

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

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

This document contains the following Sections

Key Project Information

SECTION A - Description of project

SECTION B - Implementation of project

SECTION C - Description of monitoring system applied by the project

SECTION D - Data and parameters

SECTION E - Calculation of SDG Impacts

SECTION F - Safeguards Reporting

SECTION G - Stakeholder inputs and legal disputes

KEY PROJECT INFORMATION

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

GS ID of Programme	GS1247
Title of Programme	Improved Kitchen Regimes Multi-Country PoA (GS1247)
Version of POA-DD applicable to this monitoring report	CP2 v15.3
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	GS1247 VPA 190 Zambia Eastern Province Safe Water Project (GS7456) GS1247 VPA 191 Zambia Eastern Province Safe Water Project (GS7457) GS1247 VPA 192 Zambia Eastern Province Safe Water Project (GS7458) GS1247 VPA 193 Zambia Eastern Province Safe Water Project (GS7459) GS1247 VPA 194 Zambia Eastern Province Safe Water Project (GS7460)

Key Project Information

GS ID (s) of Project (s)	GS7456 GS7457 GS7458 GS7459 GS7460
Title of the project (s) covered by monitoring report	GS1247 VPA 190 Zambia Eastern Province Safe Water Project GS1247 VPA 191 Zambia Eastern Province Safe Water Project GS1247 VPA 192 Zambia Eastern Province Safe Water Project GS1247 VPA 193 Zambia Eastern Province Safe Water Project GS1247 VPA 194 Zambia Eastern Province Safe Water Project
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	4.0
Version number of the monitoring report	10

Completion date of the monitoring report	10/08/2023
Date of project design certification	14/04/2020
Date of Last Annual Report	08/12/2022
Monitoring period number	MP3
Duration of this monitoring period	16/08/2021 to 15/08/2022
Project Representative	Emma Donnachie CO2 Balance UK Limited.
Host Country	Republic of Zambia
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	Technologies and Practices to displace decentralized thermal energy consumption" methodology (TPDDTEC) v.1
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Achievements per VPA

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
13 Climate Action	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island	GS7456 – 3550 GS7457 – 2576 GS7458 – 3050 GS7459 – 2792 GS7460 – 2298 Reduced emissions	VERs

developing States,
including focusing on
women, youth and local
and marginalized
communities.
Calculated through total
project emissions
reductions

3 Good Health and Well-Being	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	GS7456 – 3793 GS7457 – 3756 GS7458 – 3805 GS7459 – 3805 GS7460 – 4053 Additional people consuming safe water	Number of people
5 Gender Equality	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. This is calculated through the amount of time saved collecting water and firewood per trip	29.09% Reduction in time spent collecting water and firewood (across all VPAs)	%
6 Clean Water and Sanitation	By 2030, achieve universal and equitable access to safe and affordable drinking water for all. This is calculated through the additional number of persons having access to safe water	GS7456 – 3776 GS7457 – 3738 GS7458 – 3787 GS7459 – 3787 GS7460 – 4034 Additional people with access to safe water	Number of people

Table 2 – Product Vintages

		Amount Achieved			
Start Dates	End Dates	VERs	Hours saved per trip collecting water and firewood (SDG 5)	Additional people consuming safe water (SDG 3)	Additional people with access to safe water (SDG 6)
16/08/2021	31/12/2021	GS7456 – 1343 GS7457 – 558 GS7458 – 820 GS7459 – 597 GS7460 – 447	GS7456 – 29.09% GS7457 – 29.09% GS7458 – 29.09% GS7459 – 29.09% GS7460 – 29.09%	GS7456 – 3793 GS7457 – 3756 GS7458 – 3805 GS7459 – 3805 GS7460 – 4053	GS7456 – 3776 GS7457 – 3738 GS7458 – 3787 GS7459 – 3787 GS7460 – 4043
01/01/2022	15/08/2022	GS7456 – 2207 GS7457 – 2018 GS7458 – 2230 GS7459 – 2195 GS7460 – 1851	GS7456 – 29.09% GS7457 – 29.09% GS7458 – 29.09% GS7459 – 29.09% GS7460 – 29.09%	GS7456 – 3793 GS7457 – 3756 GS7458 – 3805 GS7459 – 3805 GS7460 – 4053	GS7456 – 3776 GS7457 – 3738 GS7458 – 3787 GS7459 – 3787 GS7460 – 4043

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The Micro-Scale VPA Zambia Eastern Province Community Safe Water project is eligible under the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1.0. By providing safe water, the project will ensure that households consume less firewood during the process of water purification and as a result there shall be a reduction of carbon dioxide emissions from the combustion process.

Lundazi District in Eastern Province, Zambia, is a largely rural district in which local people typically use wood fuel on inefficient three stone fires to boil their drinking water for purification. 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 safe water sources in Lundazi District have fallen into disrepair because maintenance programmes have been poorly managed or proven too expensive. In this project local NGO, Reformed Open Community Schools (ROCS), will work with British company CO2balance to rehabilitate and maintain water points so that they deliver clean, safe water. The project will ensure that the quality of the water delivered by the safe water sources is fit for human consumption for the entire length of the project, which will be a minimum of five years.

In agreement with ROCS and the communities, CO2balance have legal ownership of the carbon credits produced as a result of the project. On the time rehabilitation of each borehole, a Carbon Transfer Form (CTF) is signed by a representative of the village Water Resource Committee signing over the rights to the carbon credits to CO2balance. A full explanation was given to ROCS and elected representatives of water point users that CO2balance have committed to provide them with a rehabilitated and fully maintained borehole on the basis that the emission reductions will be transferred to CO2balance.

Water points are managed by communities, who are recognised as the main users of the water points in the project. Communities are encouraged to contribute funds for use of the borehole, to encourage community ownership of the borehole and long-term sustainability of the project. This is determined by the Water Resource Committees on a borehole by borehole basis depending on the capacity of the community to contribute. ROCs created a mechanism incorporated into the project design to encourage empowerment of the communities through the project to ensure they are not wholly dependent on CO2balance throughout the lifetime of the project (a minimum for 5 year) and after the project is complete. By encouraging households to contribute funds within their means for use of the borehole, it ensures communities can maintain the boreholes themselves within reason. The money they can contribute are paid to the communities Water Resource Committees to form a fund that can be used to pay for minor maintenance and cleaning equipment to maintain the area around the borehole. This ensures that the communities are not entirely dependent on CO2balance for conducting minor maintenance. This ensures that the project prepares the communities with a self-sufficient, sustainable model to maintain their safe water source without relying on CO2balance.

The number of water points per VPA will be limited by the amount of pure water supplied by each unit. Based on ex-ante calculations, the maximum number of water points that can be rehabilitated in one VPA to achieve 10,000 tCO₂e was approximately 7. Following the collection of the user numbers of each borehole following their rehabilitation, they were much lower than estimated. Therefore, the maximum number of water points included in one VPA to achieve 10,000 tCO₂e was approximately 10.

After the caps on Emission Reduction calculations introduced in 2021 as part of the BAMG changes, it was considered more water points were necessary to fill a VPA. CO2balance and ROCS identified more water points to include in the project, and started the rehabilitation process of 56 additional water points in June 2022. With these included, there are currently approximately 21 water points per VPA.

The project is funded by marketing the anticipated carbon credits from the wood savings to ethical investors, so water point owners must agree to transfer the emissions reductions over to CO2balance in return for them supplying the work to renovate the water points. This project will be developed under the Gold Standard

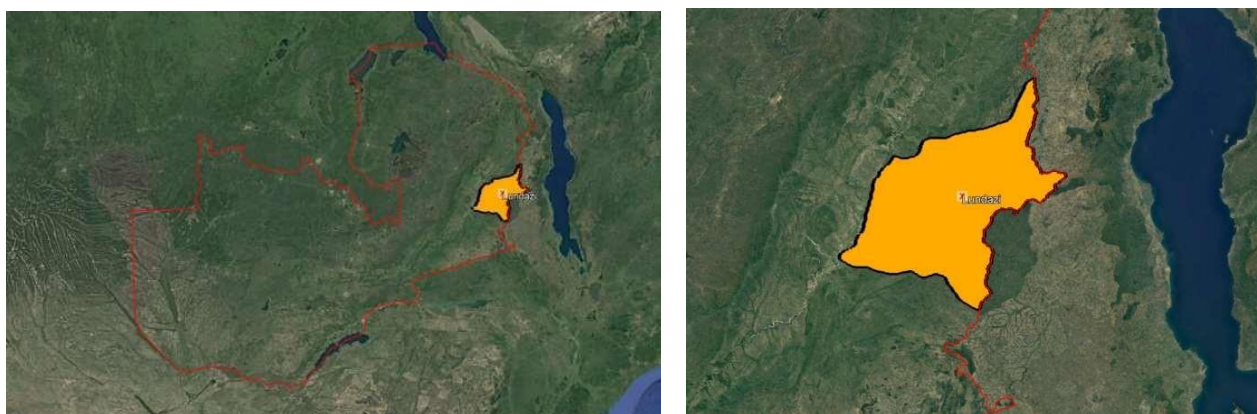
carbon credit body, which in addition to checking that the carbon credits from this project are real, also measures local social, environmental, and economic impact.

A.2. Location of project

Republic of Zambia and the project area, Lundazi District, outlined in red (including Lundazi, Lumezi and Chasefu), in Eastern Zambia. The target area and the fuel collection area are defined as being contained within the 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 wood fuel collection area and target area are considered the same.

Project Area Coordinates		
	Latitude	Longitude
North	11.6783°	33.3046°
East	12.3683°	33.5489°
South	13.3160°	32.9194°
West	12.9658°	31.9010°

The physical delineating of the project boundary, Lundazi District is displayed below in Figure 1. All boreholes included within this VPA lie within the area marked, within the provided coordinates.



Location of Project Boundary, Lundazi District in Eastern District.

GS ID	Borehole ID	Village	Latitude	Longitude
-------	-------------	---------	----------	-----------

GS7456	LUN 005	Chambuzi	-11.77972	33.22667
	LUN 006	Chipakala	-11.60694	33.20027
	LUN 009	Juma	-13.00944	32.96083
	LUN 014	Chauluma	-12.95456	33.00836
	LUN 023	Bila	-12.15769	33.06002
	LUN 024	Nyalubanga	-12.23387	33.0784
	LUN 030	Chinthenga	-12.70158	32.12208
	LUN 032	Zokwe	-12.31322	32.32203
	LUN 034	Chinkhwamba	-12.48213	32.41831
	LUN 044	Kunkhe	-11.79619	33.20388
	LUN055	Boyole/Kabumba	-11.931887	33.21737
	LUN085	Shallen 02	-12.832498	32.0315
	LUN063	Manzi	-12.291309	33.13684
	LUN071	Chituba tuba	-12.70214	32.22932
	LUN065	Mphuka	-12.245924	33.15183
	LUN070	Chusi	-12.845597	32.13236
	LUN066	Mchereka/Muyabala	-12.260654	33.19813
	LUN062	Nkhandwe Yazema	-12.195152	33.12914
	LUN077	Chasera 01	-12.849672	32.16649
	LUN058	Yankhobe	-11.788318	33.22134
	LUN064	Bulwe	-12.151023	33.01229

GS ID	Borehole ID	Village	Latitude	Longitude
GS7457	LUN 003	Sude	-11.97444	33.20000
	LUN 007	Chinyumba	-12.27139	33.19194
	LUN 008	Kasasa	-13.06476	32.90964
	LUN 010	Njoka 01	-12.20250	32.76778
	LUN 018	Chawerelo	-12.37314	33.33733
	LUN 019	Matimba	-12.41144	33.37275
	LUN 027	Chinyanta	-12.83169	32.02934
	LUN 033	Kafurira	-12.31473	32.31746
	LUN 035	Kabendama	-12.4625	32.41194
	LUN 037	Lukanthika	-12.43914	32.28191
	LUN092	Changa 01	-12.71745	32.26672
	LUN099	Mando	12.705469	32.23693
	LUN054	Kayimbonye	11.821124	33.20689
	LUN081	Chitabe	12.843066	32.02434
	LUN098	Munkhala	12.832899	32.02754

	LUN059	Mwata	- 12.145515	33.05941
	LUN096	Chasera 02	- 12.848319	32.16656
	LUN075	Chalambika	- 12.849283	32.17081
	LUN053	Kabamba	- 12.042162	32.99835
	LUN067	Zikwimba	- 12.113786	33.01446
	LUN072	Salimu	- 12.702359	32.23404
	LUN105	Chiba	- 12.850389	32.17939

GS ID	Borehole ID	Village	Latitude	Longitude
GS7458	LUN 001	Chipengu	-11.90389	33.08639
	LUN 002	Chibungu	-11.76611	33.23278
	LUN 004	Chinthaka	-11.93639	33.16028
	LUN 011	Njoka 02	-12.20397	32.79280
	LUN 012	Chitala (Katambalala)	-12.33139	32.98533
	LUN 017	Kapumbulu	-12.36287	33.28559
	LUN 022	Lobi	-12.27982	33.29128
	LUN 031	Shabani	-12.70928	32.12344
	LUN 040	Kabizubizu	-11.72127	33.29287
	LUN 046	Mzgatama	-12.41861	33.13926
	LUN051	Malomo	- 12.026205	33.13868
	LUN087	Ali	- 12.715433	32.2409
	LUN069	Elunyaweni	- 12.005835	33.17934
	LUN076	Matuta	- 12.841494	32.14367
	LUN082	Mshala/C.R.B	- 12.716467	32.26194
	LUN057	Chapita	- 12.847015	32.18689
	LUN103	Chankhambi, Malanda and Chipangu	- 12.698514	32.22593
	LUN061	Chiswa	- 12.262905	33.12138
	LUN068	Matifeyo	- 12.040651	33.15275
	LUN073	Chiwala	- 12.727067	32.24601
	LUN078	Mwanya	- 12.733522	32.24542

LUN106	Katondolo	-	12.864202	32.18996
--------	-----------	---	-----------	----------

GS ID	Borehole ID	Village	Latitude	Longitude
GS7459	LUN 015	Kanyonge	-12.35821	33.21725
	LUN 016	Wadilika	-12.36287	33.28559
	LUN 020	Chikhumbi	-12.41948	33.27960
	LUN 026	Mukasanga	-12.83660	32.02718
	LUN 028	Chongo	-12.84402	32.02395
	LUN 036	Chikuba	-12.42986	32.2813
	LUN 038	Chaguza	-12.44631	32.25183
	LUN 039	Jenda	-12.31866	33.11455
	LUN 043	Janalume	-12.20835	33.14246
	LUN 048	Chaska	-12.22989	33.2561
	LUN052	Msindama 01	-	33.16689
	LUN074	Chipatiwa	-	32.14625
	LUN095	Sam	-	32.18848
	LUN094	Saidi	-	32.25759
	LUN090	Msolola	-	32.19155
	LUN079	Mose	-	32.03144
	LUN080	Shallen 01	-12.84322	32.14141
	LUN060	Chihepa and Kabaye	-12.30926	33.27041
	LUN075	Chalambika	-	32.17081
	LUN084	Kafwila	-	32.12959
	LUN086	Mkasanga 02	-	32.02628

GS ID	Borehole ID	Village	Latitude	Longitude
GS7460	LUN 013	Zumwanda	-11.77972	33.22667
	LUN 021	Kapilimutiwa	-11.60694	33.20027
	LUN 025	Kapichila	-13.00944	32.96083
	LUN 029	Mulolo	-12.95456	33.00836
	LUN 041	Kauka	-12.15769	33.06002
	LUN 042	Malekano	-12.23387	33.0784
	LUN 045	Papilo	-12.70158	32.12208

	LUN 047	Kasuku	-12.31322	32.32203
	LUN 049	Chiwe	-12.48213	32.41831
	LUN 050	Chidesa	-11.79619	33.20388
	LUN091	Mkwela	-	12.726765
	LUN088	Chikasila	-	12.833794
	LUN097	Chusi 01	-	12.731689
	LUN102	Kasamika	-	12.708978
	LUN093	Chibezakunda	-	12.710832
	LUN104	Kaini	-	12.706354
	LUN056	Msindama 02	-	12.059415
	LUN083	Changa	-12.71743	32.26674
	LUN089	Msokole pola	-	12.723586
	LUN100	Chingolo	-	12.844772
	LUN101	Sam 01	-	32.22497

A.3. Reference of applied methodology

Gold Standard Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1.0.

A.4. Crediting period of project

The date after the date of rehabilitation were used as the start dates of operation. It was conservatively assumed that the first day of crediting is not counted and the crediting period begins the following day after the borehole is rehabilitated. The crediting periods began:

GS7456: 15/08/2019

GS7457: 15/08/2019

GS7458: 15/08/2019

GS7459: 15/08/2019

GS7460: 15/08/2019

The length of the crediting period is 5 years as per the approved PDD.

From June to August 2022, we rehabilitated 56 broken boreholes in the project area to include in the project. These have been included for Verification for the first time in this Monitoring Report. The first rehabilitation of this second phase took place on 18/06/2020, and the last one was on 29/08/2022. Their crediting days have been adjusted to their CTF date.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

CO2balance and Reformed Open Community Schools (ROCS) have rehabilitated 50 boreholes as part of the project. All 50 boreholes were technically assessed to determine the parts and workmanship required for the borehole to be in good working order and deliver clean water. Rehabilitations were carried out between 14/08/2019 and 09/01/2020. These entailed certified borehole technicians doing an initial visit to technically assess each borehole, listing the materials and workmanship required to make the borehole function. After acquiring the materials, the technicians revisit the boreholes to conduct the rehabilitation, with the communities Water Resource Committee (or representative) and ROCS field staff present. The rehabilitation involved taking apart the boreholes and replacing the items that were broken. Once reassembled, begin pumping water from the borehole to ensure the functioning is good. Following the successful rehabilitation of each borehole and agreement from the technician and Water Resource Committee member, a Carbon Transfer Form was signed to certify the repair.

From June to August 2022, we rehabilitated another 56 broken boreholes in the project area to include in the project, as we identified there was a high demand of safe water in these communities. These have been included for Verification for the first time in this Monitoring Report. The first rehabilitation of this second phase took place on 18/06/2020, and the last one was on 29/08/2022.

As in the first phase, all 56 boreholes were technically assessed, and followed the same procedure as described above. After the rehabilitation of the water points, a

water resource committee was established in the village to manage the borehole, keep track of maintenance and be responsible for the logbooks. Water quality tests were conducted, and Carbon Transfer Forms were signed.

The procedure for sample selection can be found in Section C in accordance with TPDDTEC v.1.

B.1.1 Forward Action Requests

N/A

B.2. Post-Design Certification changes

>>

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

N/A

B.2.2. Corrections

N/A

B.2.3. Changes to start date of crediting period

N/A

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

N/A

B.2.5. Changes to project design of approved project

N/A

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

All surveys are administered by trained CO2balance staff and in country partner NGO, ROCS, who are local to the area and conversant in the local dialects to ensure that the responses are consistent and not biased by any regional language barriers. Each participant is provided with a briefing on the purpose of the survey and is assured that no individual names are used in the analysis.

Most surveys are collected electronically, using the app KoboCollect. Field officers have Kobo accounts, from which they fill in the surveys in the field and then submit them directly to the CO2balance account. CO2balance then accesses the data in a spreadsheet format.

Some surveys are still conducted on paper, and then collated electronically in Excel spreadsheets and stored on a central server in an electronic format. These are then sent to the UK head office for data analysis. The documentation procedure that CO2balance has devised ensures a minimum chance of original data being lost – all original copies of our project documentation are retained in ROCS Zambian office and are available scanned upon request of the UK team.

Sample Selection Method

In accordance with the Gold Standard methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption” (TPDDTEC v1), survey samples are randomly selected from the user record using a random sample group (RSG). A random number generator ranks the unique serial numbers of the boreholes in the project, generating the RSG which satisfies 90/30 precision. Each user in the RSG is assigned a unique random number from which survey participants are selected in accordance with the minimum sample size and confidence requirement for each survey. The RSG and survey participants are reselected for every monitoring period to ensure the selection remains random.

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

Borehole Database

The borehole installation/rehabilitation record includes the following information:

- Date of installation/rehabilitation
- Model of the borehole
- Quantity of boreholes installed
- The total number of people obtaining their water from each borehole
- Mode of use: commercial/domestic

The installation record is backed up electronically, with original documentation being stored in the appropriate office for the respective VPAs.

All data collected in relation to the project is held in the local office and/or on the Project Database for the entire life cycle of the project and a period of 2 years afterwards. The data may be archived during the project in order to maintain clarity and security.

Ongoing Monitoring Studies

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

- **Water Consumption Field Test (WCFT):** The WCFT is used to determine 3 key parameters: $Q_{p,y}$ – quantity of safe water in litres supplied in the project scenario using the clean water supply technology; $Q_{p,rawboil,y}$ – quantity of raw or unsafe water that is still boiled after installation of the water supply technology; $Q_{p,cleanboil,y}$ – quantity of safe water boiled in the project scenario after installation of the water supply technology.

WCFT is completed biennially, prior to first verification and then every other year subsequently. In MP3 it was conducted between 10/06/2022- 22/06/2022. The survey is carried out on a randomly selected sample of 36 households. The measurement method used is similar to the Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days (using digital scales). The WCFT is carried out by staff trained by co2balance to meet the specific requirements of the methodology. All data presented in Excel is subject to checking and cross referencing of a sample of the raw data by co2balance UK Ltd.

Input	Value
Actual sample size	36
Sample mean	19.3000
Sample standard deviation	2.6400
Standard error of the mean	0.4400
t-value	1.6896
Absolute precision	0.7434
Relative precision	3.9%

- **Water Quality Test (WQT):** The quality of the treated water will be assessed to ensure that it is fit for human consumption. It is assessed in accordance with Zambian national standards for drinking water. The parameters used to assess the water quality will be in line with Zambian National standards for potable water and all parameters will be shown to be within levels considered acceptable for domestic human consumption.
- **Usage Survey:** Usage Survey is used to determine the Up,y (usage rate in the project scenario p through year y) parameter.

As all boreholes were rehabilitated within 1 year of the start of the crediting period and are expected to last the lifetime of the project, minimum samples of 30 for different aged technologies are not necessary. The annual usage survey was conducted on a sample of 122 surveys.

Input	Value
Actual sample size	122
Sample proportion	0.9300
Standard error of the proportion	0.0231
Precision associated with a proportion	0.0380
Relative precision	4.1%

- **Project Survey:** Conducted annually to survey end users currently using project technologies to explore changes in project scenario over time. The annual project survey was conducted on a sample of 122 surveys. Data collected during the project surveys explores the following characteristics:
 - o General information – Name, address, telephone number etc
 - o Household socio-demographic information

- o Water use and purification characteristics
- o Sources and availability of fuel
- o Time use and time saved information

Leakage: The potential sources of leakage will be investigated ($LE_{p,y}$). If the assessment quantifies an increase in fuel consumption by the non-project households attributable to the project activity, then calculations will be adjusted to account for this.

Project Technology Days ($N_{p,y}$): Number of persons consuming water supplied by project scenario p through year y . Sum of the total number of people using each borehole in the project multiplied by the number of days crediting each borehole earns in this monitoring period. The total number of households using each borehole will be determined through information supplied by our NGO partner. Using this method, the total number of people using each borehole will be known and hence a figure for person days can be calculated. All monitoring tasks will be selected at random.

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

Annual Monitoring: Usage and Project Surveys and WCFT

In the case of MP3, as per 90/30 precision and random sample group, 7 of the 50 homogenous boreholes were randomly selected for inclusion in the annual monitoring surveys.

Selected boreholes for annual monitoring:

Borehole	Village	Random Number
LUN 13	Zumwanda	1
LUN 17	Chaliwa Farm, Chikoya, Kapumbulu, Thomas	2
LUN 27	Chinyanta, Chizira, Kalonga, Kangula	3
LUN 28	Chitabe, Chongo, Masanza, Namuzunga	4

LUN 32	Zokwe	5
LUN 46	Mzgatama	6
LUN 49	Chiwe, Mphongolo	7

The user lists of these boreholes were combined into a separate list and assigned a random number. A random sample (in line with 90/30) precision was conducted on the list. The selected households exceeded the minimum survey requirements for each of the surveys.

The usage and project surveys were conducted 20/04/2022- 28/04/2022.

The WCFT is a survey conducted biennially. It was last conducted between 10/06/2022- 22/06/2022, and will next be conducted in 2024.

Cross Sampling

The project proponent has elected to cross-sample boreholes across all its homogenous VPAs located within the project area (VPA 190, 191, 192, 193 and 194). Homogenous VPAs are defined as those that share a common baseline. Boreholes considered different technologies are cross-samples and monitored separately. The samples for the survey listed below are randomly selected from the borehole information databases in line with the minimum sample size requirements as defined by the methodology. Cross sampling will be applied to the following surveys;

- Project Surveys- Completed annually
- Usage Surveys- Completed annually
- Water Consumption Field Tests- Completed every two years. It was last conducted between 10/06/2022- 22/06/2022, therefore it will next be conducted in 2024.

Surveys are conducted through use of a Random Sample Group (RSG). The size of the sample group is selected so the number of borehole to be sampled satisfies the 90/30 precision rule. A random number generator ranks the unique serial numbers of the boreholes in the project, generating a RSG. The sample group is reselected for every monitoring period to ensure the selection remains random. In this Monitoring Period,

the minimum recommended sample size of the RSG to meet 90/30 precision was 7 boreholes. The individual participants surveyed from the RSG are selected at random from the project database using the same random number generator process, in accordance with the minimum sample size requirement for each survey, detailed in section D.4.

SECTION D. DATA AND PARAMETERS

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

SDG 13

Data/parameter	EF _{b,co2}
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor arising from use of wood fuel in baseline scenario
Source of data	Calculated from IPCC defaults; Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5
Value(s) applied	112 – see GS Methodology
Choice of data or Measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/parameter	EF _{b,non co2}
Unit	tCO _{2e} /TJ
Description	Non-CO ₂ (CH ₄ and N ₂ O) emission factor arising from use of wood fuel in baseline scenario
Source of data	Default emissions factor: b https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf Global Warming Potential: https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Value(s) applied	9.46																				
Choice of data or Measurement methods and procedures	<table><tr><th>Gas</th><th>Default Emissions factor (kg_gas/TJ_{NCV})</th><th>GWP of gas</th><th>Default Emissions factor (kg_CO₂e/TJ_{NCV})</th><th>Default Emissions factor (t_CO₂e/TJ_{NCV})</th></tr><tr><td>CH₄</td><td>300</td><td>28</td><td>8400</td><td>8.4000</td></tr><tr><td>N₂O</td><td>4</td><td>265</td><td>1,060</td><td>1.060</td></tr><tr><td></td><td></td><td></td><td>Total</td><td>9.46</td></tr></table> Deemed valid by Methodology	Gas	Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})	CH ₄	300	28	8400	8.4000	N ₂ O	4	265	1,060	1.060				Total	9.46
Gas	Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})																	
CH ₄	300	28	8400	8.4000																	
N ₂ O	4	265	1,060	1.060																	
			Total	9.46																	
Purpose of data	Calculation of emission reductions																				
Additional comment	This value corresponds with updated AR5 GWP value. These values are only applied for 2021 and onwards figures. AR5 – https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf																				

SDG13

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

SDG13

Data/parameter	EF _{p,non co2}																									
Unit	tCO ₂ e/TJ																									
Description	Non-CO ₂ (CH ₄ and N ₂ O) emission factor arising from use of wood fuel in project scenario																									
Source of data	Default emissions factor: https://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_2_Non-CO2_Stationary_Combustion.pdf https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf Global Warming Potential: https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf																									
Value(s) applied	9.46																									
Choice of data or Measurement methods and procedures	Deemed valid by Methodology <table><tr><td></td><td>Default Emissions factor (kg_gas/TJ_{NCV})</td><td>GWP of gas</td><td>Default Emissions factor (kg_CO₂e/TJ_{NCV})</td><td>Default Emissions factor (t_CO₂e/TJ_{NCV})</td></tr><tr><td>Gas</td><td></td><td></td><td></td><td></td></tr><tr><td>CH₄</td><td>300</td><td>28</td><td>8400</td><td>8.4000</td></tr><tr><td>N₂O</td><td>4</td><td>265</td><td>1,060</td><td>1.060</td></tr><tr><td></td><td></td><td></td><td>Total</td><td>9.46</td></tr></table>		Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})	Gas					CH ₄	300	28	8400	8.4000	N ₂ O	4	265	1,060	1.060				Total	9.46
	Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})																						
Gas																										
CH ₄	300	28	8400	8.4000																						
N ₂ O	4	265	1,060	1.060																						
			Total	9.46																						
Purpose of data	Calculation of emission reductions																									
Additional comment	This value corresponds with updated AR5 GWP value. Used for 2021 values. AR5 - https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf																									

Data/parameter	NCV _b
Unit	TJ/ton
Description	Net calorific value of the wood fuel used in the baseline
Source of data	http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculation of emission reductions
Additional comment	

Data/parameter	NCV _{b/p}
Unit	TJ/ton
Description	Net calorific value of the wood fuel used in the project
Source of data	http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculation of emission reductions
Additional comment	

Data/parameter	W _{b,y}
Unit	T/litre
Description	Quantity of wood fuel that is used to treat 1 litre of water in the baseline scenario b during year y
Source of data	GS default value
Value(s) applied	0.0004
Choice of data or Measurement methods and procedures	A default value will be used rather than results from a modified Water Boiling Test.
Purpose of data	Calculation of emission reductions
Additional comment	

Data/parameter	W _{p,y}
Unit	T/litre
Description	Quantity of wood fuel that is used to treat 1 litre of water in the project scenario p during year y
Source of data	GS default value
Value(s) applied	0.0004
Choice of data or Measurement methods and procedures	A default value will be used rather than results from a modified Water Boiling Test.
Purpose of data	Calculation of emission reductions

Additional comment	
---------------------------	--

Data/parameter	C _j
Unit	Percentage
Description	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply
Source of data	Baseline Study
Value(s) applied	1.82%
Choice of data or Measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculation of emission reductions
Additional comment	

Data/parameter	Xboil Non Suppressed Demand
Unit	Percentage
Description	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary,.
Source of data	Baseline study. Credible literature, studies, survey, reports, relevant to the project target area
Value(s) applied	1.82%
Choice of data or Measurement methods and procedures	Suppressed demand will be determined through a set of questions in the project survey that establish the method households use to purify their water, if any, and how they would choose to purify if they were not subject to monetary and access barriers. This is in line with the Gold Standard principles of suppressed demand outline in annex 2. A fixed suppressed demand baseline has been opted for, however , in the event the project surveys show a substantial change in fuel use characteristics, a new baseline shall be conducted.
Purpose of data	Calculation of emission reductions
Additional comment	

Data/parameter	Pb,boil
Unit	Percentage
Description	Percentage of persons boiling water for purification in the baseline scenario.
Source of data	Baseline Study
Value(s) applied	16.22%

Choice of data or Measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculation of emission reductions
Additional comment	

SDG5

Data/parameter	$T_{b,y}$
Unit	Hours
Description	Baseline time spent collecting water and firewood per household per trip
Source of data	Baseline kitchen survey
Value(s) applied	2.2 hours per day collecting water and firewood
Choice of data or Measurement methods and procedures	Established through questions in the baseline on a representative sample of the end users
Purpose of data	To measure the decrease in hours spent collecting water and firewood, a responsibility falling disproportionately on women, as an indicator of reduced time poverty of women.
Additional comment	

D.2 Data and parameters monitored

SDG 3

Data / Parameter	P_y
Unit	Number
Description	Number of persons having access to safe water from the project activity.
Source of data	Water point Project Database
Value(s) applied	GS7456: 4048 GS7457: 4008 GS7458: 4060 GS7459: 4060 GS7460: 4325
Measurement methods and procedures	Sum of the total number of people using each water point in the project.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To measure the additional persons with access and provision to safe water in the project scenario, which will positively impact good health and

	wellbeing, as well as access to clean water and sanitation.
Additional comment	

Data / Parameter	P _{safe}
Unit	Number
Description	Number of additional persons consuming safe water in the project activity compared to the baseline scenario.
Measured/calculated/default	Measured
Source of data	Household lists; Usage Survey; Water Consumption Field Test
Value(s) of monitored parameter	GS7456 – 3793 GS7457 – 3756 GS7458 – 3805 GS7459 – 3805 GS7460 – 4053
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Review the number of people using the borehole according to the household lists for each VPA and multiply by the usage rate to calculate the number of people now using a safe water source in order to calculate the amount of biomass that would have been burnt to purify the water in the baseline scenario. Deduct from this any individuals that still boil water in the project scenario.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data	To calculate the additional number of persons who have access to safe water in the project activity compared to the baseline scenario and to calculate from that the percentage decrease in biomass used to purify water through boiling.
Additional comments:	

SDG 5

Data / Parameter	$T_{p,y}$
Unit	Hours
Description	Project time spent collecting water and firewood per household per trip.
Source of data	Project survey
Value(s) applied	1.56
Measurement methods and procedures	Established through questions in the project survey on a representative sample of the end users. In MP3, 1,56 was obtained by adding up average time collecting water per trip + average time collecting fuel per trip. These values can be found in E45 and E132 of the Project Survey.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To measure the decrease in hours spent collecting water and firewood, a responsibility falling disproportionately on women, as an indicator of reduced time poverty of women.
Additional comment	

Data / Parameter	TR_y
Unit	%
Description	Total reduction time spent collecting water and firewood for project activity in year y
Measured/calculated/default	Measured
Source of data	Project Survey
Value(s) of monitored parameter	29.09% (All VPAs GS7456-60)
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Calculate the average amount of time spent collecting water and firewood in the project scenario and compare to the baseline scenario
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 and firewood compared to the baseline scenario
Additional comments:	

Data / Parameter	Tusage
Unit	Percentage
Description	Usage of time saved by the project activity
Source of data	Project Survey
Value(s) applied	1. (Unpaid) Domestic work (includes cooking and caring for family members) – 82% 2. Income generating activities – 64% 3. Religious activities – 96% 4. Social and leisure activities – 80% 5. Voluntary activities – 76% 6. Education and training – 48% 7. Other (Specify) – 0%
Measurement methods and procedures	Ask users how time saved by project in the project scenario (on water and firewood collection), as opposed to the baseline scenario, is now being used.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Emission reduction calculations
Additional comment	

SDG 6

Data / Parameter	Py
Unit	Number
Description	Number of persons having access to safe water in the project activity
Measured/calculated/default	Measured
Source of data	Baseline study
Value(s) of monitored parameter	GS7456: 4048 GS7457: 4008

	GS7458: 4060 GS7459: 4060 GS7460: 4325
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Sum of the total number of people using each borehole in the project. The total number of households using each borehole will be established through lists supplied by the water resource committee and/or community group and/or district officer responsible for that borehole. Using this method, the total number of people using each borehole will be known.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Determination of number of persons using safe water.

Data / Parameter	P _{access}
Unit	Number
Description	Number of additional persons having access to safe water in the project activity compared to the baseline scenario.
Measured/calculated/default	Measured
Source of data	Household lists; Usage Survey
Value(s) of monitored parameter	GS7456 - 3776 GS7457 - 3738 GS7458 - 3787 GS7459 - 3787 GS7460 - 4034
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual

Calculation method (if applicable):	Borehole users * Usage rate
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	To calculate the additional number of persons having access to safe water in the project activity compared to the baseline scenario

Data / Parameter	Qp,cleanboil,y
Unit	Litres per person per day
Description	Quantity of safe water boiled in the project scenario p during the year y using the zero or low emissions clean water supply technology
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	0
Measurement methods and procedures	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT will be carried out by staff trained by CO2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Monitoring frequency	Biennial (Every 2 years). In MP3 it was conducted between 10/06/2022- 22/06/2022
QA/QC procedures	Clear guidance is provided to field staff and results are spot checked against the hard copy of the surveys.
Purpose of data	Emission reduction calculations
Additional comment	Measured boiled water consumed for drinking, cooking and basic personal hygiene considered safe for human consumption prior to boiling. This is assumed from the stated water source.

Data / Parameter	Qp,rawboil, y
Unit	Litres per person per day
Description	The raw of unsafe water that is still boiled after installation of the water treatment technology
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	Estimated at 0.
Measurement methods and procedures	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT will be carried out by staff trained by CO2balance to

	meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Monitoring frequency	Biennial (Every 2 years) In MP3 it was conducted between 10/06/2022- 22/06/2022
QA/QC procedures	Extensive training with ROCS field staff, including video calls and provision of Survey Guidance document and comprehensive field sheets. Transparent data analysis and reporting. Hard copies of WCFT surveys cross referenced and kept.
Purpose of data	Emission reduction calculations
Additional comment	Measured boiled water consumed for drinking, cooking and basic personal hygiene considered unsafe for human consumption prior to boiling. This is assumed from the stated water source.

Data / Parameter	Quality of Treated Water
Unit	Parameters as per Zambian National Standards
Description	Performance of the treatment technology
Source of data	Laboratory Tests certified by Republic of Zambia Ministry of Health Lundazi District Health Office
Value(s) applied	In Q1 testing (20/02/2022), 27/50 boreholes failed for various parameters. These boreholes were individually removed from crediting from the start of the monitoring period until they were treated and retested on 10/04/2022, as the previous WQT was in the last monitoring period.
Measurement methods and procedures	Water quality testing was conducted in partnership with Ministry of Health through the Monze District Heath Office (WHO), Lundazi District Health Office (DHO) and Lundazi District Council through the WASH unit. Testing was certified in line with national standards.

	Water samples are taking at the point of source, directly from the boreholes.
Monitoring frequency	Annual
QA/QC procedures	Transparent data reporting
Purpose of data	To test water quality for safety of human consumption.
Additional comment	

SDG 13

Data / Parameter	Qp,y
Unit	Litres per person per day
Description	Quantity of safe water supplied in the project scenario p during the year y using the zero or low emissions clean water supply technology
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	20.36 (capped at 7.5) as calculated in MP3.
Measurement methods and procedures	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. Volume capped at 7.5 litres per person per day as per the methodology. The WCFT will be carried out by staff trained by CO2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
Monitoring frequency	Biennial (Every 2 years). In MP3 it was conducted between 10/06/2022- 22/06/2022
QA/QC procedures	Clear guidance is provided to field staff and results are spot checked against the hard copy of the surveys.
Purpose of data	Emission reduction calculations
Additional comment	Measured water consumption is limited to drinking, cooking and basic personal hygiene. The quantity of safe water under these categories consumed in the project scenario is quantified through measurements and survey.

Data / Parameter	Up,y
Unit	Percentage
Description	Usage rate in project scenario p through year y
Source of data	Annual Usage Survey

Value(s) applied	The Usage Rate in the Usage Survey was calculated at 99.29% but capped at 95%.
Measurement methods and procedures	Under a CO2balance imposed project cap, usage rate will be capped at 95%. Annual usage survey will be carried out by staff trained by CO2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd
Monitoring frequency	Annual
QA/QC procedures	Extensive training with ROCS field staff, including video calls and provision of Survey Guidance document and comprehensive field sheets. Transparent data analysis and reporting. Hard copies of Usage surveys cross referenced and kept.
Purpose of data	Calculation of usage
Additional comment	Questions are asked in a face-to-face survey and designed to establish whether a household can be considered a regular user of the water point.

Data / Parameter	Np,y
Unit	Project Technology Days
Description	Number of persons consuming water supplied by project scenario p through year y
Source of data	Project Database
Value(s) applied	GS7456 – 667,172 GS7457 – 569,066 GS7458 – 673,717 GS7459 – 616,964 GS7460 – 507,650 Downdays % per VPA: GS7456 – 15.62% (1197 days) GS7457 – 17.77% (1427 days) GS7458 – 11.84% (951 days) GS7459 – 18.58% (1424 days) GS7460 – 18.64% (1429 days)
Measurement methods and procedures	Sum of the total number of people using each water point in the project multiplied by the number of days crediting each water point earns in this monitoring period.
Monitoring frequency	Continuous
QA/QC procedures	Calculations are double-checked. Transparent data analysis and reporting

Purpose of data	Emission reduction calculations
Additional comment	Household lists of water point users including details for the main contact from the household

Data / Parameter	LE _{p,y}
Unit	tCO ₂ e per year
Description	Leakage in project scenario p during year y.
Source of data	Baseline and monitoring surveys.
Value(s) applied	0
Measurement methods and procedures	Assessed every two years using baseline and monitoring surveys.
Monitoring frequency	Biennial
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Emission reduction calculations
Additional comment	

Data / Parameter	fNRB _{i,y}
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	Calculation of the fraction of non-renewable biomass (fNRB) Zambia CDM Tool 30 EB 108 Annex 11 v3.0 2020 C4 EcoSolutions authored report supplied with project documentation March 2021
Value(s) applied	0.86
Measurement methods and procedures	Default values of fraction of non-renewable biomass as calculated by C4EcoSolutions using CDM Tool 30 EB 108 Annex 11 v3.0 2020. CDM. Methodological tool 30: Calculation of the fraction of non-renewable biomass. Version 03.0. https://cdm.unfccc.int/DNA/fNRB/index.html (2020).
Monitoring frequency	When necessary
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Emission reduction calculations
Additional comment	

Data / Parameter	Reported cases of corruption arising from the project activity
-------------------------	--

Unit	Case communicated
Description	Reported cases of corruption arising from project activity communicated by communities
Source of data	Continuous Grievance Mechanism
Value(s) applied	No cases of corruption were reported during this monitoring period
Measurement methods and procedures	The communities are able to communicate any cases of corruption through the continuous input mechanism. The continuous input mechanism is monitored and any reports of corruption are acted on. During this monitoring period, no cases of corruption were reported.
Monitoring frequency	Continuous
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To monitor 'Corruption' safeguarding principle.
Additional comment	

Data / Parameter	Community Maintenance Training
Unit	
Description	To ensure long term sustainability of the water points, and avoid unexpected breakdowns and spending
Source of data	Training reports
Value(s) applied	Training was conducted between 03/02/2022 and 07/04/2022 in all project communities from boreholes 1-50. WASH training for newly rehabbed boreholes 51-106 was conducted post-rehab, between 12/06/2022 and 24/08/2022.
Measurement methods and procedures	Training was conducted at the beginning of the project on conducting minor maintenance and is repeated annually alongside the WASH trainings.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To monitor 'Negative Economic Consequences' safeguarding principle.
Additional comment	

Data / Parameter	WASH training
-------------------------	---------------

Unit	
Description	Community WASH trainings conducted to promote hygiene and sanitation practices for the reduction of cases of water borne diseases
Source of data	Training reports, Monitoring Project Survey
Value(s) applied	Training was conducted between 03/02/2022 and 07/04/2022 in all project communities
Measurement methods and procedures	For each borehole rehabilitated within this project a WASH programme is being carried out, including WASH training which was conducted at the beginning of the project, as well as subsequent, annual WASH follow-up trainings. Each training follows an agenda and has a participation list collected. The trainings involve introducing the concept of WASH, duties of village WASH and provide hands-on demonstrations with the community group. Incidences of water borne illnesses are also monitored through the annual Monitoring Project Survey
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To monitor 'Community Health, Safety and Working Conditions' safeguarding principle.
Additional comment	

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
Psafe	GS7456 – 3,793	GS7456 – 2,035
	GS7457 – 3,756	GS7457 – 1,966
	GS7458 – 3,805	GS7458 – 2,083
	GS7459 – 3,805	GS7459 – 2,067
	GS7460 – 4,053	GS7460 – 2,101
Py	GS7456 – 4,048	GS7456 - 2171
	GS7457 – 4,008	GS7457 - 2098
	GS7458 – 4,060	GS7458 - 2223
	GS7459 – 4,060	GS7459 - 2206

	GS7460 – 4,325	GS7460 - 2242
Paccess	GS7456 – 3,776	GS7456 – 2,025
	GS7457 – 3,738	GS7457 – 1,957
	GS7458 – 3,787	GS7458 – 2,073
	GS7459 – 3,787	GS7459 – 2,058
	GS7460 – 4,034	GS7460 – 2,091
Tp,y	1.56	1.49
TR,y	29.09%	0.71
Tusage	1. (Unpaid) Domestic work (includes cooking and caring for family members) – 82%	1. (Unpaid) Domestic work (includes cooking and caring for family members) – 100%
	2. Income generating activities – 64%	2. Income generating activities – 92%
	3. Religious activities – 96%	3. Religious activities – 93%
	4. Social and leisure activities – 80%	4. Social and leisure activities – 93%
	5. Voluntary activities – 76%	5. Voluntary activities – 91%
	6. Education and training – 48%	6. Education and training – 1%
	7. Other (Specify) – 0%	7. Other (Specify) – 0%
Qp,cleanboil,y	0	0
Qp,rawboil, y	0	0
Quality of Treated Water	pass	pass
Qp,y	N/A	N/A
Up,y	95%	95%
Np,y	GS7456 – 667,172	GS7456 – 666,301
	GS7457 – 569,066	GS7457 – 596,867
	GS7458 – 673,717	GS7458 – 770,825
	GS7459 – 616,964	GS7459 – 718,758
	GS7460 – 507,650	GS7460 – 764,498
LEp,y	0	0
fNRB,i,y	0.86	0.86
WASH	Conducted successfully	Conducted successfully
Community Maintenance Training	Conducted successfully	Conducted successfully

Corruption cases arisen from project	0	0
--------------------------------------	---	---

D.4. Implementation of sampling plan

The project proponent has elected to cross-sample technologies across VPA boreholes in the Lundazi project area. The samples for the surveys analysed below are randomly selected from the borehole information databases using the RSG procedure previously explained in Section C in line with the minimum sample size requirements as defined by the methodology, and cover VPA, borehole and household levels. The random sampling procedure is as follows.

Annual Monitoring

Following 90/30 precision, achieved using Raosoft Sample Size Calculator, it was determined that 7/50 communities needed to be surveyed for annual monitoring. . The 7 communities were selected by generating a random list of numbers on the Research Randomizer online resource and selecting the first 7. A list was then generated of the borehole users in the 7 selected borehole communities, and these were ordered according to a new random list of numbers, again generated using Research Randomizer. The aggregate list was then reordered according to random number and the first 100 users selected for the Project Survey and Usage Survey, which were conducted between 21/04/2022 and 27/04/2022. 20 of the selected borehole users served as a buffer group to survey if anyone was unavailable. Data collected is outlined below and in the Project & Usage Survey Report tabs. Relevant analysis can be found in the Emission Reduction Calculation excel documents.

The surveys were conducted within the end date of the monitoring period of the VPAs.

Project survey – The results of the project survey revealed that all respondents used the borehole as their main source of water and did not to treat water to make it safe as it is not necessary. The prevalence of stomach related illnesses/ water-borne diseases had decreased since the baseline study with 97% of respondents stating that they never suffered from problems, compared to only 5% in the baseline survey.

All respondents stated that the project had saved them time, through the shorter distance to the water source (29%), less time spent waiting at the water source (71%). Time saved was spent on unpaid domestic work (82%), income generating activities (64%), religious activities (96%), social and leisure activities (80%), voluntary activities (76%) and education and training (1%).

Usage survey – The results of the Usage Survey revealed that the borehole was the main source of water for drinking, basic personal hygiene and food preparation for 99% respondents and that the water collected was sufficient for these uses. Water was also used to wash clothes and utensils by some respondents.

Water Quality Testing

During this Monitoring Period (MP3) all 106 boreholes underwent water quality testing to ensure the boreholes were delivering clean water in line with national standards, with testing undertaken by the Zambian Ministry of Health.

In February 2022, all 50 boreholes were tested for water quality, meeting the methodological requirement that each borehole should be tested once per year.

Parameters outlined in the Zambian National Water Standards were tested and results were analyzed by the Zambia Ministry of Health.

From the results, 27 boreholes failed to meet all requirements within the national standards and underwent professional treatment and retesting to improve and verify the good water quality. Evidence of this has been uploaded at Verification Review.

SECTION E. CALCULATION OF SDG IMPACTS

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

SDG 3 (Good Health and Wellbeing)

The outcome for SDG 3 is quantified as the additional number of persons consuming safe water in the project activity compared to the baseline scenario (P_{safe}). The number of persons using each borehole is determined in the sensitization process during the rehabilitation. The percentage of users who were already consuming

safe water in the baseline without boiling it (C_j) is determined through the baseline survey and deducted. Additionally, the percentage of users who consumed safe water by boiling it in the baseline ($P_{b,boil}$) is deducted. Calculations are as follows:

$$P_{safe} = P_y * (1 - C_j) * (1 - P_{b,boil})$$

$$GS7456: 3793 = 4048 * (1 - 0.0182) * (1 - 0.0455)$$

$$GS7457: 3756 = 4008 * (1 - 0.0182) * (1 - 0.0455)$$

$$GS7458: 3805 = 4060 * (1 - 0.0182) * (1 - 0.0455)$$

$$GS7459: 3805 = 4060 * (1 - 0.0182) * (1 - 0.0455)$$

$$GS7460: 4053 = 4325 * (1 - 0.0182) * (1 - 0.0455)$$

Baseline value = the number of people consuming safe water in the baseline scenario. This estimated value is calculated using the baseline survey and project database user lists.

GS7456: 136

GS7457: 132

GS7458: 140

GS7459: 139

GS7460: 141

Where:

C_j Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it. Derived from the baseline survey as 0.0182.

$P_{b,boil}$ Percentage of persons boiling water for purification in the baseline scenario. Derived from the baseline survey as 0.45.

SDG 5 (Gender Equality)

By ensuring that there is a safe water source at the centre of communities, the projects have 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 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. Time spent collecting firewood is also decreased as the provision of safe water removes the need to boil water to purify. The decrease per household in time spent collecting water and firewood will be taken as a proxy contribution towards the SDG target.

The overall reduction in time spent collecting water and firewood by the project activity are then calculated as follows:

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

$$GS7456-60: 0.64 = (2.2 - 1.56)/2.2 = 29.09\%$$

Baseline value = time spent collecting water and firewood in the baseline scenario. This figure was calculated using the baseline survey.

$$GS7456-60: 2.2 \text{ hrs}$$

Where:

$T_{b,y}$ Time spent collecting water and firewood per household per day prior to project (hours). Derived from the baseline survey as 2.2 hours.

SDG 6 (Clean Water and Sanitation)

The outcome for SDG 6 is quantified as the additional number of persons having access to safe water in the project activity compared to the baseline scenario (P_{access}). The number of persons using each borehole is determined in the sensitization process during the rehabilitation. The percentage of users who were already consuming safe water in the baseline without boiling it (C_j) will be determined through the baseline survey. Calculations are as follows:

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

$$GS7456: 3776 = 4048 * (1 - 0.0182) * 0.95$$

$$GS7457: 3738 = 4008 * (1 - 0.0182) * 0.95$$

$$GS7458: 3787 = 4060 * (1 - 0.0182) * 0.95$$

$$GS7459: 3787 = 4060 * (1 - 0.0182) * 0.95$$

$$GS7460: 4034 = 4325 * (1 - 0.0182) * 0.95$$

Baseline value = the number of people with access to safe water in the baseline scenario. This estimated value is calculated using the baseline survey and project database user lists.

$$GS7456: 146$$

$$GS7457: 141$$

$$GS7458: 150$$

$$GS7459: 148$$

$$GS7460: 151$$

Where:

C_j Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it. Derived from the baseline survey as 0.0182.

SDG 13 (Climate Action)

CO2 emission reductions are the indicator to demonstrate that the project has raised capacity for effective climate change-related planning and management. This outcome is measured using the VPA's emission reductions calculations.

Baseline Emissions ($BE_{b,y}$)

$$Beb,y = Bb,y * ((fNRBy * EF_{v,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel}$$

$$GS7456: 3,810 = 2,309 * ((0.86 * 112) + 9.46) * 0.0156$$

$$GS7457: 2,765 = 1,676 * ((0.86 * 112) + 9.46) * 0.0156$$

$$GS7458: 3,273 = 1,984 * ((0.86 * 112) + 9.46) * 0.0156$$

$$GS7459: 2,998 = 1,817 * ((0.86 * 112) + 9.46) * 0.0156$$

$$GS7460: 2,467 = 1,495 * ((0.86 * 112) + 9.46) * 0.0156$$

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

Where:

$N_{j,y}$ Number of person.days consuming water supplied by project scenario p through year y.

C_j Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.

$B_{b,y}$ Quantity of fuel consumed in baseline scenario b during year y in tons.

$Q_{p,y}$ Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day.

$Q_{p,rawboil,y}$ Quantity of raw water boiled in the project scenario p per person per day.

$W_{b,y}$ Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y, as per Baseline Water Boiling Test.

Derived in the ex-antes submitted at validation.

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

SDG 3 (Good Health and Wellbeing)

P_y Number of persons having access to safe water in the project activity. Calculated from the household (HH) lists of the waterpoints, including the ER Calculation spreadsheet.

GS7456 – 4,048

GS7457 – 4,008

GS7458 – 4,060

GS7459 – 4,060

GS7460 – 4,325

SDG 5

$T_{p,y}$ Time spent collecting water and firewood per household per day in project (hours). Taken from Q14 of the Project Survey.

GS7456-60: 1.56

SDG 6

P_y Number of persons having access to safe water in the project activity. Calculated from the household (HH) lists of the waterpoints, including the ER Calculation spreadsheet.

$U_{p,y}$ Usage rate in project scenario p during year y. Taken from cell C143 (Report Sheet) of the Usage Survey (capped at 95%).

$U_{p,y}$ is 95% for all VPAs.

SDG 13

Project Emissions ($PE_{b,y}$)

$$PE_{p,y} = B_{p,y} * ((f_{NRBy} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$$

Where:

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

$$GS7456: 0 = (1 - 0.0182) * 667,172 * 0.0004 * (0 + 0)$$

$$GS7457: 0 = (1 - 0.0182) * 569,066 * 0.0004 * (0 + 0)$$

$$GS7458: 0 = (1 - 0.0182) * 673,717 * 0.0004 * (0 + 0)$$

$$GS7459: 0 = (1 - 0.0182) * 616,964 * 0.0004 * (0 + 0)$$

$$GS7460: 0 = (1 - 0.0182) * 507,650 * 0.0004 * (0 + 0)$$

Npy Number of person days consuming water supplied by project scenario p through year y

Cj Expressed as a percentage, this is the portion of users of the project technology j or who in the baseline were already consuming safe water without boiling it

Bpy Quantity of fuel consumed in project scenario p during the year y in tons

Qp,rawboil,y Quantity of raw water boiled in the project scenario p per person per day

Qp,cleanboil,y Quantity of safe water boiled in the project scenario p per person per day

Wp,y Quantity of wood fuel or fossil fuel in tons required to treat 1 litre of water using technologies representative of the project scenario p during project year y.

Derived in the ex-ante submitted at validation.

E.3. Calculation of leakage

In line with the monitoring requirements, a leakage assessment is conducted biennially and has therefore been included in this report. The potential sources of leakage listed in the methodology have been investigated, and addressed below:

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

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

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

There is no evidence to suggest significant (if any) use of renewable energy for purifying water in the project region as found in the Baseline Water Surveys. Renewable energy used for purifying water would likely be animal dung or crop residues which will be used due to ease of availability/proximity to the home rather than due to a shortage of wood fuel, therefore it is an independent factor. This leakage source can therefore be discounted.

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

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

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

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

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

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

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
3	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	People consuming safe or boiled water	People consuming safe water	Additional people consuming safe water
		GS7456: 136	GS7456: 3,793	GS7456: 3,657
		GS7457: 132	GS7457: 3,756	GS7457: 3,624
		GS7458: 140	GS7458: 3,805	GS7458: 3,664
		GS7459: 139	GS7459: 3,805	GS7459: 3,666
		GS7460: 140	GS7460: 4,053	GS7460: 3,913
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. This is calculated through the amount of time saved	2.2 hours collecting water and firewood (across all VPAs)	1.56 hours collecting water and firewood (across all VPAs)	29.09% reduction in time spent collecting water and firewood (across all VPAs)

collecting water and firewood.

	People already with access to safe water	People gaining access to safe water	Additional people with access to safe water
6	By 2030, achieve universal and equitable access to safe and affordable drinking water for all. This is calculated through the additional number of persons having access to safe water	GS7456: 146	GS7456: 3,776
		GS7457: 141	GS7457: 3,738
		GS7458: 150	GS7458: 3,787
		GS7459: 148	GS7459: 3,787
		GS7460: 151	GS7460: 4,034
13	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. Calculated through total project emissions reductions	GS7456: 3,550	GS7456: 0
		GS7457: 2,576	GS7457: 0
		GS7458: 3,050	GS7458: 0
		GS7459: 2,792	GS7459: 0
		GS7460: 2,298	GS7460: 0
		tCO2e emitted	tCO2e emitted
			Reduced emissions (tCO2e)

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

SDG	Values estimated in ex ante calculation of approved PDD	Actual values ¹ achieved during this monitoring period
-----	---	---

¹ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

for this monitoring period		
3	GS7456: 2,166	GS7456 – 3,793
	GS7457: 2,166	GS7457 – 3,756
	GS7458: 2,166	GS7458 – 3,805
	GS7459: 2,166	GS7459 – 3,805
	GS7460: 2,166	GS7460 – 4,053
	additional persons consuming safe water	additional people consuming safe water
5	0.5 hours	29.09%
	reduction in time spent collecting water and firewood (across all VPAs)	reduction in time spent collecting water and firewood (across all VPAs)
6	GS7456: 2,041	GS7456 – 3,776
	GS7457: 2,041	GS7457 – 3,738
	GS7458: 2,041	GS7458 – 3,787
	GS7459: 2,041	GS7459 – 3,787
	GS7460: 2,041	GS7460 – 4,034
	persons with access to safe water across all VPAs	additional people with access to safe water
13	GS7456: 9,414	GS7456: 3,550
	GS7457: 9,414	GS7457: 2,576
	GS7458: 9,414	GS7458: 3,050
	GS7459: 9,414	GS7459: 2,792
	GS7460: 9,414	GS7460: 2,298
	Each VPA Capped at 10,000 tCO ₂ e (capped)	Reduced emissions (tCO ₂ e)
	(Pre BAMG changes)	

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

All values in the ex-ante column above are those from the approved PDD.

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

SDG 3

Positive contributions to SDG 3 have been achieved.

SDG 5

Positive achievements have been achieved during MP3, exceeding the estimated contributions to SDG 5 estimated in the PDD.

SDG 6

Some VPAs have exceeded and some fallen short against the estimated contributions to SDG 6. The underachieving VPAs can be attributed to the introduction of the BAMG changes capping user numbers. Positive contributions to SDG 6 have still been achieved.

SDG 13

The SDG 13 achievements during MP3 fall short of the estimated contributions due to introduction of the BAMG changes and the water quality issues which have reduced the crediting days.

SECTION F. SAFEGUARDS REPORTING

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Monitoring
1 Human Rights	a. The Project Developer and the Project shall respect internationally proclaimed human	No	The project will adhere to all human rights requirements including	During all trainings, it will be emphasised that project beneficiaries

	rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. b. The Project shall not discriminate with regards to participation and inclusion.		respecting internationally proclaimed human rights and Universal Declaration of Human Rights and will not discriminate in any way.	should support vulnerable or less mobile community members to access water
2 Gender Equality and Women's Rights	The Project shall not directly or indirectly reinforce gender-based discrimination and shall not lead to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive): (a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including	No	The burden on the whole community of travelling far to collect water and gather firewood for water purification will be	SDG 5 $T_{p,y}$ $TR_{,y}$ The time spent collecting wood fuel is monitored in the project survey. The project aims to reduce the burden on the whole community of traveling far to collect wood and in particular to women who perform the majority of unpaid domestic work.

	sexual exploitation or human trafficking.		reduced. This will also mitigate the social isolation of spending a long time collecting these resources	
	(b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	No	The project will decrease the drudgery by reducing time spent on water and firewood collection	
	(c) Restriction of women's rights or access to resources (natural or economic).	No	The project will increase women's access to resources such as water by making safe water available in the community. The project will increase women's ability to use, develop and protect natural resources by making safe water more readily available and enabling women to participate in project decision-making.	
	(d) Recognise women's ownership	No	The project will decrease the	

	rights regardless of marital status – adopt project measures where possible to support to women’s access to inherit and own land, homes, and other assets or natural resources. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically: (a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.		workload of women in collecting water and firewood, thereby allowing more time to engage in other activities.	
		Yes	Equal participation of women and men in decision making will be encouraged by promoting their equal membership on water point committees (WPCs). These WPCs will be trained to facilitate the participation of members depending on their specific circumstances. They will also assist all communities	

			members to provide feedback on the project, regardless of their situation.	
	(b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.	Yes	The project aims to benefit the whole community equally and women's equal participation in the LSC and water point committees is encouraged	
	(c) Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits.	Yes	The project will encourage equal participation of men and women.	
	3.2.3 The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	Yes	The analysis of the project is in line with the country gender strategy is in section A.8. of the PDD	
3 Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect	Yes	The project will reduce the community exposure to water borne illness	SDG 3, 6 and 13 Np,y Qp,y Qp,cleanboil,y

	the health of the workers and the community.		through the provision of a safe water source, and will reduce the risk of household air pollution by removing the need for households to boil water for purification.	Quality of Treated Water P_{safe} P_{access} $P_{,y}$ $P_{p,y}$ Incidences of water borne illnesses are monitored through the annual Monitoring Project Survey. A WASH programme is carried out by the project including WASH training at the beginning of the project, as well as subsequent WASH follow-up training
4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or	No	The project area does not include sites or structures of historic and cultural value. Project activities do not compromise historic, cultural or religious practices.	

	practices)?			
4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project will not impact the physical or economic relocation of peoples. The focus of the project is rehabilitating and installing water point infrastructure only.	
4.3 Land Tenure and Other Rights	Does the Project require any change to land tenure arrangements and/or other rights?	No	The project will not impact on land tenure arrangements or rights.	
4.4 Indigenous Peoples	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project will take place on land owned either by the county government or by local people for which their permission will first be sought.	
5 Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	The project shall ensure that all forms of corruption are avoided. Project beneficiaries are able to contact the project developer and implementer	

			through the continuous grievance mechanism to report any form of corruption.	
6.1 Labour Rights	The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard. Child labour, as defined by the ILO Minimum Age convention is not allowed. The Project Developer shall use adequate and verifiable mechanisms	No No	The project will adhere to labour laws and requirements The projects will not use child labour	

	for age verification in recruitment procedures. Exceptions are children for work on their families' property as long as: (a) Their compulsory schooling (minimum of 6 schooling years) is not hindered, AND (b) The tasks they perform do not harm their physical and mental development, AND (c) The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the project design.			
6.2 Negative Economic Consequences	Does the project cause negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?	Yes	The project is not expected to have any negative economic impacts or cause any risks.	To ensure long term sustainability of the water points, and avoid unexpected breakdowns and spending, training was conducted at the beginning of the project on conducting minor maintenance. The project is expected to benefit all

				members of the community
7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	Yes	The project will reduce greenhouse gas emissions compared to the baseline scenario.	SDG 13 The ERs are monitored during the MP. During this MP a large number of emission reductions were achieved
7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	Only hand pumped boreholes that use no electricity are included in the project. The project will reduce fuel use due to reducing the need for water purification by boiling	
8.1 Impact on natural water patterns/flows	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	There will be no significant change in the volume of water consumed by the households.	
8.2 Erosion and/or water body instability	Could the Project directly or indirectly cause additional erosion and/or water	No	The water is taken from boreholes at household usage levels. Therefore	

	body instability or disrupt the natural pattern of erosion?		it is extremely unlikely that there will be additional erosion and/or water body instability or disruption of the natural pattern of erosion.	
9.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	No	No crops or other products will be produced in the project.	
9.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	There will be no impact by the project to natural disasters.	
9.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	No GMOs will be used in the project and the boreholes would not be affected by GMOs as they are all protected.	
9.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	As safe ground water is used, there is no risk or releasing	

			pollutants to the environment.	
9.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project does not deal with hazardous or non-hazardous chemicals and/or materials.	
9.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	No pesticides and/or fertilisers will be used in the project.	
9.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	As the project reduces the consumption of firewood, there is a positive impact on forests.	
9.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project has no impact on the quantity or nutritional quality of food.	
9.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The project will not involve animal husbandry.	
9.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The project rehabilitates water points and decreases the consumption of firewood, having a positive impact on conserving forest ecosystems.	

9.11 Endangered Species	Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?	No	The project is not envisaged to have any impact on their habitat as it only affects borehole infrastructure.	
	Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	The project only impacts borehole infrastructure and does not impact other areas where endangered species are present.	

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

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

No inputs or grievances were received during the monitoring period.

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

No stakeholder mitigations were agreed to be monitored during the monitoring period.

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

No legal contests or disputes arose during the monitoring period.

Revision History

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