Gold Standard
for the Global Goals

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

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

GS ID of Programme	GS1247
Title of Programme	GS1247 Improved Kitchen Regimes Multi-Country PoA
Version of POA-DD applicable to this monitoring report	10
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	GS1247 VPA 2 Kole BH, Uganda (GS1359); GS1247 VPA 3 Otuke BH, Uganda (GS2479); GS1247 VPA 4 Dokolo BH, Uganda (GS2480); GS1247 VPA 5 Alebtong BH, Uganda (GS2481); GS1247 VPA 43 AOD BH, Uganda (GS4260)

Key Project Information

GS ID (s) of Project (s)	GS 7132 GS 7133 GS 7134 GS 7135 GS 7136 GS 7470 GS 7471 GS 7472 GS 7473 GS 7474
Title of the project (s) covered by monitoring report	GS1247 VPA 159 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7132) GS1247 VPA 160 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7133) GS1247 VPA 161 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7134) GS1247 VPA 162 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7135) GS1247 VPA 163 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7136) GS1247 VPA 198 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7470)

	GS1247 VPA 199 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7471) GS1247 VPA 200 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7472) GS1247 VPA 201 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7473) GS1247 VPA 202 Improved Kitchen Regimes Manica Province Safe Water (Mozambique) (GS7474)
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	GS 7132: Version 5 GS 7133: Version 5 GS 7134: Version 5 GS 7135: Version 5 GS 7136: Version 5 GS 7470: Version 5 GS 7471: Version 5 GS 7472: Version 5 GS 7473: Version 5 GS 7474: Version 5
Version number of the monitoring report	Version 4
Completion date of the monitoring report	09/11/2021
Date of project design certification	04/12/2019
Date of Last Annual Report	20/03/2021
Monitoring period number	MP2
Duration of this monitoring period	All VPAs: 01/07/2020 – 30/06/2021
Project Representative	Emma Donnachie, CO2balance UK Ltd Matthew Pike, CO2balance UK Ltd
Host Country	Republic of Mozambique
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	TPDDTEC v.1

Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved		Units/ Products
SDG 3 Good Health and Well-being	Additional people consuming safe water	GS 7132 GS 7133 GS 7134 GS 7135 GS 7136 GS 7470 GS 7471 GS 7472 GS 7473 GS 7474	1546 1548 1548 1536 1374 1432 1548 1405 1248 1548	Number of people
SDG 5 Gender Equality	Variation of time spent on firewood and water collection	GS 7132 GS 7133 GS 7134 GS 7135 GS 7136 GS 7470 GS 7471 GS 7472 GS 7473 GS 7474	0.65 0.65 0.65 0.65 0.65 0.65 0.65 0.65 0.65 0.65	Hours
SDG 6 Clean Water and Sanitation	People gain access to safe water	GS 7132 GS 7133 GS 7134 GS 7135 GS 7136 GS 7470 GS 7471 GS 7472 GS 7473 GS 7474	2259 2262 2262 2245 2008 2092 2262 2054 1825 2262	Number of People
SDG 13 Climate Action	Emissions Reduction	GS 7132 GS 7133 GS 7134 GS 7135 GS 7136 GS 7470	3291 3314 3254 3254 2830 3025	tCO2e

	GS 7471	3313
	GS 7472	3009
	GS 7473	2663
	GS 7474	3302

Table 2 – Product Vintages

GS7132

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/07/2020	31/12/2020	1644
01/01/2021	30/06/2021	1647

GS7133

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1665
01/01/2021	30/06/2021	1649

GS7134

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1664
01/01/2021	30/06/2021	1649

GS7135

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1653
01/01/2021	30/06/2021	1601

GS7136

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1366
01/01/2021	30/06/2021	1464

GS7470

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1538
01/01/2021	30/06/2021	1487

GS7471

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1664
01/01/2021	30/06/2021	1649

GS7472

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1511
01/01/2021	30/06/2021	1498

GS7473

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1343
01/01/2021	30/06/2021	1320

GS7474

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/01/2020	31/12/2020	1664
01/01/2021	30/06/2021	1638

SECTION A.

DESCRIPTION OF PROJECT

A.1. General description of project

>> The Micro-Scale VPA Manica Province Safe Water project is eligible under the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1.0. The project will support the provision of safe water using borehole technology to hundreds of households within Manica Province, Mozambique. 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.

Manica Province is a largely rural province where 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 - this can be avoided if a technology that does not require fuel (wood or fossil) supplies clean water desired by households.

Many existing boreholes were established by community groups or community based organizations (CBOs) and have fallen into disrepair because maintenance programmes have been poorly managed, or proven too expensive. CO2balance will be working in partnership with British NGO, Village Water, that operate in Manica Province. CO2balance and Village Water will work with a local NGO and communities in Manica Province to identify communities in need of a safe water source, where boreholes will be installed; and identify broken down boreholes which will be rehabilitated, so that communities have reliable access to clean, safe water. 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. The depth of the boreholes will be limited to 100m or less.

CO2balance and Village Water rehabilitated the boreholes and deliver the maintenance programme for all the boreholes included in the project activity to ensure that the quality of the water delivered by the boreholes is fit for human consumption for the entire length of the project, which will be a minimum of five years.

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.

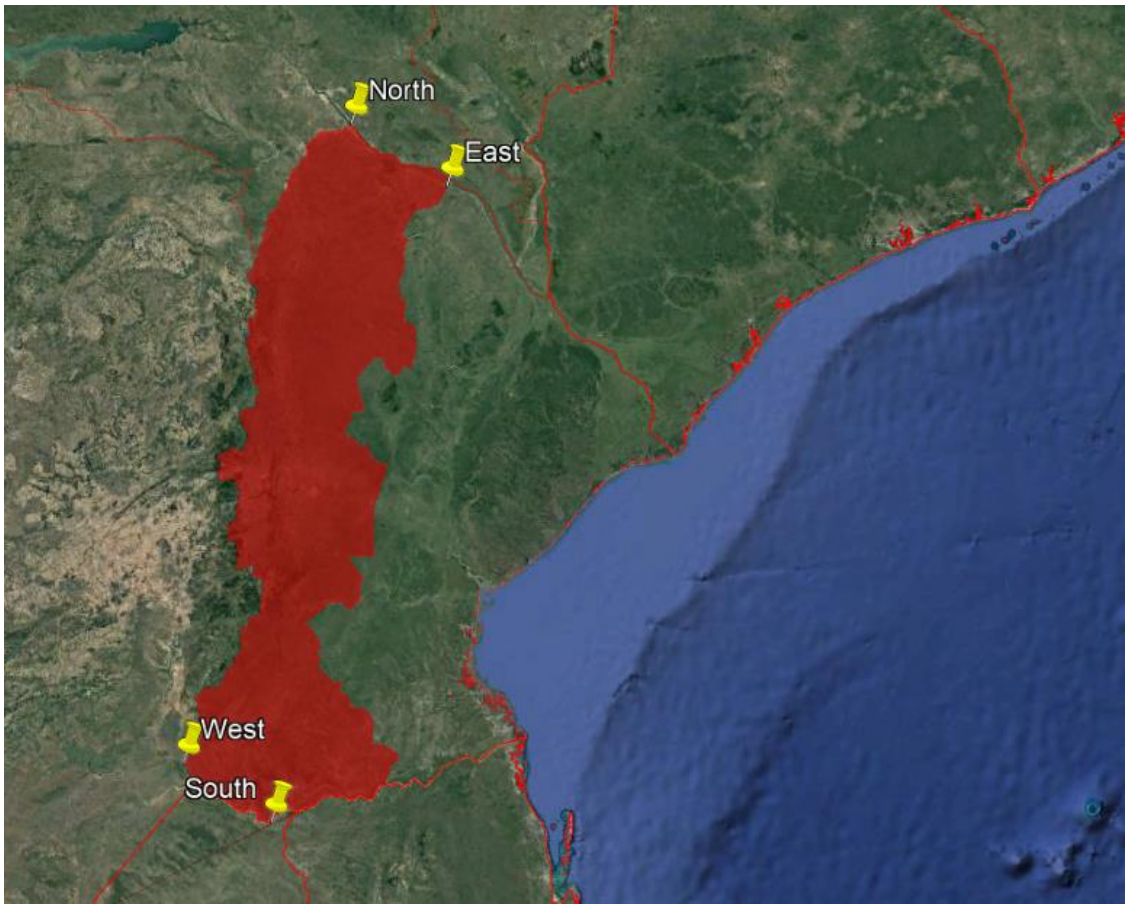
The date of rehabilitation was confirmed by a Repair Confirmation Form which was signed by the mechanic carrying out the repair along with a village administrator from the local community. The date of rehabilitation was used as the start date of operation

and crediting for each borehole; we have conservatively assumed that the first day of crediting is not counted.

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

A.2. Location of project

Below are details of the physical location to allow unique identification of the project. The Manica Province is marked in red on the Google Earth image. 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	16°23'7.12"S	33°47'4.90"E
South	21°35'9.51"S	33° 4'3.46"E
East	16°51'59.19"S	34°32'5.72"E
West	21° 8'12.18"S	32°22'0.32"E

The following tables provide details on the villages served by the project, with exact coordinates for the boreholes provided. All villages are within the project boundary shown in figures 1 and 2 above.

In total 79 boreholes were rehabilitated as part of this project between 09/04/2019 and 09/11/2019. The type of pump used for all boreholes rehabilitated is Afridev. The date, location and number of people served by each borehole are given in the table below, users have been capped as per 300 in the accompanying ER spreadsheet calcs, which forms the project database:

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People

GS7132	CHI00037	Piloto	-19.09237	33.45235	04/07/2019	37	362	300
	CHI00035	Tembwe	-19.09674	33.45179	18/06/2019	43	500	300
	CHI00104	7 de Abril Gondola	-19.08440	33.65195	06/11/2019	70	615	300
	CHI00088	Bela Vista	-19.07361	33.64040	28/10/2019	49	395	300
	CHI00077	Canhonda	-19.14404	33.60716	31/08/2019	68	409	300
	CHI00080	Eduardo Mondlane	-19.08385	33.64104	05/11/2019	73	486	300
	CHI00112	Nhamudima	-19.06856	33.65429	08/11/2019	79	619	300
	CHI00089	Bengo	-19.0748	33.61197	31/10/2019	58	297	297
						Total	**3683**	**2397**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7133	CHI00096	Josina Machel Gondola	-19.07487	33.64281	28/10/2019	43	399	300
	CHI01320	Kaboi	-19.09485	33.65920	31/10/2019	59	370	300
	CHI00091	Lorena	-19.08017	33.63955	31/10/2019	44	342	300
	CHI00086	Mazicuera	-19.06846	33.64551	06/11/2019	93	720	300
	CHI00087	Muarewa	-19.12447	33.66368	25/10/2019	49	314	300
	CHI00081	Mucessua	-19.09820	33.65368	04/11/2019	63	460	300
	CHI00079	Muda	-19.09620	33.63219	31/10/2019	51	483	300
	CHI00042	Nhanvudza	-19.12872	33.55352	30/09/2019	54	391	300
						Total	**3479**	**2400**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7134	SUS01087	Madudu	-19.96708	33.28041	14/05/2019	93	469	300
	SUS00023	Magaro	-19.99864	33.34983	13/08/2019	93	422	300
	SUS01091	Maquawaio	-19.81408	33.31582	15/05/2019	55	417	300
	SUS01086	Maquina	-19.89499	33.32814	16/05/2019	93	354	300
	SUS00009	Matongua	-19.78916	33.35101	13/08/2019	89	491	300
	SUS00008	Mucombe School	-19.96610	33.42887	01/08/2019	72	314	300
	SUS01094	Sanguene School	-19.78273	33.37957	15/05/2019	89	392	300
	CHI00045	1 de Junho	-19.15235	33.49361	29/08/2019	41	308	300
						Total	**3167**	**2400**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7135	SUS01093	Zinguena School	-19.75378	33.43212	15/05/2019	76	412	300
	CHI00014	1 de Maio	-19.13857	33.49353	30/05/2019	93	511	300
	CHI00018	7 de Abril	-19.13181	33.48763	07/06/2019	43	404	300

	SUS01090	Sanguene	-19.80505	33.35534	13/05/2019	83	282	282
	CHI00011	Agostinho Neto-A	-19.05764	33.44803	28/05/2019	68	501	300
	CHI00012	Agostinho Neto-B	-19.05821	33.45269	09/04/2019	65	454	300
	CHI00013	Francisco Manyanga	-19.13316	33.49320	29/05/2019	93	506	300
	CHI00033	Venceremos	-19.10029	33.56519	30/08/2019	93	424	300
						Total	**3494**	**2382**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7136	CHI00044	Nhaware	-19.10658	33.56184	28/08/2019	52	239	239
	CHI00060	Nhazvicandua	-19.16176	33.58943	02/09/2019	41	227	227
	CHI00046	Noia	-19.09442	33.54620	30/08/2019	39	213	213
	CHI00069	Tique - Tique 1	-19.19661	33.64714	13/09/2019	60	398	300
	CHI00061	Tique Tique Mutongoro	-19.17309	33.64537	11/09/2019	46	252	252
	CHI00076	25 de Junho Gondola	-19.09015	33.65378	14/10/2019	44	642	300
	CHI00075	Ingomai	-19.19928	33.61838	07/10/2019	93	1181	300
	CHI00085	Mussatua	-19.07690	33.66292	25/10/2019	51	374	300
						Total	**3526**	**2131**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS740	CHI00015	Agostinho Neto C	-19.06293	33.45356	31/05/2019	40	200	200
	CHI00070	Bandasse	-18.94938	33.65519	03/10/2019	37	410	300
	CHI00055	Dewe Thaimo	-19.07087	33.57418	18/09/2019	38	220	220
	CHI00048	Ganhira 2	-19.04268	33.61429	12/09/2019	45	375	300
	CHI00057	Joia	-19.11312	33.60173	12/09/2019	39	574	300
	CHI00078	Madzimatchena	-18.87143	33.79787	05/10/2019	52	454	300
	CHI00021	7 de Septembro	-19.10175	33.48210	30/05/2019	93	561	300
	CHI00111	Samora Machel	-19.09515	33.65109	08/11/2019	49	421	300
						Total	**3215**	**2220**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7471	CHI00110	Chiguma	-19.08573	33.64915	07/11/2019	45	763	300
	CHI00020	Josina Machel	-19.11065	33.48895	31/05/2019	43	471	300
	CHI00022	Nhauriri	-19.12497	33.51149	30/05/2019	67	408	300
	CHI00019	Stanha	-19.19635	33.49797	31/05/2019	83	509	300
	CHI00034	Bairro 5	-19.13065	33.47536	07/09/2019	41	324	300
	CHI00038	Boque	-19.02842	33.55170	10/09/2019	49	446	300

	CHI00049	Chipfinha	-19.05964	33.54753	03/09/2019	38	338	300
	CHI00084	Pipeline	-19.08598	33.65787	06/11/2019	68	472	300
						Total	**3731**	**2400**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7472	CHI00068	25 de Setembro Cafumpe	-19.16650	33.53528	30/09/2019	93	689	300
	CHI00036	Chissui Rupongue	-19.20639	33.41531	17/06/2019	56	669	300
	CHI00058	Choco	-19.00328	33.57215	21/09/2019	67	570	300
	CHI00067	Cuzuana	-19.10456	33.56854	28/08/2019	42	451	300
	CHI00051	Matole	-19.07813	33.52862	02/09/2019	24	127	127
	CHI00039	Mudzingadzi	-19.12433	33.49071	13/06/2019	49	437	300
	CHI00041	Muedziwagara	-19.27214	33.63377	31/08/2019	50	252	252
	CHI00047	Maguiguana	-19.15154	33.57014	31/08/2019	59	325	300
						Total	**3520**	**2179**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7473	CHI00040	Mandore	-19.31628	33.62574	09/09/2019	37	397	300
	CHI00074	Mucorodzi	-18.94132	33.74749	30/09/2019	62	607	300
	CHI00052	Dewe	-19.06896	33.58206	17/09/2019	34	264	264
	CHI00050	Mudododo	-19.20521	33.67286	23/09/2019	32	444	300
	CHI00062	Muteme	-18.93991	33.77539	05/10/2019	68	738	300
	CHI00073	Mutocoma	-19.23120	33.62382	11/10/2019	52	552	236
	CHI00056	Nhambandua	-19.17515	33.61004	23/09/2019	34	236	236
						Total	**3238**	**1936**

GS ID	Borehole ID	Village	Latitude	Longitude	Rehabilitation Date	No. HHs	No. People	Capped No. People
GS7474	CHI00053	Nhatsanga	-18.98586	33.60566	20/09/2019	36	369	300
	CHI00043	Mudima	-19.02680	33.65944	26/09/2019	93	413	300
	CHI00082	Nhachoco	-19.10467	33.66599	23/10/2019	51	382	300
	CHI00059	Sarilhe	-19.05027	33.57682	17/09/2019	40	392	300
	CHI00113	Nhamuenga	-19.10273	33.64898	09/11/2019	43	310	300
	CHI00097	Paco	-19.04602	33.67706	01/11/2019	42	356	300
	CHI00092	Panga-Panga	-19.07745	33.65385	28/10/2019	62	348	300
	CHI00072	Hombwa	-19.15211	33.41388	14/10/2019	73	429	300
						Total	**3000**	**2400**

A.3. Reference of applied methodology

>> This project utilises the Gold Standard Methodology 'Technologies and Practices to Displace Decentralized Thermal Energy Consumption v1'.

A.4. Crediting period of project

>> The date of rehabilitation was used as the start date of operation. It was conservatively assumed that the first day of crediting is not counted and the crediting period begins the following day after the borehole is rehabilitated. The length of the crediting period is 5 years as per the approved PDD.

The start dates for the projects, and crediting periods, are as follows:

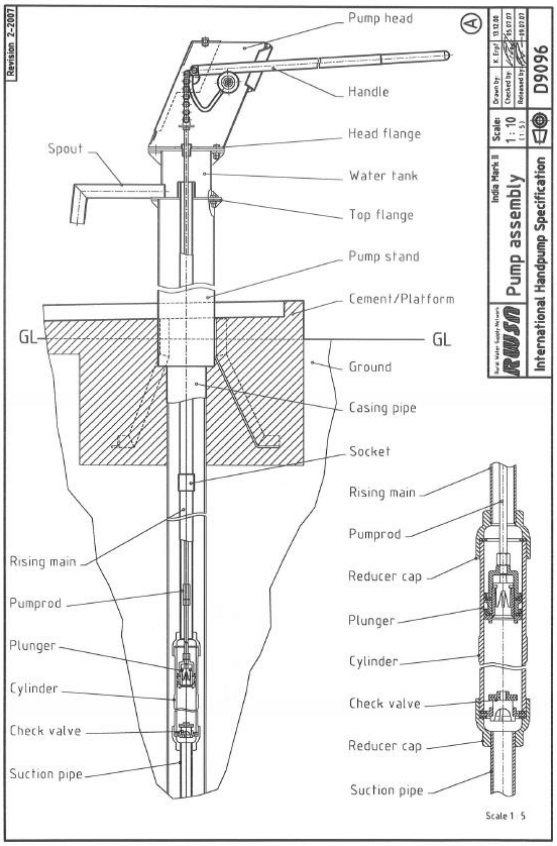
Project ID	Crediting Period Start Date	Crediting Period End Date
7132	19/06/2019	19/06/2024
7133	01/10/2019	01/10/2024
7134	15/05/2019	15/05/2024
7135	10/04/2019	10/04/2024
7136	29/08/2019	29/08/2024
7470	31/05/2019	31/05/2024
7471	31/05/2019	31/05/2024
7472	14/06/2019	14/06/2024
7473	10/09/2019	10/09/2024
7474	18/09/2019	18/09/2024

IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

CO2balance and Village Water have rehabilitated 79 boreholes as part of these VPAs. The boreholes are in working order but a few of them went through some technical problems and didn't produce safe water while they were not functional; the non-functional days have been discounted from the ERs.

Hand pump specifications:



Examples of the Afridev Handpump and India Mark II

Technical Specifications:

	Afridev	**India Mark II**
Cylinder Diameter (mm)	50	63.5
Maximum Stroke (mm)	225	125

Approx. discharge at about 75 watt input (m3/h)	At 10m head 1.4	at 10 m head 1.8
	At 15 m head 1.1	at 15 m head 1.3
	At 20m head 0.9	at 20 m head 1.0
	At 30m head 0.7	at 30 m head 0.8
Pumping Lift (m)	10-45	10-50
Water Consumption (litres per capita)	15-20	15-20

Borehole Functionality

Village Water (CO2balance in-country project partner) are the main contact for all water point committees which exist for every borehole. If there are any problems with borehole functionality, the water resource committee will contact Village Water to inform them:

- For major repairs, Community Water committee reports the problem to the local partner, who contacts the technicians; the technicians visit the site and conduct a technical assessment and repairs if possible, if they need extra materials they arrange for a time to revisit and carry out the maintenance. When the cause of the pump malfunction is a major problem and a technician is needed, the maintenance forms are signed by the technician, by a member of the Water Committee and by a representative of the project.

If the breakdown is minor, the community looks after the repair themselves: a local pump minder will assess the problem and get the parts. The costs are covered with the fees paid by the members of the community. The community informs the local partner stating the problem, the non-functional days and the details of the repairs done, and should report the work and cost In the log-books. When the cause of breakdown is minor and the community enacts the repair, the form is signed by a representative of the project as the community usually informs our local partner of the problem and parts repaired via phone.

Village Water inform CO2balance when the borehole is not functional. The non-functional days are then discounted in the PTDs and the ERs are not accredited for those days.

A full breakdown of all boreholes that underwent any maintenance during this MP has been supplied in the accompanying Emissions Reductions spreadsheet under the specified maintenance section. This details all works required, carried out, date from reported first break down to repair as well as whether the repair was carried out by the community or project partner/technician. An additional down day has been added to all total down days per repair for added conservativeness.

Water Quality Testing

All boreholes undergo annual water quality testing to ensure the water is safe for human consumption as per Mozambique national water standards.

Feedback Mechanisms

Grievance log-books are placed at boreholes and any feedback received during this monitoring period from the borehole users on damage or breaking of boreholes through telephone and verbal reports will be reported. The feedback/grievance mechanisms were discussed during the LSC so that all relevant stakeholders are aware of the processes in place for reporting any issues.

B.1.1. Forward Action Requests

Verification Review:

Forward Action Request # 1:

The monitoring survey forms include no signatures from interviewer and interviewee. The PP shall request the surveyors and interviewee to sign to demonstrate the validity of the forms. The PP shall also submit the photos of boreholes during monitoring survey to ensure that the boreholes are still operating.

During times of COVID the decision was made that it was not safe to be handing round the same device for digital signature. As such the interviewer has digitally signed each form- as evidenced from the uploaded project and usage survey samples scans uploaded previous round.

This approach will continue to be followed whilst COVID remains a threat as it is not deemed safe or responsible to be passing the same mobile device and/or pen for signatures.

Forward Action Request # 2:
The PP shall survey the average volume with photos of water containers that the household use for collecting the water from boreholes and how the people transported the water from boreholes to their houses.

This request has been met; PP has uploaded evidence of water transportation and storage from a sample of households from different project boreholes
The updated SustainCERT approved Usage Survey used this MP also captures figures of total containers used.

Forward Action Request # 3:
For future usage surveys, the PP shall ensure to record specific details regarding the borehole used by the users.

The new improved SC approved Usage Survey now captures Borehole ID, the name of the Borehole and additional space for comments for any specific detail.

Performance Review:
Forward Action Request # 1: PD to update their usage survey format to capture seasonality and supply a copy for SustainCERT approval prior to conducting the study.
The usage survey has been updated and approval has been given by SustainCERT.

Forward Action Request # 2: Forward Action Request # 2: PD to provide full transparency on maintenance programme roles and responsibilities. This should include: the process of recording and reporting all faults/breakdowns and when a borehole starts working again. It should also include a summary of all planned annual maintenance tasks and the downtime expected.
The Roles and Responsibilities documentation has been supplied this verification MP which outlines the recording and reporting process for faults and breakdowns. Furthermore, the template of our project logbooks (and translation) has been supplied which details the preventative weekly, quarterly, and annual maintenance procedures

undertaken by both the community and technician during quarterly and annual follow ups. Whilst these checks are important and require access to the pump, they do not result in any significant down time. Where a fault is found requiring repair, this would trigger the usual repair process which would then result in down days being recorded.

Forward Action Request # 3: Future monitoring reports must have % total borehole downtime (and days) recorded transparently in Project Technology Days parameter box for each VPA.
This request has been met.

Forward Action Request # 4: Pump efficiency is to be monitored quarterly in future and subject to an Objective Observer assessment at next issuance.
Quarterly pump efficiency measures supplied in ER sheet.

B.2. Post-Design Certification changes

>> N/A

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

>> N/A

B.2.2. Bandesse and Francisco Mayanga were down at the time of WQTs and as a result no WQT was conducted at the time. They were both fixed after the MP end (29/07/21 and 30/07/21) at which point WQT tests were taken to ensure safe water was being delivered post-repair. These down days have been removed from the ER calcs and laid out in detail in the 'Maintenance tab' of the accompanying ER spreadsheet and their WQT results post repair submittedCorrections

>> 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

>> These VPAs transitioned to GS4GG. The Monitoring Plan was therefore updated from including Sustainable Development Indicators to monitoring impacts and contributions towards the Sustainable Development Goals as per the approved

Transition Annex.

The Wp,y and Wb,y value has changed for this monitoring period and will remain as a permanent change. Previous monitoring periods used a measured baseline value obtained from the Baseline Water Boiling Test. However, the recent update to the parameters means a cap has now been introduced which has been applied to this project for this monitoring period- considering the firewood required to boil 1 litre of water for 10 minutes using a three stone fire (0.4 kg/L).

Updates have been made to parameter EF (Non-CO2 (CH4 and N2O emission factor arising from use of wood fuel in baseline scenario) with previous AR4 values applied to 2020 vintage, but as new rule update came into force on 01/01/2021, 2021 vintage have been calculated with the updated AR5 value in the corresponding parameter box.

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

The Project and Usage Survey are deployed via mobile devices, where all the answers are securely stored online. The results of the surveys are then downloaded and collated in Excel spreadsheets and stored on a central server in an electronic format.

The Water Consumption Field Test (WCFT) survey is carried out on paper and all the original copies are retained in the office and are scanned upon request of the UK team. The results of the surveys are collated 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 and data entry error.

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 will be backed up electronically, with original documentation being stored in the appropriate office for the respective VPAs.

The project database will be derived from the Installation Record, with project technologies differentiated by different project scenarios (if required).

All data collected in relation to the project will be 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

- **Water Consumption Field Test (WCFT):** The Water Consumption Field Test was carried out on a randomly selected sample of 40 households from the project database in Manica province. This complies with the recommended minimum sample size of 30 in the Gold Standard requirements. Furthermore, the sample confidence interval is within 10% of the mean.

  The test was carried out over a period of four days (1 day preparation and 3 days measurement) following a similar method as the Kitchen Performance Test, and all tests were conducted between 18/03/2020 – 31/03/2020. The total litres of water consumed each day was measured and divided by the number of people consuming water in that day – this measurement was repeated over 3 consecutive days and an overall average per household was calculated. The results showed that on average 8.53 litres of non boiled clean water used only for drinking, hand washing and food preparation (capped at 7.5l) and 0 litres of boiled clean water is consumed per person per day.

  The total amount of water credited for in this monitoring period is equal to the average amount of clean non-boiled water consumed per person per day (7.5l), minus the average amount of boiled clean water consumed per person per day (0).

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.

- **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 Mozambique national standards. The parameters used to assess the water quality will be in line with Mozambique 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 will be installed within 1 year of the start of the crediting period and are expected to last the lifetime of the project, minimum samples of 30 for different aged technologies will not be necessary. The annual usage survey is conducted using a minimum sample size of 100. During this monitoring period the Usage Survey was conducted between 04/03/2021 – 15/03/2021 and found a usage rate of 99%, which has been capped at 95%.

  The updated and approved Usage Survey also captures average litres collected from the borehole per household across seasons- used to gain an average litres per user figure. This MP the project recorded an average (considering rainy and dry seasons) of 11.63 per capita (112.9 per HH).

  Additionality storage capacity in the home is surveyed in the Usage Survey, with an average of 115.6 recorded this MP.

- **Project Survey** – Conducted annually to survey end users currently using project technologies in order to explore changes in project scenario over time. The annual project survey is conducted using a minimum sample size of 100. Individual participants were selected from the borehole user data base using the random sampling process outlined in the monitoring plan. Sample sizes are in line with the Gold Standard requirements. During this monitoring period the Project Survey was conducted between 04/03/2021 – 15/03/2021. Data collected during the project surveys explores the following characteristics:

  - General information – Name, address, telephone number etc
  - Household socio-demographic information
  - Water use and purification characteristics
  - Sources and availability of fuel
  - Time use and time saved information
  - Hygiene and Sanitation practices In the Household

- **Project Technology Days (Np,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 crediting days each borehole earns in this monitoring period. The total number of households using each borehole will be determined through information supplied by our 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. The following caps are applied:
  - 95% functionality in the monitoring period.
  - Treatment Capacity. Calculations to cap people served, capped at 300 users on this occasion, by each borehole can be found in corresponding emissions reductions calculation spreadsheets.

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

Double Counting

To avoid double counting during the monitoring period the project has not been included in any other voluntary or compliance standards programmes, and dual certification has not been sought. As the project area contains multiple VPAs double counting has further been avoided through the unique identification of each water point along with GPS coordinates.

fNRB

Below is described the method used to develop the fraction of non-renewable biomass (fNRB) for Mozambique in line with the Annex 1 section A.1.3 of the TPDDTEC v.1.

The source of data is the Global Forest Resources Assessment Reports for the years 2015 and 2020 from FAO.

As the Carbon Living biomass related to forest shows a decrease from 2015 to 2020, the following condition is observed: (a) Survey results, national or local statistics, studies, maps or other sources of information such as remote sensing data show that carbon stocks are depleting in the project area thus the approach described in the Annex 1 section A.1.3 of the TPDDTEC v.1 is applicable.

a. *fNRB = NRB / (NRB + DRB)*
86% = 100,152,498/ (100,152,498+ 16,262,285)

where:
fNRB = Fraction of non-renewable biomass in the country (%)
NRB = Quantity of non-renewable biomass in the country (t/yr)
DRB = Demonstrably Quantity of renewable biomass in the country (t/yr). The approach satisfies the following condition regarding DRB:

Condition 1 - The woody biomass is originating from land areas that are forests where:
(a) The land area remains a forest; and
(b) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and
(c) Any national or regional forestry and nature conservation regulations are complied with.

b. *NRB = R - DRB*
100,152,498= 116,414,783 - 16,262,285

And

c. *R = MAI + ΔF*
116,414,783= 85,759,936 + 30,654,847

And

d. *MAI = F * GR*

*85,759,936 = 36,743,760 * 2.33*

Where:

R = Total annual biomass removals in the country (t/yr)

MAI = Mean Annual Increment of biomass growth (t/yr)

ΔF = Annual change in living forest biomass (t/yr)

F = Extent of forest (ha)

GR = Annual Growth rate of biomass (t/ha-yr)

e. *DRB = PA * GR*

*16,262,285 = 6,967,560 * 2.33*

Where:

PA = Protected Area Extent of Forest (ha)

DATA AND PARAMETERS

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

>>

SE

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$EF_{b,co2}$
Unit	tco_2/TJ
Description	co_2 emission factor arising from use of fuels in baseline scenario
Source of data	IPCC default value, EFDB Emission Factor Database. Accessible: https://www.ipcc-nggip.iges.or.jp/EFDB/main.php
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology.
Purpose of data	Calculation of baseline emissions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$EF_{b,\ non\text{-}co2}$
Unit	tCO_2/TJ
Description	Non-CO_2 emission factor arising from use of wood-fuel in baseline scenario (2020)
Source of data	IPCC Default emissions factor, EFDB Emission Factor Database. Accessible: https://www.ipcc-nggip.iges.or.jp/EFDB/main.php
Value(s) applied)	8.692

<table>
<tr><td>Choice of data or measurement methods and procedures</td><td>Deemed valid by methodology.
<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>25</td><td>7,500</td><td>7.5000</td></tr>
<tr><td>N₂O</td><td>4</td><td>298</td><td>1,192</td><td>1.1920</td></tr>
<tr><td></td><td></td><td></td><td>Total</td><td>8.692</td></tr>
</table></td></tr>
<tr><td>Purpose of data</td><td>Calculation of emission reductions</td></tr>
<tr><td>Additional comments</td><td>AR4 values are being applied to 2020 vintage as rule update came into force on 01/01/2021[1]. https://globalgoals.goldstandard.org/standards/RU-2020-PR-V1.2-GWP-values.pdf</td></tr>
</table>

<table>
<tr><td>Relevant SDG Indicator</td><td>SDG 13.B.1 (Climate Action)</td></tr>
<tr><td>Data/parameter:</td><td>EF_{b,non co2}</td></tr>
<tr><td>Unit</td><td>tCO₂e/TJ</td></tr>
<tr><td>Description</td><td>Non-CO2 (CH4 and N2O) emission factor arising from use of wood fuel in baseline scenario</td></tr>
<tr><td>Source of data</td><td>IPCC Default emissions factor, EFDB Emission Factor Database. Accessible: https://www.ipcc-nggip.iges.or.jp/EFDB/main.php</td></tr>
<tr><td>Value(s) applied)</td><td>9.460</td></tr>
<tr><td>Choice of data or measurement methods and procedures</td><td>Deemed valid by Methodology
<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>8,400</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>9.460</td></tr>
</table></td></tr>
</table>

Purpose of data	Calculation of emission reductions.
Additional comments	AR5 values applied to 2021 vintage

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$EF_{p,co2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of wood fuel in project scenario
Source of data	Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology.
Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$EF_{p,non\ co2}$
Unit	tCO_2e/TJ
Description	Non-CO2 (CH4 and N2O) emission factor arising from use of wood fuel in project scenario
Source of data	IPCC Default emissions factor, EFDB Emission Factor Database. Accessible: https://www.ipcc-nggip.iges.or.jp/EFDB/main.php
Value(s) applied)	9.460

Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculation of emission reductions.
Additional comments	-

Gas	Default Emissions factor (kg_gas/TJ_{NCV})	GWP of gas	Default Emissions factor (kg_CO_2e/TJ_{NCV})	Default Emissions factor (t_CO_2e/TJ_{NCV})
CH_4	300	28	8,400	8.4000
N_2O	4	265	1,060	1.060
			Total	**9.460**

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

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

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.2 (Good Health and Well-Being)
Data/parameter:	$W_{b,y}$
Unit	T/litre
Description	Quantity of wood fuel that is used to treat 1 litre of water in the baseline scenario b during year y
Source of data	Baseline Water Boiling Test
Value(s) applied)	0.0004
Choice of data or measurement methods and procedures	The baseline water boiling test is used to determine the amount of wood used to purify 1 litre of water by boiling. This data is gathered according to: *Technologies and Practices to Displace Decentralized Thermal Energy Consumption* Version 1*, Draft General Guidelines On Sampling And Surveys*; EB37 Annex 27; and *Standard For Sampling And Surveys For CDM Project Activities and Programme of Activities* (Version 02); EB65 Annex 2
Purpose of data	Calculation of emission reductions and impact on SDG 3.
Additional comments	

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.2 (Good Health and Well-Being)
Data/parameter:	$W_{p,y}$
Unit	T/litre
Description	Quantity of wood fuel that is used to treat 1 litre of water in the project scenario p during year y
Source of data	Baseline Water Boiling Test
Value(s) applied)	0.0004
Choice of data or measurement methods and procedures	The baseline water boiling test is used to determine the amount of wood used to purify 1 litre of water by boiling. This data is gathered according to: *Technologies and Practices to Displace Decentralized Thermal Energy Consumption* Version 1*, Draft General Guidelines On Sampling And Surveys*; EB37 Annex 27; and *Standard For Sampling And Surveys For CDM Project Activities and Programme of Activities* (Version 02); EB65 Annex 2
Purpose of data	Calculation of emission reductions.
Additional comments	

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	Cj
Unit	Percentage
Description	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply.
Source of data	Baseline study.
Value(s) applied)	0.79%
Choice of data or measurement methods and procedures	The portion of safe water users is determined though the baseline project survey and refers to the number of users that already use safe water from water sources such as boreholes. Deemed valid by Methodology.
Purpose of data	Calculation of emission reductions and SDG 6 impact.
Additional comments	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	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)	14.29%
Choice of data or measurement methods and procedures	Suppressed demand will be determined through a set of questions in the project survey that establish the method households use to purify their water, if any, and how they would choose to purify if they were not subject to monetary and access barriers. This is in line with the Gold Standard principles of suppressed demand outline in annex 2. A fixed suppressed demand baseline has been opted for, however, in the event the project surveys show a substantial change in fuel use characteristics, a new baseline shall be conducted.
Purpose of data	Calculation of emission reductions.
Additional comments	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	$T_{b,y}$
Unit	Hours
Description	Time spent collecting firewood per household per day prior to project
Source of data	Baseline survey
Value(s) applied)	3.67

Choice of data or measurement methods and procedures	Measured by question in the baseline survey.
Purpose of data	Calculating time saved collecting water by project.
Additional comments	-

D.2. Data and parameters monitored

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Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	fNRB,i,y
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Measured/calculated/default	N/A
Source of data	The data used for the assessment are obtained from the "Global Forest Resources Assessment Reports" for the years 2015 and 2020 from FAO. http://www.fao.org/forest-resources-assessment/past-assessments/fra-2015/country-reports/en/ http://www.fao.org/forest-resources-assessment/fra-2020/country-reports/en/
Value(s) of monitored parameter	0.86
Monitoring equipment	Desk study
Measuring/reading/recording frequency:	Ongoing
Calculation method (if applicable):	fNRB = NRB / (NRB + DRB) 86% = 100,152,498/ (100,152,498 + 16,262,285) where: fNRB = Fraction of non-renewable biomass in the country (%) NRB = Quantity of non-renewable biomass in the country (t/yr) DRB = Demonstrably Quantity of renewable biomass in the country (t/yr). The approach satisfies the following condition regarding DRB:
QA/QC procedures:	The fNRB assessment has been done in line with Annex 1 section A.1.3 of the TPDDTEC v.1. both condition 1 (p.31) and a (p.31) are satisfied.
Purpose of data:	Calculation of emission reductions.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$N_{p,y}$
Unit	Project Technology Days
Description	Number of persons consuming water supplied by project scenario p through year y

Measured/calculated/default	N/A
Source of data	Borehole Project Database
Value(s) of monitored parameter	GS7132 – 826,546 Down Days: 97 (7%) GS7133 – 832,200 Down Days: 71 (5%) GS7134 – 832,200 Down Days: 37 (3%) GS7135 – 817,145 Down Days: 171 (12%) GS7136 – 710,582 Down Days: 204 (14%) GS7470 – 760,461 Down Days: 108 (7%) GS7471 – 832,200 Down Days: 10 (0%) GS7472 – 755,568 Down Days: 19 (1%) GS7473 – 671,308 Down Days: 26 (1%) GS7474 – 832,200 Down Days: 26 (2%)
Monitoring equipment	Project Database
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Sum of the total number of people using each borehole in the project multiplied by the number of days crediting each borehole earns in a given monitoring period. A 95% functionality cap is implemented on all BHs claiming functionality above this figure to be conservative. Where below 95% functionality is present, the true value is used to calculate the Project Technology Days. PTDs are also further capped as a result of a 300 user cap during this MP.
QA/QC procedures:	N/A
Purpose of data:	Calculation of emission reductions.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p through year y
Measured/calculated/default	N/A
Source of data	Usage Survey
Value(s) of monitored parameter	99% (capped at 95%)
Monitoring equipment	Usage Survey
Measuring/reading/recording frequency:	Annual

Calculation method (if applicable):	The usage survey has been carried out by trained local staff 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.
QA/QC procedures:	N/A
Purpose of data:	Calculation of usage.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.2 (Good Health and Well-Being)
Data/parameter:	$Q_{p,y}$
Unit	Litres per person per day
Description	Quantity of safe water supplied in the project scenario p during the year y using the zero or low emissions clean water supply technology
Measured/calculated/default	7.5
Source of data	Water Consumption Field Test (WCFT)
Value(s) of monitored parameter	8.53 (capped at 7.5)
Monitoring equipment	WCFT Survey
Measuring/reading/recording frequency:	Biennial
Calculation method (if applicable):	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. Volume is capped at 7.5 litres per person per day as per the methodology. The WCFT will be carried out by trained local staff 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.
QA/QC procedures:	N/A
Purpose of data:	Calculation of emission reductions.
Additional comments:	

Relevant SDG Indicator	SDG 13.B.1 (Climate Action), SDG 3.9.2 (Good Health and Well-Being)
Data/parameter:	$Q_{p,cleanboil,y}$
Unit	Litres per person per day
Description	Quantity of safe water boiled in the project scenario p during the year y using the zero or low emissions clean water supply technology
Measured/calculated/default	N/A
Source of data	Water Consumption Field Test (WCFT)
Value(s) of monitored parameter	0

Monitoring equipment	WCFT Survey
Measuring/reading/recording frequency:	Biennial
Calculation method (if applicable):	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT has been carried out by trained local staff to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
QA/QC procedures:	N/A
Purpose of data:	Calculation of emission reductions.
Additional comments:	

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$Q_{p,rawboil,\ y}$
Unit	Litres per person per day
Description	The raw of unsafe water that is still boiled after installation of the water treatment technology
Measured/calculated/default	N/A
Source of data	Water Consumption Field Test (WCFT)
Value(s) of monitored parameter	0
Monitoring equipment	WCFT Survey
Measuring/reading/recording frequency:	Biennial
Calculation method (if applicable):	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT has been carried out by trained local staff to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
QA/QC procedures:	N/A
Purpose of data:	Calculation of emission reductions.
Additional comments:	

Relevant SDG Indicator	SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	Quality of Treated Water
Unit	Parameters as per national standards[2]:

Description	Performance of the treatment technology
Measured/calculated/default	Measured
Source of data	Laboratory Tests
Value(s) of monitored parameter	Pass
Monitoring equipment	Laboratory equipment
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	The District Service for Planning and Infrastructure/ Serviço Distrital de Planeamento e Infraestrutura (SDPI) has certified each water supply is in line with national standards.
QA/QC procedures:	Laboratory checks by multiple staff
Purpose of data:	To test water quality for safety of human consumption.
Additional comments:	-

Relevant SDG Indicator	SDG 13.B.1 (Climate Action)
Data/parameter:	$LE_{p,y}$
Unit	tCO2e per year
Description	Leakage in project scenario p during year y
Measured/calculated/default	0
Source of data	Baseline and Monitoring surveys
Value(s) of monitored parameter	0
Monitoring equipment	Desk based research
Measuring/reading/recording frequency:	Completed every two years
Calculation method (if applicable):	Assessed every two years using baseline and monitoring surveys.
QA/QC procedures:	N/A
Purpose of data:	Calculation of leakage.
Additional comments:	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	$T_{p,y}$
Unit	hours
Description	Project time spent collecting firewood per household per day (hours)
Measured/calculated/default	0
Source of data	Project Survey
Value(s) of monitored parameter	2.60 hours
Monitoring equipment	Project Survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using Project Survey

QA/QC procedures:	N/A
Purpose of data:	Calculation of SDG 5.
Additional comments:	-

Relevant SDG Indicator	SDG 6.1.1 (Clean Water and Sanitation), SDG 3.9.2 (Good Health and Well-Being)
Data/parameter:	P,y
Unit	Number of people
Description	Number of persons having access to safe water in the project activity
Measured/calculated/default	0
Source of data	Usage Survey and Household List
Value(s) of monitored parameter	GS7132: 2397 GS7133: 2400 GS7134: 2400 GS7135: 2382 GS7136: 2131 GS7470: 2220 GS7471: 2400 GS7472: 2179 GS7473: 1936 GS7474: 2400
Monitoring equipment	Project Database/Household List
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using Project Survey, Usage Survey and Household list
QA/QC procedures:	N/A
Purpose of data:	Calculation of SDG 6 and SDG 3
Additional comments:	-

Relevant SDG Indicator	SDG 3.9.2 (Good Health and Well-Being)
Data/parameter:	P_{safe}
Unit	Number
Description	Number of additional persons having access to safe water in the project activity compared to the baseline scenario
Measured/calculated/default	Calculated
Source of data	Project Database/Household list; Usage Survey

Value(s) of monitored parameter	GS 7132: 1546 GS 7133: 1548 GS 7134: 1548 GS 7135: 1536 GS 7136: 1374 GS 7470: 1432 GS 7471: 1548 GS 7472: 1405 GS 7473: 1248 GS 7474: 1548
Monitoring equipment	Project Database/Household list; Usage Survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using the Project Database and Usage Survey
QA/QC procedures:	N/A
Purpose of data:	Calculation of SDG 3
Additional comments:	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	Usage of time saved on firewood collection
Unit	%
Description	Uses of time saved which was previously spent on firewood collection
Measured/calculated/default	Measured
Source of data	Project Survey
Value(s) of monitored parameter	Unpaid domestic work – 99% Income generating activities – 96% Religious activities – 91% Social and leisure activities – 96% Voluntary activities – 78% Education and training – 59% Other (Specify) – 0%
Monitoring equipment	Project Survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Percentage of Project Survey respondents
QA/QC procedures:	N/A
Purpose of data:	To quantify how time which was previously spent on firewood collection is now being used
Additional comments:	-

Relevant SDG Indicator	SDG 6.1.1 (Clean Water and Sanitation)
Data/parameter:	P_{access}
Unit	Number of people
Description	Number of additional persons having access to safe water in the project activity compared to the baseline scenario
Measured/calculated/default	Calculated
Source of data	Project Survey and baseline survey
Value(s) of monitored parameter	GS7132: 2259 GS7133: 2262 GS7134: 2262 GS7135: 2245 GS7136: 2008 GS7470: 2092 GS7471: 2262 GS7472: 2054 GS7473: 1825 GS7474: 2262
Monitoring equipment	Project Survey, Usage Survey and Household list
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using the Project Database and Usage Survey
QA/QC procedures:	N/A
Purpose of data:	Calculation of SDG 6
Additional comments:	-

Relevant SDG Indicator	SDG 5.4.1 (Gender Equality)
Data/parameter:	$TR_{,y}$
Unit	hours
Description	Total reduction in time spent collecting firewood and water per day for project activity in year y
Measured/calculated/default	Calculated
Source of data	Project Survey and baseline survey.
Value(s) of monitored parameter	0.65 hours
Monitoring equipment	Project Survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Assessed every year using Project Survey. Calculate the average amount of time spent collecting firewood and water in the project scenario and compare to the pre-project scenario

QA/QC procedures:	N/A
Purpose of data:	To quantify whether the project has contributed to a reduction in the amount of time spent collecting firewood compared to the pre-project scenario towards SDG 5 target.
Additional comments:	-

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
$fNRB_{,i,y}$	0.86	0.86
$N_{p,y}$	GS7132: 826546 GS7133: 832200 GS7134: 832200 GS7135: 817145 GS7136: 710582 GS7470: 760461 GS7471: 832200 GS7472: 755568 GS7473: 671308 GS7474: 832200	GS 7132: 776,968 GS 7133: 700,181 GS 7134: 994,905 GS 7135: 1,072,501 GS 7136: 650,279 GS 7470: 759,408 GS 7471: 908,736 GS 7472: 793,602 GS 7473: 647,223 GS 7474: 743,717
$U_{p,y}$	100% (capped at 95%)	100% (capped at 90%)
$Q_{p,y}$	8.53 (capped at 7.5)	8.53 (capped at 7.5)
$Q_{p,cleanboil,y}$	0	0
$Q_{p,rawboil,\ y}$	0	0
Quality of Treated Water	Pass	Pass
$LE_{p,y}$	0	0
$TP_{,y}$	2.60	2.26
P,y	GS7132: 2397 GS7133: 2400 GS7134: 2400 GS7135: 2382 GS7136: 2131 GS7470: 2220 GS7471: 2400 GS7472: 2179 GS7473: 1936	GS 7132: 2993 GS 7133: 2989 GS 7134: 2890 GS 7135: 2906 GS 7136: 2488 GS 7470: 2680 GS 7471: 2976 GS 7472: 2602 GS 7473: 2450

	GS7474: 2400	GS 7474: 2957
P_{safe}	GS 7132: 1546 GS 7133: 1548 GS 7134: 1548 GS 7135: 1536 GS 7136: 1374 GS 7470: 1432 GS 7471: 1548 GS 7472: 1405 GS 7473: 1248 GS 7474: 1548	GS 7132: 1930 GS 7133: 1928 GS 7134: 1864 GS 7135: 1874 GS 7136: 1604 GS 7470: 1728 GS 7471: 1919 GS 7472: 1678 GS 7473: 1580 GS 7474: 1907
Usage of time saved on firewood collection	Unpaid domestic work – 99% Income generating activities – 96% Religious activities – 92% Social and leisure activities – 96% Voluntary activities – 78% Education and training – 60% Other (Specify) – 0%	Unpaid domestic work – 5% Income generating activities – 20% Religious activities – 19% Social and leisure activities – 44% Voluntary activities – 12% Education and training – 0% Other (Specify) – 0%
P_{access}	GS7132: 2259 GS7133: 2262 GS7134: 2262 GS7135: 2245 GS7136: 2008 GS7470: 2092 GS7471: 2262 GS7472: 2054 GS7473: 1825 GS7474: 2262	GS 7132: 2672 GS 7133: 2669 GS 7134: 2580 GS 7135: 2595 GS 7136: 2222 GS 7470: 2393 GS 7471: 2657 GS 7472: 2323 GS 7473: 2188 GS 7474: 2640
TR_y	0.65	1.41

D.4. Implementation of sampling plan

>> Surveys were conducted through use of a Random Sample Group (RSG) in accordance with 90/30 precision. The individual participants surveyed from the RSG

were selected at random from the project database, in accordance with the methodology's minimum sample size requirement for each survey, as detailed in Section D.4.1, D.4.2, and D.4.3 below. All surveys complied with the required precision and are therefore representative of the project area. The project area includes neighbouring Woredas which were found to have homogenous characteristics in household characteristics, water sources and purification methods in the initial baseline studies conducted.

Field staff are provided training prior to monitoring surveys taking place.
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.

D.4.1 Water Consumption Field Test

The Water Consumption Field Test was carried out on a randomly selected sample of 40 households from the project database in Manica province. This complies with the recommended minimum sample size of 30 in the Gold Standard requirements. Furthermore, the sample confidence interval is within 10% of the mean.

The test was carried out over a period of four days (1 day preparation and 3 days measurement) following a similar method as the Kitchen Performance Test, and all tests were conducted between 18/03/2020 – 31/03/2020. The total litres of water consumed each day was measured and divided by the number of people consuming water in that day – this measurement was repeated over 3 consecutive days and an overall average per household was calculated. The results showed that on average 8.53 litres of non boiled clean water used only for drinking, hand washing and food preparation (capped at 7.5l) and 0 litres of boiled clean water is consumed per person per day.

The total amount of water credited for in this monitoring period is equal to the average amount of clean non-boiled water consumed per person per day (7.5l), minus the average amount of boiled clean water consumed per person per day (0).

D.4.2 Usage Survey

The usage survey establishes the proportion of beneficiaries that use the boreholes, a key parameter in the emission reduction calculations. As all the boreholes were installed within 1 year of the start of the crediting period and are expected to last the lifetime of the project, minimum samples of 30 for different aged technologies are not necessary. Therefore, the annual usage survey has been conducted using a minimum sample size of 100.

The usage surveys in this monitoring period were carried out by field staff between the 04/03/2021 – 15/03/2021 in Manica province. The households that participated in the survey were randomly selected from the borehole user lists. The results confirmed that 99% of the respondents and their family members use the boreholes that were rehabilitated by the project.

D.4.3 Project Survey

Project surveys were conducted between 04/03/2021 – 15/03/2021 on 110 randomly selected households from across the VPAs in Manica Province, to explore changes in the project scenario demographics, water use and purification practices etc) over time.

Data collected during the project surveys includes the following:

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

- Time use and time saved information
- Hygiene and Sanitation practices in the households

CALCULATION OF SDG IMPACTS

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

SECTION E.

>> Details of equations and indicators used to estimate baseline values for SDG outcomes are explained below. Calculation is provided in the corresponding Emission Reductions calculations in the 'SDG Calculations' Sheet.

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 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. The baseline indicators are detailed in Section D.1 and are as follows:

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.

$P_{b,\ boil}$ Percentage of persons boiling water for purification in the baseline scenario.

SDG 5 (Gender Equality):

The average decrease in hours per household in time spent gathering firewood ($T_{b,y}$) will be taken as a contribution towards the SDG target. The baseline parameter for time spent collecting firewood per household per day is monitored in the baseline project survey. The baseline indicators are detailed in Section D.1 and are as follows:

$T_{b,y}$ Time spent collecting firewood per household per day prior to project (hours)

$T_{b,y}$ = 3.67 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. The percentage of users who were already consuming safe water in the baseline without boiling it (9) was determined through the baseline survey. The baseline indicators are detailed in Section D.1 and are as follows:

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.

C_j = 0.79%

SDG 13 (Climate Action)

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

Baseline Emissions:

$$BE_{b,y} = B_{b,y} * \left(\left(fNRB_y * EF_{b,fuel,co2} \right) + EF_{b,fuel,nonco2} \right) * NCV_{b,fuel}{}^{3}$$

Example VPA, GS7132: 4,059 = 2,460 * ((0.86 * 112) + 9.46) * 0.0156
See accompanying Emissions Reductions calculations for all VPAs.

Where:

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

Example VPA, GS7132: 2,460 = (1 - 0.0079) * 826,546 * 0.0004 * (7.5 + 0)
See accompanying Emissions Reductions calculations for all VPAs.

Where:

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

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.

$B_{b,y}$ Quantity of fuel consumed in baseline scenario b during the 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 the project year y, as per Baseline Water Boiling Test

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

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

Outcomes for SDG 3 (Good Health and Wellbeing):

The VPAs are premised on generating Emission Reductions by ensuring that water point users have safe water, thereby removing the need for them to burn non-renewable biomass in order to boil water to purify it. Emission reductions are also claimed through the principle of suppressed demand, meaning that some users lacked the resources, time or information necessary to purify their water prior to the project. Therefore, the users for whom ERs are claimed through suppressed demand were forced to use unsafe water for drinking, food preparation and basic personal hygiene prior to the project.

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 calculation is as follows:

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

Example VPA, GS7132: 1,546 = 2,397 * (1 – 0.0079) * (1 – 0.35)

See accompanying Emissions Reductions calculations for all VPAs.

Where:

P_{safe} Number of additional persons consuming safe water in the project activity compared to the baseline scenario.

P_y Number of persons having access to safe water in the project activity.

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.

$P_{b,\ boil}$ Percentage of persons boiling water for purification in the baseline scenario.

Outcomes for SDG 5 (Gender Equality):

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

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

All VPAs: 0.65 = 3.67 – (2.60+0.42)

Where:

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

$T_{b,y}$ Baseline time spent collecting firewood and water per household per day (hours)

$T_{p,y}$ Project time spent collecting firewood and water per household per day (hours)

Outcomes for SDG 6 (Clean Water and Sanitation):

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

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

Example VPA, GS7132: 2,259 = 2,397 * (1 - 0.0079) * 0.95

See accompanying Emissions Reductions calculations for all VPAs.

Where:

P_{access} Number of additional persons having access to safe water in the project activity compared to the baseline scenario.

P_y Number of persons having access to safe water in the project activity.

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.

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

Outcomes for SDG 13 (Climate Action):
CO2e emission reductions are the indicator to demonstrate that the project has raised capacity for effective climate change-related planning and management contributing to SDG 13. The emissions reductions for the current monitoring period can be found in the corresponding Emission reductions excel document and section E.4. below.

E.3. Calculation of leakage

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

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

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

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

c) The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.
As the majority of participants collect wood from within the project boundary, it is not expected that the NRB in other areas will be affected. There are currently no other CDM or VER projects in the project area (defined as Manica Province).

d) The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.
The space heating effect of boiling water for purification purposes will be minimal, as the predominant use of baseline technology is for cooking. Therefore it is highly unlikely that another technology will be used for heating when users no longer boil water.

e) By virtue of promotion and marketing of new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.
This project is not marketing efficient technology; it is eliminating the need for a fuel based technology to deliver pure water. Lower emission technology substitution within households is therefore not possible and this leakage source can therefore be discounted.

Therefore, a value of 0 is applied for leakage.

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
3	Additional people consuming safe water	GS7132: 851 GS7133: 852 GS7134: 852 GS7135: 846 GS7136: 757 GS7470: 788 GS7471: 852 GS7472: 774 GS7473: 688 GS7474: 852	GS7132: 2397 GS7133: 2400 GS7134: 2400 GS7135: 2382 GS7136: 2131 GS7470: 2220 GS7471: 2400 GS7472: 2179 GS7473: 1936 GS7474: 2400	GS 7132: 1546 GS 7133: 1548 GS 7134: 1548 GS 7135: 1536 GS 7136: 1374 GS 7470: 1432 GS 7471: 1548 GS 7472: 1405 GS 7473: 1248 GS 7474: 1548
5	Variation of time spent on firewood collection	3.67 hours spent collecting firewood and water per household per day	3.02 hours spent collecting firewood and water per household per day	0.65 hours saved collecting firewood and water per household per day
6	People gain access to safe water	GS7132: 138 GS7133: 138 GS7134: 138 GS7135: 137 GS7136: 123 GS7470: 128 GS7471: 138 GS7472: 125 GS7473: 111 GS7474: 138	GS7132: 2397 GS7133: 2400 GS7134: 2400 GS7135: 2382 GS7136: 2131 GS7470: 2220 GS7471: 2400 GS7472: 2179 GS7473: 1936 GS7474: 2400	GS 7132: 2259 GS 7133: 2262 GS 7134: 2262 GS 7135: 2245 GS 7136: 2008 GS 7470: 2092 GS 7471: 2262 GS 7472: 2054 GS 7473: 1825 GS 7474: 2262
13	Emissions Reduction tCO2e	GS7132: 3291 GS7133: 3314 GS7134: 3254	GS7132: 0 GS7133: 0 GS7134: 0	GS7132: 3291 GS7133: 3314 GS7134: 3254

	GS7135: 3254 GS7136: 2830 GS7470: 3025 GS7471: 3313 GS7472: 3009 GS7473: 2663 GS7474: 3302	GS7135: 0 GS7136: 0 GS7470: 0 GS7471: 0 GS7472: 0 GS7473: 0 GS7474: 0	GS7135: 3254 GS7136: 2830 GS7470: 3025 GS7471: 3313 GS7472: 3009 GS7473: 2663 GS7474: 3302

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

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[4] achieved during this monitoring period
3	GS 7132: 2260 GS 7133: 2260 GS 7134: 2260 GS 7135: 2260 GS 7136: 2260 GS 7470: 2260 GS 7471: 2260 GS 7472: 2260 GS 7473: 2260 GS 7474: 2260	GS 7132: 1546 GS 7133: 1548 GS 7134: 1548 GS 7135: 1536 GS 7136: 1374 GS 7470: 1432 GS 7471: 1548 GS 7472: 1405 GS 7473: 1248 GS 7474: 1548
	Total: 22600	Total: 14,732 people
5	At least 0.5 hours per trip per household time saved	0.65 hours per trip per household saved

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

6	GS 7132: 3125 GS 7133: 3125 GS 7134: 3125 GS 7135: 3125 GS 7136: 3125 GS 7470: 3125 GS 7471: 3125 GS 7472: 3125 GS 7473: 3125 GS 7474: 3125	GS 7132: 2259 GS 7133: 2262 GS 7134: 2262 GS 7135: 2245 GS 7136: 2008 GS 7470: 2092 GS 7471: 2262 GS 7472: 2054 GS 7473: 1825 GS 7474: 2262
	Total: 31250	Total: 21,531 people
13	All VPAs: 10,000 tCO2e/y **Total: 100,000 tCO2e/y**	GS 7132: 3291 tCO2e GS 7133: 3314 tCO2e GS 7134: 3254 tCO2e GS 7135: 3254 tCO2e GS 7136: 2830tCO2e GS 7470: 3025tCO2e GS 7471: 3313 tCO2e GS 7472: 3009 tCO2e GS 7473: 2663 tCO2e GS 7474: 3302 tCO2e Total: 31,255 tCO2e

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

Ex-ante estimations are derived from ex ante calculations supplied at Internal Validation and Design Review of the Projects. These calculations use a mix of baseline project survey data and assumptions ahead of annual monitoring data collection to estimate SDG impacts for each VPA.

SDG 3: Good Health and Well-Being
In ex ante calculations, 500 users per borehole are assumed. The remaining parameters, Cj and Pb,boil, in the calculation use baseline project survey data and are fixed ex ante, as found in Section D.1. of the MR.

SDG 5: Gender Equality
The parameter Tb,y is estimated using the baseline project survey and is fixed ex ante (Section D.1. of the MR). In order to estimate the reduction in time spent collection firewood (TRy), the ex ante calculations assumed a 0.5 hour reduction for Tp,y. This parameter is monitored annually in the project survey.

SDG 6: Clean Water and Sanitation
In ex ante calculations, 500 users per borehole are assumed as well as a 90% usage rate. The remaining parameter, Cj, is fixed ex ante, as found in Section D.1. of the MR.

SDG 13: Climate Action
The ex ante calculations for SDG 13 use a mix of baseline monitored parameters, methodology caps and figures assumed ahead of data collection. The major difference between ex ante estimates and figures reported in the MR is the reported baseline water boiling test value (used for parameters Wb,y and Wp,y in section D.1. of the MR). In ex ante calculations this was set at 0.00097 tonnes per litre, however this value has subsequently been capped at 0.0004 tonnes per litre in this monitoring period.

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

>> SDG 3: Actual values are below estimates. A max 300 user cap per has been introduced for conservativeness for this monitoring period. User numbers were previously capped at 500.. All project participants now consume safe water without the need to boil. Even those above the cap. Participants are now experiencing fewer illnesses associated with consuming unsafe water.

SDG 5: Actual value slightly exceeds estimate. Time spent collecting firewood and water reduced by 0.65 hours in the project. This presents a reduction in time spent collecting firewood and water compared to the baseline and exceeds the ex-ante estimate of 0.5 (30 minutes) hours saved.

SDG 6: Actual values are below estimates. A 300 user cap has been introduced during this monitoring period which decreases project scenario values.

SDG 13: Estimates exceed actual values. Caps to parameters, namely water boiling test scores and user numbers caps, have decreased the ERs generated in this monitoring period. Positive contributions to SDG13 have been achieved, nonetheless.

SAFEGUARDS REPORTING

>> The Stakeholder Consultation process identified four individual safeguarding principles as relevant to the project, to be included in the monitoring report.

SECTION F.

1. Gender Equality and Women's Rights

Two parameters to be monitored annually were identified. Firstly, the time saved through the collection of firewood, Tp,y, is monitored and presented in Section D.2. of the MR. Secondly, how time saved is used is also monitored annually and this parameter is presented in Section D.2. of the MR. No issues were raised in the monitoring of these two parameters.

2. Corruption

Communities involved in the projects are able to communicate any cases of corruption through the continuous input mechanism established for the projects. No instances of corruption have been reported in the monitoring period.

3. Negative Economic Consequences

Community-orientated trainings on conducting minor maintenance were established at the beginning of the project. All breakdowns are recorded in the monitoring report and average functionality is well above 75%, shows that this initiative has been highly successful. All down days are recorded in Section D.2. of the monitoring report.

4. Community Health, Safety, and Working Conditions

Incidences of water borne illnesses are monitored annually in the monitoring project survey and compared with baseline results. A rate of 0%, as compared to 93% in the baseline shows successful establishment of a clean water supply in the communities.

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.

>> There are multiple methods for stakeholders to give feedback. Continuous input/Grievance Expression Process log books are held at a water point level on which users can comment on.

In addition, a telephone number for the WATSAN in-country office was provided as well as email addresses for the relevant Village Water UK and CO2balance staff and the Gold Standard were provided. All methods of communication were shared with stakeholders during the LSC.

No Stakeholder feedback or comments have been received during this monitoring period.

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

N/A

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

N/A

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