

TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

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VERSION **v.1.5**

RELATED SUPPORT

[- TEMPLATE GUIDE Key Project Information & Project Design Document](#)

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KEY PROJECT INFORMATION

GS ID of Project	GS5125
Title of Project	Eritrea Community Boreholes
Time of First Submission Date	28/04/2023
Date of Design Certification	08/12/2017
Version number of the PDD	13
Completion date of version	01/05/2025
Project Developer	Vita Ireland - Registered Charity No: 20024192
Project Representative	CO2balance UK Ltd
Project Participants and any communities involved	CO2balance UK Ltd, Vita Ireland, Local communities in Debub and Anseba regions
Host Country (ies)	State of Eritrea
Activity Requirements applied	☒ Community Service Activity ☐ Renewable Energy ☐ Land-Use and Forests Activity Requirements /Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	N/A
Methodology (ies) applied and version number	Emission Reductions from Safe Drinking Water Supplies v1
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Land-use & Forest Key Project Information¹

N/A

Table 1 – Estimated Sustainable Development Contributions

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
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	31,750	Number of households
13 Climate Action (mandatory)	Total project emissions reductions	64,771	tCO ₂ e
15 Life on Land	Total non-renewable firewood saved in the project scenario	33,215	Tonnes/year

¹ Please refer to Appendix 3 for detailed information on LUF projects

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and 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 many challenges. As the women bear the burden of producing food as well as providing care for their families, including travelling to collect firewood and water. As a result, they cultivate less land and have fewer assets.

Many existing boreholes have fallen into disrepair because maintenance programmes have been poorly managed or proven too expensive. The capacity of communities to maintain their boreholes will also be supported through the project to ensure that the water keeps flowing. The boreholes included under the project will be powered entirely by emission-free technologies such as hand or solar-powered pumps.

CO2balance UK Ltd will be working in partnership with the Irish NGO Vita, that operates in Eritrea. CO2balance UK Ltd and Vita will maintain and potentially rehabilitate/install 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.

The project is funded by marketing the anticipated carbon credits from the wood savings to ethical investors, so borehole owners must agree to transfer the emissions reductions over to Vita-CO2balance UK Ltd in return for them supplying the work to renovate the boreholes. This project will be developed under the Gold Standard carbon credit body, which in addition to checking that the carbon credits from this project are real, also measures local social, environmental and economic impact.

Zoba Debub and Zoba Anseba areas targeted are largely rural districts 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.

The project will also ensure that the quality of the water delivered by the maintained boreholes is fit for human consumption for the entire length of the project.

Monitoring data collected during the rehabilitation and operation of the boreholes will be captured in an electronic data management system, or monitoring database. From this data, the emissions reductions of the project will be determined. This system will be available for review during the validation and verification.

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 MP2.

Below lists the boreholes included in GS5125:

BH ID	Village	Latitude	Longitude	Date	Use
ZD001	Adikenebet	14.9585	38.80592	21/09/2016	Domestic
ZD002	Adigawl	14.9344	38.73663	21/09/2016	Domestic
ZD003	Adikemene	14.8955	38.77609	22/09/2016	Domestic
ZD004	Gezagobo	14.95327	38.79260	22/09/2016	Domestic
ZD005	Gomero	14.93860	38.73987	22/09/2016	Domestic
ZD006	Ginebale	14.95942	38.81550	22/09/2016	Domestic
ZD007	Embezareb	14.87513	38.86061	23/09/2016	Domestic
ZD008	Adigahad	14.84689	38.79607	23/09/2016	Domestic
ZD009	Newihziban	14.87586	38.93856	24/09/2016	Domestic
ZD010	Kudochira	14.91644	38.88125	24/09/2016	Domestic
ZD011	Mihram ghedo	14.78323	38.93407	25/09/2016	Domestic
ZD012	Suri	14.80887	38.95410	25/09/2016	Domestic
ZD013	OO	14.7644	38.95799	25/09/2016	Domestic
ZD014	Adiberak	14.85030	38.79469	29/09/2016	Domestic
ZD015	Adi bari	14.8809	38.82016	30/09/2016	Domestic

ZD016	Adihare	14.89895	38.79633	06/10/2016	Domestic
ZD017	Zwab	15.02199	38.7295	03/10/2016	Domestic
ZD018	Gerteti	15.01203	38.7316	04/10/2016	Domestic
ZD019	Semasem	15.00521	38.7393	04/10/2016	Domestic
ZD020	Adibezehans-1	15.06190	38.7653	05/10/2016	Domestic
ZD021	Adibezehans-2	15.06300	38.7676	05/10/2016	Domestic
ZD023	Adikunial	15.06345	38.7352	05/10/2016	Domestic
ZD024	Adibelih	15.08926	38.7211	06/10/2016	Domestic
ZD025	Adifelesti-1	15.13354	38.6978	06/10/2016	Domestic
ZD026	Adifelesti-2	15.13391	38.7046	06/10/2016	Domestic
ZD027	Adibaro-1	15.13892	38.7844	09/10/2016	Domestic
ZD028	Adibaro-2	15.14558	38.7918	09/10/2016	Domestic
ZD029	Temajela	15.14184	38.7976	09/10/2016	Domestic
ZD030	Qaqbda	15.15652	38.7731	10/10/2016	Domestic
ZD031	Adi Tala	15.13893	38.7374	10/10/2016	Domestic
ZD032	Adiguari	15.12992	38.7768	12/10/2016	Domestic
ZD033	Adisherefeto	15.17150	38.8344	12/10/2016	Domestic
ZD034	Aditsunay	15.18861	38.8288	12/10/2016	Domestic
ZD035	Adibana	14.97298	38.7679	14/10/2016	Domestic
ZD036	Amadr	15.09892	38.7566	15/10/2016	Domestic
ZD053	Adi embeyto	14.84922	39.35263	29/10/2016	Domestic
ZD054	Adimaelewy	14.81727	39.36509	29/10/2016	Domestic
ZD055	May-tsaeda	14.82083	39.31345	30/10/2016	Domestic
ZD056	Tokondae	14.82422	39.38910	31/10/2016	Domestic
ZD058	Sibiraso	14.88375	39.39803	01/11/2016	Domestic
ZD059	Adiighila	14.78838	39.42682	01/11/2016	Domestic
ZD060	Cambojubuti	14.84187	39.37044	02/11/2016	Domestic
ZD062	Adi hashmele	14.86785	39.37187	03/11/2016	Domestic
ZD063	Karibosa-Debhina	14.91742	39.42044	04/11/2016	Domestic
ZD064	Mendefera	14.90230	39.32728	15/11/2016	Domestic
ZD065	Sanako	14.76543	39.44693	17/11/2016	Domestic
ZD066	Semdi	14.97602	39.33442	17/11/2016	Domestic
ZD067	Indihish	14.91240	39.28647	17/11/2016	Domestic
ZD068	Brkito	14.94416	39.25391	18/11/2016	Domestic
ZD069	Adiawhilailai	14.98310	39.19379	19/11/2016	Domestic
ZD070	Digsa	14.98897	39.22661	19/11/2016	Domestic
ZD071	Haddishadihalai	15.01517	39.30918	20/11/2016	Domestic
ZD072	Adi halai	14.99948	39.32912	20/11/2016	Domestic
ZD073	Adidigralebie	15.02538	39.20659	21/11/2016	Domestic
ZD074	Maimogdom	15.05489	39.18575	21/11/2016	Domestic
ZD075	Akrur	15.08094	39.23396	22/11/2016	Domestic
ZD076	Tikul	15.02497	39.02888	25/11/2016	Domestic
ZD077	Adiharm	15.04569	39.06461	26/11/2016	Domestic

ZD078	Adifekaih	15.02430	38.91315	27/11/2016	Domestic
ZD079	Kilawta	14.99217	39.00127	28/11/2016	Domestic
ZD080	Damba 1	15.14852	38.96456	30/11/2016	Domestic
ZD081	Damba 2	15.14882	38.96376	30/11/2016	Domestic
ZD082	Dekinazo	15.12232	39.01662	01/12/2016	Domestic
ZD083	Adroso	15.17875	39.14310	02/12/2016	Domestic
ZD084	Wikirti	15.14277	39.00569	03/12/2016	Domestic
ZD085	Adibahalay	14.72337	38.68292	17/12/2016	Domestic
ZD086	Adishemkele	14.69768	38.74014	18/12/2016	Domestic
ZD087	Aditereke	14.71723	38.73045	18/12/2016	Domestic
ZD088	Adihalewat	14.68880	38.72905	19/12/2016	Domestic
ZD089	Adihirwaghedena	14.73402	38.79483	19/12/2016	Domestic
ZD090	Hidad	14.80916	38.73266	20/12/2016	Domestic
ZD091	Adiblad	14.83071	38.74564	20/12/2016	Domestic
ZD092	Adisihalab	14.82540	38.74596	20/12/2016	Domestic
ZD093	Adikodo	14.79707	38.86354	21/12/2016	Domestic
ZD094	Adigrimekel	14.81651	38.81265	21/12/2016	Domestic
ZD095	Adiunabuta	14.72413	38.85771	22/12/2016	Domestic
ZD096	Adiwuhi	14.72414	38.85713	23/12/2016	Domestic
ZD097	Adiandel	14.70865	38.85640	23/12/2016	Domestic
ZD098	Endamariam	14.72058	38.86188	24/12/2016	Domestic
ZD099	Adibardi 1	14.81789	38.84883	27/12/2016	Domestic
ZD100	Adibardi 2	14.81883	38.84775	27/12/2016	Domestic
ZD153	Shekuano	14.9585	38.8059	27/03/2017	Domestic
ZD154	Adighered 1	15.0828	38.7836	28/03/2017	Domestic
ZD155	Adighered 2	15.0828	38.7835	28/03/2017	Domestic
ZD156	Asheran-adigumani	14.7773	39.2569	29/03/2017	Domestic
ZD159	Zebandebri	14.7474	38.5405	05/05/2017	Domestic
ZD160	Adigoned	14.7868	38.5371	06/05/2017	Domestic
ZD161	Adihilae	14.7864	38.536	07/05/2017	Domestic
ZD163	Adimomesh	14.9757	38.5776	08/05/2017	Domestic
ZD166	Adigulti	15.0014	38.5874	10/05/2017	Domestic
ZD168	Adiembagodad	14.9686	38.6335	11/05/2017	Domestic
ZD169	Aditsenfa	14.9509	38.6188	12/05/2017	Domestic
ZD170	Adibeza	14.9521	38.6205	12/05/2017	Domestic
ZD171	Adimaighuda	14.9148	38.6781	13/05/2017	Domestic
ZD172	Adimaicuak	14.9242	38.6698	13/05/2017	Domestic
ZD173	Adigherot	14.9303	38.5036	14/05/2017	Domestic
ZD174	Adigandefer	14.9065	38.6964	14/05/2017	Domestic
ZD175	Adiagama	14.9519	38.6889	15/05/2017	Domestic
ZD177	Adisagla	14.8624	38.6587	15/05/2017	Domestic
ZD179	Adimglab	14.8623	38.6581	16/05/2017	Domestic
ZD181	Shekawedibsrat	14.8939	38.7645	05/10/2017	Domestic

ZD182	Adidebereberhan	14.6663	38.8143	09/12/2017	Domestic
ZD184	Adichemai	14.63874	38.87478	11/12/2017	Domestic
ZD185	Adihaber	14.59824	38.86842	12/12/2017	Domestic
ZD186	Aikebetsu	14.83870	38.62535	16/12/2017	Domestic
ZD187	Adigaul	14.93045	38.73216	19/12/2017	Domestic
ZD188	Adigaba	14.88051	38.48464	30/12/2017	Domestic
ZD193	Adibohununa	14.77859	38.64560	01/01/2018	Domestic
ZD194	Adijemel	14.80557	38.64960	01/01/2018	Domestic
ZD195	Ilaandom	14.92527	38.56415	04/01/2018	Domestic
ZD196	Adideraghudi	14.95156	39.33902	21/01/2018	Domestic
ZD197	Maighoduf	14.74524	39.38937	24/01/2018	Domestic
ZD198	Adiaderho	14.53691	39.45740	26/01/2018	Domestic
ZD200	Barkenaha	14.56308	39.42921	28/01/2018	Domestic
ZD202	Adimesihal	14.61719	39.37820	29/01/2018	Domestic
ZD203	Adiforto	14.60691	39.36358	30/01/2018	Domestic
ZD205	Adihiguana	14.64251	39.44874	08/02/2018	Domestic
ZD206	Adimbark	14.57720	39.46685	10/02/2018	Domestic
ZD208	Adiahiz	14.53712	39.31182	17/02/2018	Domestic
ZD209	Adirokoyto	14.61719	39.37820	29/01/2018	Domestic
ZD227	Tisha	14.7261	39.4495	02/03/2020	Domestic
ZD228	Egriabew	14.7497	39.404	03/03/2020	Domestic
ZD229	Karibosa	14.723	39.4095	04/03/2020	Domestic
ZD230	Adital	14.6953	39.4787	05/03/2020	Domestic
ZD231	Hiret	14.8128	39.0227	06/03/2020	Domestic
ZD232	Adiageb	14.7255	39.4408	07/03/2020	Domestic
ZD233	Berkito	14.9497	39.2648	02/03/2020	Domestic
ZD234	Astah	14.9429	39.1704	03/03/2020	Domestic
ZD235	Zebanageb	15.14	38.985	04/03/2020	Domestic
ZD236	Adizemati	14.7176	38.8542	10/03/2020	Domestic
ZD237	Adichelku	14.7251	38.7389	11/03/2020	Domestic
ZD238	Kudozebo	14.735	38.87	12/03/2020	Domestic
ZD239	Adishimadi	14.6769	38.7289	10/03/2020	Domestic
ZD240	Dandereghenet	14.8718	38.7739	11/03/2020	Domestic
ZD241	Adikotoyo	14.6145	38.8302	02/03/2020	Domestic
ZD242	Ghezakenen	14.5647	38.8133	03/03/2020	Domestic
ZD243	Adewti	14.831	39.2539	12/03/2020	Domestic
ZD244	Adiarbaet	14.732	39.0344	13/03/2020	Domestic
ZD245	Tekelabi	14.8969	39.1308	14/03/2020	Domestic
ZD246	Mebered	14.8585	39.0596	16/03/2020	Domestic
ZD247	Gheniseba	14.8363	39.0826	17/03/2020	Domestic
ZD248	Adilogo	15.0969	38.8019	20/03/2020	Domestic
ZD249	Zerben	15.1231	38.7981	21/03/2020	Domestic
ZD250	Adiatsida	14.5247	38.6275	23/03/2020	Domestic

ZD251	Berikhutsa	14.711	39.1035	24/03/2020	Domestic
ZD252	Meserar	14.6572	39.2075	25/03/2020	Domestic
ZD253	Aditsanef	14.9509	38.6189	26/03/2020	Domestic
ZD254	Adibal	14.8145	38.4567	02/06/2020	Domestic
ZD255	Aditeme	14.6508	38.8576	04/06/2020	Domestic
ZD212	Meareda	14.64905	39.44918	05/12/2018	Domestic
ZD213	Adibaekel	14.65016	39.45500	07/12/2018	Domestic
ZD214	Betgheriel	15.12129	38.67368	10/12/2018	Domestic
ZD216	Mefalso	14.81800	38.83761	05/03/2019	Domestic
ZD217	Gadien	15.18048	39.04226	25/03/2019	Domestic
ZD218	Adiwatot	15.06024	38.85283	01/04/2019	Domestic
ZD219	Adiabraham	14.75284	38.75705	02/04/2019	Domestic
ZD220	Adisheretay	14.56879	38.67112	12/04/2019	Domestic
ZD221	Edagadehina	15.07924	38.74953	16/04/2019	Domestic
ZD222	Kesadaguruf	14.65023	39.47472	20/04/2019	Domestic
ZD223	Beletsodebrekeih	15.19030	39.08193	12/05/2019	Domestic
ZD224	Saloda 2	14.64662	39.46494	16/05/2019	Domestic
ZD225	Bambeko	15.18860	38.69780	17/05/2019	Domestic
ZD226	Kesaddaero	14.99976	38.75026	20/05/2019	Domestic

At this point, the project has been active for approximately 7 years, and is now entering the second crediting period. This document is the revalidated PDD for the second crediting period and incorporates the changes as the projects transition to the GS Emission Reductions from Safe Drinking Water Supplies v1.

With the introduction of Methodology for Emission Reductions from Safe Drinking Water Supply v1.0, ERSDWS v1.0, the ERs generated per borehole reduced significantly. To enable the continuation of the safe water projects implemented by Vita-co2balance in Eritrea, PD has decided to include in GS5125, boreholes rehabilitated in another project developed by Vita-co2balance under the Gold Standard, these will transition into GS5125 in line with the Design Change start date.

Details of boreholes that will be incorporated under GS5125 are reported in the table below.

Debub Region's Boreholes: these technologies were originally crediting under GS5038-43, GS5825-27 and GS7330-36. Their CP1 has ended and are not going to be re-validated but their technologies will be incorporated under GS5125.

Borehole ID	CP1 GS ID	Village	Latitude	Longitude	Rehab date	Use	End of CP1	Transition to GS5125
ZD037	5038	Adiembahsea	14.60234	39.39475	20/10/2016	Domestic	20/10/2023	21/10/2023
ZD050	5038	Adiferas-Maygoduf	14.73116	39.39709	27/10/2016	Domestic	20/10/2023	21/10/2023
ZD103	5038	Adideraghudi	14.52234	38.80716	27/12/2016	Domestic	20/10/2023	21/10/2023
ZD114	5038	Adenfi	14.63129	38.79645	29/01/2017	Domestic	20/10/2023	21/10/2023
ZD138	5038	Adiraghenay	14.52966	38.42865	18/03/2017	Domestic	20/10/2023	21/10/2023
ZD038	5039	Adighubo	14.58613	39.39523	20/10/2016	Domestic	20/10/2023	21/10/2023
ZD039	5039	Kesadburka	14.6051	39.37565	21/10/2016	Domestic	20/10/2023	21/10/2023
ZD040	5039	Adichoka	14.57931	39.3814	21/10/2016	Domestic	20/10/2023	21/10/2023
ZD045	5039	Adimenekseyto	14.53146	39.48664	24/10/2016	Domestic	20/10/2023	21/10/2023
ZD101	5039	Endagherghish	14.557	38.75309	25/12/2016	Domestic	20/10/2023	21/10/2023
ZD042	5040	Adimighiderbena	14.60044	39.46406	22/10/2016	Domestic	22/10/2023	23/10/2023
ZD044	5040	Adimesraha	14.61916	39.45731	23/10/2016	Domestic	22/10/2023	23/10/2023
ZD104	5040	Adiguwur	14.52174	38.78847	27/12/2016	Domestic	22/10/2023	23/10/2023
ZD105	5040	Adibaresom	14.53625	38.71119	28/12/2016	Domestic	22/10/2023	23/10/2023
ZD110	5040	Kusmodengolo	14.70787	38.84775	24/01/2017	Domestic	22/10/2023	23/10/2023
ZD043	5041	Adiqelqelmelasa	14.61063	39.47063	22/10/2016	Domestic	22/10/2023	23/10/2023
ZD049	5041	Adiareghen	14.55251	39.34296	26/10/2016	Domestic	22/10/2023	23/10/2023
ZD102	5041	Himbar	14.56032	38.75577	25/12/2016	Domestic	22/10/2023	23/10/2023
ZD111	5041	Adihdug	14.58293	38.85257	25/01/2017	Domestic	22/10/2023	23/10/2023
ZD120	5041	Adighodo	14.77771	39.12907	18/01/2017	Domestic	22/10/2023	23/10/2023
ZD046	5042	Adigolo-Imbasoyra	14.72127	39.5039	25/10/2016	Domestic	24/10/2023	25/10/2023
ZD051	5042	Adikaribosa-maygoduf	14.72284	39.40948	27/10/2016	Domestic	24/10/2023	25/10/2023
ZD106	5042	Adiguer	14.55558	38.77398	28/12/2016	Domestic	24/10/2023	25/10/2023
ZD145	5042	Mekabirtsabla	14.53337	38.5048	22/03/2017	Domestic	24/10/2023	25/10/2023
ZD148	5042	Adihawya	14.55404	38.54628	23/03/2017	Domestic	24/10/2023	25/10/2023
ZD041	5043	Dibdib	14.6357	39.4111	21/10/2016	Domestic	21/10/2023	22/10/2023
ZD048	5043	Ambesetegheleba	14.5269	39.3656	26/10/2016	Domestic	21/10/2023	22/10/2023
ZD109	5043	Adishertai	14.56879	38.67112	04/01/2017	Domestic	21/10/2023	22/10/2023
ZD123	5043	Haddishadihalai	15.01517	39.30918	27/02/2017	Domestic	21/10/2023	22/10/2023
ZD151	5043	Adishimandit	14.53306	38.55421	24/03/2017	Domestic	21/10/2023	22/10/2023
ZD162	5825	Adisemharo	14.86439	38.54125	07/05/2017	Domestic	07/05/2024	18/01/2024
ZD165	5825	Adibelesey	15.02274	38.57111	10/05/2017	Domestic	07/05/2024	18/01/2024
ZD178	5825	Adilalayadi	14.86234	38.65809	16/05/2017	Domestic	07/05/2024	18/01/2024
ZD183	5825	Maihans	14.63533	38.79704	10/12/2017	Domestic	07/05/2024	18/01/2024
ZD191	5825	Adiasmeru	14.9778	38.58642	29/12/2017	Domestic	07/05/2024	18/01/2024
ZD199	5825	Adiembahagoda	14.54391	39.44573	27/01/2018	Domestic	07/05/2024	18/01/2024
ZD204	5825	Embamedhan	14.5552	39.37903	31/01/2018	Domestic	07/05/2024	18/01/2024
ZD158	5826	Adinefas	14.86579	38.42416	04/05/2017	Domestic	04/05/2024	18/01/2024
ZD167	5826	Aditsetserat	15.02267	38.57102	11/05/2017	Domestic	04/05/2024	18/01/2024
ZD180	5826	Areza	14.92754	38.56274	17/05/2017	Domestic	04/05/2024	18/01/2024

ZD189	5826	Dekiwerasi	14.94946	38.61462	27/12/2017	Domestic	04/05/2024	18/01/2024
ZD190	5826	Adiwesek	14.81237	38.41819	28/12/2017	Domestic	04/05/2024	18/01/2024
ZD207	5826	Adinedwe	14.56684	39.47941	11/02/2018	Domestic	04/05/2024	18/01/2024
ZD157	5827	Adinefas-Maiaye	14.86680	38.40997	04/05/2017	Domestic	04/05/2024	18/01/2024
ZD164	5827	Adimomosh-sebea	15.00224	38.57816	09/05/2017	Domestic	04/05/2024	18/01/2024
ZD176	5827	Adikushet	14.94407	38.66774	15/05/2017	Domestic	04/05/2024	18/01/2024
ZD192	5827	Adighurdi	14.93222	38.58708	31/12/2017	Domestic	04/05/2024	18/01/2024
ZD201	5827	Adiembakom	14.53887	39.43643	28/01/2018	Domestic	04/05/2024	18/01/2024
ZD211	5827	Damba	14.61719	39.3782	02/03/2018	Domestic	04/05/2024	18/01/2024
ZD052	7330	Saloda	14.64671	39.46481	28/10/2016	Domestic	28/10/2023	29/10/2023
ZD112	7330	Betghebriel	14.61149	38.87411	26/01/2017	Domestic	28/10/2023	29/10/2023
ZD127	7330	Dekilefey	14.75073	39.2851	19/02/2017	Domestic	28/10/2023	29/10/2023
ZD129	7330	Arazn	14.63906	39.25501	22/02/2017	Domestic	28/10/2023	29/10/2023
ZD135	7330	Adikolakul	14.54717	38.49318	16/03/2017	Domestic	28/10/2023	29/10/2023
ZD140	7330	Maighorzo 1	14.51071	38.42885	19/03/2017	Domestic	28/10/2023	29/10/2023
ZD108	7331	Kuhulizbi	14.51105	38.63651	03/01/2017	Domestic	03/01/2024	04/01/2024
ZD119	7331	Adimesghan	14.77644	39.15696	18/01/2017	Domestic	03/01/2024	04/01/2024
ZD139	7331	Adihans	14.53787	38.45353	19/03/2017	Domestic	03/01/2024	04/01/2024
ZD142	7331	Adihidug	14.54723	38.51401	20/03/2017	Domestic	03/01/2024	04/01/2024
ZD152	7331	Aditsekemete	14.52733	38.55903	25/03/2017	Domestic	03/01/2024	04/01/2024
ZD115	7332	Dembesilase	14.63725	38.81214	30/01/2017	Domestic	17/01/2024	18/01/2024
ZD117	7332	Adighad 2	14.79131	39.17464	17/01/2017	Domestic	17/01/2024	18/01/2024
ZD118	7332	Adighad 1	14.79244	39.17344	17/01/2017	Domestic	17/01/2024	18/01/2024
ZD132	7332	Aditelae	14.75135	39.18513	24/02/2017	Domestic	17/01/2024	18/01/2024
ZD137	7332	Adiserenta	14.54437	38.49462	17/03/2017	Domestic	17/01/2024	18/01/2024
ZD146	7332	Meztaeshenfae	14.52633	38.49049	22/03/2017	Domestic	17/01/2024	18/01/2024
ZD121	7333	Adizebe	14.75382	39.13788	26/02/2017	Domestic	23/02/2024	18/01/2024
ZD122	7333	Adihabenat	14.79504	39.08945	27/02/2017	Domestic	23/02/2024	18/01/2024
ZD130	7333	Wulusho 1	14.63958	39.23034	23/02/2017	Domestic	23/02/2024	18/01/2024
ZD134	7333	Adimesihal	14.6143	39.37714	06/03/2017	Domestic	23/02/2024	18/01/2024
ZD136	7333	Endabaynas	14.54377	38.4754	17/03/2017	Domestic	23/02/2024	18/01/2024
ZD147	7333	Adimerobi	14.57015	38.54163	23/03/2017	Domestic	23/02/2024	18/01/2024
ZD116	7334	Adilghese	14.67419	38.84986	31/01/2017	Domestic	31/01/2024	18/01/2024
ZD125	7334	Maichena	14.56999	39.2709	15/02/2017	Domestic	31/01/2024	18/01/2024
ZD128	7334	Chearegahit	14.77176	39.22009	20/02/2017	Domestic	31/01/2024	18/01/2024
ZD131	7334	Wulusho 2	14.63845	39.23017	23/02/2017	Domestic	31/01/2024	18/01/2024
ZD150	7334	Gezaterer	14.53168	38.55079	24/03/2017	Domestic	31/01/2024	18/01/2024
ZD047	7335	Adimelhidaga	14.72299	39.47275	25/10/2016	Domestic	25/10/2023	26/10/2023
ZD113	7335	Unagaaben	14.63448	38.86509	27/01/2017	Domestic	25/10/2023	26/10/2023
ZD124	7335	Ghenetseba	14.83629	39.08263	28/02/2017	Domestic	25/10/2023	26/10/2023
ZD143	7335	Aditsetser	14.55885	38.51297	21/03/2017	Domestic	25/10/2023	26/10/2023
ZD144	7335	Adiamine	14.54193	38.51299	22/03/2017	Domestic	25/10/2023	26/10/2023
ZD107	7336	Adiburkut	14.5148	38.681	29/12/2016	Domestic	29/12/2023	30/12/2023

ZD126	7336	Adiflho	14.75765	39.29788	18/02/2017	Domestic	29/12/2023	30/12/2023
ZD133	7336	Unawelesi	14.50053	39.279	25/02/2017	Domestic	29/12/2023	30/12/2023
ZD141	7336	Maighorzo 2	14.51118	38.42827	20/03/2017	Domestic	29/12/2023	30/12/2023
ZD149	7336	Adinaamn	14.53102	38.55626	23/03/2017	Domestic	29/12/2023	30/12/2023

To enable the continuation of the safe water projects implemented by Vita-co2balance in Eritrea, PD has decided to include in GS5125, boreholes from a second project developed by Vita-CO2balance under the Gold Standard. These boreholes will transition into GS5125 in line with the related Design Change start date.

Anseba Region's Boreholes: these technologies were originally crediting under GS5951-55. Their CP1 has ended and are not going to be re-validated but their technologies will be incorporated under GS5125.

Details of boreholes that will be incorporated under GS5125 are reported in the table below.

Borehole ID	GS ID	Village name	Latitude	Longitude	Date of rehab	Use	End of CP1	Transition to GS5125
ZA002	5951	Etharewyatat	16.26033	38.40542	02/11/2017	Domestic	02/11/2024	03/11/2024
ZA003	5951	Kedhat	16.17030	38.42163	03/11/2017	Domestic	02/11/2024	03/11/2024
ZA012	5951	Balwa	15.67374	38.69865	10/11/2017	Domestic	02/11/2024	03/11/2024
ZA020	5951	Bekushemnuk	15.59462	38.64577	18/11/2017	Domestic	02/11/2024	03/11/2024
ZA021	5951	Wasdamba 1	15.65963	38.57862	21/11/2017	Domestic	02/11/2024	03/11/2024
ZA035	5951	Kush	16.14950	38.05349	08/12/2017	Domestic	02/11/2024	03/11/2024
ZA037	5951	Orota	16.17624	37.95590	12/12/2017	Domestic	02/11/2024	03/11/2024
ZA039	5951	Shirara 2	15.81786	38.86357	16/12/2017	Domestic	02/11/2024	03/11/2024
ZA041	5951	Weledteshim	16.15750	38.07294	19/12/2017	Domestic	02/11/2024	03/11/2024
ZA005	5952	Karibosa	15.80716	38.38365	04/11/2017	Domestic	02/11/2024	03/11/2024
ZA010	5952	Jertem	15.68129	38.61430	09/11/2017	Domestic	02/11/2024	03/11/2024
ZA027	5952	Ghergher	15.77427	38.68305	26/11/2017	Domestic	02/11/2024	03/11/2024
ZA030	5952	Deghedeg	15.58268	38.77090	28/11/2017	Domestic	02/11/2024	03/11/2024
ZA031	5952	Glass	15.71860	38.31357	30/11/2017	Domestic	02/11/2024	03/11/2024
ZA033	5952	Asmat	16.15725	38.07292	08/12/2017	Domestic	02/11/2024	03/11/2024
ZA038	5952	Shirara 1	15.81800	38.86359	16/12/2017	Domestic	02/11/2024	03/11/2024
ZA042	5952	Dighi	15.75369	38.48991	21/12/2017	Domestic	02/11/2024	03/11/2024
ZA004	5953	Guluy	16.19030	38.41542	03/11/2017	Domestic	02/11/2024	03/11/2024
ZA006	5953	Robto	15.74029	38.66324	07/11/2017	Domestic	02/11/2024	03/11/2024
ZA007	5953	Garalebu	15.73062	38.67674	07/11/2017	Domestic	02/11/2024	03/11/2024
ZA009	5953	Jemberek	15.75284	38.66217	08/11/2017	Domestic	02/11/2024	03/11/2024
ZA015	5953	Hamrehamareb 1	15.62318	38.62206	17/11/2017	Domestic	02/11/2024	03/11/2024
ZA019	5953	Firkutu	15.628	38.65469	18/11/2017	Domestic	02/11/2024	03/11/2024

ZA029	5953	Marat	15.86812	38.67113	27/11/2017	Domestic	02/11/2024	03/11/2024
ZA036	5953	Embelday	16.33935	37.78753	09/12/2017	Domestic	02/11/2024	03/11/2024
ZA040	5953	Shindwa	15.61528	38.71335	18/12/2017	Domestic	02/11/2024	03/11/2024
ZA013	5954	Haddishadi 1	15.64937	38.57620	11/11/2017	Domestic	02/11/2024	03/11/2024
ZA018	5954	Tuumkofa	15.62773	38.62445	17/11/2017	Domestic	02/11/2024	03/11/2024
ZA024	5954	Iratahtai 2	15.6922	38.73472	22/11/2017	Domestic	02/11/2024	03/11/2024
ZA025	5954	Hashishay 1	15.78612	38.14242	24/11/2017	Domestic	02/11/2024	03/11/2024
ZA028	5954	Gherbet	15.83531	38.74289	27/11/2017	Domestic	02/11/2024	03/11/2024
ZA032	5954	Golagul	15.57881	38.79442	05/12/2017	Domestic	02/11/2024	03/11/2024
ZA034	5954	Hawish	16.19937	38.06788	08/12/2017	Domestic	02/11/2024	03/11/2024
ZA008	5955	Adkom	15.75306	38.64642	08/11/2017	Domestic	02/11/2024	03/11/2024
ZA011	5955	Habrenkeka	15.64808	38.70981	09/11/2017	Domestic	02/11/2024	03/11/2024
ZA014	5955	Haddishadi 2	15.64992	38.62321	13/11/2017	Domestic	02/11/2024	03/11/2024
ZA016	5955	Hamrehamareb 2	15.62401	38.62231	17/11/2017	Domestic	02/11/2024	03/11/2024
ZA022	5955	Wasdemba 2	15.66615	38.57717	21/11/2017	Domestic	02/11/2024	03/11/2024
ZA023	5955	Iratahtai 1	15.69231	38.73512	22/11/2017	Domestic	02/11/2024	03/11/2024
ZA026	5955	Hashishay 2	15.78601	38.13548	24/11/2017	Domestic	02/11/2024	03/11/2024

The project is eligible under section 3.1.1 of the GS4GG Principles and Requirements. As this project is undergoing Design Certification Renewal and as per section 5.1.47 of Principle and Requirements, an assessment has been done on the following:

- a) Changes in the Project as related to the General Eligibility Criteria: the project boundaries are limited to the Debub and Anseba Regions of Eritrea, the project boundaries for Crediting Period 2 haven't increased compared to Crediting Period 1.
- b) Incorporation of any relevant updates to the Gold Standard Requirements: no changes occurred.
- c) Re-definition of Baseline Scenario and any impact of change on the Eligibility Principles, Criteria and Requirements: the project baselines were reassessed for both Anseba and Debub Regions (baselines surveys took place between February and March 2023). There are no changes in Eligibility Principles, Criteria and Requirements.

- d) Any Gold Standard activity, product and methodology-specific Requirements: as this is a safe water project that aims to maintain boreholes at community level, the project adopted the latest Gold Standard Emission Reductions from Safe Drinking Water Supplies v1.
- e) Demonstration of Ongoing Financial Need: please refer to section B.5.2 of this PDD.

A.1.1. Eligibility of the project under Gold Standard

The project is located in Eritrea, an LDC.

The project is eligible under the Gold Standard Methodology: Emission Reductions from Safe Drinking Water Supply v1. By providing safe water through the rehabilitation and maintenance of broken boreholes, the project ensures that households consume less firewood by displacing the need to boil water for purification. This results in a reduction of carbon dioxide emissions.

The project is eligible under section 3.1.1 of the GS4GG Principles and Requirements as it follows an established Gold Standard methodology.

No.	Eligibility Criterion	Description/ Required condition	Means of Verification/Supporting evidence for inclusion
1	(a) Types of Project	Eligible Projects shall include physical action/implementation on the ground. Pre-identified eligible Project types are identified in the Eligibility Principles and Requirements section.	This project involves the rehabilitation and maintenance of safe water sources. The project type is eligible under Community Services Activity Requirements sections 3.1.1(b) and 3.1.1(d).
2	(b) Location of Project	Projects may be located in any part of the world.	The host country and location of this project is specified in Section A.4.4.
3	(c) 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	The location of the Project and range of GPS coordinates and maps to define the Project boundary are included in Section A.2 Each technology included under this project will not be included by any other carbon standard. A declaration confirming this, signed by the Water Resources Department of the Ministry of Land, Water and Environment of

		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 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 impacts amongst projects).	the state of Eritrea, has been provided.
4	(d) Host Country Requirements	Projects shall be in compliance with applicable Host Country's legal, environmental, ecological and social regulations.	The project is in compliance with Host Country requirements such as WQS (Eritrean Guidelines for Evaluation of Drinking Water Quality, the guidelines are based on the WHO recommendation)² The Eritrean Environmental, Protection, Management and Rehabilitation Framework 179/2017³.
5	(e) 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 organisation (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.	Contact details of the Project Developer are included in Appendix 2
6	(f) Legal Ownership	Full and uncontested legal ownership of any Products that are generated under Gold	At the point of technology installation, a Carbon Transfer Form (CTF) is signed and

² Eritrean Guidelines for Evaluation of Drinking Water Quality (Draft 4/98) Aug, 2004, Ministry of Land, Water and Environment Water Resources Department

³ <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC200682/>

		Standard Certification, (for example 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.	uploaded to our database 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	(g) 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.	There are no disputes or contested rights that have been identified in relation to rights relevant to the project activity
8	(h) 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 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.	A declaration confirming that there is no diversion of ODA has been submitted
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	The fNRB has been calculated using CDM Tool 30 v.4.
10	Test for W _{b,y} parameter (VR)	The test for fixed parameter W _{b,y} is based on the water boiling test.	The updated SWS Gold Standard Methodology no longer includes parameter W _{b,y} . Instead, specific energy required to boil water (kJ/L) is used (SE _{w,b,y})
11	Water Project Treatment Capacity (VR)	The treatment capacity limits of project technology/source are required to be monitored to	PD will ensure that litres per hour are within the capacity of the water source

		ensure that the water consumption level applied for emission reductions must not be greater than the treatment capacity of the project technology/sources.	
12	Cookstove Project Theoretical Savings	The theoretical wood savings from a cook stove project shall be estimated based on following- $P_y = B_{b,y} * (1 - h_b / h_{p,y})$ P_y - quantity of firewood consumed in project $B_{b,y}$ - quantity of firewood consumed in baseline h_b - efficiency of baseline technology $h_{p,y}$ - efficiency of project technology	The Project Activity does not involve cookstoves.
13	Double Counting	Conditions to confirm that the project is neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered.	PP can confirm that the project is not registered anywhere else.
14	Technical Specification	Specification of the technology/measure, such as the specifications of the Project level and type of service, as well as performance specification based on, inter alia, testing/certification.	This 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
15	Start Dates	Conditions to check the start dates of projects through documentary evidence.	The start date of projects is confirmed by carbon transfer forms and repair confirmation forms. Start date is included in Section C of this PDD;
16	Applicability	Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents.	This has been set out in this PDD.
17	Additionality	Conditions to ensure that project meet the requirements for demonstration of additionality.	This has been set out in this PDD
18	LSC and EIA	Conditions related to undertaking local stakeholder consultation and environmental impact analysis.	This has been set out in this PDD. An EIA is not required to be carried out for this safe water project.
19	Target Group	Target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/offgrid), and where applicable, distribution mechanisms (e.g. direct installation).	The target group has been set out in PDD.

20	Sampling	Sampling approaches are set out in the ERSDWS v1.0 methodology.	The project will follow the sampling approach set out in the applicable methodologies (Safe Water methodology) which take precedence over CDM methodologies. Sampling approaches are set out in Section B.7 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 this PDD.

The project follows the Community Services Activity Requirements, the following table demonstrates how it meets criteria in section 2: Eligible Project Types and section 3: General Eligibility Criteria.

Community Services Activity Requirements	
Requirements relevant to this project.	Demonstration of meeting Requirements
2. Eligibility Project Types	
2.1.2) All CSA projects shall lead to climate change mitigation and/or adaption by providing or improving access to services/resources at household or community level or institutional level. Eligible services include electricity and energy, water and sanitation, waste management, housing, ect.	By providing a safe water source in rural communities, the project improves access to safe water services/resources at community level. As such, the project is an Eligible Project Type in line with the requirements.
2.1.3) Projects shall conform to the Principles and Requirements.	The project conforms with the Principles and Requirements detailed in the document. The project is eligible under section 4, Principle 1, section (a) of the Principles and Requirements as it follows an established Gold Standard methodology. Concerning point 4.1.7, the project does not support geoengineering or entail energy production from fossil fuels or nuclear. Rather it supports a switch away from polluting technologies to an emissions-free means of accessing safe water.
3 General Eligibility Criteria	
3.1.1 Types of Project b) End-Use Energy Efficiency: Project activities that reduce energy requirements as compared to baseline scenario without affecting the level and quality of services or products where the end user of the products and services are clearly identified and when the physical intervention is required at the user end.	By providing safe water, the project activity reduces the energy requirements compared to the baseline scenario by ensuring that households consume less firewood through no longer needing to purify their water.
3.1.2 Project Area, boundary and scale Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements. c) For the purpose of applying UNFCCC methodologies for quantification of GHG reductions, 'small scale' is defined as in CDM Modalities and Procedures for three project types; Renewable Energy, Energy Efficiency and Others.	The project Area and Boundary are defined in line with the applicable Methodology, outlined in Section A.2.

3.1.3 Suppressed Demand baseline Certain Impact Quantification methodologies allow projects to account Suppressed Demand scenario when establishing a baseline. In such cases, the application of Supressed Demand baseline is limited to Small Scale and Microscale Projects. Where a Supressed Demand baseline is applied, it is not possible to 'stack' Gold Standard Certified Impact Statements or Products as the definition of the baseline may be contradictory.	N/A
3.1.4 Legal ownership a) Projects involving the distribution of a large number of devices for services shall provide a clear description of the ownership of the Products that are generated under Gold Standard Certification all along the investment chain. In line with FPIC requirement, the proofs that end-users are aware of and willing to give up their rights on Products shall be provided. b) The transfer for Product ownership shall be discussed during the local stakeholder consultations for projects.	a) It will be clearly communicated that CO2balance UK Ltd is the Co-ordinating/Managing Entity which communicates with the Gold Standard and the entity that is claiming ownership rights of and selling the emission reductions resulting from the project activity. The project is managed in the host country by Vita. Vita and CO2balance UK Ltd have legal ownership of the carbon credits produced as a result of the project. Both parties maintain the right to operate the projects in the host country. Water points are managed by communities, who are recognised as the main users of the water points in the project. At the point of technology installation, a Carbon Transfer Form (CTF) will be signed and uploaded to our database stating that the rights to the carbon credits will lie with CO2balance UK Ltd and Vita. An elected representative from each water resources committee responsible for a borehole will sign a CTF on behalf of all users thereof. b) The transfer of ownership was discussed during the local stakeholder consultation conducted by Vita, presenting the details of the project to the attendees. No issues were raised during the meeting voicing issues regarding the transfer of product ownership.

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project. CO2balance UK Ltd is the Co-ordinating/Managing Entity which communicates with the Gold Standard; the project is managed in the Host Country by Vita. Vita and CO2balance UK Ltd have legal ownership of the carbon credits produced as result of the project. Both parties maintain the right to operate the projects in the host country, Eritrea.

At the point of technology installation, a Carbon Transfer Form (CTF) is signed 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.

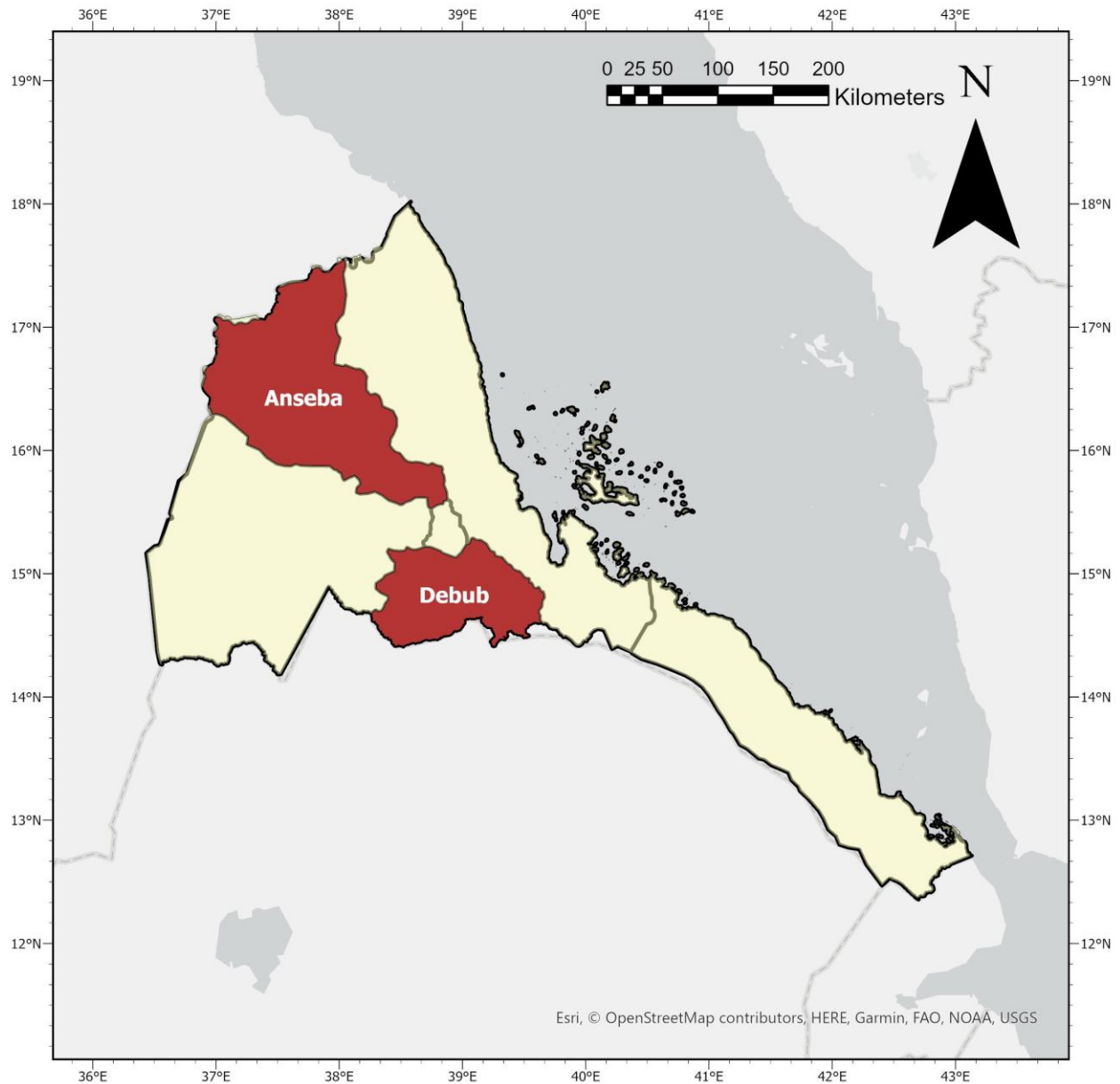
The project will ensure that it complies with Host Country's legal, environmental, ecological, and social regulations. Boreholes are managed by communities, who are recognised as the main users of the boreholes in the project. There are no disputes or contested rights that have been identified in relation to rights relevant to the project activity.

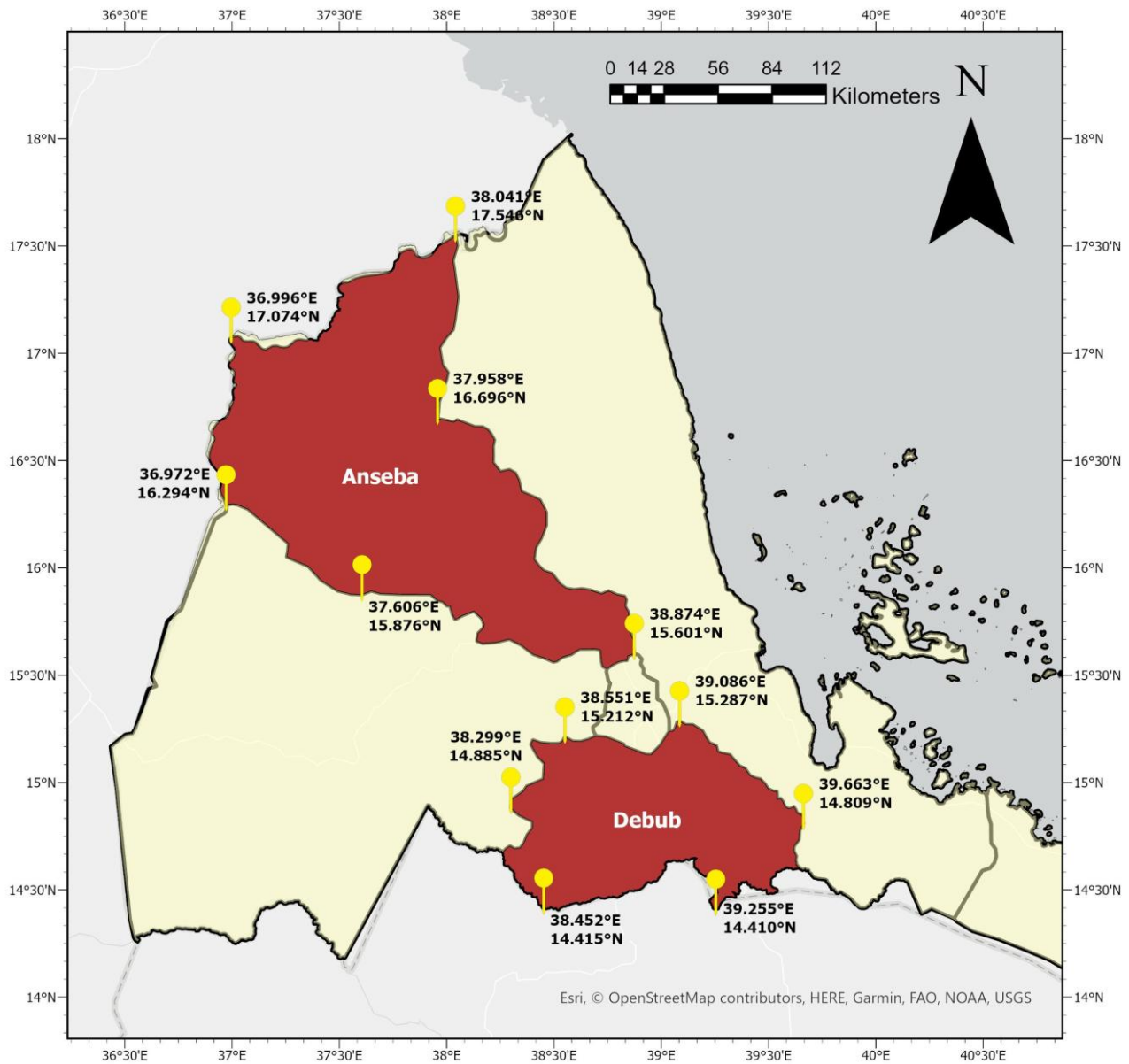
A.2 Location of project

Eritrea is an African country situated in the northeast of Africa on the Red Sea coast. It shares its borders with Djibouti, Ethiopia and Sudan. The project is located in semi-rural districts in Eritrea in which local people must use wood fuel to purify their drinking, cleaning and washing water. This process results in the release of greenhouse gas emissions from the combustion of wood - this can be avoided if a technology that does not require fuel (wood or fossil) supplies clean water desired by households.

Many existing boreholes have fallen into disrepair because maintenance programmes have been poorly managed, or proven too expensive. CO2balance and Vita, an Irish Charity that works in Eritrea, have developed multiple projects that renovate 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 for the entire length of the project, which will be a minimum 7 years.

Below is the geographic reference to allow unique identification of the project boundary. 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.





Project Area Coordinates

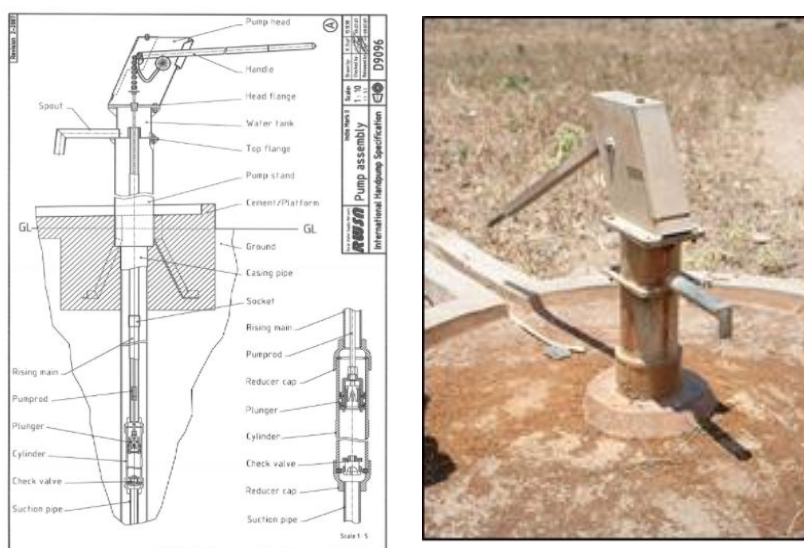
Region	Point	Longitude	Latitude
Anseba	1	38.041°E	17.546°N
Anseba	2	37.958°E	16.696°N
Anseba	3	38.874°E	15.601°N
Anseba	4	37.606°E	15.876°N
Anseba	5	36.972°E	16.294°N
Anseba	6	36.996°E	17.074°N
Debub	7	39.086°E	15.287°N
Debub	8	39.663°E	14.809°N
Debub	9	39.255°E	14.410°N
Debub	10	38.452°E	14.415°N

Debut	11	38.299°E	14.885°N
Debut	12	38.551°E	15.212°N

The unique geographical identification of the boreholes included in the project are reported in Section A.1 of this PDD.

A.3 Technologies and/or measures

The vast majority of pumps to be fixed are India Mark II pump as shown below. Other hand pump models may also be included in the project. This includes but is not limited to the India Mark III, Afridev and the U3 modified pump. The project is not limited to any particular model of hand-pump or water scheme; installation and rehabilitation will be according to local needs.



India Mark II pump

Technical Specifications⁴:

	Afridev	India Mark II	U3 Modified
Cylinder diameter (mm):	50	63.5	50
Maximum Stroke (mm):	225	125	125
Approx. discharge at about 75 watt input m3/h:	at 10 m head 1.4	at 10 m head 1.8	at 10 m head 1.2
	at 15 m head 1.1	at 15 m head 1.3	at 15 m head 1.0
	at 20 m head 0.9	at 20 m head 1.0	at 20 m head 0.8
	at 30 m head 0.7	at 30 m head 0.8	at 30 m head 0.6
Pumping lift (m):	10-45	10-50	10-45
Water consumption (lpcd):	15-20	15-20	15-20

SDG Contribution

In this project, boreholes are maintained functional so that they deliver clean, safe water for human consumption which contributes positively to SDG 1 and 7.

Contribution to SDG 1 will be calculated based on the proportion of population having “access to basic service” in terms of safe water in the project activity compared to the baseline scenario: “access to basic services” can be taken as a proxy indicator of how these project contributes towards the SDG 1 in the context of poverty eradication linked to access to sufficient, affordable and adequate quality services. SDG 7 will be assessed based on the number of households having access to safe water from a clean treatment technology.

As boiling is common practice in the project areas, the process of boiling water on an inefficient stove or open fire has negative health impacts on the Eritrean rural communities through the production of household air pollution; providing access to safe water and removing the need to boil, reduces the amount of non-renewable firewood burned. Therefore the project contributes towards SDG 15, calculated as the total non-renewable firewood saved (tons) in the project scenario.

⁴ Source RWSN <https://www.rural-water-supply.net/en/implementation/public-domain-handpumps/>

The boreholes are usually located close to villages and offer a reliable safe water source. Once repaired, it is predicted that women time spent collecting water, and their time spent collecting wood fuel for boiling water for purification will be reduced, contributing positively to SDG 5. The project will monitor the time reduction collecting water as a result of the project and the time spent on unpaid domestic work. As mentioned above, the project location is a largely rural district where people typically use wood fuel in order to purify their drinking water by boiling. The project will provide support, technology, capacity building, training activities to raise awareness on climate change and related planning and management among the communities focusing on women, youth and local and marginalized communities.

The rehabilitation of boreholes proposes to displace the need to boil water by providing safe water from the source. This will achieve a reduction in GHG emissions and aligns with SDG 13.

A.4 Scale of the project

The project activity is a stand-alone Large-scale registered Gold Standard project activity.

The large-scale project activity is a Community Service Activities (CSA).

A.5 Funding sources of project

The projects get funding by marketing the anticipated carbon credits from the wood savings, so borehole owners must agree to transfer the potential emissions reductions over to Vita in return for them supplying the work and materials to renovate and maintain the boreholes. This project will be developed under the Gold Standard carbon credit body, which in addition to checking that the carbon credits from these projects are real, also measures local social, environmental and economic impact.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

- GS Emission Reductions from Safe Drinking Water Supplies v 1.0
- SDG Impact Tool v.1.2
- Random Sampling for annual surveying, the annual Project Survey, Usage Survey and the biennial Water Consumption Field Test (WCFT)
- CDM Tool 30 EB 115 Annex 22 v4.0 2022 for fNRB calculations

B.2. Applicability of methodology (ies)

In accordance with the Gold Standard Methodology for Emission Reductions from Safe Water Supply v.1.0, specifically community water supply technologies (CWS). The project adheres to the following conditions:

Methodology Requirement	Project
a. 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.	Natural processes are used for filtration. WQTs are carried out by the Water Resources Department of the Ministry of Water Land and Environment (Eritrea), if the tests are not satisfactory, chlorination interventions are 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.
b. 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 project activity involves rehabilitating and maintaining non-functioning borehole hand pumps. The project does not include water pumps powered by fossil-fuel engines.
c. All projects involving CWT and CWS technologies must also include ongoing maintenance and repair of the project technology.	The project activity rehabilitated unfunctional boreholes and involves ongoing maintenance of handpumps. The handpumps are monitored and reactive repairs are conducted if there is an issue

	with the handpump. Repairs are logged and recorded as non-functioning days, if major. WQTs are conducted throughout the year to ensure the water quality meets national standards. Tests at CWS level are conducted at the start of the Crediting Period in line with methodology requirements.
d. 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).	Technical assessments of existing technologies are carried out by the Water Resource Department to determine what spare parts are needed. CTFs are signed by the water committee representative and acts as an agreement between PP and water resource committee the technology was in need of repair.
e. 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.
f. 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 end-users, 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.
g. Project technology performance level (HWT and IWT): It shall be demonstrated based on report of laboratory testing or official notification that the project technology or equipment achieves either (i) the performance target classification 3-star or 2-star level, meaning "Comprehensive Protection," as per the WHO International Scheme to Evaluate Household Water Treatment Technologies ⁸ (World Health Organization, 2011) or (ii) compliance with the	Not applicable as project activity relates to CWS only.

national standard or guideline ⁹ for household drinking water treatment technology; if no national guideline or standard is available, then the project technology shall comply with the WHO International Scheme requirements as per (i) (parameter SDWS 2).	
h. 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 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.
i. The project must conduct annual water hygiene education campaigns for the end-users. (parameter SDWS 20).	Annual WASH training takes place once a year and representatives of the communities are invited. 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)
j. 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, 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.

B.3. Project boundary

	Source	GHGs	Included	Justification/Explanation
Baseline scenario	Emissions from wood fuels utilised for obtaining safe drinking water displaced due to project activity	CO ₂	Yes	Major source of emissions
		CH ₄	Yes	Minor source of emissions
		N ₂ O	Yes	Minor source of emissions
	Emissions from fossil fuels utilised for obtaining drinking water displaced due to project activity	CO ₂	Yes	Major source of emissions
		CH ₄	No	Excluded for simplification
		N ₂ O	No	Excluded for simplification
Project Scenario	Emissions from electricity for operating project water supply/treatment technology	CO ₂	Yes	Important source of emissions
		CH ₄	No	Excluded for simplification
		N ₂ O	No	Excluded for simplification
	Emissions from fossil fuels for operating project water supply/treatment technology	CO ₂	Yes	Limited fuel energy may be required
		CH ₄	No	Excluded for simplification
		N ₂ O	No	Excluded for simplification

B.4. Establishment and description of baseline scenario

In the baseline scenario, local people typically use wood fuel on 3SF or ICS for cooking and water purification. This process results in the release of greenhouse gas emissions from the combustion of wood. This can be avoided if local communities have access to safe water and therefore do not need to boil water as a treatment method. According to the baseline studies, the totality of the rural population in the targeted area did not have access to safe water before the implementation of the project and relied exclusively on unprotected water sources that are highly susceptible to contamination. 100% of the population depended on boiling as the only treatment method available.

Assessment of the validity of the original baseline as per CDM Tool 11:

Step 1: Assess the validity of the current baseline for the next crediting period

Current baseline is in compliance with the relevant mandatory national and/or sectoral policies.

Step 1.4: Assessment of the validity of the data and parameters

As the project has changed methodology TPDDTEC v.2 to ERSDWS v.1 a new baseline was carried out to be line with the new parameters. Specifically, TPDDTEC Cj, under ERSDWS v.1 this has been updated to Cb. The fNRB has also been reviewed.

Step 2: Update the current baseline and the data and parameters

As Step 1.4 showed that the baseline parameters needed to be updated, new baselines were carried out in accordance to Step 2.

Step 2.2: Update the data and parameters

New values found for parameters which included Tby, Cb and fNRB.

Baseline scenario

Eritrea is a least developed country (LDC) and is one of the poorest countries in the world with a Human Development Index ranking of 176 out of 191⁵ countries worldwide as of 2021. The baseline situation is not expected to change significantly during the next years considering the current situation in Eritrea, its economic development of the last years and predictions for the future.

The project developer elected to redefine the baseline scenario as described in the "Principles and Requirements" as per section 5.1.47. as the project stated in 2016, baseline studies were considered important in order to reassess the baseline scenario of the project. The table below report the parameters for CP1 and CP2

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

In total 240 Baseline projects survey were conducted across the project area, in randomly selected households, between 21/02/2023 and 04/03/2023.

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,

⁵ United Nations Development report 'Human Development Index' <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>

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 project developer elected to redefine the baseline scenario as described in the "Principles and Requirements" as per section 5.1.47. as the project started in 2016, baseline studies were considered important in order to reassess the baseline scenario of the project and calculate the SDGs in a more accurate way and in line with the GS Emission Reductions from Safe Drinking Water Supplies v 1.0. The table below reports the parameters for CP1 and CP2.

GS Emission Reductions from Safe Drinking Water Supplies v 1.0 refer to drinking water only while the TPDDTEC included also water used for basic personal hygiene and food preparation.

		CP1	CP2
C_b	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.	0% (previously Cj)	0%
$P_{b, \text{boil}}$	Percentage of persons boiling water for purification in the baseline scenario.	100%	100%
f_{NRB}	Fraction of non-renewable biomass	97% (UNCCC default value)	79 % (CDM Tool 30 EB 115 Annex 22 v4.0 2022)
$T_{b,y}$	Time spent collecting water per household per day prior to project	1.74 hours	1.06 hours
$X_{f, \text{wood}}$	Proportion of fuel f used in the baseline (fraction)	100 %	100 %

B.5. Demonstration of additionality

Specify the methodology, activity requirement or product requirement that establishes deemed As demonstrated in the Gold Standard for the Global Goals Community Services Activity

additionality for the proposed project (including the version number and the specific paragraph, if applicable).

Requirements section 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:

1. (a) Positive list (Annex B)
2. (b) Projects located in LDC, SIDS, LLDC
3. (c) Micro-scale projects

Describe how the proposed project meets the criteria for deemed additionality.

Eritrea is an LDC so the project is deemed additional by the relevant activity requirement.

B.5.1 Prior Consideration

N/A

B.5.2 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:

- Approximately 35% - 55% of the ongoing cost is related to carbon accreditation, this is funded entirely via income from the sale of credits.
- In addition to the accreditation costs, income from the sale of credits is also used to:
 - Provide ongoing planned and reactive maintenance services in partnership with local government (between 30%-50%).
 - Refresher training with WASHC and community members on management of water points and community level hygiene.
 - Annual water quality testing in partnership with local government.
 - Regular monitoring of water points in consultation with local government.

Without funding via credits Vita would not be able to continue funding ongoing maintenance of project water points.

This project is in an LDC, so it is automatically additional and a more detailed Ongoing Financial Need is not required

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the SDGs

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 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

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

Outcomes for SDG 1 (No Poverty) are calculated as follows:

The outcome for SDG 1 is quantified as the proportion of population living in HHs with access to basic service (Basic Service – people who drink water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing) in terms of safe water in the project activity compared to the baseline scenario (Paccess)

The number of persons is determined either in the Baseline Survey for the purpose of the PDD or in the Project Survey for monitoring reports. People (%) are separated into Joint Monitoring Programme (JMP) Service ladder categories:

Safely Managed Service – people who drink water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination

Basic Service – people who drink water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing

Limited Service – people who drink water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing

Unimproved Service – people who drink water from an unprotected dug well or unprotected spring

Surface Water – people who drink water directly from a river, dam, lake, pond, stream, canal or irrigation canal

Outcomes for SDG 5 (Gender Equality) are calculated as follows:

Globally, women and girls perform the majority of unpaid domestic work.⁶ This leaves them with less time to rest, study and realise their economic potential, leaving them in *time poverty*. In regard to time, women are poorer than men as unpaid domestic duties, such as collecting firewood and water, must be added to their market productive work, making time much more scarce.⁷ Women are widely recognised as being principally responsible for natural resource collection.

These trends demonstrate that reducing the amount of firewood required by households has the potential to reduce the *time poverty* of women, because the time burden of collecting water and firewood, which falls disproportionately on women, will be reduced. As the safe water sources are located centrally within communities, closer to public institutions and

⁶ UN (2017) 'Progress towards the Sustainable Development Goals (E/2017/66)'. Available at <https://unstats.un.org/sdgs/files/report/2017/secretary-general-sdg-report-2017--EN.pdf>

⁷ Charmes, J (2006) 'A Review of Empirical Evidence on Time Use in Africa from UN-Sponsored Surveys', in World Bank 'Gender, Times Use, and Poverty in Sub-Saharan Africa'. World Bank Working Paper No. 73.

villages, the distance travelled to collect water will be reduced, reducing the time per trip spent collecting water. In addition, as the water sources will be maintained, they will provide a reliable water supply, ensuring that water needs for cooking, drinking, and food preparation can be met by one central water source, so the time spent collecting water is minimised. The average % decrease per household in time spent gathering water will be taken as a proxy contribution towards the SDG target.

The overall percentage reduction in time spent collecting water by the project activity is calculated as follows:

$$TR_y = (T_{b,y} - T_{p,y}) / T_{b,y}$$

Where:

TR_y	Total reduction time spent collecting water for project activity in year y (%)
$T_{b,y}$	Time spent collecting water per household per trip prior to project (hours)
$T_{p,y}$	Time spent collecting water per household per trip in project (hours)

It is predicted that time spent collecting water will be reduced as a result of the project. To infer as to what project participants are doing with their time saved from the project, qualitative questions will be included in the monitoring surveys which ask respondents how they spend their time saved and answers will be divided into designated time use categories. In some circumstances, it may be the case where respondents comment on the tasks they undertook in their spare time and these are recorded by field staff.

Outcomes for SDG 7 (Affordable and Clean energy) are calculated as follows:

The outcome for SDG 7 is quantified as Total No of households with access to Safe Water from a clean treatment technology.

The number of persons using each safe water source point is determined during the sensitisation process during the rehabilitation, possible drop off rates in future will be taken into account in monitoring surveys. The percentage of users who were already consuming safe water in the baseline without boiling it (C_b) will be determined through the second crediting period's baseline survey. This is multiplied by the usage rate (U_{py}) in the project scenario. Calculations are as follows (parameters from sections B.6.3 and B.7.1 of the PDD will be applied):

$$HH_{access} = HH_{p,y} * (1 - C_b) * U_{py}$$

Where:

HH_{access}	Total No of households with access to Safe Water from a clean treatment technology.
---------------	---

$HH_{p,y}$	No of households with access to Safe Water from a clean treatment technology in the project scenario
C_b	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.
U_{py}	Usage rate in project scenario p during year y

Outcomes for SDG 13 (Climate Action) are calculated as follows:

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 project's emission reductions calculations.

Baseline Emissions

Equation 1

$$EF_b = SE_{w,b,y} * \sum (x_f * (EF_{b,f,CO_2} * f_{NRB} + EF_{b,f, nonCO_2})) \div 10^9$$

where

EF_b	=	Emission factor for the use of fuel to obtain safe water in the baseline (tCO ₂ e/L)
$SE_{w,b,y}$	=	Specific energy required to boil water (kJ/L), to be calculated as per the paragraph below
x_f	=	Proportion of fuel f used in the baseline (fraction determined based on an energy basis)
EF_{b,f,CO_2}	=	CO ₂ emission factor from use of fuel f (tCO ₂ /TJ)
$EF_{b,f, nonCO_2}$	=	Non-CO ₂ emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO ₂ e/TJ). This parameter is omitted when f is a fossil fuel.
$f_{NRB,f,y}$	=	Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.
f	=	Index for baseline fuel types

where

Equation 2

$$SE_{w,b,y} = 360.83 / \eta_{wb}$$

- 360.83 = Default amount of energy required to boil 1 L of water from a first principles approach
- η_{wb} = 3SF - Efficiency of the baseline water boiling (%).
Weighted average of baseline stove types. 0
- η_{wb} = ICS - Efficiency of the baseline water boiling (%).
Weighted average of baseline stove types.

The Baselines emission shall be calculated as follows:

Equation 3

$$BE_y = EF_b * (1 - C_b - X_{cleanboil,y}) * Q_y * M_{q,y}$$

Where:

- BE_y = Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO₂e)
- C_b = Proportion of project households who in the baseline were already using a safe water supply that did not require boiling it (%)
- $X_{cleanboil,y}$ = Proportion of project households that boil safe water in the project year y (%)
- Q_y = Quantity of safe drinking water provided by the project in year y (L)
- $M_{q,y}$ = Modifier for the water quality in year y

In case of CWT or CWS, the quantity of safe drinking water provided by the project Q_s is determined as follow:

Equation 4

$$Q_y = \min(Q_{m,y}, Q_{pop,y})$$

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 households in year y (L)

Quantified of safe drinking water shall be calculated as follows:

Equation 5

$$Q_{pop,y} = \sum_p HH_{p,y} * HN_p * QPW_p * DO_{a,y}$$

Where

- $HH_{p,y}$ = Number of premises type p served by the project in year y
- $HN_{p,y}$ = Number of individuals per premises type p (e.g. household, school) in year y

QPW _p		Volume of drinking water per person per day for premises type p (L). Apply the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day.
DO _{a,y}	=	Days the project technology is operational for end users in premises p in year y.

Project Emissions

Project emissions may result from the operation of new low-emission water treatment technologies.

Equation 8

$$PE_y = PE_{ff,p,y} + PE_{ec,p,y}$$

Where:

PE _y	=	Project emissions in year y (tCO ₂)
PE _{ff,p,y}	=	Project emissions from fossil fuel use in year y (tCO ₂)
PE _{ec,p,y}	=	Project emissions from electricity use in year y (tCO ₂)

Project emissions from fossil fuel use are determined as follows.

Equation 9

$$PE_{ff,p,y} = \sum P_{p,f,y} * NCV_f * EF_f$$

Where:

P _{p,f,y}	=	Quantity of fossil fuel <i>f</i> that is consumed in the project during year y (mass or volume units)
NCV _f	=	Net calorific value of fossil fuel <i>f</i> (TJ/fuel units)
EF _f	=	Emission factor of fossil fuel <i>f</i> (tCO ₂ /TJ)

Project emissions from electricity use are estimated as follows.

Equation 10

$$PE_{ec,p,y} = \sum EC_{p,y} * EF_{ec} * (1 + TDL_{ec})$$

Where:

EC _{p,y}	=	Quantity of electricity that is used by the project during year y (kWh)
EF _{ec}	=	Emission factor associated with the electricity use (tCO ₂ /kWh)

$$TDL_{ec} = \frac{\text{Transmission and distribution losses associated with the electricity use (\%)}}{\text{electricity use (\%)}}$$

Emission Reduction calculation are calculated as follows:

Equation 11

$$ER_y = BE_y - PE_y - LE_y$$

Where:

- ER_y = Emission reductions in year y (tCO₂e/yr)
- BE_y = Baseline emissions in year y (tCO₂e/yr)
- PE_y = Project emissions in year y (tCO₂e/yr)
- LE_y = Leakage emissions in year y (tCO₂e/yr)

Leakage:

The potential sources of leakage have been investigated and addressed below:

a) Members of the population who do not participate in the project, and previously used lower emitting energy sources, instead use the non- renewable biomass saved under the project activity.

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.

b) The project significantly reduces the NRB fraction within an area where other GHG mitigation 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.

c) The project population compensates for loss of the space heating effect of water boiling by adopting some other form of space heating or by retaining some baseline wood fuel-burning practices.

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.

Therefore, the Ex-antes value for leakage is 0.

Outcomes for SDG 15 (Life on Land) are calculated as follows:

The outcomes of SDG 15 are quantified the Total non-renewable firewood saved (tons) in the project scenario compared to the baseline scenario.

Baseline scenario calculations:

$$W_{b, NRB} = W_{b,n} * f_{NRB,f,y}$$

$$\text{Where: } W_{b,n} = N_{p,y} * P_{b,y} * D_{Op,y}$$

Project savings calculations:

$$W_{p, NRB} = W_{p,n} * f_{NRB,f,y}$$

$$\text{Where: } W_{p,n} = N_{p,y} * P_{b,y} * D_{Op,y} * U_{p,y} * (1 - C_b)$$

$$\text{And } P_{b,y} = Q_{Pw,p} * W_{b,y} \quad \text{and} \quad W_{b,y} = SE_{w,b,y} / NCV_{wood}$$

Please refer to "GS5125_Ex_Antes_calcs", tab SDG Impacts (full MP) for the complete calculations.

B.6.2 Data and parameters fixed ex ante

SDGs 1, 5, 7, 13 and 15

Data/parameter	SDWS 1
Unit	Number of household/institution per CWT/CWS
Description	Coordinates of CWT/CWS – Acceptable formats for GPS coordinates include DMS (degrees, minutes and seconds), DMM (degrees and decimal minutes), and DD (decimal degrees) Number of end-user premises, quantity
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 1 st issuance for new units.
Value(s) applied	GPS coordinates for each individual water point location Number of eligible households/institutions for each water point collected in user lists
Choice of data or Measurement methods and procedures	112 (estimate)
Purpose of data	HH Lists
Additional comment	Determine location of water point, number of end-users and distance from water point
	-

SDGs 1, 5, 7, 13 and 15

Parameter ID	SDWS 2
Data/parameter	Project technology description
Unit	N/A
Description	Detailed description of the planned project technology shall include as a minimum: CWT and CWS: - manufacturer name - product name (if applicable) - technology type - capacity (in case of pumps: rated flow rate, or flow-rate calculation)

	For all technologies, any performance certifications issued by national standard body or an appropriate certification part recognised by national standards body or recognised International Organisation agency also shall be provided. Rehabilitated technologies: In case the project technology (CWT and CWS) is rehabilitated, the following is also required as part of technology description: - Evidence of Non-operational time prior to proposed rehabilitation (at minimum with evidence letter from local representative or government, etc.); - Evidence of lack of an existing maintenance or repair plan (at minimum with evidence letter from local representative or government, etc.); - Original installation date/month (approximate month/year); and - Information/evidence to confirm the details of rehabilitation activity (e.g. parts replaced, specifications followed, personnel conducting the repairs and date of retrofitting) CTF and RCFs demonstrate evidence of such project details.
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 recognised 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.
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	CTFs and RCFs collect required project details
Purpose of data	Outline project details
Additional comment	-

SDG 1, 7 & 15

Parameter ID	SDWS 3
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Data/parameter	Project technology performance level
Unit	N/A
Description	The water directly supplied by the water source (CWS or from the CWT) must comply with i. Microbial quality in line with (i) national standards or guideline for microbial quality of drinking water, or in their absence, (ii) the guideline values for verification of microbial quality from the Guidelines for drinking-water quality, 4th edition (Table 7.10, WHO, 2017); and ii. Chemical quality (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 contamination¹⁸ and physical and aesthetic aspects. Once at the start of the crediting period, and microbial quality at the CWS and CWT location must be retested following an event that could lead to contamination of the source water (e.g. flooding).
Source of data	Water quality test report
Value(s) applied	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.
Choice of data or Measurement methods and procedures	Water quality laboratory analysis
Purpose of data	Determine water quality
Additional comment	-

SDG 1, 7 & 15

Parameter ID	SDWS 4
Data/parameter	Regulatory framework for safe water supply
Unit	N/A
Description	The Eritrean Water Proclamation No. 162/2010 issued on 23 August 2010 stipulates that "the State shall exert all effort to ensure that every citizen exercises the right of access to basic supply of clean and

	safe water (article 20(1))” and “schemes shall be developed to subsidize the costs associated with the provision of basic water services for the disadvantaged segments of the society (article 20(2))”. In addition, the Eritrean Water Proclamation stipulates that “the use of water for domestic purposes shall have priority over any other water use rights (article 5(2))”. The project complies with key information throughout the policy and working collaboratively with multi-level agencies. Safe water supply, operation and maintenance regulations outlined in the policy have been incorporated in the project activities. Working closely with the Water Resource Department throughout the project cycle ensures that regulations are met.
Source of data	National, sub-national and local authorities
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Adhere to regulatory framework for safe water supply
Additional comment	The project shall not undermine or conflict with any national, subnational and local regulations or guidance for safe drinking water supply, operation and maintenance, including any tariff requirements. Where the regulatory framework establishes any cap on parameters used by the methodology, for example number of users per borehole, this shall be accounted for in emission reduction calculations.

SDG 1, 7 & 15

Parameter ID	SDWS 5
Data/parameter	Water sources in the project boundary
Unit	N/A
Description	PP defined 1km radius surrounding borehole. In the defined area, water source uses has been determined. Using Annex 2 from the methodology, PP determined the status of the water source (i.e ‘improved’ or ‘unimproved’).
Source of data	Baseline Study
Value(s) applied	21 – 100% unimproved (estimated)

Choice of data or Measurement methods and procedures	SDWS parameter 5 Survey
Purpose of data	Determine water sources in project boundary
Additional comment	-

SDG 13 & 15

Parameter ID	SDWS 6
Data/parameter	Stove technologies used in the project boundary
Unit	N/A
Description	80 % are Traditional Stoves, 20% are Improved Woodfuel Stoves
Source of data	Re-validation Baseline survey :Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	80 % are Traditional Stoves, 20% are Improved Woodfuel Stoves
Purpose of data	Determine stove technology in project boundary
Additional comment	-

SDG 13

Parameter ID	SDWS 7
Data/parameter	Expected technical life of project technology
Unit	Treatment volume or operational hours or time period
Description	The expected technical life of an individual project technology shall be defined in the PDD. The details include both technology/device life and filter life, if a filter is used and it is replaceable.
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 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. Rehabilitated technologies: - Guarantee from a qualified entity that undertakes the rehabilitation Professional opinion or expert opinion is not accepted as a source for this parameter
Value(s) applied	Water Sources are designed to last for up to 20-50 years with adequate maintenance.
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Determine technical life of project technology
Additional comment	The project shall ensure that the units are replaced with systems of comparable quality or retrofitted at the end of their technical life in order to continue claiming emission reductions. If no replacement or retrofitting is provided, emission reduction claims are limited to the expected technical life.

SDG 7 and 15 & 13

Parameter ID	SDWS 8
Data/parameter	X_f
Unit	Percentages of fuel f use in target population
Description	The proportion of each different cooking fuel f used in the project boundary by end-users: - % among the target population if single fuel is used for water boiling. For example, the target population either use wood or charcoal - 60% end users use wood and 40% charcoal. - Weighted average on energy basis, if multifuel situation exists within premise. For example, a household that uses 1000 kg fuelwood per year and 500 kg charcoal per year for cooking and water boiling uses 51.4% fuelwood and 48.6% charcoal on an energy basis. If the project covers different types of end-users premises (e.g. households, schools), then the fuels used in the geographical area of the project by the same types of end-users are to be determined for each end-user premises type. Undertake assessment at the start of each crediting period.

	SDG 3 (Good Health and Wellbeing) 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination 3.9.1: Mortality rate attributed to household and ambient air pollution. 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
Source of data	Re-validation Baseline survey :Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1" Q35
Value(s) applied	Wood: 100%
Choice of data or Measurement methods and procedures	100
Purpose of data	Determine the proportion of each different cooking fuel f used in the project boundary by end-users
Additional comment	

SDG 13

Parameter ID	SDWS 9
Data/parameter	EF_{b,f,CO_2}
Unit	tCO ₂ /TJ
Description	CO₂ emission factor from use of fuels 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
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_Combustion.pdf
Value(s) applied	112 tCO ₂ /TJ
Choice of data or Measurement methods and procedures	Deemed valid by methodology

Purpose of data	Calculation of baseline emissions
Additional comment	

SDG 13

Parameter ID	SDWS 10
Data/parameter	$EF_{b,f,nonCO2}$
Unit	tCO ₂ e/TJ
Description	Non-CO₂ emission factor from use of fuels, in case the baseline fuel is biomass or charcoal 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
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_Non-CO2_Stationary_Combustion.pdf Global Warming Potential: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table2-14
Value(s) applied	9.46 tCO ₂ e/TJ
Choice of data or Measurement methods and procedures	Deemed valid by methodology
Purpose of data	Calculation of baseline emissions
Additional comment	

SDG 13 & 15

Parameter ID	SDWS 11
Data/parameter	η_{wb}
Unit	Percentage
Description	Weighted average efficiency of the baseline water boiling devices. Calculate the weighted average of the water boiling efficiency in the project boundary using the proportion of different stove types used and the stove efficiencies.

	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
Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	10% for traditional stoves and 23% for improved cookstoves
Choice of data or Measurement methods and procedures	The baseline survey shows that 20% of households cook on ICS, the remaining is traditional stoves.
Purpose of data	Determine efficiency of the baseline water boiling.
Additional comment	

SDG 7, 13 & 15

Parameter ID	SDWS 12
Data/parameter	C_b
Unit	Percentage
Description	Proportion of project households who in the baseline were already using a safe water supply that did not require boiling it (%) 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

Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	0 %
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 calculate the additional number of persons having access to safe water in the project activity compared to the baseline scenario
Additional comment	

SDG 13 and 15

Parameter ID	SDWS 14
Data/parameter	NCV_f
Unit	TJ/fuel units, i.e. mass or volume units
Description	Net calorific value of fossil fuel f
Source of data	IPCC defaults
Value(s) applied	0
Choice of data or Measurement methods and procedures	N/A
Purpose of data	ERs calculations
Additional comment	-

SDG 13

Parameter ID	SDWS 15
Data/parameter	EF_f
Unit	tCO ₂ /TJ
Description	Emission factor of fossil fuel f
Source of data	IPCC defaults

Value(s) applied	0
Choice of data or Measurement methods and procedures	N/A
Purpose of data	ERs calculations
Additional comment	-

SDG 13

Parameter ID	SDWS 16
Data/parameter	EF_{ec}
Unit	tCO ₂ /kWh
Description	Emission factor associated with the electricity use
Source of data	0
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	N/A
Purpose of data	N/A
Additional comment	-

SDG 13

Parameter ID	SDWS 17
Data/parameter	TDL_{ec}
Unit	%
Description	Transmission and distribution losses associated with the electricity use
Source of data	N/A
Value(s) applied	N/A

Choice of data or Measurement methods and procedures	N/A
Purpose of data	N/A
Additional comment	-

SDG 13 and 15

Parameter ID	SDWS 19
Data/parameter	$SE_{w,b,y}$
Unit	kJ/L
Description	Specific energy required to boil water 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
Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	3208.90
Choice of data or Measurement methods and procedures	Value calculated in line with Section 3.6.2 of SWDS Methodology: $360.83/\eta_{wb}$
Purpose of data	Calculation of baseline emissions
Additional comment	-

SDG 5

Parameter ID	SDWS 19
Data/parameter	$T_{b,y}$

Unit	Minutes
Description	Time spent collecting water per household per trip prior to project 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: Proportion of time spent on unpaid domestic and care work, by sex, age and location
Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	63.35 minutes (1.06 hours)
Measurement methods and procedures	Survey
Monitoring frequency	Calculating time saved by project
QA/QC procedures	-
Purpose of data	Calculate total reduction of time spent collecting water per household per trip
Additional comment	-

SDG 15

Parameter ID	SDWS 19
Data/parameter	$P_{b,boil}$
Unit	Percentage
Description	Percentage of persons boiling water in the baseline 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
Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	100%

Choice of data or Measurement methods and procedures	The percentage of people stating that they used to boil their water for purification in the baseline scenario, evaluated through the baseline survey.
Purpose of data	Determine number of persons boiling water in the baseline
Additional comment	-

SDG 13 and 15

Parameter ID	N/A
Data/parameter	<i>fNRB</i>
Unit	Percentage
Description	Fractional non-renewability status of woody biomass fuel during year <i>y</i> , in case the baseline fuel is biomass or charcoal
Source of data	Determined by: - CDM TOOL30 v.4, Calculation of the fraction of non-renewable biomass
Value(s) applied	0.79
Choice of data or Measurement methods and procedures	Deemed valid by methodology
Purpose of data	To calculate baseline emissions
Additional comment	-

SDG 1

Parameter ID	N/A
Data/parameter	<i>Baseline: Basic</i>
Unit	Percentage
Description	Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing
Source of data	Re-validation Baseline survey: Re-val Baseline Survey_Anseba 2023_V1 and Re-val Baseline Debub_2023_V1"
Value(s) applied	0%

Choice of data or Measurement methods and procedures	Values obtain from re-validation Baselines
Purpose of data	To calculate P _{access}
Additional comment	N/A

B.6.3 Ex ante estimation of SDG Impact

Outcomes for SDG 1 (No Poverty):

$$P_{\text{access}} = \% \text{ Project Basic service} - \text{Baseline Basic Service}$$

$$20\% = 20\% - 0\%$$

Where:

P_{access} Proportion of population living in HHs with access to basic service

Baseline Basic Service (Baselines survey): Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing

Project Basic Service (assumed in advance of project data): Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing

SDG 5 (Gender Equality):

$$TR_y = (T_{b,y} - T_{p,y}) / T_{b,y}$$

$$52.6\% = (1.06 - 0.5) / 1.06$$

Where:

TR_y Total reduction time spent collecting water for project activity in year y (%)
 T_{b,y} Time spent collecting water per household per trip prior to project (hours)
 T_{p,y} Time spent collecting water per household per trip in project (hours)

SDG 7 (Affordable and Clean energy):

$$HH_{\text{access}} = HH_{p,y} * (1 - C_b) * U_{py}$$

$$31,750 = 35,278 * (1-0) * 90\%$$

Where:

HHaccess	Total No of households with access to Safe Water from a clean treatment technology.
HHp,y	No of households with access to Safe Water from a clean treatment technology in the project scenario
Cb	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.
Up _y	Usage rate in project scenario p during year y

Outcomes for SDG 13 (Climate Action):

Baseline Scenario:

Equation 1:

$$EF_b = SE_{w,b,y} * \sum (x_f * (EF_{b,f,CO_2} * f_{NRB,f,y} + EF_{b,f,nonCO_2})) \div 10^9$$

$$0.0003 = 3208.9 * (1 * (112 * 0.79 + 9.46)) \div 10^9$$

$$EF_b = SE_{w,b,y} * \sum_f (x_f * (EF_{b,f,CO_2} * f_{NRB,f,y} + EF_{b,f,nonCO_2})) \div 10^9 \quad Eq. 1$$

Where:

EF_b	= Emission factor for the use of fuel to obtain safe water in the baseline (tCO ₂ e/L)
$SE_{w,b,y}$	= Specific energy required to boil water (kJ/L), to be calculated as per the paragraph below
x_f	= Proportion of fuel f used in the baseline (fraction determined based on an energy basis)
EF_{b,f,CO_2}	= CO ₂ emission factor from use of fuel f (tCO ₂ /TJ)
$EF_{b,f,nonCO_2}$	= Non-CO ₂ emission factor arising from use of fuel f , when the baseline fuel f is biomass or charcoal (tCO ₂ e/TJ). This parameter is omitted when f is a fossil fuel.
$f_{NRB,f,y}$	= Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.
f	= Index for baseline fuel types

Equation 2:

$$SE_{w,b,y} = 360.83 / n_{wb}$$

$$3208.9 = (360.83/0.1)*0.8 + (360.83 / 0.23)*0.23$$

$$Q_{pop,y} = \sum_p HH_{p,y} \times HN_{p,y} \times QPW_p \times DO_{p,y} \quad Eq. 5$$

Where:

$HH_{p,y}$	=	Number of premises type p served by the project in year y
$HN_{p,y}$	=	Number of individuals per premises type p (e.g. household, school) in year y
QPW_p	=	Volume of drinking water per person per day for premises type p (L). Apply the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day.
$DO_{p,y}$	=	Days the project technology is operational for end-users in premises p in year y

Equation 3:

$$BE_y = EF_b * (1 - C_b - X_{cleanboil,y}) * Q_y * M_{q,y}$$

$$64,772 = 0.0003 * (1 - 0 - 0) * 228,995,142 * 0.90$$

In the case of CWT and CWS, the quantity of safe drinking water provided by the project Q_y is determined as follows:

$$Q_y = \min(Q_{m,y}, Q_{pop,y}) \quad Eq. 4$$

Equation 4:

$$Q_y = \min(Q_{m,y}, Q_{pop,y})$$

$$228,995,142 = \min(228,995,142)$$

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)

Equation 5:

$$Q_{pop,y} = \sum_p HH_{p,y} * HN_{p,y} * QPW_p * DO_{p,y}$$

$$228,995,142 = 35,278 * 4.68 * 4 * 347$$

Where:

- $HH_{p,y}$ = Number of premises type p served by the project in year y
- $HN_{p,y}$ = Number of individuals per premises type p (e.g. household, school) in year y
- QPW_p = Volume of drinking water per person per day for premises type p (L). Apply the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day.
- $DO_{p,y}$ = Days the project technology is operational for end-users in premises p in year y

Project Scenario:

Equation 8:

$$PE_y = PE_{ff,p,y} + PE_{ec,p,y}$$

$$0 = 0 + 0$$

Where:

- PE_y = Project emissions in year y (tCO₂)
- $PE_{ff,p,y}$ = Project emissions from fossil fuel use in year y (tCO₂)
- $PE_{ec,p,y}$ = Project emissions from electricity use in year y (tCO₂)

Equation 9:

$$PE_{ff,p,y} = \sum P_{p,f,y} \times NCV_f \times EF_f = 0 * 0 * 0$$

Where:

- $P_{p,f,y}$ = Quantity of fossil fuel f that is consumed in the project during year y (mass or volume units)
- NCV_f = Net calorific value of fossil fuel f (TJ/fuel units)
- EF_f = Emission factor of fossil fuel f (tCO₂/TJ)

Equation 10:

$$PE_{ec,p,y} = \sum EC_{p,y} * EF_{ec} * (1 + TDL_{ec})$$

$$0 = 0 * 0 * (1 + 0)$$

$EC_{p,y}$	=	Quantity of electricity that is used by the project during year y (kWh)
EF_{ec}	=	Emission factor associated with the electricity use (tCO ₂ /kWh)
TDL_{ec}	=	Transmission and distribution losses associated with the electricity use (%)

Emission reduction calculations:

Equation 11:

$$ER_y = BE_y - PE_y - LE_y$$

$$64,771 = 64,771 - 0 - 0$$

Where:

ER_y	=	Emission reductions in year y (t CO ₂ e/yr)
BE_y	=	Baseline emissions in year y (t CO ₂ e/yr)
PE_y	=	Project emissions in year y (t CO ₂ e/yr)
LE_y	=	Leakage emissions in year y (t CO ₂ e/yr)

SDG 15 (Life on Land)

Baseline scenario:

Equation 1

$$Wb, NRB = Wb,n * fNRB,f,y$$

$$36,906 = 46,716 * 0.79$$

Equation 2

$$Wb,n = Np,y * Pb,y * DOp,y$$

$$46,716 = 163,742 * 0.00082 * 347$$

Equation 3

$$Pb,y = QPw,p * Wb,y$$

$$0.00082 = 4 * 0.00021$$

Equation 4

$$Wb,y = SEw,b,y / NCV_{wood}$$

$$0.00021 = (3,208.9/15,600.00)/1000$$

Project savings calculations:

Equation 1

$$W_{p, NRB} = W_{p,n} * f_{NRB,f,y}$$

$$33,215 = 42,045 * 0.79$$

Equation 2

$$W_{p,n} = N_{p,y} * P_{b,y} * D_{Op,y} * U_{p,y} * (1 - C_b)$$

$$42,045 = 163,742 * 0.00082 * 347 * 0.90 * (1 - 0)$$

For $P_{b,y}$ and $W_{b,y}$ please refer to equations 3 and 4 above.

Where:

$N_{p,y}$ Number of People served by the project in year y

$Q_{Pw,p}$ Quantity of safe water supplied in the project scenario p during year y, using the “zero or low” emissions’ clean water supply technology

C_b Proportion of project households who in the baseline were already using a safe water supply that did not require boiling it (%)

$W_{b,y}$ Average firewood usage (tonnes) for boiling 1 liter of water

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

$D_{Op,y}$ Tot days capped at 95% functionality

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

f_{NRB} Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.

$W_{b,n}$ Baseline average firewood usage (tons) for boiling water (tot of users)

$W_{b, NRB}$ Baseline non-renewable firewood usage (tons/year)

$W_{p,n}$ Tonnes of firewood per year saved through the project (tot users)

Wp, NRB Total non-renewable firewood saved (tons) in the project scenario.

B.6.4 Summary of ex ante estimates of each SDG Impact

SDG 1

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Year 2	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Year 3	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Year 4	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Year 5	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Year 6	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Year 7	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service

	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service
Total			
Total number of crediting years: 7			
Annual average over the crediting period	0 % population with access to basic safe water	20 % population with access to basic safe water	20 % Proportion of population living in HHs with access to basic service

SDG 5

Year	Baseline estimate	Project estimate	Net benefit
Year 1	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Year 2	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Year 3	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Year 4	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Year 5	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Year 6	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Year 7	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Total	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water
Total number of crediting years: 7			
Annual average over the crediting period	1.06 hours collecting water	0.5 hours collecting water	52.6% reduction in time spent collecting water

SDG 7

Year	Baseline estimate	Project estimate	Net benefit
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Year 1	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Year 2	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Year 3	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Year 4	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Year 5	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Year 6	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Year 7	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Total	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology
Total number of crediting years: 7			
Annual average over the crediting period	0 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology	31,750 households with access to Safe Water from a clean treatment technology

SDG 13

Year	Baseline estimate	Project estimate	Net benefit
Year 1	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e
Year 2	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e
Year 3	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e
Year 4	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e
Year 5	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e
Year 6	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e
Year 7	64,771 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e

Total	453,397 tCO₂e emitted	0 tCO₂e emitted	453,397 tCO₂e emitted
Total number of crediting years: 7			
Annual average over the crediting period	59,068 tCO ₂ e emitted	0 tCO ₂ e emitted	Emissions reduced by 64,771 tCO ₂ e

SDG 15

Year	Baseline estimate	Project estimate	Net benefit
Year 1	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Year 2	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Year 3	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Year 4	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Year 5	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Year 6	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Year 7	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario
Total	258,341 Baseline non-renewable firewood usage (tons/year)	25,834 Project non-renewable firewood usage (tons/year)	232,507 Total non-renewable firewood saved (tons) in the project scenario
Total number of crediting years: 7			
Annual average over the crediting period	36,906 Baseline non-renewable firewood usage (tons/year)	3,691 Project non-renewable firewood usage (tons/year)	33,215 Total non-renewable firewood saved (tons) in the project scenario

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 1 and 7

Parameter ID	SDWS 18
Data/parameter	$M_{q,y}$
Unit	Fraction
Description	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. In case a national standard is not available, the water quality shall comply with WHO Guideline values for verification of microbial quality i.e., all water directly intended for drinking must not have detectable E.Coli in any 100 ml sample i.e., less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml. SDG 1 (No poverty)1.4.1 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. SDG 7 (affordable and clean energy) 7.1By 2030, ensure universal access to affordable, reliable and modern energy services
Source of data	Water quality tests conducted either by a lab or through a field kit.
Value(s) applied	0.90 (estimated value)
Measurement methods and procedures	The National Water Quality Reference Laboratory has certified each water supply in line with national standards.
Monitoring frequency	Annual sampling, and the first round of testing shall be conducted at least after six months from the start date.
QA/QC procedures	1. Laboratories used for water quality testing must be approved by local health authorities and/or have quality accreditation; and 2. The laboratory used must demonstrate that it has an adequate quality management plan in place which addresses both quality assurance and quality control test procedures. 3. Field testing kits also are eligible, e.g. based on Colony Forming Unit method or Most Probable Number method. To use the field testing kits the project shall meet the following requirements: a. Testing kits must be approved by national agency or meet standards set by relevant international organisation e.g. US-EPA, and b. Testing kits shall be tested for its accuracy and robustness prior to application for project level monitoring, whereby local or accredited laboratory shall conduct water quality tests using testing kits and a relevant ISO standard or an equivalent standard, in parallel with field testing kits.
Purpose of data	Determine water quality in year

Additional comment	The water quality tests will be conducted annually with randomly selected users in line with the methodology requirements.
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SDG 1, 5, 7, 13 and 15

Parameter ID	SDWS 19
Data/parameter	SDG claims
Unit	N/A
Description	The project will transparently include information in project documents (PDD & Monitoring reports) on following two aspects to make claims on SDG 6.1.1 contributions. i. Level of Service in the baseline/project scenario: The drinking water service levels classified in three categories: limited, basic or safely managed services. Households using improved drinking water sources which are located on premises, with water available when needed, and free from contamination*, are classified as having safely managed services. Households not meeting all of these criteria but using an improved source with water collection times of no more than 30 minutes per round trip are classified as having basic services, and those using improved sources with water collection times exceeding 30 minutes are classified as limited services. ii. Project contributions: The project developer shall select water service aspects i.e., Accessibility, Availability and Quality & identify the monitoring indicator(s) to monitor the project contributions. The project may use relevant monitoring indicators and information available in this methodology, for example SDWS 18 for Water Quality. The project may have contributions to one or all three aspects. The project developer shall only make claims on aspects that project is contributing to. The project addressed point I under SDG 1 monitoring, determining the number of persons who drink from the 5 JMP Service categories (safely managed, basic, limited, unimproved, surface water). Th monitoring indicators for Accessibility, Availability and Quality are: Accessibility – addressed in SDG 1 parameter by determining the distance of the safe water sources Availability – addressed in non-functionality calculations in ERs Quality – addressed in water quality testing procedures All 3 contributions will also addressed in a detailed Project Survey which includes JMP WASH questions regarding drinking water and hygiene. Results will be outlined in an annual hygiene report.

Source of data	Annual surveys
Value(s) applied	N/A
Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	N/A
Purpose of data	Determine SDG claims
Additional comment	-

SDG 1 & 7

Parameter ID	SDWS 20
Data/parameter	Water hygiene education campaigns
Unit	N/A
Description	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 behavior in respect to regular and correct use of such amenities. It also refers to behavior 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. The impacts of the hygiene campaign shall be assessed using the WHO/UNICEF Joint Monitoring Programme Core questions for drinking water and hygiene to determine the fraction of the households and institutions where Safe water and Hygiene practices are found to fulfill "safely managed" or "basic" requirements. In-person or telephone or by messaging (e.g. text, app) based survey shall be conduct covering all the JMP core questions for drinking water and core questions for hygiene.

	For sampling requirements, follow section 4.2 General requirements for sampling, below. The JMP core questions for households, schools and health care facilities are available at https://washdata.org/monitoring/methods/core-questions
Source of data	Report annual hygiene campaign results
Value(s) applied	N/A
Measurement methods and procedures	WASH training activities
Monitoring frequency	Annually
QA/QC procedures	The fraction of the households where Safe water and Hygiene practices are found to fulfill "safely managed" or "basic" requirements is expected to increase over time as a result of the hygiene campaigns.
Purpose of data	Determine community WASH understanding
Additional comment	

SDG 13

Parameter ID	SDWS 22
Data/parameter	$X_{cleanboil,y}$
Unit	Percentage
Description	Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y. 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.
Source of data	Project Survey
Value(s) applied	0

Measurement methods and procedures	-
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

SDG 13

Parameter ID	SDWS 23
Data/parameter	$Q_{m,y}$
Unit	Litres/year
Description	Monitored quantity of safe water provided by the project in year y 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. 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.
Source of data	Sensor measures water volume directly, once commercially available.
Value(s) applied	To be measured
Measurement methods and procedures	TBD
Monitoring frequency	Continuously
QA/QC procedures	Follow manufacturer, sector, national or international standards or guidelines for calibration and maintenance of the measurement device.
Purpose of data	Determine quantity of safe water provided by the project in year
Additional comment	The project will not be applying $Q_{m,y}$ 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 $Q_{pop,y}$ will be applied.

SDG 1 & 13

Parameter ID	SDWS 24
Data/parameter	QPW_p
Unit	Litres/person/day

Description	Volume of drinking water per person per day for premises type p 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. 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.
Source of data	Water Consumption Field Tests or default value (4 L)
Value(s) applied	4 L/person/day if Default value applied (capped at 5.5 L/person/day)
Measurement methods and procedures	Deemed valid by methodology
Monitoring frequency	Biennial
QA/QC procedures	-
Purpose of data	Determine volume of drinking for quantity of safe drinking water calculations
Additional comment	-

SDG 13

Parameter ID	SDWS 25
Data/parameter	$HN_{p,y}$
Unit	Number
Description	Number of individuals per premises type p in the project boundary in year y 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.
Source of data	Project Survey
Value(s) applied	Estimated to 4.68 (from re-validation baseline survey)
Measurement methods and procedures	Household questions in survey
Monitoring frequency	Annually
QA/QC procedures	The value applied shall be cross-checked against at least one other source on the list. For cross-check purposes, sources applied may be up to 5 years old. Further, cross-check with older sources may be used provided they provide conservative results.
Purpose of data	Determine number of individuals for quantity of safe drinking water calculations

Additional comment	
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SDG 7 & 13

Parameter ID	SDWS 26
Data/parameter	$HH_{p,y}$
Unit	Number
Description	Number of premises type p served by the project in year y 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.
Source of data	Survey of the premises (e.g. households, schools) within 1 km distance of project water source to check how often the premises used the project water source during the year. This survey may be part of the project survey and may be performed in person, by telephone, by messaging (e.g. text, app), appropriate to the context. Premises that report at least every-two-days use may be counted.
Value(s) applied	32,172 (estimated value)
Measurement methods and procedures	Household questions in survey and user lists
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Determine number of premises type for quantity of safe drinking water calculations
Additional comment	-

SDG 13 and 15

Parameter ID	SDWS 27
Data/parameter	$DO_{p,y}$
Unit	Days
Description	Days the project technology is operational for end-users in premises p in year y 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.
Source of data	In order of preference: 1. Measure directly using operation sensor, or 2. Demonstrate from log of operation and maintenance system.
Value(s) applied	347 days (To be monitored)
Measurement methods and procedures	Maintenance log
Monitoring frequency	Annually
QA/QC procedures	Values higher than 347 days may only be applied when option 1 is used. 347 days is 95% of days, in line with pump-maintenance in the literature.
Purpose of data	Determine number of days for quantity of safe drinking water calculations
Additional comment	-

SDG 5

Parameter ID	SDWS 19
Data/parameter	$T_{p,y}$
Unit	Minutes
Description	Time spent collecting water per household per trip in project 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: Proportion of time spent on unpaid domestic and care work, by sex, age and location
Source of data	Project Survey
Value(s) applied	30 minutes (0.5 hours) (To be monitored)
Measurement methods and procedures	Survey
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculate time saved for women by the project

Additional comment	-
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SDG 1

Parameter ID	SDWS 19
Data/parameter	Paccess
Unit	Percentage
Description	Proportion of population living in HHs with access to basic service (safe water) 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.
Source of data	Project Survey
Value(s) applied	20% (to be monitored)
Measurement methods and procedures	Proportion of access in the project compared to the baselines.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate Proportion of population living in HHs with access to basic service (safe water) in the project activity compared to the baseline scenario
Additional comment	-

SDG 5

Parameter ID	SDWS 19
Data/parameter	TRy
Unit	Percentage
Description	Total reduction time spent collecting water for project activity in year y (%) SDG 5: 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: Proportion

	of time spent on unpaid domestic and care work, by sex, age and location
Source of data	Project Survey
Value(s) applied	52.6% (estimated)
Measurement methods and procedures	Calculate the average amount of time spent collecting water in the project scenario and compare to the pre-project scenario
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To quantify whether the project has contributed to a reduction in the amount of time spent collecting water compared to the pre-project scenario
Additional comment	-

SDG 13b

Parameter ID	SDWS 35
Data/parameter	LE_y
Unit	tCO ₂ e per year
Description	Leakage emissions during year y 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.
Source of data	Sources established by following Leakage emissions section
Value(s) applied	0
Measurement methods and procedures	Assessed every two years using baseline and monitoring surveys
Monitoring frequency	Biennial
QA/QC procedures	Compliance with the general requirements for sampling and general requirements for data and information sources
Purpose of data	Emission reduction calculations
Additional comment	-

Parameter ID	SDWS 19
Data/parameter	$N_{p,y}$
Unit	Number
Description	Number of people p served by the project in year y 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.
Source of data	This survey may be part of the project survey and may be performed in person, by telephone, by messaging (e.g. text, app), appropriate to the context. Premises that report at least every-two-days use may be counted.
Value(s) applied	163,742 (estimated value)
Measurement methods and procedures	Household questions in survey and user lists
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Determine number of people for quantify SDG 15
Additional comment	-

SDG 1

Parameter ID	SDWS 19
Data/parameter	Project Basic
Unit	Percentage
Description	Proportion of population leaving in HHs with access to basic service (safe water). 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.
Source of data	Project Survey
Value(s) applied	20% (to be monitored)
Measurement methods and procedures	Proportion of access in the project compared to the baselines.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate Proportion of population living in HHs with access to basic service (safe water) in the project activity compared to the baseline scenario
Additional comment	-

SDG 7

Parameter ID	SDWS 19
Data/parameter	HHaccess
Unit	Number

Description	Proportion of population living in HHs with access to Safe Water from a clean treatment technology in the project scenario SDG 7 (Affordable and Clean Energy) 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services.
Source of data	Project Survey
Value(s) applied	31,750 (estimate)
Measurement methods and procedures	Proportion of access in the project compared to the baselines.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate Proportion of population living in HHs with access to basic service (safe water) in the project activity compared to the baseline scenario
Additional comment	-

B.7.2 Sampling plan

A minimum number of boreholes will need to be sampled. Out of those boreholes, households will be randomly sampled, complying with the minimum sample size for the particular survey/test. Individual participants will be selected from the borehole user data base using the random selection process outlined in the monitoring plan. Sample sizes will be in line with the Gold Standard requirements. The surveys below will be monitored under the cross sampling approach;

- Project and Usage Surveys-Completed annually
- 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.

B.7.3 Other elements of monitoring plan

The borehole installation/rehabilitation record includes the following information:

- Date of installation/rehabilitation
- GPS location of the borehole
- Model of the borehole
- Quantity of boreholes installed

- The total number of people obtaining their water from each water source and their distance from it
- Mode of use: commercial/domestic

The total number of households using each borehole has been determined through the lists supplied by the administration.

The following ongoing monitoring studies will be conducted:

- **Water consumption field test** - Completed prior to first verification and then biennially with a randomly selected sample of at least 30 households unless the default value of 4 L will be applied for QPWp.
- **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. In line with the methodology sampling requirements, the sampling results shall satisfy the 90/10 rule and a minimum sample size of 30 will be selected.
- **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. The training involves sensitisation on principles of WASH, household water management and preventing pollution of the ground water. A report will be produced annually in line with SDWS 20. Project survey includes questions related to WASH and hygiene practices, which follows the sampling requirements of the project survey.
- **Quantity of safe drinking water provided by the project** – The project will not be applying $Q_{m,y}$ as the required technology is not yet available. As soon as the required technology is available and reliable it will be implemented with

a minimum sample size of 30 and a minimum 90% confidence interval and a 10% margin of error requirement shall be achieved. Until this time Qpop,y will be applied.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project
 22/09/2016

C.1.2 Expected operational lifetime of project
 21 years

C.2. Crediting period of project

C.2.1 Start date of crediting period
 CP1: 22/09/2016 – 21/09/2023
 CP2: 22/09/2023– 21/09/2030

C.2.2 Total length of crediting period
 7 years (renewable)

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#), ongoing monitoring is summarised below.

A completed Safeguarding Principles Assessment is in [Appendix 1](#), ongoing monitoring is summarised below.

Principles	Mitigation Measures added to the Monitoring Plan
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Water point committees have been formed, and are supported, to manage the safe water source point. They receive training through WASH workshops where any forms of corruption are discouraged. Participants are be educated on the benefits of the project.

Principle 5. Corruption:

1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt projects

Community members have lines of communication with the project developers to report any complaints or grievances. During the establishment and training of the water point committees, rules and regulations surrounding corruption are elaborated to ensure that all local community level corruption concerns are addressed. These are discussed during follow up visits.

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	The project increases women's access to resources such as water by making safe water available in the community. The burden on the whole community of travelling far to collect water and gather firewood for water purification is reduced. This also helps to mitigate the social isolation of spending a long time collecting these resources. Equal participation of women and men in decision making is encouraged by promoting their equal membership on water point committees. These WPCs are trained to facilitate the participation of members depending on their specific circumstances. They also assist all community members to provide feedback on the project, regardless of their situation. Both women and men benefit from the project activities, no group is excluded from participating in the project activities and the
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	water sources are open to the whole community. The project decreases the workload of women in collecting water and firewood, thereby allowing more time to engage in other activities. The project increases 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.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	The project is in line with Eritrean Guidelines for Evaluation of Drinking Water Quality (the guidelines are based on the WHO recommendation), The Eritrean Environmental, Protection, Management and Rehabilitation Framework 179/2017 and The Eritrean Water Proclamation No. 162/2010.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	No

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1 Summary of stakeholder mitigation measures

Vita held a local stakeholder workshop for the repairing of the water boreholes on May 1, 2016 in Zoba Debub meeting hall. In the meeting around 70 participants were present which included:

- Governor and the Director General of Agriculture and Land
- 12 sub-zoba administrators

- Village administrators
- Representatives of the WASH committee
- Representatives of the National Union of Eritrean Women
- Representative elders
- Experts from water source departments
- Community service providers like the technicians
- Members of the community
- Vita representatives

E.2 Final continuous input / grievance mechanism

METHOD	INCLUDE ALL DETAILS OF CHOSEN METHOD (S) SO THAT THEY MAY BE UNDERSTOOD AND, WHERE RELEVANT, USED BY READERS.
Continuous Input / Grievance Expression Process Book (mandatory)	Can be placed at the borehole water committee site. Community members will be informed that they can record their comments in the books. The comments in the books will be collected by Vita. This will allow community members without access to a telephone or the internet to leave comments to the organizations implementing the project. It will also ensure that illiterate community members can leave comments as WPC members will records comments on their behalf.
GS Contact (mandatory)	help@goldstandard.org
Other	CO2balance UK +44 (0) 1823 332233 Vita Eritrea: 00291-1-122103 enquiries@co2balance.com vita.eritrea@gmail.com

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into [SECTION D](#) above. Please refer to the instructions in the [Guide to Completing](#) this Form.

SOCIAL SAFEGUARDING PRINCIPLES		
Reference requirement	Question	Response
P.1 Human Rights		
P.1.1.1 	Does the project developer, its representatives and the Project disrespect internationally proclaimed human rights?	☐ YES ☒ NO
P.1.1.1 	Is the project involved or complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights?	☐ YES ☒ NO
P.1.1.2 	Have local communities or individuals raised human rights concerns regarding the project (e.g., during the stakeholder engagement process, grievance processes, public statements)?	☐ YES ☒ NO
P.1.1.3 	Is there a risk that rights-holders (e.g., Project-affected stakeholders) do not have the capacity to claim their rights?	☐ YES ☒ NO
P.1.1.3 	Does this project undermine national or regional measures for the realisation of the right to development?	☐ YES ☒ NO
If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. Please add text here...		
Would the project potentially involve or lead to:		
P.1.1.1 	adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalised groups?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.2 	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalised or excluded individuals or groups, including persons with disabilities?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.3 	restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalised individuals or groups, including persons with disabilities?	☐ YES ☐ POTENTIALLY ☒ NO

P.1.1.3 	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	☐ YES ☐ POTENTIALLY ☒ NO
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Briefly describe below how the project incorporates a human rights-based approach.

For example, by describing how the project design:

- is informed by human rights analysis, including from UN human rights mechanisms (human rights treaty bodies, universal periodic review, special procedures)
- includes measures to assist the government to realise (respect, protect and fulfil) human rights under international law and to implement human rights-related standards in national law (whichever is higher)
- enhances the availability, accessibility and quality of benefits and services for potentially marginalised individuals and groups, and to increase their inclusion in decision-making processes that may impact them (consistent with the non-discrimination and equality human rights principle)
- provides reasonable accommodations to strengthen inclusivity and accessibility of project benefits and services to persons with disabilities.

Please add text here....

The project adheres to all human rights requirements including respecting internationally proclaimed human rights and Universal Declaration of Human Rights and does not discriminate in any way.

During all training sessions, it is emphasised that project beneficiaries should support vulnerable or less mobile community members to access water.

[P.2 | GENDER EQUALITY AND WOMEN'S EMPOWERMENT](#)

P.2.1.1 	Have women's groups/leaders raised gender equality concerns regarding the project, (e.g., during the stakeholder engagement process, grievance processes, public statements)?	☐ YES ☒ NO
P.2.1.2 	Does the project undermine the principles of non-discrimination, equal treatment, and equal pay for equal work?	☐ YES ☒ NO
P.2.1.2 	Does the project prevent men and women from having equal opportunities to participate in identified tasks and activities, whether through paid work, volunteer work, or community contributions, as appropriate?	☐ YES ☒ NO
P.2.1.2 	Does the project limit the participation of women or men based on pregnancy, maternity/paternity leave, or marital status?	☐ YES ☒ NO
P.2.1.2 	Is information about project objectives being communicated in a way that is inappropriate for the local context and not tailored to the methods of understanding of both women and men, which could hinder their participation?	☐ YES ☒ NO
P.2.1.3 	Has the project assessed gender risks without referencing the country's gender strategy or equivalent national commitment?	☐ YES ☒ NO

P.2.1.4	Has expert stakeholder(s) been involved, and has their input been requested for the project design on gender equality and women's empowerment?	☐ YES ☒ NO
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If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:		
P.2.1.1	adverse impacts on gender equality and/or the situation of women and girls?	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.1	exacerbation of risks of gender-based violence? For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc.	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.2	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.2	limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well-being.	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project is addressing any identified risk to gender equality and women's empowerment.

The project increases women's access to resources such as water by making safe water available in the community.

The burden on the whole community of travelling far to collect water and gather firewood for water purification is reduced. This also helps to mitigate the social isolation of spending a long time collecting these resources.

Equal participation of women and men in decision making is encouraged by promoting their equal membership on water point committees. These WPCs are trained to facilitate the participation of members depending on their specific circumstances. They also assist all communities members to provide feedback on the project, regardless of their situation.

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.

The project decreases the workload of women in collecting water and firewood, thereby allowing more time to engage in other activities.

The project increases 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.

The project increases 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.

No further risks or hazards for women and girls have been identified

Women are given equal opportunities for membership on water point committees.

P.3 | COMMUNITY HEALTH AND SAFETY

P.3.1.1 	Does the project involve potential risks to the health and safety of affected communities during its life cycle?	☐ YES ☒ NO
P.3.1.2 	Does the project involve any potential risks to the workers' safety and health?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.3.1.1 	construction and/or infrastructure development (e.g., roads, buildings, dams)?	☐ YES ☒ NO
P.3.1.2 	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	harm or losses due to failure of structural elements of the project (e.g., collapse of buildings or infrastructure)?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	risks of water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., explosives, fuel and other chemicals during construction and operation)?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g., food, surface water purification, natural buffers from flooding)?	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project is addressing any identified risk related to community health and safety.

The project reduces the community exposure to water borne illness through the provision of a safe water source and reduces the risk of household air pollution by removing the need for households to boil water for purification.

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, and subsequent WASH follow-up trainings.

P.4 | CULTURAL HERITAGE, INDIGENOUS PEOPLE, DISPLACEMENT AND RESETTLEMENT

P.4.1 | Sites of Cultural and Historical Heritage

<u>P.4.1.1 </u>	Does the project involve altering, damaging, or removing sites, objects, or structures of significant cultural heritage?	☐ YES ☐ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

<u>P.4.1.1 </u>	activities adjacent to or within a cultural heritage site?	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.4.1.1 </u>	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.4.1.1 </u>	alterations to landscapes and natural features with cultural significance?	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.4.1.1 </u>	adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.4.1.2 </u>	utilisation of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.4.1.2 </u>	If answer to question above is "YES" or "POTENTIALLY" - are the communities made aware of their right under the law, scope and nature of proposed development and its potential consequences?	☐ YES ☐ NO ☒ NA
<u>P.4.1.3 </u>	If answer to question above is "YES" - does the project provide equitable sharing of benefits from	☐ YES ☐ NO

	commercialisation of such knowledge, innovation, or practice, consistent with their customs and traditions?	☒ NA
P.4.1.4 	If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.1.4 	If answer to question above is "YES", has project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.4.2 | Forced Eviction and Displacement](#)

P.4.2.1 	Does the project involve any risks related to involuntary relocation of people?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.4.2.1 	risk of forced evictions or involuntary relocation of people?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2 	temporary or permanent and full or partial physical displacement (including people without legally recognisable claims to land)?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2 	economic displacement (e.g., loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2 	If answer to question above is "YES" or "POTENTIALLY", - has the project developed Resettlement Action Plan or Livelihood Action Plan in consultation and agreement with affected individual, group or community? - has the project integrated Resettlement Action Plan or Livelihood Action Plan into the Project design?	☐ YES ☐ NO ☒ NA
P.4.2.3 	If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.2.3 	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.4.3 | LAND TENURE AND OTHER RIGHTS

P.4.3.1	Does the project involve any risks related to identifying and managing legitimate tenure rights that may be affected by the project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.4.3.1	impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.3.1	uncertainties with regards to land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights.	☐ YES ☐ POTENTIALLY ☒ NO
P.4.3.2	Changes in legal arrangements, if yes, are the changes done in line with relevant laws and regulations?	☐ YES ☐ NO ☒ NA
P.4.3.2	Changes in legal arrangements, if yes, are these changes agree with free, prior and informed consent of the involved stakeholders?	☐ YES ☐ NO ☒ NA
P.4.3.3	Does some other entity (other than the project developer) hold uncontested land title for the entire Project Boundary?	☐ YES ☐ NO ☒ NA
P.4.3.4	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.3.4	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA
P.4.3.5	Have project developer in consultation with stakeholders established a functioning mechanism to receive, process, resolve, communicate and record grievances?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

THERE IS IN PLACE A continuous input / grievance mechanism

P.4.4 INDIGENOUS PEOPLES		
P.4.4.1 	Does the project involve Indigenous People within the Project area of influence who may be affected directly or indirectly by the Project?	☐ YES ☒ NO
If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. Please add text here....		
Would the project potentially involve or lead to:		
P.4.4.1 	affect areas where indigenous peoples are present (including project area of influence)	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.1 	affect areas, land and territory claimed by indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.1 	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.7 	If answer to above questions is "YES" or "POTENTIALLY", - Is it determined that the proposed project may affect the rights, lands, resources, or territories of indigenous people? - Has an "Indigenous People Plan" (IPP) or "Indigenous People Plan Framework" been elaborated and included in the project documentation? - Was the plan developed in accordance with the effective and meaningful participation of indigenous peoples and in accordance with UNDP Guidelines?	☐ YES ☐ NO ☒ NA
P.4.4.3 	risk of forcibly removing indigenous people from their lands and territories?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.4 	utilisation and/or commercial development of natural resources on lands and territories claimed by indigenous peoples? Consider, and where appropriate ensure, consistency with the answers under Principle 4.1 above	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.5 	If answer to question above is "YES" or "POTENTIALLY" - Did the project obtain free, prior and informed consent from indigenous people before taking their cultural, intellectual, religious, and/or spiritual property?	☐ YES ☐ NO ☒ NA
P.4.4.6 		

	- Does the project ensure that the indigenous people receive an equitable sharing of benefits resulting from the use of their traditional knowledge and practices? ? - Does the project ensure that the sharing of benefits resulting from the use of indigenous peoples' traditional knowledge and practices is culturally appropriate and inclusive? - Does the project ensure that the provision of equitable sharing of benefits does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions, and housing?	
P.4.4.8 	Does the project lack appropriate feedback and grievance channels for Indigenous Peoples and their representatives?	☐ YES ☐ NO ☒ NA
P.4.4.8 	Has a grievance mechanism not been established at the beginning of programme or project implementation with due consideration given to customary dispute settlement mechanisms among the Indigenous Peoples concerned and will it remain operational throughout the project cycle?	☐ YES ☐ NO ☒ NA
P.4.4.9 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.4.9 	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.5 | CORRUPTION](#)

P.5.1.1 	Does the project involve, or is it complicit in, contributing to or reinforcing corruption or corrupt projects?	☐ YES ☒ NO
P.5.1.1 	Does the project have a risk of encouraging bribery, kickbacks, or other unethical behavior?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

ECONOMIC SAFEGUARDING PRINCIPLES

P.6 | ECONOMIC IMPACTS

P.6.1 | LABOUR RIGHTS AND WORKING CONDITIONS

P.6.1.1 	Does the project involve, facilitate, or condone forced labor, or pose a potential risk of forced labor?	☐ YES ☒ NO
P.6.1.1 	Does the project violate any labor or health and safety laws, international obligations, or ILO conventions?	☐ YES ☒ NO
P.6.1.2 	Does the project violate the principles of equal opportunity and fair treatment in its employment decisions?	☐ YES ☒ NO
P.6.1.3 	Does the project violate national laws, if available regarding non-discrimination in employment?	☐ YES ☒ NO
P.6.1.4 P.6.1.5 	Does the project allow child labor?	☐ YES ☒ NO
P.6.1.7 P.6.1.8 	Does the project have insufficient processes and measures in place to ensure the safety and health of project workers?	☐ YES ☒ NO
P.6.1.9 	Does the project have insufficient measures to safeguard and support vulnerable project workers, such as women, people with disabilities, migrant workers, and young workers, and to prevent any kind of harassment, abuse, bullying, or exploitation, including gender-based violence (GBV)?	☐ YES ☒ NO
P.6.1.10 	Does the project have no grievance mechanism available for workers to voice workplace concerns? Is information about this mechanism not provided to workers at the time of recruitment, or is it not easily accessible?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

(NOTE: APPLIES TO BOTH PROJECT AND CONTRACTOR WORKERS)

P.6.1.1 	use of forced labour?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	working conditions that do not meet national labour laws and international commitments?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	working conditions that may deny freedom of association and collective bargaining?	☐ YES ☐ POTENTIALLY ☒ NO

P.6.1.1 	absence of documented working agreements with all individual workers <i>if such agreements do not exist, or do not address working conditions and terms of employment, the project developer shall provide reasonable working conditions and terms of employment.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	use of migrant workers? <i>if engaged, the developer shall ensure that they are engaged substantially equivalent terms and conditions to non-migrant workers carrying out similar work.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	having no arrangements for basic services ⁸ for workers? <i>the project developer shall put in place and implement policies on the quality and management of the accommodation and provision of basic services in a manner consistent with the principles of non-discrimination and equal opportunity. Workers' accommodation arrangements should not restrict workers' freedom of movement or of association</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2 	any form of discrimination or harassment based on factors unrelated to job requirements, such as gender, race, nationality, ethnicity, social or indigenous origin, religion or belief, disability, age, or sexual orientation?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2 	any form of discrimination in any aspect of employment, such as recruitment, compensation, working conditions, training, job assignment, promotion, termination, or discipline?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2 	harassment, intimidation, and/or exploitation, especially in regard to women?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.3 	discriminatory working conditions and/or lack of equal opportunity where national law provides provision to address non-discrimination in employment?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.4 	use of child labour? (including third-party engaged workers)	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.4 	inadequate and verifiable mechanisms for age verification?	☐ YES ☒ NO

⁸ Basic services requirements refer to minimum space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and in some cases basic medical services.

P.6.1.7 	no processes and measures in place for the safety and health of project workers?	☐ YES ☒ NO
P.6.1.7 	No provision of safety and health training provisions, including on the proper use and maintenance of personal protective equipment conducted by competent persons and the maintenance of training records?	☐ YES ☒ NO
P.6.1.7 	No provision to record and document accidents, diseases, incidents, and any resulting injuries, illnesses, or deaths?	☐ YES ☒ NO
P.6.1.8 	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	☐ YES ☒ NO
P.6.1.9 	No measures to protect vulnerable project workers from harassment, exploitation, and gender-based violence (GBV)? This includes women, people with disabilities, migrant workers, and young workers.	☐ YES ☒ NO
P.6.1.10 	No grievance mechanism available for workers to voice workplace concerns.	☐ YES ☒ NO
P.6.1.11 	No measures for due diligence and the establishment of policies and procedures to manage and monitor the performance of third-party employees in the project?	☐ YES ☒ NO

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.6.2 | NEGATIVE ECONOMIC CONSEQUENCES](#)

P.6.2.1 	Is there a risk of project failure during implementation or after project certification due to a lack of financial resources?	☒ YES ☐ NO
P.6.2.2 	Does the project have potential negative impacts or pose a risk to the local economy?	☐ YES ☒ NO
P.6.2.2 	Are there any potential risks or negative impacts this project may have on vulnerable or marginalised social groups, despite the benefits it may bring?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The project is mainly financed with the revenues from the sale of the carbon credits. If the project encounters issues (e.g. Water quality failures) which will prevent the project to issue the credits, this could potentially lead to its closure.

Would the project involve or lead to:

P.6.2.2 	economic impacts (negative/detrimental) to the local economy?	☐ YES ☐ POTENTIALLY ☒ NO
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P.6.2.2	negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.7 | CLIMATE AND ENERGY](#)

[P.7.1 | GHG EMISSIONS](#)

P.7.1.1	Does the project have a risk of increasing greenhouse gas emissions over the Baseline Scenario?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.7.1.1	increase greenhouse gas emissions over the Baseline Scenario?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.7.2 | ENERGY SUPPLY](#)

P.7.2.1	Does the project pose a risk to the availability and reliability of energy supply to other users?	☐ YES ☒ NO
-------------------------	---	--

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.7.2.1	negative impact on the availability and reliability of energy supply to other users?	☐ YES ☐ POTENTIALLY ☒ NO
-------------------------	--	--

If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.8 | WATER

P.8.1 | IMPACT ON NATURAL WATER PATTERNS/FLOWS

P.8.1.1	Does the project increase water usage to a level that will not allow for the maintenance of environmental flows?	☐ YES ☒ NO
P.8.1.1	Does the project result in the discharge of wastewater that does not meet the required standard for beneficial reuse and could therefore negatively impact the environmental flow?	☐ YES ☒ NO
P.8.1.1	Does the project have the potential risk to exceed the rate of recharge for the groundwater source?	☒ YES ☐ NO
P.8.1.1	Does the project involve any processes or activities that could contaminate the groundwater and render it unsuitable for use?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

If issues with the recharge for the groundwater source will be identified, resolutions will be in line with the opinions of experts and local administrations.

Would the project involve or lead to:

P.8.1.1	affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.1	Wastewater discharge of quality that does not meet the required standard for beneficial reuse?	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.1	significant extraction, diversion of ground water? For example, construction of dams, reservoirs, river basin developments, groundwater extraction	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.2	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.8.2 | EROSION AND/OR WATER BODY INSTABILITY

P.8.2.1	Does the project have a risk of negatively impacting the catchment and has it been assessed and addressed?	☐ YES ☒ NO
---------	--	--

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.8.2.2	negatively impact on the catchment area?	
-		
P.8.2.5	<i>If yes, Erosion prevention measures, including soil and slope protection measures, must be implemented before project commencement. These measures should involve natural terracing, infiltration strips, permanent ground cover, hedge and tree rows, and effective slope length assessment. Regular reassessment of these measures is necessary.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.8.2.6	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.9 | ENVIRONMENT, ECOLOGY AND LAND USE

P.9.1 | LANDSCAPE MODIFICATION AND SOIL

P.9.1.1	Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project?	
-		
P.9.1.3	<i>If yes, the project shall maintain healthy soils by minimising negative impacts on soil health, productivity, structure, and water retention. Steps to minimise soil degradation include crop rotation, composting, using N-fixing plants, and reducing tillage and ecologically harmful substances.</i>	☐ YES ☒ NO

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

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Would the project involve or lead to:

P.9.1.4	production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.1.4	if answer to above question "yes" or "potentially", does project adopt appropriate and culturally sensitive sustainable resource management practices?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.9.2 | VULNERABILITY TO NATURAL DISASTER](#)

P.9.2.1	Does the project have any risks associated with natural or man-made hazards that could result from land use changes due to the project?	☐ YES ☒ NO
-------------------------	---	--

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.2.2	any potential risks that require emergency preparedness and response planning?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.2.2	if answer to above question "yes" or "potentially", did the project developer disclose appropriate information about emergency preparedness and response to affected communities?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.9.3 | BIOSAFETY AND GENETIC RESOURCES](#)

P.9.3.1	Does the project involve the transfer, handling, and use of genetically modified organisms/living modified organisms that may result in adverse effects on biological diversity?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

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Would the project involve or lead to:

P.9.3.1 	the transfer, handling and use of genetically modified organisms/living modified organisms (GMOs/LMOs) that result from modern biotechnology	☐ YES ☐ POTENTIALLY ☒ NO
P.9.3.1 	If answer to above question is "yes" has a risk assessment by a competent Expert stakeholder been carried out in accordance with Annex iii of the Cartagena protocol on biosafety to the convention on biological diversity?	☐ YES ☐ NO ☒ NA
P.9.3.2 	If answer to above question is "yes" has any risks identified in the risk assessment?	☐ YES ☐ NO ☒ NA
P.9.3.3 	Forestry (for example Afforestation/Reforestation) involving GMO planting? <i>Note - Forestry projects (for example Afforestation/Reforestation) involving GMO planting are not eligible for Certification under Gold Standard for the Global Goals.</i>	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.9.4 | RELEASE OF POLLUTANTS](#)

P.9.4.1 	Does the project have a risk of releasing pollutants to air, water, and land in routine, non-routine, or accidental circumstances?	☐ YES ☒ NO
---------------------------	--	--

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.4.1 	any potential risk of pollutant release that cannot be avoided?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.4.3 	If answer to above question is "Yes" or "potentially", has the project identified all potential pollution sources that may degrade the quality of soil, air, surface, and groundwater in the project area?	☐ YES ☐ NO ☒ NA
P.9.4.2 	If answer to above question is "Yes" or "potentially", do the pollution prevention and control technologies and practices applied during the project life cycle align with national regulations or international best practices?	☐ YES ☐ NO ☒ NA

P.9.4.3	If answer to above question is "Yes", is there a monitoring plan to ensure that mitigation measures are implemented, and resources are protected?	☐ YES ☐ NO ☒ NA
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If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.9.5 | HAZARDOUS AND NON-HAZARDOUS WASTE](#)

P.9.5.1	Does the project involve the generation of waste materials (both hazardous and non-hazardous)?	☒ YES ☐ NO
P.9.5.3	Does the project involve risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☒ NO
P.9.5.5	Does the project involve the use of any chemicals or materials subject to international bans or phase-outs?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The only waste material related to the project activity is related to the parts of the project technology (rods-cylinders) exchange/maintained during the activities of regular maintenance. These will be disposed according to the in-country directions.

Would the project involve or lead to:

P.9.5.1	the generation and management of waste materials?	☒ YES ☐ POTENTIALLY ☐ NO
P.9.5.1	treatment, destruction, or disposal of waste material?	☒ YES ☐ NO ☐ NA
P.9.5.1	If answer to above question is "Yes", does the project involve an environmentally friendly method that includes appropriate control of emissions and residues resulting from the handling and processing of waste material?	☒ YES ☐ NO ☐ NA
P.9.5.3	risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☒ NO ☐ NA
P.9.5.3	If answer to above question is "yes", does project has measures in place to address health risks?	☐ YES ☐ NO ☒ NA
P.9.5.4	Involve manufacture, trade, and use of chemicals and hazardous materials subject to international bans or phase-	☐ YES ☐ POTENTIALLY

	outs due to their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer	☒ NO
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If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.9.6 | PESTICIDES & FERTILISERS

P.9.6.1 	Does the project involve the use of chemical pesticides?	☐ YES ☒ NO
P.9.6.5 	Does the project involve purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous)	☐ YES ☒ NO
P.9.6.6 	Does the project use fertilisers, and if so, are measures being taken to minimise their use and nutrient losses to the environment?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The project will require maintenance of the project technologies which will also require replacement on parts in the project technology. These maintenance activities are carry out in line with the administrations regulations.

Would the project involve or lead to:

P.9.6.1 	chemical pesticides use for pest management?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.6.4 	If answer to question above is "yes" or "potentially", does project has documented Chemical Pesticides Policy in place?	☐ YES ☐ NO ☒ NA
P.9.6.5 	purchase, store, use, manufacture, or trade in Class II (moderately hazardous) pesticides?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.6.5 	If answer to question above is "yes" or "potentially", does project has appropriate controls on manufacture, procurement, or distribution and/or use of these chemicals?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.9.7 | HARVESTING OF FORESTS

P.9.7.1 	Does the project have a risk of unsustainable forest management, including timber harvesting?	☐ YES ☒ NO
P.9.7.1 	Does the project pose a risk of depleting biodiversity and ecosystem functionality in areas where improved forest management is undertaken?	☐ YES ☒ NO
P.9.7.1 	Does the project risk not meeting requirements for environment-friendly, socially beneficial, and economically viable plantations using native species whenever possible?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

[P.9.8 | FOOD SECURITY](#)

P.9.8.1 	Does the project involve the risk of negatively influencing access to and availability of food for people affected?	☐ YES ☒ NO
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If the answer to the question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.8.1 	modification of the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	☐ YES ☐ POTENTIALLY ☒ NO
---------------------------	--	--

If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.9.9 | ANIMAL WELFARE](#)

P.9.9.1 	Does the project involve any risks to animal welfare? Animal welfare shall be ensured by providing access to water and food, appropriate environment, humane treatment, and staff training. Evidence of mistreatment will be treated as an immediate non-conformity.	☐ YES ☒ NO
P.9.9.2 	Does the project involve any potential risk of excessive or inadequate use of veterinary medicines?	☐ YES ☒ NO
P.9.9.4 	Does the project involve the risk of administering synthetic growth promoters, including hormones?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:		
P.9.9.1 	animal husbandry or harvesting of fish populations or other aquatic species? ⁹	☐ YES ☒ NO ☐ NA
P.9.9.1 	limiting access for animals to basic needs like drinking water, adequate food, daylight, appropriate shelter etc.?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.9.3 	inadequate measures to isolate sick animals and control the spread of disease, especially zoonotic diseases?	☐ YES ☒ NO ☐ NA
P.9.9.5 	inadequate low-stress methods, equipment, and facilities that facilitate calm animal movement.	☐ YES ☒ NO ☐ NA
P.9.9.6 	inadequate measures to ensure that animals are exposed to the least stress possible during transportation and slaughtering?	☐ YES ☒ NO ☐ NA
P.9.9.7 	inappropriate spacing per animal and stocking rates per land unit?	☐ YES ☒ NO ☐ NA
P.9.9.8 	inadequate measures to address the specific needs of aquatic animals?	☐ YES ☒ NO ☐ NA
P.9.9.9 P.9.9.10 	primary production of living natural resources such as animal husbandry, aquaculture, and fisheries? If the answer is yes, implement industry-standard sustainable management practices in line with to one or more relevant and credible standards and utilise available technologies.	☐ YES ☒ NO ☐ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

[P.9.10 | HIGH CONSERVATION VALUE AREAS AND CRITICAL HABITATS](#)

⁹ 'Involve' means if the project mechanism and/or impact(s) are achieved via changing animal husbandry practices in some way.

P.9.10.1	Does the project have the risk of negatively impacting HCV areas and/or critical habitats?	☐ YES ☒ NO
P.9.10.2	Does the project in the project area or area of downstream impacts have risks to the following: native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.10.1	identified habitats as HCV areas and or Critical habitats?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.10.1	If answer to above question is "yes", does the project have any risks that could negatively impact the catchment, project success, and surrounding HCV and ecological assets, as well as any measurable adverse impacts on the criteria or biodiversity values for which the critical habitat was designated, and on the ecological processes supporting that biodiversity?	☐ YES ☐ NO ☒ NA
P.9.10.1	If answer to above question is "yes", is a robust, appropriately designed, and long-term Habitats and Biodiversity Action Plan absent which will make the project unable to achieve net gains of those biodiversity values for which the critical habitat was designated?	☐ YES ☐ NO ☒ N/A
P.9.10.2	Does the project area or area of downstream impacts have native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.10.2	If the answer to the above question is "yes", will the project have any adverse effects on these areas?	☐ YES ☐ No ☒ NA
P.9.10.3	If the answer to above question is "yes", does the project has opportunities to minimise unwarranted conversion or degradation of the habitat and to enhance the habitat as part of its development?	☐ YES ☐ No ☒ NA
P.9.10.4	Is the project applying Land Use & Forest Activity Requirements and managing a minimum 10% of the project area to protect or enhance the biological diversity of native ecosystems following HCV approach as per the given requirements?	☐ YES ☐ No ☒ NA
P.9.10.5	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.9.11 | ENDANGERED SPECIES

<u>P.9.11.1 </u>	Does the project lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species?	☐ YES ☐ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

<u>P.9.11.2 </u>	distortion of habitats of endangered species?	☐ YES ☐ POTENTIALLY ☒ NA
<u>P.9.11.2 </u>	If answer to the above question is "yes", does the project plan to protect and enhance them?	☐ YES ☐ POTENTIALLY ☐ NO ☒ N/A
<u>P.9.11.2 </u>	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

P.9.12 | INVASIVE ALIEN SPECIES

<u>P.9.12.1 </u>	Does project introduce any alien species (not currently established in the country or region of the project) into new environments?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.12.1	risk of introducing any alien species with a high risk of invasive behaviour regardless of whether such introductions are permitted under the existing regulatory framework?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.12.1	risk of potential accidental or unintended introductions including the transportation of substrates and vectors (such as soil, ballast, and plant materials) that may harbour alien species.	☐ YES ☐ POTENTIALLY ☒ NO
P.9.12.2	risk of spreading alien species into areas in which they have not already been established?	☐ YES ☐ POTENTIALLY ☒ NO

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

APPENDIX 2 - CONTACT INFORMATION OF PROJECT DEVELOPER(S)

Organization name	CO2balance UK Ltd	
Registration number with relevant authority	4889958 (UK company registration number)	
Street/P.O. Box	Cook Way	
Building	1 Discovery House	
City	Taunton	
State/Region	Somerset	
Postcode	TA2 6BJ	
Country	UK	
Telephone	+44 (0) 1823 332233	
E-mail	james.walker@co2balance.com	
Website	www.co2balance.com	
Contact person	Paul Chiplen	
Title	Director of Sales & Marketing	
Salutation	Mr	
Last name	Paul	
Middle name		
First name	Chiplen	
Department	Projects	
Mobile		
Direct tel.	+44 (0) 1823 332233	
Personal e-mail	paul.chiplen@co2balance.com	
Project Implementer:		
Organization name	Vita Ireland	

Registration number with relevant authority	Registered Charity No: 20024192
Street/P.O. Box	Ormond Quay Upper
Building	Equity House
City	Dublin
State/Region	
Postcode	D07 H7DE
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Telephone	+353 (0)1 873 4303
E-mail	jgilliland@fcimpact.ie
Website	info@vita.ie
Contact person	John Weakliam Gilliland
Title	CEO
Salutation	Mr
Last name	Weakliam
Middle name	
First name	John
Department	Programme
Mobile	
Direct tel.	+353 (0)1 873 4303
Personal e-mail	john.weakliam@vita.ie

APPENDIX 3 - LUF ADDITIONAL INFORMATION

N/A

APPENDIX 4 - DESIGN CHANGES

A4.1. Details of proposed or actual design change

With the introduction of ERSDWS 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 the boreholes rehabilitated in another project in the state of Eritrea, VPAs GS5951-55 Zoba Anseba Community Safe Water, developed by Vita-co2balance under the Gold Standard. The boreholes in these VPAs will transition into GS5125 in line with this Design Change date, and their original VPAs will be discontinued.

Details of projects that will be incorporate under GS5125 are reported below (Please refer to section A.1 of this PDD for the complete lists of VPAs and technologies:

- Anseba Region MS boreholes: GS5951-55 have ended their first crediting cycle and are not going to be re-validated but their technologies will be incorporated under GS5125. The incorporation will start the day of the Design Change which is 03/11/2024.

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

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.

With the introduction of ERSDWS methodology the ERs generated per borehole reduced significantly. It would not be financially viable to revalidate, verify, and issue VPAs mentioned above. PD has decided to amalgamate the technologies included in the projects mentioned above under GS5125 to enable continuation of the project and provide clean safe water to the communities.

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:

- 59,068 tCO₂ per year before inclusion.
- 64,771 tCO₂ per year after the complete transition of the BHs of the MS VPAs into the LS project.

With the transition of GS5951-55 into GS5125, as per section 5.1.47 of Principle and Requirements, an assessment has been done on the following:

- a) Changes in the Project as related to the General Eligibility Criteria: no changes have occurred. The project type, legal ownership and project boundaries are in line with GS5125.
- b) Incorporation of any relevant updates to the Gold Standard Requirements: no changes occurred.
- c) Re-definition of Baseline Scenario and any impact of change on the Eligibility Principles, Criteria and Requirements: the project baselines were reassessed for to cover the whole project area which include both the Debub and the Anseba Regions (baselines surveys took place between February and March 2023). There are no changes in Eligibility Principles, Criteria and Requirements.
- d) Any Gold Standard activity, product and methodology-specific Requirements: when the boreholes transitioned into GS5125 and as this is a safe water project that aims to maintain boreholes at community level, the project adopted the latest Gold Standard Emission Reductions from Safe Drinking Water Supplies v1.
- e) Demonstration of Ongoing Financial Need: When the boreholes transitioned into GS5125, there is no change to what is outlined in section B.5.2 of this PDD.

A4.2. Describe the impacts of design change on the following

a. Additionality

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

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

>> The Design change will not have impacts on the applicability of ERSDWS methodology: once the boreholes 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 are in line with the methodology requirements.

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

c. Compliance with the monitoring plan of the applied methodology

>> 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 ERSDWS methodology.

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

>> 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.

e. Scale of the project activity

>> The design change will have no impact on project scale.

f. Stakeholder consultation

>> 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.

g. Sustainable development criteria

>> 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.

h. Safeguarding assessment

>> The transitioning of the technologies from the MS projects into the Large scale will not have any impacts on the Safeguarding Assessment.

i. Compliance with applicable legislation

>> No new approvals or licenses are needed from any environmental or regulatory agencies.

j. Only for LUF Projects: Transparent summary of all approved changes in Project Area, Eligible Area and accompanying changes in ex-ante emissions removals.

DATE OF APPROVED DESIGN CHANGE (MM/DD/YYYY)	PROJECT AREA (HA)		ELIGIBLE AREA (HA)		EX-ANTE ESTIMATE (TCO2E)	
	INCREASE OR DECREASE ?	VALUE (HA)	INCREASE OR DECREASE?	VALUE (HA)	INCREASE OR DECREASE ?	PERCENTAGE (%)

DOCUMENT HISTORY

Version	Date	Remarks
1.5	29 June 2023	Editorial changes to match V2.1 of the Safeguarding Principles Requirements
1.4	21 June 2023	Editorial changes to match V2.0 of the Safeguarding Principles Requirements
1.3	14 April 2023	Integrated the design change memo as annex of the document. Editorial changes
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption