Gold standard for the global goals
Monitoring report

March 2019, version 5

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Title of the project	Kayonza District Borehole Project
Gold Standard project id	GS4897-4901, 5033-6, 5392-6 and 6837-8
Version number of the monitoring report	5
Completion date of the monitoring report	13/03/2019
Date of project design certification	GS4897-4901: 28/06/2017 GS5033-6 and 5392-3 and 5-6: 03/09/2017 GS5394, GS6837 and GS6838: 17/12/18.
Start date of crediting period	GS4897: 15/12/15 GS4898: 19/12/15 GS4899: 10/12/15 GS4900: 19/12/15 GS4901: 18/12/15 GS5033: 18/08/16 GS5034: 25/08/16 GS5035: 19/08/16 GS5036: 16/08/16 GS5392: 10/12/15 GS5393: 12/12/15 GS5394: 01/10/17 GS5395: 20/08/16 GS5396: 17/08/16 GS6837: 01/10/17 GS6838: 01/10/17
Duration of this monitoring period	01/10/17 – 30/09/18
Duration of previous monitoring period	GS4897: 15/12/15 - 30/09/17 GS4898: 19/12/15 - 30/09/17 GS4899: 10/12/15 - 30/09/17 GS4900: 19/12/15 - 30/09/17 GS4901: 18/12/15 - 30/09/17 GS5033: 18/08/16 - 30/09/17 GS5034: 25/08/16 - 30/09/17 GS5035: 19/08/16 - 30/09/17 GS5036: 16/08/16 - 30/09/17 GS5392: 10/12/15 - 30/09/17 GS5393: 12/12/15 - 30/09/17 GS5394: No previous monitoring period GS5395: 20/08/16 - 30/09/17 GS5396: 17/08/16 - 30/09/17 GS6837: No previous monitoring period GS6838: No previous monitoring period
Project representative(s)	Thomas Urry
Host Country	Republic of Rwanda
Certification pathway (activity certification/impact certification)	Impact Certification
SDG Contributions targeted (as per approved PDD)	1 – SDG 3 – Good Health and Wellbeing 2 – SDG 5 – Gender Equality 3 – SDG 6 – Clean Water and Sanitation 4 - SDG 13 – Climate Action

Gold Standard statement/product certification sought (GSVER/ADALYs/RECs etc.)	GSVER
Selected methodology(ies)	TPDDTEC v.1
Estimated amount of annual average certified SDG impact (as per approved PDD)	Estimates for SDGs 3, 5 and 6 were not supplied in the PDD as the project began prior to the transition to GS4GGs. The estimated amounts for SDG 13 were as follows: GS4897: 10,071 tCO2e GS4898: 10,002 tCO2e GS4899: 10,098 tCO2e GS4900: 10,035 tCO2e GS4901: 10,048 tCO2e GS5033: 9,553 tCO2e GS5034: 9,610 tCO2e GS5035: 9,632 tCO2e GS5036: 9,653 tCO2e GS5392: 9,563 tCO2e GS5393: 8,246 tCO2e GS5394: 10,000 tCO2e GS5395: 9,617 tCO2e GS5396: 7,134 tCO2e GS6837: 9,997 tCO2e GS6838: 10,360 tCO2e
Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period	SDG 3- Reduction in exposure to Household Air Pollution due to boiling water: 100% SDG 5- 36.36% reduction in time spent collecting water SDG 6 – 50,334 additional persons with access to safe water SDG 13 – 159,041 tCO2e (total) Breakdown: GS4897: 10,000 tCO2e GS4898: 10,000 tCO2e GS4899: 9,437 tCO2e GS4900: 9,860 tCO2e GS4901: 10,000 tCO2e GS5033: 10,000 tCO2e GS5034: 10,000 tCO2e GS5035: 10,000 tCO2e GS5036: 10,000 tCO2e GS5392: 10,000 tCO2e GS5393: 10,000 tCO2e GS5394: 9,830 tCO2e GS5395: 10,000 tCO2e GS5396: 9,917 tCO2e GS6837: 9,997 tCO2e GS6838: 10,000 tCO2e

SECTION A. Description of project

A.1. Purpose and general description of project

>> (Provide a brief summary of the detailed description given in section B.1 including purpose of the project, brief description of the installed technology and equipment and relevant dates for the project (e.g. construction start/end, commissioning, continued operation periods, etc.)

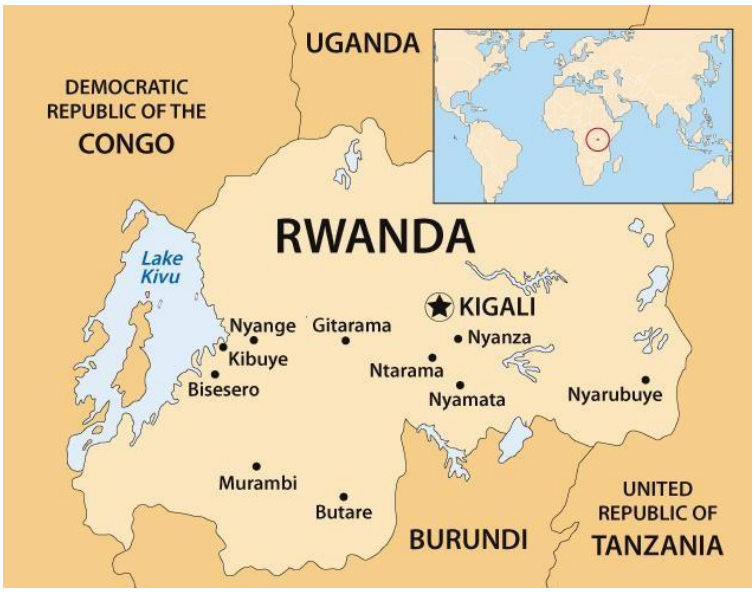
CO2balance is implementing 16 micro-scale VPAs in Kayonza District, Rwanda under the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption. The project activity involves rehabilitating non-functioning boreholes to provide villages with a source of safe water. This displaces the baseline method of water treatment, which involves boiling water using solid fuel. The project activity removes the need of households to rely on firewood and coal to boil water and therefore reduces CO2 emissions.

The 76 boreholes were rehabilitated between 9th December 2015 and 22nd September 2016. The crediting periods for each VPA are given in section A.4 and have a lifetime is 7 years.

A.2. Location of project

>> (Provide host country, state/province, city/town details along with GPS co-ordinates.)

This project is located in Kayonza district in the Eastern Province of Rwanda. Below is the geographic reference to allow unique identification of the project boundary, which is taken as the administrative boundaries of Kayonza district. The target area and the fuel collection area are defined as being contained within project boundary, with the outer limits of the project boundary being clearly defined below. As the majority of beneficiaries collect their wood fuel locally in close proximity to their homesteads, the woodfuel collection area and target area are considered the same.



Map 1 Country map of Rwanda

Continent	Country	Region	District	Sector	Sub-Location	Geographical Reference	
Africa	Rwanda	Eastern Province	Kayonza	N/A	N/A	-1	30.20

A.3. Reference of applied methodology

>>*(Indicate title and version number of the methodology.)*

The applied methodology is Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1 (TPDDTEC).

A.4. Crediting period of project

>> (*Provide start date and length of the crediting period as given in approved PDD.)*

The start date of the crediting periods for each VPA are:
GS4897: 15/12/15
GS4898: 19/12/15
GS4899: 10/12/15
GS4900: 19/12/15
GS4901: 18/12/15
GS5033: 18/08/16
GS5034: 25/08/16
GS5035: 19/08/16
GS5036: 16/08/16
GS5392: 10/12/15
GS5393: 12/12/15
GS5394: 01/10/17
GS5395: 20/08/16
GS5396: 17/08/16
GS6837: 01/10/17
GS6838: 01/10/17

Each crediting period has a length of 7 years, as approved in the PDDs.

SECTION B. Implementation of project

B.1. Description of implemented project

>> (Provide information on the implementation status of the project during this monitoring period. Specify any deviations / delays compared to information in approved project.)

In partnership with Likano Project Development GmbH and Open Circle Investments Pty Ltd, CO2balance UK Ltd is implementing a number of Micro-Scale Voluntary Project Activities under PoA 1247 in the district of Kayonza which are eligible under the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption. Local people typically use wood fuel on inefficient three stone fires for cooking and water purification, which 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.

Kayonza is a largely rural district in which 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 the clean water desired by households. Many existing boreholes are owned by community groups and have fallen into disrepair because maintenance programmes have been poorly managed or proven too expensive. In this project co2balance UK Ltd., Likano Project Development GmbH and Open Circle Investments Pty Ltd work with community groups and a local NGO partner, Rwandans4Water in Kayonza district, to identify broken down boreholes and renovate them so that they deliver clean, safe water and breakdowns are fixed rapidly.

The date of rehabilitation was confirmed by a Repair Confirmation Form, which was signed by the mechanic employed by the local NGO partner, carrying out the repair along with an elected representative of the community group owners of the borehole. 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 totalled to give the total number of project technology days for this monitoring period. In total 76 boreholes were rehabilitated as part of 16 VPAs between the 9th December 2015 and 22nd September 2016. The date of rehabilitation, the project ID, location and number of people served by each borehole is given in the table below, which forms the project database. Each borehole is fitted with an Afridev pump. All households credited for use the water for domestic purposes.

Borehole ID	Date of Rehab	Start of MP	Village	Lat	Long	No. of users
GS4897						
KAY001	14/12/2015	01/10/2017	Gacaca	-1.96262	30.58928	722
KAY003	12/01/2016	01/10/2017	Sabasengo	-1.83532	30.64530	510
KAY004	23/01/2016	01/10/2017	Kayongo	-1.72615	30.50116	704

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KAY005	18/01/2016	01/10/2017	Karagari1	-1.76691	30.45985	710
KAY006	28/12/2015	01/10/2017	Murenge	-1.99200	30.56910	609
					Total	**3,255**
GS4898						
KAY007	18/12/2015	01/10/2017	Kazeneza	-1.96016	30.63001	690
KAY008	23/12/2015	01/10/2017	Kayebe	-1.93774	30.60389	524
KAY010	14/01/2016	01/10/2017	Gakoma1	-1.71212	30.59665	618
KAY011	04/02/2016	01/10/2017	Kigarama	-1.96282	30.6123	799
KAY012	05/01/2016	01/10/2017	Nyamirama	-1.72193	30.49350	583
					Total	**3,214**
GS4899						
KAY013	09/12/2015	01/10/2017	Mbarara1	-1.98270	30.57946	562
KAY014	10/12/2015	01/10/2017	Mbarara2	-1.97353	30.57987	542
KAY016	16/12/2015	01/10/2017	Muganza	-1.96916	30.60157	517
KAY017	04/01/2016	01/10/2017	Rwakabanda	-1.73987	30.54110	595
KAY018	16/01/2016	01/10/2017	Miyaga	-1.71638	30.57076	614
					Total	**2,830**
GS4900						
KAY020	27/12/2015	01/10/2017	Rubirizi	-1.93261	30.58630	629
KAY021	07/01/2016	01/10/2017	Nyagashanga	-1.70768	30.47002	537
KAY023	21/12/2015	01/10/2017	Agashikiri	-2.01766	30.57344	532
KAY024	18/12/2015	01/10/2017	Tubanire	-1.96301	30.62070	686
KAY026	27/01/2016	01/10/2017	Nyakagarama	-1.98541	30.75410	573
					Total	**2,957**
GS4901						
KAY027	17/12/2015	01/10/2017	Seka	-1.95266	30.61045	502
KAY028	29/01/2016	01/10/2017	Kidogo	-1.80158	30.45204	911
KAY029	02/02/2016	01/10/2017	Miyange	-1.88373	30.53494	873
KAY030	13/01/2016	01/10/2017	Rugeyo	-1.85373	30.64898	776
					Total	**3,062**
GS5033						
KAY046	17/08/2016	01/10/2017	Akamina	-1.71311	30.47951	663

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KAY047	05/09/2016	01/10/2017	Kabuga	-1.70845	30.46984	737
KAY049	16/09/2016	01/10/2017	Nyamirama	-1.87426	30.65248	995
KAY050	20/09/2016	01/10/2017	Rugunga	-1.70134	30.48431	990
					Total	**3,369**
GS5034						
KAY051	09/09/2016	01/10/2017	Macuba			903
KAY052	24/08/2016	01/10/2017	Buhabwa	-2.14628	30.98547	1,009
KAY053	13/09/2016	01/10/2017	Mirambi3	-1.81254	30.46528	650
KAY054	06/09/2016	01/10/2017	Karagari2	-1.76785	30.45635	537
					Total	**3,099**
GS5035						
KAY056	18/08/2016	01/10/2017	Karambo2	-1.89521	30.48826	593
KAY057	30/08/2016	01/10/2017	Gacaca (li)	-1.97365	30.59142	1,475
KAY058	31/08/2016	01/10/2017	Gahushyi	-1.97936	30.58942	559
KAY059	21/09/2016	01/10/2017	Rusera	-1.93781	30.60385	646
KAY060	14/09/2016	01/10/2017	Miyaga (li)	-2.12541	30.98562	742
					Total	**4,015**
GS5036						
KAY061	20/08/2016	01/10/2017	Bishenyi	-1.92372	30.67519	508
KAY062	01/09/2016	01/10/2017	Gisenga	-1.81217	30.55215	647
KAY063	15/09/2016	01/10/2017	Nyabombe	-1.83314	30.55137	536
KAY064	20/09/2016	01/10/2017	Rugunga	-1.70134	30.48431	596
KAY066	15/08/2016	01/10/2017	Akabarima	-2.02182	30.49527	762
					Total	**3,049**
GS5392						
KAY033	09/12/2015	01/10/2017	Mbarara1	-1.98635	30.57831	681
KAY035	15/01/2016	01/10/2017	Gakoma2	-1.65021	30.58778	574
KAY036	16/01/2016	01/10/2017	Cyamburara	-1.66442	30.53110	644
KAY037	29/12/2015	01/10/2017	Rwakabanda	-1.73981	30.53758	659
KAY038	26/01/2016	01/10/2017	Buhoro	-2.01003	30.48498	492
					Total	**3,050**
GS5393						

KAY040	11/12/2015	01/10/2017	Mutembo	-1.96710	30.58199	700
KAY041	30/01/2016	01/10/2017	Mirambi3	-1.8258	30.44800	456
KAY042	19/01/2016	01/10/2017	Akabare1	-1.76925	30.46558	690
KAY043	22/12/2015	01/10/2017	Agashikiri	-2.00408	30.57646	555
KAY045	06/01/2016	01/10/2017	Nyamirama	-1.72211	30.49184	609
					Total	**3,010**
GS5394						
KAY002	25/01/2016	01/10/2017	Akarambo	-1.97520	30.47720	733
KAY009	20/01/2016	01/10/2017	Akabare1	-1.76761	30.46153	747
KAY025	28/01/2016	01/10/2017	Karama	-1.81952	30.46258	529
KAY031	31/12/2015	01/10/2017	Rwakabanda	-1.73457	30.53058	430
KAY039	11/12/2015	01/10/2017	Cyingogo	-1.96353	30.58492	509
					Total	**2,948**
GS5395						
KAY067	22/09/2016	01/10/2017	Ryakibanda	-1.89276	30.56093	932
KAY068	19/08/2016	01/10/2017	Bicumbi	-2.00542	30.57723	718
KAY069	29/08/2016	01/10/2017	Byimana	-2.01798	30.57953	715
KAY070	02/09/2016	01/10/2017	Gisunzu	-1.91127	30.68	561
KAY071	07/09/2016	01/10/2017	Karagari2 (li)	-1.76758	30.46654	471
					Total	**3,397**
GS5396						
KAY73	19/09/2016	01/10/2017	Nyanga	-1.7403	30.48826	612
KAY74	12/09/2016	01/10/2017	Mburabuturo	-1.54662	30.2826	734
KAY75	16/08/2016	01/10/2017	Akabeza	-1.83816	30.47733	704
KAY76	26/08/2016	01/10/2017	Butimba1	-1.83466	30.44705	924
					Total	**2,974**
GS6837						
KAY015	10/12/2015	01/10/2017	Mbarara2	-1.97822	30.58029	559
KAY019	08/01/2016	01/10/2017	Ngumeri	-1.68084	30.68084	610
KAY022	28/01/2016	01/10/2017	Nyakagarama	-1.97504	30.54340	488
KAY032	11/01/2016	01/10/2017	Sabasengo	-1.83712	30.64633	487
KAY034	15/12/2015	01/10/2017	Kinihira	-	30.61025	427

				1.95835		
KAY044	30/12/2015	01/10/2017	Rwakabanda	-1.75430	30.54070	427
					Total	**2,998**
GS6838						
KAY048	23/08/2016	01/10/2017	Bugarura	-1.6979	30.46526	613
KAY055	25/08/2016	01/10/2017	Butimba	-1.82782	30.45789	907
KAY065	22/09/2016	01/10/2017	Agasharu	-2.01895	30.48953	975
KAY072	08/09/2016	01/10/2017	Kazeneza(li)	-1.97851	30.78213	612
					Total	**3,107**

B.2. Post-registration changes

B.2.1. Temporary deviations from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology or applied standardized baseline

>> (Indicate whether any temporary deviations have been applied during this monitoring period. If applied, provide a description of the deviation(s). Include the reasons for the deviation(s), how it deviates from the monitoring plan, applied methodology(ies) and/or applied approaches, the duration for which the deviation(s) is(are) applicable and justification on the conservativeness of the approach. Also indicate if prior approval from GS-TAC have been sought on the deviation.)

No temporary deviations have been made during this monitoring period.

B.2.2. Corrections

>> (Indicate whether any corrections to project information or parameters fixed at validation have been applied.)

No corrections to project information or fixed parameters have been applied.

B.2.3. Changes to start date of crediting period

>> (Indicate whether any changes to the start date of the crediting period have been approved by Gold Standard that is relevant for this monitoring period.)

No changes have been made to the start date of the crediting period for this monitoring period.

B.2.4. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

>> (Indicate whether any permanent changes from the approved monitoring plan, applied methodologies or applied approaches have been approved by GS-TAC that is relevant for this monitoring period.)

No permanent changes have been made for this monitoring period.

B.2.5. Changes to project design of approved project

>> (Indicate whether any changes to the design of the project have been approved by GS-TAC that is relevant for this monitoring period.)

A design change was conducted to the overall Kayonza boreholes programme during the MP under review. Following on from the observation at the previous verification that several VPAs in the programme were crediting over the annual cap of 10,000 tCO2e, the decision was taken to conduct a design change to register three additional VPAs (GS5394, GS6837 and GS6838) and redistribute boreholes into them from existing over-crediting VPAs. The design change was submitted to GS on 17th October 2018 and the review was completed on 7th December 2018.

The boreholes in the newly registered VPAs are listed below, with the origin VPA for each borehole indicated:

Borehole ID	Date of Rehab	Start of MP	Village	No. of users	Origin VPA
GS5394 – VPA 108					
KAY002	25/01/2016	01/10/2017	Akarambo	733	GS4897
KAY009	20/01/2016	01/10/2017	Akabare1	747	GS4898
KAY025	28/01/2016	01/10/2017	Karama	529	GS4900
KAY031	31/12/2015	01/10/2017	Rwakabanda	430	GS4901
KAY039	11/12/2015	01/10/2017	Cyingogo	509	GS5392
GS6837 – VPA 157					
KAY015	10/12/2015	01/10/2017	Mbarara2	559	GS4899
KAY019	08/01/2016	01/10/2017	Ngumeri	610	GS4899
KAY022	28/01/2016	01/10/2017	Nyakagarama	488	GS4900
KAY032	11/01/2016	01/10/2017	Sabasengo	487	GS4901
KAY034	15/12/2015	01/10/2017	Kinihira	427	GS5392
KAY044	30/12/2015	01/10/2017	Rwakabanda	427	GS5393
GS6838 – VPA 158					
KAY048	23/08/2016	01/10/2017	Bugarura	613	GS5033
KAY055	25/08/2016	01/10/2017	Butimba	907	GS5034
KAY065	22/09/2016	01/10/2017	Agasharu	975	GS5036
KAY072	08/09/2016	01/10/2017	Kazeneza(li)	612	GS5395

SECTION C. Description of monitoring system applied by the project

>>

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

The results of the surveys are collated in excel spreadsheets and stored on a central server in an electronic format then is sent to the UK head office for data analysis. The documentation procedure devised ensures a minimum chance of original data being lost – all original copies of our project documentation are retained in the Kigali office and are available scanned upon request of the UK team.

In accordance with the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption, the survey samples are randomly selected from the borehole user record. Each borehole user is assigned a unique random number which is then sorted in order from lowest to highest; the first 120 HHs are selected for the project and usage surveys, whilst the first 40 are selected for the water consumption field tests in years when that is required. The size of the RSG is dependent on the methodological requirements and variance of the parameter being monitored to ensure the parameters measured satisfy 90/10 precision (90% confidence interval and 10% margin of error). The RSG is reselected for every monitoring period to ensure the selection remains random.

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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
- GPS location of the borehole
- 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 total number of households using each borehole has been determined through the lists supplied by the community group and district officials. Rwandans4Water further conducts studies to screen and determine the exact number of people the rehabilitated boreholes. Using this method, the total number of people using each borehole has been fixed and hence a figure for person days can be calculated.

Ongoing Monitoring Studies

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

- **Water consumption field test** (Equation parameters Qp,y and Qp,rawboil,y) – Completed prior to first verification and then biennially on a minimum sample of 40 households.

- **Quality of the treated water** – The quality of the treated water will be assessed to ensure that it is fit for human consumption. The parameters used to assess the water quality will be in line with Rwandan standards for potable water and all parameters will be shown to be within levels considered acceptable for domestic human consumption as per the WHO guidelines. Tests are conducted by Mlab, a government accredited laboratory which conducts according to government guidelines.

- **Usage Survey** – As all boreholes have been installed within 1 year of the start of the crediting period and are expected to last the lifetime of the project, minimum samples of 30 for different aged technologies will not be necessary. Therefore the annual usage survey will be conducted using a minimum sample size of 100.

- **Project Survey** – Conducted on a minimum sample of 100 households, surveying end users currently using project technologies to explore changes in project scenario over time.

- **Leakage assessment –** Sources of leakage detailed within the methodology relevant to this project have been reviewed.

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.

SECTION D. Data and parameters

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

(Copy this table for each piece of data and parameter)

Relevant SDG Indicator	**SDG 6**
Data/parameter:	P_y
Unit	Number
Description	Number of persons consuming safe water
Source of data	Baseline study.
Value(s) applied)	As per household list for each VPA
Choice of data or measurement methods and procedures	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.
Purpose of data	Determination of number of persons using safe water.
Additional comments	-

Relevant SDG Indicator	**SDG 6 & 13**
Data/parameter:	C_i
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. Credible literature, studies, survey, reports, relevant to the project target area

Value(s) applied)	0.0%
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.
Purpose of data	Calculate Ers
Additional comments	-

Relevant SDG Indicator	**SDG 13**
Data/parameter:	$Ef_{b,co2}$
Unit	tco_2/TJ
Description	co_2 emission factor arising from use of fuels in baseline scenario
Source of data	IPCC default value
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate Ers
Additional comments	-

Relevant SDG Indicator	**SDG 13**
Data/parameter:	$Ef_{b,non\ co2}$
Unit	tco_2/TJ
Description	Non-co_2 emission factor arising from use of fuels in baseline scenario
Source of data	IPCC default value
Value(s) applied)	8.692
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate Ers
Additional comments	-

Relevant SDG Indicator	**SDG 13**
Data/parameter:	$Ef_{p,co2}$
Unit	tco_2/TJ
Description	co_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC default value
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate Ers
Additional comments	-

Relevant SDG Indicator	**SDG 13**
Data/parameter:	$Ef_{p,non\ co2}$
Unit	tco_2/TJ
Description	Non-co_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC default value

Value(s) applied)	8.692
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate Ers
Additional comments	

Relevant SDG Indicator	**SDG 13**
Data/parameter:	NCV_b
Unit	TJ/ton
Description	Net calorific value of the fuels used in the baseline
Source of data	IPCC default value
Value(s) applied)	8.692
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate Ers
Additional comments	

Relevant SDG Indicator	**SDG 13**
Data/parameter:	NCV_p
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	IPCC default value
Value(s) applied)	0.0156
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate Ers
Additional comments	

Relevant SDG Indicator	**SDG 13**
Data/parameter:	$f_{NRB,l,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	CDM Default National Figure
Value(s) applied)	0.98
Choice of data or measurement methods and procedures	$f_{NRB,i,y}$

Purpose of data	Calculate eRs
Additional comments	

Relevant SDG Indicator	**SDG 3 &13**
Data/parameter:	$W_{b,y}$
Unit	T/litre
Description	Quantity of 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)	0.0006592
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	Calculate eRs
Additional comments	

Relevant SDG Indicator	**SDG 3 &13**
Data/parameter:	$W_{p,y}$
Unit	T/litre
Description	Quantity of 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)	0.0006592
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	Calculate eRs
Additional comments	

Relevant SDG Indicator	**SDG 13**
Data/parameter:	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)	0
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.
Purpose of data	Calculate eRs
Additional comments	

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter)

Relevant SDG Indicator/Safeguarding Principle	**SDG 3**
Data / Parameter	HAPRy
Unit	%
Description	Total reduction in Household Air Pollution for project activity in year y (%)
Measured/calculated/default	Measured
Source of data	Household lists; Usage Survey; Water Consumption Field Test
Value(s) of monitored parameter	100% (All VPAs)
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:	-
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:	

Relevant SDG Indicator/Safeguarding Principle	**SDG 5**
Data / Parameter	TRy
Unit	Percentage
Description	Total reduction time spent collecting water for project activity in year y (%)
Measured/calculated/default	Measured
Source of data	Project Survey
Value(s) of monitored parameter	36.36% (All VPAs)
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Calculate the average amount of time spent collecting water in the project scenario and compare to the pre-project scenario
QA/QC procedures:	-
Purpose of data	To quantify whether the project has contributed to a reduction in the amount of time spent collecting water compared to the pre-project scenario
Additional comments:	
Relevant SDG Indicator/Safeguarding Principle	**SDG 5**
Data / Parameter	Usage of time saved on water collection
Unit	Percentage
Description	Uses of time saved which was previously spent on water collection
Measured/calculated/default	Measured
Source of data	Project Survey
Value(s) of monitored parameter	(Unpaid) Domestic work: 7% Income generating activities: 45% Religious activities: 5% Social and leisure activities: 10% Voluntary activities: 0% Education and training: 33% Other: 0%
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Ask users how time saved on water collection in the project scenario, as opposed to the baseline scenario, is now being used.
QA/QC procedures:	-
Purpose of data	To quantify how time which was previously spent on water collection is now being used
Additional comments:	

Relevant SDG Indicator/Safeguarding Principle	**SDG 6**
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	GS4897: 3255 GS4898: 3214 GS4899: 2830 GS4900: 2957 GS4901: 3062 GS5033: 3385 GS5034: 3099 GS5035: 4015 GS5036: 3049 GS5392: 3050 GS5393: 3010 GS5394: 2948 GS5395: 3397 GS5396: 2974 GS6837: 2998 GS6838: 3107
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Borehole users * Usage rate
QA/QC procedures:	-
Purpose of data:	To calculate the additional number of persons having access to safe water in the project activity compared to the baseline scenario
Additional comments:	

Relevant SDG Indicator	**SDG 13**
Data/parameter:	Np,y
Unit	Project Technology Days
Description	Number of persons consuming water supplied by project scenario p through year y
Measured/calculated/default	Measured
Source of data	Borehole Project Database

Value(s) of monitored parameter	GS4897: 1,152,753 GS4898: 1,141,045 GS4899: 1,032,950 GS4900: 1,079,305 GS4901: 1,117,630 GS5033: 1,235,525 GS5034: 1,131,135 GS5035: 1,424,665 GS5036: 1,112,885 GS5392: 1,113,250 GS5393: 1,098,650 GS5394: 1,076,020 GS5395: 1,195,389 GS5396: 1,085,510 GS6837: 1,094,270 GS6838: 1,134,055
Monitoring equipment	Borehole Project Database
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Borehole users * Total crediting days
QA/QC procedures:	-
Purpose of data:	Calculate eRs
Additional comments:	-

Relevant SDG Indicator	**SDG 3, 6 & 13**
Data/parameter:	Up,y
Unit	Percentage
Description	Usage rate in project scenario p through year y
Measured/calculated/default	Measured
Source of data	Annual Usage Survey
Value(s) of monitored parameter	100%
Monitoring equipment	The usage survey has been carried out by staff trained by CO2balance and local in-country partner Rwandans 4 Water 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 the project developers
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	-
QA/QC procedures:	-
Purpose of data:	Calculate eRs
Additional comments:	-

Relevant SDG Indicator	**SDG 3 & 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

Measured/calculated/default	Measured
Source of data	Water Consumption Field Test (WCFT)
Value(s) of monitored parameter	*7.5*
Monitoring equipment	-
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 is carried out by staff trained by CO2balance and local in- country partner Rwandans 4 Water 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 the project developers.
QA/QC procedures:	-
Purpose of data:	Calculate eRs
Additional comments:	Value capped at *7.5*

Relevant SDG Indicator	**SDG 3 & 13**
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
Measured/calculated/default	Measured
Source of data	WCFT
Value(s) of monitored parameter	0
Monitoring equipment	-
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 staff trained by CO2balance and local in-country partner FAPDR 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 project developers.
QA/QC procedures:	-
Purpose of data:	Calculate eRs
Additional comments:	-

Relevant SDG Indicator	**SDG 3 & 13**
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
Measured/calculated/default	Measured
Source of data	WCFT
Value(s) of monitored parameter	0
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual

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 staff trained by CO2balance and local in-country partner FAPDR 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 project developers.
QA/QC procedures:	-
Purpose of data:	Calculate eRs
Additional comments:	-

Relevant SDG Indicator	**SDG 6**
Data/parameter:	Quality of Treated Water
Unit	Parameters as per national standards
Description	Laboratory Tests
Measured/calculated/default	Measured
Source of data	Water quality tests
Value(s) of monitored parameter	Pass
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	
QA/QC procedures:	
Purpose of data:	Ensure water is safe for human consumption without treatment using the baseline technology
Additional comments:	The Kigali based recognised laboratory has certified each water supply in line with national standards which also adheres to the WHO guidelines.

Relevant SDG Indicator	**SDG 13**
Data/parameter:	lEp,y
Unit	tCO2e per year
Description	Leakage in project scenario p during year y
Measured/calculated/default	Measured
Source of data	Baseline and monitoring surveys
Value(s) of monitored parameter	0
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	-
QA/QC procedures:	-
Purpose of data:	Calculate eRs
Additional comments:	-

D.3. Implementation of sampling plan

>> (If data and parameters monitored described in section D.2 above are determined by a sampling approach, provide a description on how project participants implemented the sampling plan and surveys for those data and parameters according to the approved PDD.)

The project proponent has elected to cross-sample technologies across all its homogenous borehole VPAs located within Kayonza district. The samples for the surveys analysed below are randomly selected from the borehole information databases using the RSG procedure previously explained in line with the minimum sample size requirements as defined by the methodology. Following 90/30 precision, it was found that 5 sectors of the 8 sectors in Kayonza district which contain boreholes in the VPAs would need to be selected for inclusion in the surveys. 5 sectors were selected by generating a random list of numbers. An aggregate list was then generated of the borehole users in the 5 selected sectors, and these were ordered according to a random list of numbers. The first 120 users were selected for the Project Survey and Usage Survey, which were conducted between 24/07/2018 and 26/07/2018. The same process was conducted in 2017, with the first 60 selected for the WCFT (required biennially so not conducted in 2018), between 3-6th September 2017.

The surveys have been conducted so as to ensure that they are within the end date of the respective monitoring periods for the VPAs.

SECTION E. Calculation of SDG outcomes

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

>> (Provide details of equations and approaches used to calculate/estimate baseline values.)

SDG 3 (Good Health and Wellbeing)

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

Where :

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

$W_{b,y}$ Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representative of baseline scenario b during year y

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

SDG 5 (Gender Equality)

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

To establish $T_{b,y}$, $Trips_b$ and that the burden of collecting water falls on females, the Project Survey asks the following:

13	Before this project, who would usually go to this source to collect water for your household?	**1.** Male Adult	**2.** Female Adult

		3. Male Child	**4.** Female Child
14	How much time did it take to collect water?	*Please specify*	
15	How many trips were made per day?	*Please specify*	

SDG 6 (Clean Water and Sanitation)

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.

SDG 13 (Climate Action)

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

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

Where:

$B_{b,y}$ = Quantity fuel consumed in the baseline scenario.

NRB = Country-specific default value for the fraction of non-renewable biomass.

$EF_{b,fuel,co2}$ = Emissions factor of fuel consumed in the baseline scenario (CO_2).

$EF_{b,fuel,nonco2}$ = Emissions factor of fuel consumed in the baseline scenario (non- CO_2).

$NCV_{b,fuel}$ = Net calorific value of fuel consumed in the baseline scenario.

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

>> (*Provide details of equations and approaches used to calculate/estimate project values.*)

SDG 3 (Good Health and Wellbeing)

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

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

Where:

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

Where:

$W_{b,y}$ Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representative of baseline scenario b during year y
$Q_{p,cleanboil,y}$ Quantity of safe water boiled in the project scenario p during year y, after installation of the project technology

SDG 5

$T_{p,y}$ Time spent collecting water per household per day in project (hours)

The project survey asks the following questions in order to establish $T_{p,y}$, $Trips_p$ and to show what use is made of the time used.

37	Who usually goes to this source to collect water for your household?	**1.** Male Adult	**2.** Female Adult
		3. Male Child	**4.** Female Child
38	How much time does a trip to and from the borehole take?	*Please specify*	
39	How many trips are made per day to the borehole?	*Please specify*	
40	Has the borehole project saved you time?	1. Yes	2. No (skip to question 44)
41	In which of these activities has the borehole project saved you the most time?	1. Less distance to walk to the water source	2. Less time waiting at the water source
		3. Less time spent boiling/purifying water	4. Less time spent collecting wood to boil water
		5. Other (Specify)	
42	How much time do you think the borehole project has saved you on average per day?	1. 0-30min	2. 31-60min
		3. 1-2hrs	4. 2-3hrs
		5. 3-4hrs	6. >4hrs
43	What do you do with the time saved from the project? *Select all that apply*	1. (Unpaid) Domestic work (*includes cooking and caring for family members*)	2. Income generating activities
		3. Religious activities	4. Social and leisure activities
		5. Voluntary activities	6. Education and training
		7. Other (Specify)	

SDG 6

P_y	Number of persons having access to safe water in the project activity.
$U_{p,y}$	Usage rate in project scenario p during year y

SDG 13

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

$$PE_{p,y} = B_{p,y} * \left(\left(NRB * EF_{p,fuel,co2} \right) + EF_{p,fuel,nonco2} \right) * NCV_{p,fuel}$$

Where:

$B_{p,y}$	= Quantity fuel consumed in project scenario.
NRB	= Country-specific default value for the fraction of non-renewable biomass.
$EF_{p,fuel,co2}$	= Emissions factor of fuel used in the project scenario (CO_2).
$EF_{p,fuel,nonco2}$	= Emissions factor of fuel used in the project scenario (non- CO_2).
$NCV_{p,fuel}$	= Net calorific value of fuel used in the project scenario.

E.3. Calculation of net benefits as difference of baseline and project values or direct calculation for each SDG outcome

>>

SDG 3

$HAPR_y = 100\% = ((4.944 - 0) / 4.944) * 1$

Where:

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

$HAPR_y$	Total reduction in Household Air Pollution for project activity in year y (%)
$P_{b,y}$	Quantity of fuel that is consumed in the baseline scenario b during year y (kg/person-day)
$P_{p,y}$	Quantity of fuel that is consumed in the project scenario p during year y (kg/person-day)
$U_{p,y}$	Usage rate in project scenario p during year y

The project has reduced household air pollution by 100% by removing the need to boil water to make it safe to consume.

SDG 5

$TR_y = 36.36\% = (102.87*2.39) – (55.29*2.83) / (102.87*2.39)$

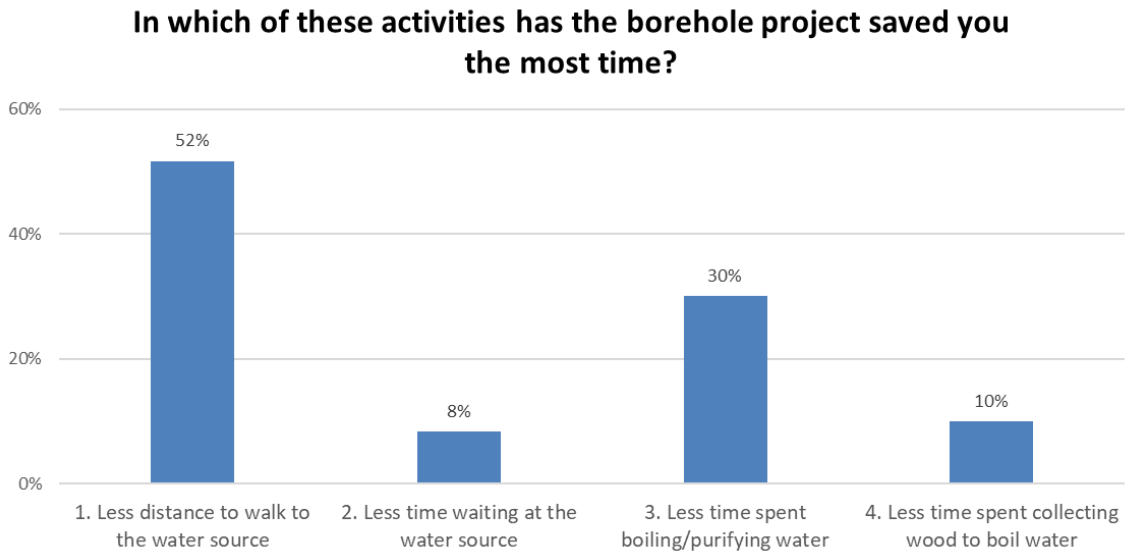
$TR_y = (T_{b,y}*Trips_b) – (T_{p,y}*Trips_p) / (T_{b,y}*Trips_b)$

Where:

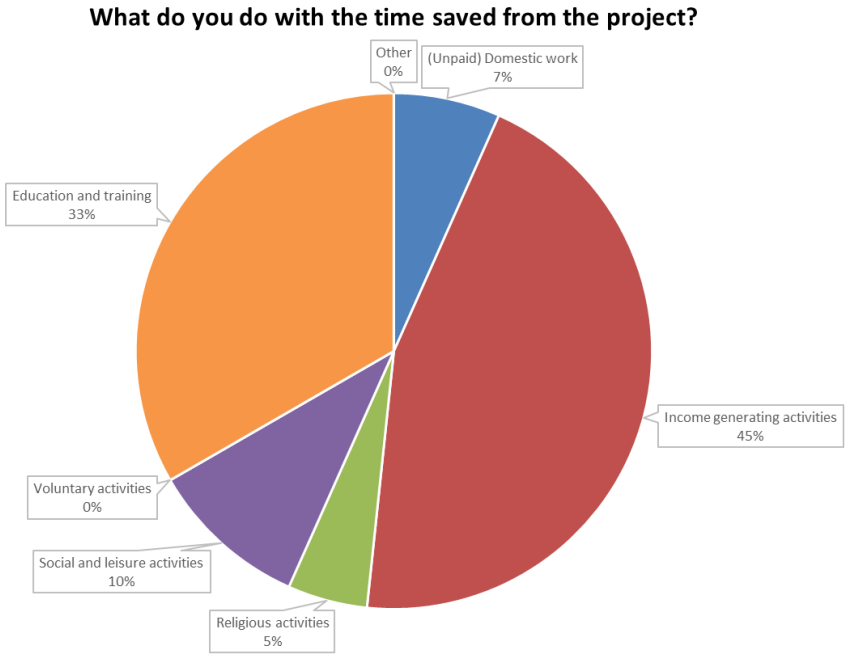
TR_y	Total reduction time spent collecting water for project activity in year y (%)

$T_{b,y}$ Time spent collecting water per household per day prior to project (hours)
$Trips_b$ Number of water collection trips made per household per day prior to the project
$T_{p,y}$ Time spent collecting water per household per day in project (hours)
$Trips_p$ Number of water collection trips made per household per day in the project

The project has saved households 89.39 minutes per day by reducing the distance needed to walk to the water source (52%), removing the need to treat the water (30%) and collect firewood (10%), and reducing time spent at the water source (8%).



The 36.36% reduction in time spent collecting and treating water is used in the following ways:



SDG 6

$P_{access} = 50{,}334 = 50{,}334 * (1 - 0) * 1$

Where:

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

Using the above values for parameters Cj and Up,y, SDG was calculated for each VPA. The total number of additional persons having access to safe water in the project activity compared to the baseline scenario is 50,334.

SDG 6 Impacts	
GS ID	Paccess
GS4897	3255
GS4898	3214
GS4899	2830
GS4900	2957
GS4901	3062
GS5033	3369
GS5034	3099
GS5035	4015
GS5036	3049
GS5392	3050
GS5393	3010
GS5394	2948
GS5395	3397
GS5396	2974
GS6837	2998
GS6838	3107
Total	50334

SDG 13 and emission reductions

In MP2 the project achieved a total capped ERs of 159,041 tCO2e. Below is a summary of the ERs by VPA and vintage, followed by the capped total. Eleven VPAs (See table) over-credited and were subject to the 10,000 ERs per year cap. The calculation for the cap applied was Total PTDs * (10,000/365). The cap was not applied to those crediting below 10,000.

Gold Standard®

GS ID	Capped ERs		
	2017	2018	Capped Total
GS4897	2,521	7,479	10,000
GS4898	2,521	7,479	10,000
GS4899	2,379	7,058	9,437
GS4900	2,485	7,375	9,860
GS4901	2,521	7,479	10,000
GS5033	2,521	7,479	10,000
GS5034	2,521	7,479	10,000
GS5035	2,521	7,479	10,000
GS5036	2,521	7,479	10,000
GS5392	2,521	7,479	10,000
GS5393	2,521	7,479	10,000
GS5394	2,478	7,353	9,830
GS5395	2,521	7,479	10,000
GS5396	2,500	7,417	9,917
GS6837	2,520	7,477	9,997
GS6838	2,521	7,479	10,000
Total	40,087	118,954	159,041

GS 4897

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		299,460
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1481

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		299,460
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,736
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,736**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		853,293
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4219

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		853,293
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,795
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,795**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,152,753
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5699

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1152753
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,531
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,531**
	ERs claimed		**10,000**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		295,688
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1462

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		295,688
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,701
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,701**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		845,357
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4179

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		845,357
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,723
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,723**
	ERs claimed		**7,479**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,141,045
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5641

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,141,045
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,424
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,424**
	ERs claimed		**10,000**

GS 4899

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		260,360
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1287

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		260,360
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,379
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,379**
	ERs claimed		**2,379**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		772,590
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	3820

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		772,590
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,058
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,058**
	ERs claimed		**7,058**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,032,950
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5107

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,032,950
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	9,437
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**9,437**
	ERs claimed		**9,437**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		272,044
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1345

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		272,044
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,485
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,485**
	ERs claimed		**2,485**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		807,261
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	3991

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		807,261
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,375
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,375**
	ERs claimed		**7,375**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,079,305
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5336

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,079,305
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	9,860
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**9,860**
	ERs claimed		**9,860**

GS 4901

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		281,704
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1393

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		281,704
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,574
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,574**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		835,926
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4133

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		835,926
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,637
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,637**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,117,630
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5526

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,117,630
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,210
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,210**
	ERs claimed		**10,000**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		311,420
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1540

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		311,420
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,845
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,845**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		924,105
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4569

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		924,105
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	8,442
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**8,442**
	ERs claimed		**7,479**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,235,525
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	6108

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,235,525
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	11,287
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**11,287**
	ERs claimed		**10,000**

GS 5034

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		285,108
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1410

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		285,108
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,605
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,605**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		846,027
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4183

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		846,027
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,729
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,729**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,131,135
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5592

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,131,135
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,334
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,334**
	ERs claimed		**10,000**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		369,380
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1826

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		369,380
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,375
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**3,375**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,055,285
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5217

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,055,285
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	9,641
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**9,641**
	ERs claimed		**7,479**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,424,665
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	7044

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,424,665
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	13,015
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**13,015**
	ERs claimed		**10,000**

GS 5036

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		280,508
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1387

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		280,508
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,563
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,563**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		832,377
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4115

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		832,377
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,604
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,604**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,112,885
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5502

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,112,885
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,167
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,167**
	ERs claimed		**10,000**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		280,600
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1387

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		280,600
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,563
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,563**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		832,650
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4117

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		832,650
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,607
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,607**
	ERs claimed		**7,479**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,113,250
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5504

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,113,250
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,170
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,170**
	ERs claimed		**10,000**

GS 5393

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		276,920
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1369

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		276,920
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,530
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,530**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		821,730
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4063

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		821,730
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,507
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,507**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,098,650
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5432

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,098,650
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,037
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,037**
	ERs claimed		**10,000**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		271,216
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1341

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		271,216
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,478
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,478**
	ERs claimed		**2,478**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		804,804
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	3979

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		804,804
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,352.51
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,352**
	ERs claimed		**7,352**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,076,020
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5320

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,076,020
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	9,830
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**9,830**
	ERs claimed		**9,830**

GS 5395

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		312,524
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1545

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		312,524
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,855
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,855**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		882,865
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4365

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		882,865
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	8,066
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**8,066**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,195,389
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5910

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,195,389
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,921
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,921**
	ERs claimed		**10,000**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		273,608
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1353

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		273,608
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,500
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,500**
	ERs claimed		**2,500**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		811,902
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4014

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		811,902
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,417
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,417**
	ERs claimed		**7,417**

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Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,085,510
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5367

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,085,510
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	9,917
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**9,917**
	ERs claimed		**9,917**

GS 6837

Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		275,816
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1364

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		275,816
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,520
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,520**
	ERs claimed		**2,520**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		818,454
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4046

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		818,454
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,477
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,477**
	ERs claimed		**7,477**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,094,270
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5410

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,094,270
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	9,997
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**9,997**
	ERs claimed		**9,997**

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Emission Reductions Vintage 2017			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		285,844
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	1413

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		285,844
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,611
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**2,611**
	ERs claimed		**2,521**

Emission Reductions Vintage 2018			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		848,211
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	4194

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		848,211
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	7,749
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**7,749**
	ERs claimed		**7,479**

Total Emission Reductions for Monitoring Period 2			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	0.0%
Person Days	Njy		1,134,055
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0006592
Quantity safe water litres consumed in project scenario supplied by project technology	Qp,y	L/pd	7.5
Quantity of raw water boiled in addition to project technology water	Qp, raw, y	L/pd	0
Quantity fuel consumed in baseline scenario	Bb,y	T	5607

Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	0.00%
Person Days	Njy		1,134,055
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0006592
Quantity of raw water boiled in addition to project tech water	Qp, raw, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0

Constants			
NRB	NRB	Fraction	0.98
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	8.692
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156

Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	10,360
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	1
Leakage	LEp,y	tCO2/y	0
Emission Reductions	**Ery**	**tCO2/y**	**10,360**
	ERs claimed		**10,000**

E.4. Summary of ex-post values of each SDG outcome for the current monitoring period

Item	Baseline estimate	Project estimate	Net benefit
SDG 3	4.944kgs of fuel consumed per household per day	0kgs of fuel consumed per household per day	100% reduction in household air pollution caused by boiling water
SDG 5	245.86 minutes collecting water	156.47 minutes collecting water	89.39 minutes (1.49 hours)/36.36% reduction in time collecting water
SDG 6	0 persons with access to safe water	50,334 persons with access to safe water	Additional 50,334 persons with access to safe water
SDG 13	159,041 tCO2e emitted	0 tCO2e emitted	Emissions reduced by 159,041 tCO2e

E.5. Comparison of actual value of outcomes with estimates in approved PDD

Not supplied in the PDD for SGDs 3, 5 and 6 as the project began prior to transition.

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

SDG 3	80% reduction in exposure to household air pollution caused by boiling water	100% reduction in exposure to household air pollution caused by boiling water
SDG 5	0.5 hours saved on time collecting water	1.49 hours saved on time collecting water
SDG 6	25,387 persons with access to safe water across all VPAs	50,334 persons with access to safe water across all VPAs
SDG 13	GS4897: 10,071 tCO2e GS4898: 10,002 tCO2e GS4899: 10,098 tCO2e GS4900: 10,035 tCO2e GS4901: 10,048 tCO2e GS5033: 9,553 tCO2e GS5034: 9,610 tCO2e GS5035: 9,632 tCO2e GS5036: 9,653 tCO2e GS5392: 9,563 tCO2e GS5393: 8,246 tCO2e GS5394: 10,000 tCO2e GS5395: 9,617 tCO2e GS5396: 7,134 tCO2e GS6837: 9,997 tCO2e GS6838: 10,360 tCO2e	GS4897: 10,000 tCO2e GS4898: 10,000 tCO2e GS4899: 9,437 tCO2e GS4900: 9,860 tCO2e GS4901: 10,000 tCO2e GS5033: 10,000 tCO2e GS5034: 10,000 tCO2e GS5035: 10,000 tCO2e GS5036: 10,000 tCO2e GS5392: 10,000 tCO2e GS5393: 10,000 tCO2e GS5394: 9,830 tCO2e GS5395: 10,000 tCO2e GS5396: 9,917 tCO2e GS6837: 9,997 tCO2e GS6838: 10,000 tCO2e

E.6. Remarks on difference from estimated value in approved PDD

The difference between estimated and actual values for SDG 13 are as follows:

VPA ID	Estimated value	Actual value	Comment
GS4897	10,071	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS4898	10,002	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS4899	10,098	9,437	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS4900	10,035	9,860	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS4901	10,048	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5033	9,553	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5034	9,610	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5035	9,632	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5036	9,653	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.

GS5392	9,563	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5393	8,246	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5394	10,000	9,830	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5395	9,617	10,000	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS5396	7,134	9,917	Estimated value was calculated at initial project implementation and did not take account of final borehole distribution across VPAs.
GS6837	9,997	9,997	Estimated and actual values match.
GS6838	10,360	10,000	Estimated and actual values match but the estimated value did not consider the 10,000 annual cap.

SECTION F. Stakeholder inputs and legal disputes

F.1. List all inputs/grievances which have been received for the project during the monitoring period together with their respective answers/actions

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No inputs or grievances were received during the monitoring period.

F.2. List all inputs/grievances from previous monitoring period where follow up action is to be verified in this monitoring period

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No inputs or grievances were received during the previous monitoring period.

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

No legal contests or disputes arose during the monitoring period.