
SDG 13 Climate Action	GS5951: 10,000 tCO2-e GS5952: 10,000 tCO2-e GS5953: 10,000 tCO2-e GS5954: 10,000 tCO2-e GS5955: 10,000 tCO2-e GS6041: 10,000 tCO2-e GS6042: 10,000 tCO2-e	GS5951: 4,260 tCO2-e GS5952: 3,404 tCO2-e GS5953: 3,181 tCO2-e GS5954: 3,206 tCO2-e GS5955: 2,856 tCO2-e GS6041: 6,127 tCO2-e GS6042: 5,467 tCO2-e

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

The Ex-ante estimations for SDGs 3,5 and 6 are taken from the transition Annex (101.5-Transition-Annex-Eritrea_Boreholes_20180403_v.3_CLEAN.pdf). The project started before GS4GG was implemented so the SDGs calculations for each single VPA were not included at that time. In the transition Annex, the values estimated for each SDG are reported as such:

SDG 3 = 80% reduction in exposure to Household Air Pollution due to boiling water

SDG 5 = 0.5 hours per trip per household time saved

SDG 6 = 13,746 number of additional persons with access to safe water

Regarding SDG 13, the ex-ante Emission Reductions can be found in the approved VPA-DD are capped at 10,000 tCO₂e

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

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These projects were design certified prior to transition to Gold Standard for the Global Goals, hence all ex-ante estimates of SDG outcomes are derived from the relevant transition annex. All SDG targets were either met or exceeded and had positive SDG impacts.

SDG 3

For SDG 3, in the project scenario there was a 95.00% reduction in exposure to Household Air pollution arising from smoke emitted from boiling water. This is due to no one boiling the borehole water in the project because it is safe for human consumption as determined by annual water quality tests. This not only frees up time spent previously boiling water but also reduces the negative health implications of smoke related illnesses which are disproportionally suffered by women and children. This impacts positively towards SDG 3 good health and wellbeing.

SDG 5

Time spent collecting firewood decreased by 0.61 hours. This is an increase on the ex-ante estimate of 0.5 hours' time saving. The projects SDG 5 target - 'to reduce the time spent collecting water and firewood for the purpose of water purification' has been achieved.

SDG 6

All project participants now have access to safe water in the project. In the baseline, all participants collected water from unsafe sources such as rivers, streams and open wells, and had to boil their water in order to make it safe to drink. In the project, 100% of participants now collect their water from a rehabilitated borehole, no longer requiring them to boil water for purification and positively contributing towards SDG 6 clean water and sanitation. However, the Usage Rate is 95.00%.

SDG 13

For SDG 13, the ex-ante estimation was 10,000 emission reductions per year per VPA. However, the number of users per borehole has been capped at 300 and is lower than expected and also the Wby has been capped at 0.0004 hence there are less than 10,000 tCO₂-e/y per VPA. Although this does not meet the target of 10,000 tCO₂-e/y, the projects are still achieving a large number of emission reductions during this

monitoring period which would not be possible without the project contributing positively to SDG 13 climate action.

SECTION F. SAFEGUARDS REPORTING

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Monitoring
1 Human Rights	a. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. b. The Project shall not discriminate with regards to participation and inclusion.	No	The project will adhere to all human rights requirements including respecting internationally proclaimed human rights and Universal Declaration of Human Rights and will not discriminate in any way.	During all trainings, it will be emphasised that project beneficiaries should support vulnerable or less mobile community members to access water
2 Gender Equality and Women's Rights	The Project shall not directly or indirectly reinforce gender-based discrimination and shall not lead to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive):			SDG 5 Tp,y TR,y The time spent collecting wood fuel is monitored in the project survey. The project aims to reduce the burden on the whole community of traveling far to collect wood and in particular to women who perform

				the majority of unpaid domestic work.
	(a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.	No	The burden on the whole community of travelling far to collect water and gather firewood for water purification will be reduced. This will also mitigate the social isolation of spending a long time collecting these resources	
	(b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	No	The project will decrease the drudgery by reducing time spent on water and firewood collection	
	(c) Restriction of women's rights or access to resources (natural or economic).	No	The project will increase women's access to resources such as water by making safe water available in the community. The project will increase women's ability to use, develop and protect natural resources by making safe water more readily available and enabling women to participate in project decision-making.	
	(d) Recognise women's ownership rights regardless of marital status – adopt project measures where possible	No	The project will decrease the workload of women in collecting water and firewood,	

	to support to women's access to inherit and own land, homes, and other assets or natural resources. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically: (a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.		thereby allowing more time to engage in other activities.	
	(a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.	Yes	Equal participation of women and men in decision making will be encouraged by promoting their equal membership on water point committees (WPCs). These WPCs will be trained to facilitate the participation of members depending on their specific circumstances. They will also assist all communities members to provide feedback on the project, regardless of their situation.	
	(b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.	Yes	The project aims to benefit the whole community equally and women's equal participation in the LSC and water point committees is encouraged	
	(c) Ensure that these conditions do not limit the access of women or men, as the case may be,	Yes	The project will encourage equal participation of men and women.	

	to Project participation and benefits. 3.2.3 The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	Yes	The analysis of the project is in line with the country gender strategy is in section A.8. of the PDD	
3 Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	Yes	The project will reduce the community exposure to water borne illness through the provision of a safe water source, and will reduce the risk of household air pollution by removing the need for households to boil water for purification.	SDG 3, 6 and 13 Np,y Qp,y Qp,cleanboil,y Quality of Treated Water HAPR,y Paccess P,y Pp,y Incidences of water borne illnesses are monitored through the annual Monitoring Project Survey. A WASH programme is carried out by the project including WASH training at the beginning of the project, as well as subsequent WASH follow-up training
4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or	No	The project area does not include sites or structures of historic and cultural value. Project activities do not compromise historic,	

	intangible forms of culture (e.g., knowledge, innovations, or practices)?		cultural or religious practices.	
4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project will not impact the physical or economic relocation of peoples. The focus of the project is rehabilitating and installing water point infrastructure only.	
4.3 Land Tenure and Other Rights	Does the Project require any change to land tenure arrangements and/or other rights?	No	The project will not impact on land tenure arrangements or rights.	
4.4 Indigenous Peoples	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project will take place on land owned either by the county government or by local people for which their permission will first be sought.	
5 Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	The project shall ensure that all forms of corruption are avoided. Project beneficiaries are able to contact the project developer and implementer through the continuous grievance mechanism to report any form of corruption.	
6.1 Labour Rights	The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws,	No	The project will adhere to labour laws and requirements	

	with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard.			
	Child labour, as defined by the ILO Minimum Age convention is not allowed. The Project Developer shall use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are children for work on their families' property as long as: (a) Their compulsory schooling (minimum of 6 schooling years) is not hindered, AND (b) The tasks they perform do not harm their physical and mental development, AND (c) The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the project design.	No	The projects will not use child labour	

6.2 Negative Economic Consequences	Does the project cause negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?	Yes	The project is not expected to have any negative economic impacts or cause any risks.	To ensure long term sustainability of the water points, and avoid unexpected breakdowns and spending, training was conducted at the beginning of the project on conducting minor maintenance. The project is expected to benefit all members of the community
7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	Yes	The project will reduce greenhouse gas emissions compared to the baseline scenario.	SDG 13 The ERs are monitored during the MP. During this MP a large number of emission reductions were achieved
7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	Only hand pumped boreholes that use no electricity are included in the project. The project will reduce fuel use due to reducing the need for water purification by boiling	
8.1 Impact on natural water patterns/flows	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	There will be no significant change in the volume of water consumed by the households.	

8.2 Erosion and/or water body instability	Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?	No	The water is taken from boreholes at household usage levels. Therefore it is extremely unlikely that there will be additional erosion and/or water body instability or disruption of the natural pattern of erosion.	
9.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	No	No crops or other products will be produced in the project.	
9.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	There will be no impact by the project to natural disasters.	
9.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	No GMOs will be used in the project and the boreholes would not be affected by GMOs as they are all protected.	
9.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	As safe ground water is used, there is no risk of releasing pollutants to the environment.	
9.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project does not deal with hazardous or non-hazardous chemicals and/or materials.	
9.6 Pesticides and fertilizers	Will the Project involve the application of	No	No pesticides and/or fertilisers will be used in the project.	

	pesticides and/or fertilisers?			
9.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	As the project reduces the consumption of firewood, there is a positive impact on forests.	
9.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project has no impact on the quantity or nutritional quality of food.	
9.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The project will not involve animal husbandry.	
9.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The project rehabilitates water points and decreases the consumption of firewood, having a positive impact on conserving forest ecosystems.	
9.11 Endangered Species	Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?	No	The project is not envisaged to have any impact on their habitat as it only affects borehole infrastructure.	
	Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	The project only impacts borehole infrastructure and does not impact other areas where endangered species are present.	

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

Comments from users of four local communities which borehole is part of the project have been reported during this monitoring period. The comments are positive towards the project: the users expressed their satisfaction on the management of the boreholes and on the continuous follow ups of the project team. Even though there were breakdowns, these were resolved. The boreholes maintained by the project provide safe water to the communities preventing them walking long distances to fetch water.

One comment suggested to implement solar pumps, our partner has started looking into this option.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

>>NA

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

No legal challenges arose during this monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption