

TEMPLATE

MONITORING REPORT

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VERSION **v. 1.1**

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

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Key Project Information

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KEY PROJECT INFORMATION

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

GS ID of Programme	GS1247
Title of Programme	Improved Kitchen Regimes Multi-Country PoA
Version of POA-DD applicable to this monitoring report	GS1247 IKR Micro PoA-DD CLEAN V4.0
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	GS1247 VPA 71: Lango Safe Water Project (GS5106) GS1247 VPA 72 Lango Safe Water Project (GS5186) GS1247 VPA 73 Lango Safe Water Project (GS5187) GS1247 VPA 74: Lango Safe Water Project (GS5188) GS1247 VPA 75 Lango Safe Water Project (GS5189) GS1247 VPA 76 Lango Safe Water Project (GS5190) GS1247 VPA 77 Lango Safe Water Project (GS5191) GS1247 VPA 78 Lango Safe Water Project (GS5192) GS1247 VPA 79 Lango Safe Water Project (GS5193) GS1247 VPA 80 Lango Safe Water Project (GS5194) GS1247 VPA 82 Lango Safe Water Project (GS5196) GS1247 VPA 83 Lango Safe Water Project (GS5197) GS1247 VPA 139: Lango Safe Water Project (GS6349) GS1247 VPA 140 Lango Safe Water Project (GS6350) GS1247 VPA 141 Lango Safe Water Project (GS6351)

	GS1247 VPA 183 Lango Safe Water Project (GS7362)
	GS1247 VPA 184 Lango Safe Water Project (GS7363)
	GS1247 VPA 185 Lango Safe Water Project (GS7364)
	GS1247 VPA 186 Lango Safe Water Project (GS7365)
	GS1247 VPA 187 Lango Safe Water Project (GS7366)

Key Project Information

GS ID (s) of Project (s)	GS5106 & 5186-94, GS5196-7 & 6349-51, GS7362-7366
Title of the project (s) covered by monitoring report	GS1247 VPA 71: Lango Safe Water Project (GS5106) GS1247 VPA 72 Lango Safe Water Project (GS5186) GS1247 VPA 73 Lango Safe Water Project (GS5187) GS1247 VPA 74: Lango Safe Water Project (GS5188) GS1247 VPA 75 Lango Safe Water Project (GS5189) GS1247 VPA 76 Lango Safe Water Project (GS5190) GS1247 VPA 77 Lango Safe Water Project (GS5191) GS1247 VPA 78 Lango Safe Water Project (GS5192) GS1247 VPA 79 Lango Safe Water Project (GS5193) GS1247 VPA 80 Lango Safe Water Project (GS5194) GS1247 VPA 82 Lango Safe Water Project (GS5196) GS1247 VPA 83 Lango Safe Water Project (GS5197)

	GS1247 VPA 139: Lango Safe Water Project (GS6349) GS1247 VPA 140 Lango Safe Water Project (GS6350) GS1247 VPA 141 Lango Safe Water Project (GS6351) GS1247 VPA 183 Lango Safe Water Project (GS7362) GS1247 VPA 184 Lango Safe Water Project (GS7363) GS1247 VPA 185 Lango Safe Water Project (GS7364) GS1247 VPA 186 Lango Safe Water Project (GS7365) GS1247 VPA 187 Lango Safe Water Project (GS7366)
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	GS5106 & 5186-94: V1GS5196-7 & 7362-3, 5: V5 GS6349-51: V6 GS7364 & 7366: V3
Version number of the monitoring report	04
Completion date of the monitoring report	08/02/2024
Date of project design certification	GS5106 & 5186-94: 11/09/2017 GS5196-7 & 6349-51: 26/12/2018 GS7362-7366: 16/08/2019
Date of Last Annual Report	13/12/2023
Monitoring period number	7
Duration of this monitoring period	MP4 GS7362: 01/04/2022 to 31/03/2023 GS7363: 01/04/2022 to 31/03/2023 GS7364: 01/04/2022 to 31/03/2023 GS7365: 01/04/2022 to 31/03/2023 GS7366: 01/04/2022 to 31/03/2023 MP5 GS5196: 01/04/2022 to 31/03/2023

	GS5197: 01/04/2022 to 31/03/2023 GS6349: 01/04/2022 to 31/03/2023 GS6350: 01/04/2022 to 31/03/2023 GS6351: 01/04/2022 to 31/03/2023 MP6 GS5189-94: 01/04/2022 to 31/03/2023 MP7 GS5106 & GS5186-8: 01/04/2022 to 31/03/2023 *start and end date included
Project Representative	James Walker, CO2balance Isabel Hatfield, CO2balance
Host Country	Republic of Uganda
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	TPDDTEC v1
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 3 - Good Health and Well-being	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil	GS5106: 2,496 GS5186: 2,515 GS5187: 2,248 GS5188: 2,235 GS5189: 1,619	P _{safe} (additional persons consuming safe water in the project activity)

	pollution and contamination.	GS5190: 1,349 GS5191: 2,159 GS5192: 2,855 GS5193: 2,698 GS5194: 1,462 GS5196: 1,966 GS5197: 1,670 GS6349: 2,025 GS6350: 2,053 GS6351: 2,095 GS7362: 2,159 GS7363: 2,154 GS7364: 1,801 GS7365: 2,078 GS7366: 2,159 Total: 41,795 persons consuming safe water across all VPA's	compared to the baseline scenario)
SDG 5 – Gender Equality	Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.	19.6% reduction in time spent collecting water across all VPA's	TR _y (reduction in time spent collecting water)
SDG 6 – Clean water and sanitation for all	By 2030, achieve universal and equitable access to safe and affordable drinking water for all.	GS5106: 2,516 GS5186: 2,535 GS5187: 2,267 GS5188: 2,253 GS5189: 1,632 GS5190: 1,360 GS5191: 2,176 GS5192: 2,878 GS5193: 2,720 GS5194: 1,474 GS5196: 1,982	P _{access} (additional persons with access to safe water in the project activity compared to the baseline scenario)

			GS5197; 1,684	
			GS6349: 2,041	
SDG 13 – Climate Action	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	VERs	GS6350: 2,070	
			GS6351: 2,112	
			GS7362: 2,176	
			GS7363: 2,171	
			GS7364: 1,816	
			GS7365: 2,095	
			GS7366: 2,176	
			Total: 42,134 additional persons with access to safe water in the project activity across all VPAs	
			GS5106: 3,529	
			GS5186: 3,713	
			GS5187: 3,036	
			GS5188: 3,300	
			GS5189: 2,312	
			GS5190: 1,965	
			GS5191: 3,188	
			GS5192: 4,215	
			GS5193: 3,984	
			GS5194: 1,392	
			GS5196: 2,680	
			GS5197: 2,466	
			GS6349: 2,989	
			GS6350: 3,031	
			GS6351: 3,079	
			GS7362: 3,188	
			GS7363: 3,156	
			GS7364: 2,660	
			GS7365: 3,068	
			GS7366: 3,188	
			Total: 60,139 tCO ₂ e across all VPAs	

Table 2 – Product Vintages

Start Dates	End Dates	Amount Achieved			
		SDG 3	SDG 5	SDG 6	SDG 13
01/04/2022	31/12/2022	GS5106: 2,496 GS5186: 2,515 GS5187: 2,248 GS5188: 2,235 GS5189: 1,619 GS5190: 1,349 GS5191: 2,159 GS5192: 2,855 GS5193: 2,698 GS5194: 1, 462 GS5196: 1,966 GS5197: 1,670 GS6349: 2,025 GS6350: 2,053 GS6351: 2,095 GS7362: 2,159 GS7363: 2,154 GS7364: 1,801 GS7365: 2,078 GS7366: 2,159	19.6%	GS5106: 2,516 GS5186: 2,535 GS5187: 2,267 GS5188: 2,253 GS5189: 1,632 GS5190: 1,360 GS5191: 2,176 GS5192: 2,878 GS5193: 2,720 GS5194: 1, 474 GS5196: 1,982 GS5197; 1,684 GS6349: 2,041 GS6350: 2,070 GS6351: 2,112 GS7362: 2,176 GS7363: 2,171 GS7364: 1,816 GS7365: 2,095 GS7366: 2,176	GS5106: 2,659 GS5186: 2,798 GS5187: 2,298 GS5188: 2,487 GS5189: 1,801 GS5190: 1,501 GS5191: 2,402 GS5192: 3,176 GS5193: 3,002 GS5194: 1,044 GS5196: 2,033 GS5197: 1,858 GS6349: 2,252 GS6350: 2,284 GS6351: 2,330 GS7362: 2,402 GS7363: 2,397 GS7364: 2,004 GS7365: 2,312 GS7366: 2,402
01/01/2023	31/03/2023	See above	See above	See above	GS5106: 870 GS5186: 915 GS5187: 738 GS5188: 813 GS5189: 511 GS5190: 464 GS5191: 786 GS5192: 1,039 GS5193: 982 GS5194: 348 GS5196: 647 GS5197: 608

					GS6349: 737
					GS6350: 747
					GS6351: 749
					GS7362: 786
					GS7363: 759
					GS7364: 656
					GS7365: 756
					GS7366: 786

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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

The project activity involves rehabilitating and maintaining non-functioning borehole hand pumps. The hand pump models that are commonly used in the area include Afridev, U3 Modified and India Mark II pumps. The crediting periods for each VPA are given in section A.4 and have a lifetime of 7 years.

Located across various districts of Lango sub-region, the project covers a total of 169 boreholes of which 163 are active in this monitoring period (see database below). This monitoring period covers 1st April 2022 to 31st March 2023 (start and end dates included). The project has been implemented in a total of 4 phases across 2016 – 2019, thus the age groups of VPAs vary.

The project is Gender Equality certified under Gold Standard, which allows project developers and funders to quantify and certify the impacts of climate action on SDG 5 (Gender Equality). CO2balance worked with Gold Standard to certify the impacts of the Lango Safe Water Project on SDG 5: Gender Equality, such as reducing time poverty of women and girls, empowering individuals and communities, and reducing exposure to gender-based violence. The Project activities go beyond the traditional carbon project and focus on sensitisation on gender issues, women's empowerment and monitoring the outcomes of these activities. Gold Standard Gender Equality Requirements & Guidelines are consulted for the project's gender equality activities and reporting, such as the Gender Equality Annex Report submitted with the verification documents. Monitoring activities are outlined under Ongoing Monitoring Studies, Section C, of this report.

VPA 71 - GS5106	LAN001	Aderolongo	16/12/2016	India Mark II	2.3482038	33.1896136
	LAN002	Awito	16/12/2016	India Mark II	2.3141967	33.2179727
	LAN003	Ejang	16/12/2016	India Mark II	2.3392272	33.1779119
	LAN004	Kulu Omara	15/12/2016	India Mark II	2.2096006	33.1899175
	LAN005	Te-Cwao	15/12/2016	India Mark II	2.2971367	33.2052817
	LAN006	St Paul Amoi	15/12/2016	India Mark II	2.1534216	33.4254349
	LAN007	Acilkom	12/12/2016	India Mark II	1.9666044	33.0757811
	LAN008	Aweloge	12/12/2016	India Mark II	2.0005232	33.1302504
	LAN009	Aber	09/12/2016	India Mark II	2.4708071	33.226595
	LAN010	Kongotye	13/12/2016	India Mark II	2.5437583	33.0353624
VPA 72 - GS5186	LAN011	Aduru	09/12/2016	India Mark II	2.480744	33.199036
	LAN012	Apel II	08/12/2016	India Mark II	2.4122727	33.2337281
	LAN013	Apur B	09/12/2016	India Mark II	2.3873645	33.2294506
	LAN014	Te-Abwolo	13/12/2016	India Mark II	2.4864738	33.205387
	LAN015	Amunga SW	14/12/2016	India Mark II	2.5367076	33.1663377
	LAN016	Amunga P/S	14/12/2016	India Mark II	2.5258053	33.1656275
	LAN017	Kulu Okani	10/12/2016	India Mark II	2.3787697	32.7702292
	LAN018	Kulu Eluk	10/12/2016	India Mark II	2.4266617	32.7807517
	LAN019	Alito T/C	10/12/2016	India Mark II	2.4391927	32.8287382
	LAN020	Otkwac Amalo	10/12/2016	India Mark II	2.4621465	32.8478927
VPA 73 - GS5187	LAN021	Tangala	11/10/2016	India Mark II	2.3122612	33.2276312
	LAN022	Otikokin	12/10/2016	India Mark II	2.3595803	33.170471
	LAN023	Aliwok	11/10/2016	India Mark II	2.2945933	33.2379583
	LAN024	Atelela	19/10/2016	India Mark II	2.1903083	33.3872232
	LAN025	Awat 'A'	19/10/2016	India Mark II	1.9546436	33.1390589
	LAN026	Center Lira	27/10/2016	India Mark II	1.9279367	33.054385
	LAN027	Abongo Ipale	21/10/2016	India Mark II	1.8945495	33.0912142
	LAN028	Apuru	18/10/2016	India Mark II	2.3990281	32.8065498
	LAN029	Bar Ibule	17/10/2016	India Mark II	2.3494832	32.7869297

VPA 74 - GS5188	LAN030	Adak	19/10/2016	India Mark II	1.965342	33.1356261
	LAN031	Abucero	19/10/2016	India Mark II	2.0116766	33.1121233
	LAN032	Akwac A	14/11/2016	India Mark II	2.5622317	33.0754409
	LAN033	Awonayap A	14/10/2016	India Mark II	2.5553677	33.1304714
	LAN034	Baropiro	15/10/2016	India Mark II	2.5085283	33.1511633
	LAN035	Baroceco	13/10/2016	India Mark II	2.5539618	33.155202
	LAN036	Barabolo	13/10/2016	India Mark II	2.5646696	33.1638347
	LAN037	Baralegi	15/10/2016	India Mark II	2.5811058	33.1893813
	LAN038	Anyonomac	18/10/2016	India Mark II	2.4567603	32.8414747
VPA 75 - GS5189	LAN039	Apala 'A'	07/03/2017	India Mark II	2.2834083	32.748565
	LAN040	Telela	28/02/2017	India Mark II	2.486255	32.8641467
	LAN041	Lwala	09/03/2017	India Mark II	2.2278711	32.6406353
	LAN042	Okar	06/03/2017	India Mark II	2.2716999	32.7587242
	LAN043	Araodyang	01/03/2017	India Mark II	2.3561327	32.876722
	LAN044	Teyago	07/03/2017	India Mark II	2.2353129	32.6230703
VPA 76 - GS519	LAN045	Corner Apii	07/03/2017	India Mark II	2.2918019	32.7894666
	LAN046	Alake	01/03/2017	India Mark II	2.3304153	32.8135354
	LAN047	Omerogweno	01/03/2017	India Mark II	2.3585822	32.8247999
	LAN048	Apala Telela	09/03/2017	India Mark II	2.2800574	32.745531
	LAN049	Abur	06/03/2017	India Mark II	2.2178619	32.6142622
VPA 77 - GS5191	LAN050	Abuka 'A'	01/03/2017	India Mark II	2.3789517	32.8716444
	LAN051	Abolonyero	06/03/2017	India Mark II	2.2875183	32.734415
	LAN052	Awiro	28/02/2017	India Mark II	2.416405	32.8675433
	LAN053	Abak	28/02/2017	India Mark II	2.5031876	32.8227497
	LAN054	Atop	27/02/2017	India Mark II	2.3285504	32.7458007
	LAN055	Amoli	01/03/2017	India Mark II	2.353175	32.8315417
	LAN056	Awili	09/03/2017	India Mark II	2.360375	32.8589417
	LAN057	Witim	09/03/2017	India Mark II	2.3381067	32.906785
VPA 78 - GS5192	LAN058	Akaidebe	05/05/2017	India Mark II	2.2380699	33.1347815
	LAN059	Odo Jeremiah	09/05/2017	India Mark II	2.2352412	33.315449
	LAN060	Okoto	04/05/2017	India Mark II	2.2856962	33.2023561
	LAN061	Olengo 'A'	04/05/2017	India Mark II	2.287358	33.2158649
	LAN062	Tem Gumi	04/05/2017	India Mark II	2.2755654	33.2100026
	LAN063	Omino	05/05/2017	India Mark II	2.3548427	33.4346298
	LAN064	Atwako 'B'	03/05/2017	India Mark II	1.8757367	33.0688133
	LAN065	Otoro	03/05/2017	India Mark II	1.8848277	33.0210789
	LAN066	Aminalucu	02/05/2017	India Mark II	2.0382003	32.9557711
	LAN067	Aminakech	02/05/2017	India Mark II	2.0444568	32.9153658
	LAN068	Awiotang	19/05/2017	India Mark II	2.0465683	32.8974467
VPA 79 - GS5193	LAN069	Acede	03/05/2017	India Mark II	1.9443429	33.1116219
	LAN070	Aming	02/05/2017	India Mark II	1.9999503	32.8967402
	LAN071	Alango	08/05/2017	India Mark II	2.4137282	33.0554872
	LAN072	Onger	08/05/2017	India Mark II	2.5180128	33.2620987
	LAN073	Aminogwang	08/05/2017	India Mark II	2.4977333	33.2966982
	LAN074	Ilera	23/05/2017	India Mark II	2.4498368	33.2279566
	LAN075	Te-Ebule	08/05/2017	India Mark II	2.4569656	33.2737128
	LAN076	Te-Yao	09/05/2017	India Mark II	2.4402957	33.1924422
	LAN077	Nyamkere	22/05/2017	India Mark II	2.1916303	32.6460096
	LAN078	Abiting	06/11/2017	India Mark II	2.3856382	33.0607674

VPA 80 - GS5194	LAN079	Alilo	18/10/2016	India Mark II	2.4753116	32.8325977
	LAN080	Ayile	17/10/2016	India Mark II	2.3791282	32.8257936
	LAN081	Aton	27/02/2017	India Mark II	2.461225	32.8015017
	LAN082	Lela Opuk	07/11/2017	India Mark II	2.3568044	32.993525
	LAN083	Alango Okwangole	06/11/2017	India Mark II		
	LAN084	Amakilaka	06/11/2017	India Mark II	2.3724361	33.0479944
	LAN085	Ober	19/11/2017	India Mark II	2.3398583	33.0211267
VPA 82 - GS5196	LAN087	Abongoawobe	11/05/2018	India Mark II	2.3832883	33.0287117
	LAN088	Abuabura	06/05/2018	India Mark II	2.4105144	33.2610065
	LAN089	Adagawaka	08/05/2018	India Mark II	2.4106283	33.037885
	LAN090	Agali Alingadyel	04/05/2018	India Mark II	2.4500924	33.2588475
	LAN091	Akom	05/05/2018	India Mark II	2.4929374	33.1107686
	LAN092	Alela	02/05/2018	India Mark II	2.4373322	33.384906
	LAN093	Arwenyo	07/05/2018	India Mark II	2.381485	33.0753683
	LAN094	Aweodiko	03/05/2018	India Mark II	2.4949346	33.1548837
VPA 83 - GS5197	LAN095	Ilera Amintenyio	09/05/2018	India Mark II	2.4399951	33.2111448
	LAN096	Otongere B	05/05/2018	India Mark II	2.5290377	33.0688536
	LAN097	Teyao Aluti	09/05/2018	India Mark II		
	LAN098	Okeda A	07/05/2018	India Mark II	2.3669124	33.088173
	LAN099	Okorkok	04/05/2018	India Mark II	2.5514345	33.1816256
	LAN100	Okum	02/05/2018	India Mark II	2.4076534	33.4095076
	LAN101	Olarolobo	03/05/2018	India Mark II	2.5443177	33.1406275
	LAN102	Oloakero	03/05/2018	India Mark II	2.4221287	33.1907345
VPA 139 - GS6349	LAN103	Acoke	06/05/2018	India Mark II	2.4926479	33.2364456
	LAN104	Obalodeo	08/05/2018	India Mark II	2.3733834	33.21073
	LAN105	Teyao Alo	08/05/2018	India Mark II	2.332115	33.2256917
	LAN106	Aduru Okwangole	20/09/2018	India Mark II	2.3963483	33.0017417
	LAN107	Obal	08/05/2018	India Mark II	2.3676505	32.996322
	LAN108	Akwac B	18/09/2018	India Mark II	2.5764139	33.0829504
	LAN109	Yabwangi	19/09/2018	India Mark II	2.6079985	33.1273654
	LAN110	Aloi 'A'	26/09/2018	India Mark II	2.2622178	33.1870911
VPA 140 - GS6350	LAN111	Alumeri	26/09/2018	India Mark II	2.5518616	33.1697037
	LAN112	Amintato B	27/09/2018	India Mark II	2.4428583	32.84746
	LAN113	Amonomito	20/09/2018	India Mark II	2.4019078	33.0228007
	LAN114	Apado	25/09/2018	India Mark II	2.4266033	33.0221233
	LAN115	Awiny	25/09/2018	India Mark II	2.3811007	33.0018148
	LAN116	Ayitatwon	27/09/2018	India Mark II	2.4785967	32.8510869
	LAN117	Bung	28/09/2018	India Mark II	2.4562228	32.7829023
	LAN118	Entebbe	27/09/2018	India Mark II	2.403105	32.8231833
VPA 141 - GS6351	LAN119	Lakcani	25/09/2018	India Mark II	2.2140966	33.1627602
	LAN120	Lela Ocika	28/09/2018	India Mark II	2.4171925	32.8403681
	LAN121	Ober 2	20/09/2018	India Mark II	2.3435231	33.0287326
	LAN122	Okeda "B"	18/09/2018	India Mark II	2.3781424	33.1093679
	LAN123	Okuronyang A	19/09/2018	India Mark II	2.584992	33.1216278
	LAN124	Adwei	19/09/2018	India Mark II	2.5139629	33.1777036
	LAN125	Aliwok B	26/09/2018	India Mark II	2.2803936	33.2340504
	LAN126	Te-Okutu	27/09/2018	India Mark II	2.3961565	32.8590651

VPA 183 - GS7362	LAN127	Abalokara	11/06/2019	India Mark II	2.1469272	32.6490019
	LAN128	Abilonino Tegot	14/06/2019	India Mark II	2.2462092	32.7992385
	LAN129	Alwala	12/06/2019	India Mark II	2.1419266	32.8961259
	LAN130	Acae-Ogik	16/06/2019	India Mark II	2.3298537	32.8302683
	LAN131	Bar-Onger	15/06/2019	India Mark II	2.3580933	32.8903767
	LAN132	Adag-Anii Alito	13/06/2019	India Mark II	1.9539923	33.1506963
	LAN133	Adakingo	12/06/2019	India Mark II	2.1322531	32.8873809
	LAN134	Akena B	13/06/2019	India Mark II	2.3699591	32.8491905
VPA 184 - GS7363	LAN135	Worekeni	13/06/2019	India Mark II	2.3447874	32.8198893
	LAN136	Alelibanya	14/06/2019	India Mark II	2.2417776	32.7688308
	LAN137	Abongo Papa	16/06/2019	India Mark II	2.3291833	32.8014667
	LAN138	Aputi	15/06/2019	India Mark II	2.1561416	32.885217
	LAN139	Bar Pii Atidi	16/06/2019	India Mark II	2.3390933	32.7386133
	LAN140	Acan-Mwol	15/06/2019	India Mark II	2.3689317	32.85638
	LAN141	Dogikore	11/06/2019	India Mark II	2.1446574	32.6422134
	LAN142	Odeo	12/06/2019	India Mark II	2.1654987	32.8821363
VPA 185 - GS7364	LAN143	Omoladyang Dani	11/06/2019	India Mark II	2.1434248	32.6942997
	LAN144	St. Anne	14/06/2019	India Mark II	2.2174856	32.7358987
	LAN145	Te-Opok	13/06/2019	India Mark II		
	LAN146	Akao	12/06/2019	India Mark II	2.1343405	32.91275
	LAN147	Cungapenyi	16/09/2019	India Mark II		
	LAN148	Adagani Dokolo	13/09/2019	India Mark II	2.3793717	32.8977733
	LAN149	Ageni 'A'	12/09/2019	India Mark II	1.884417	33.0382262
	LAN150	Adwongdokinyom	16/09/2019	India Mark II	1.8910439	33.0669649
	LAN151	Angeta	14/09/2019	India Mark II	1.8695752	33.1088901
	LAN152	Apanyapany	16/09/2019	India Mark II		
VPA 186 - GS7365	LAN153	Adak 'B'	16/09/2019	India Mark II	1.9679001	33.1209412
	LAN154	Ajaa 'A'	12/09/2019	India Mark II	1.8816906	33.0770643
	LAN155	Alut	12/09/2019	India Mark II	1.8948798	33.0324346
	LAN156	Aluti	11/09/2019	India Mark II	1.9885369	33.0986594
	LAN157	Acwer	13/09/2019	India Mark II	1.8748343	33.0918069
	LAN158	Otongodel	10/09/2019	India Mark II	1.8209198	33.0994661
	LAN159	Aringading	14/09/2019	India Mark II	1.9694158	33.164138
	LAN160	Awali	15/09/2019	India Mark II	2.3411654	32.8551732
VPA 187 - GS7366	LAN161	Awat 'B'	11/09/2019	India Mark II	1.946345	33.1411833
	LAN162	Aweiwoo	11/09/2019	India Mark II	2.0006652	33.1221645
	LAN163	Ayetayet 'A'	10/09/2019	India Mark II	1.9232805	33.0674048
	LAN164	Aminalaki	16/09/2019	India Mark II		
	LAN165	Obelower	10/09/2019	India Mark II	1.9074783	33.0426817
	LAN166	Onango	16/09/2019	India Mark II		
	LAN167	Oyengopere 'A'	12/09/2019	India Mark II	1.8701933	33.05092
	LAN168	Oyengopere 'B'	16/09/2019	India Mark II	1.8744729	33.0578033
	LAN169	Adicwiny	14/09/2019	India Mark II	1.9362745	33.1101604
	LAN170	Atangangwalo	15/09/2019	India Mark II	2.287116	33.3175287

A.2. Location of project

>>

This project is located in Lango sub-region, Northern Uganda. Below is the geographic reference to allow unique identification of the project boundary. The target area and the fuel collection area are defined as being contained within project boundary, with the outer limits of the project boundary being clearly defined below. As the majority of

beneficiaries collect their wood fuel locally in close proximity to their homesteads, the woodfuel collection area and target area are considered the same.

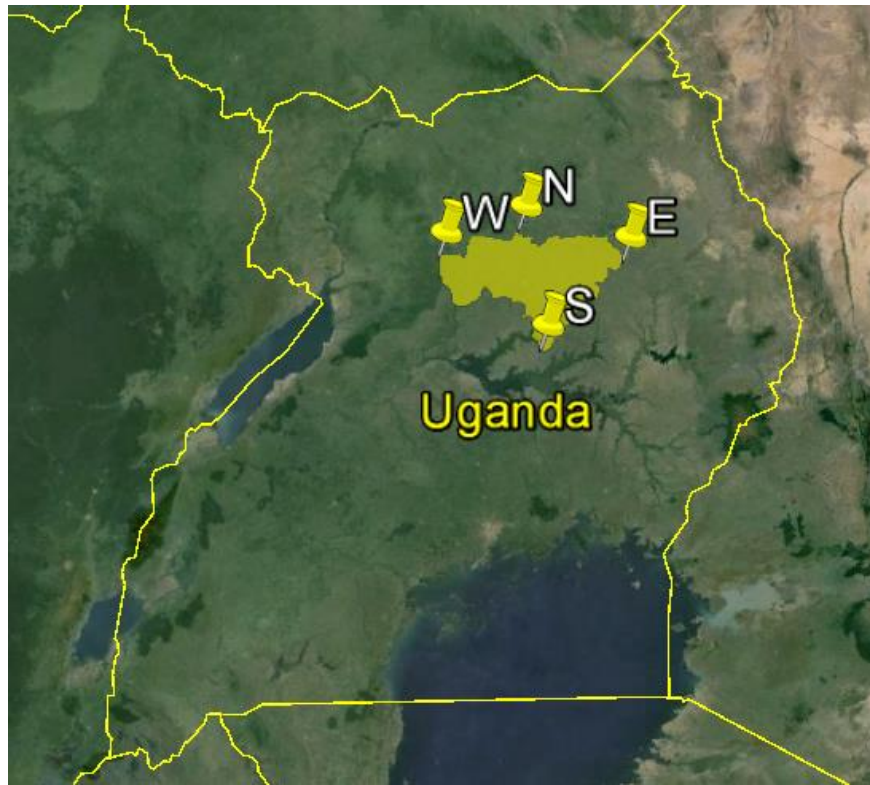


Figure 1. Map of Uganda with the Lango sub region outlined

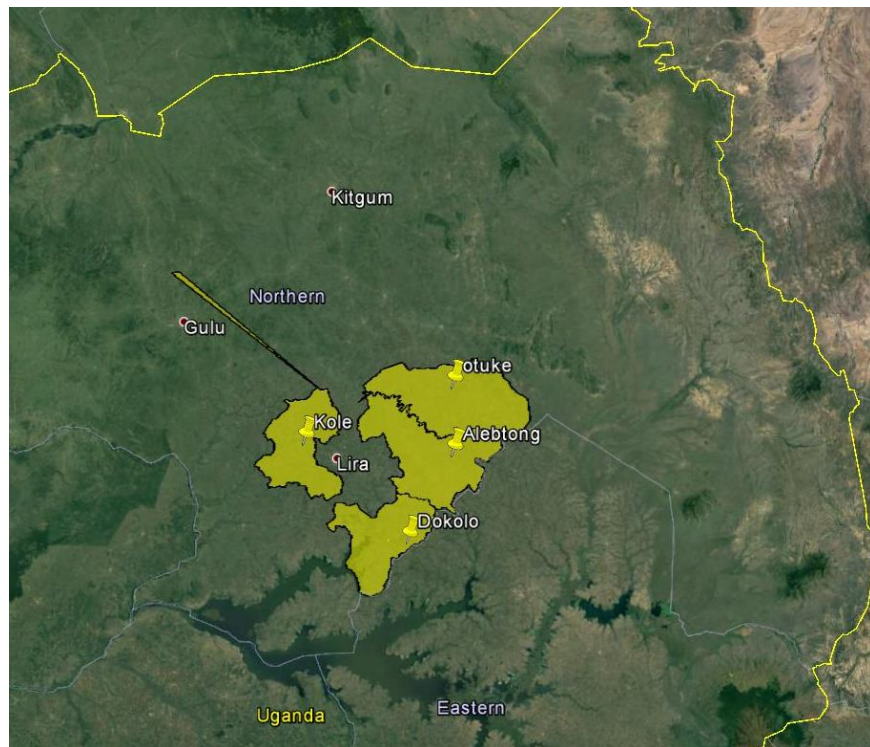


Figure 2. Map outlining the four surveyed districts

Table 1. Geographical characteristics of Alebtong, Dokolo, Otuke and Kole Districts

Country	Region	District	Population	Geographical Reference	
Uganda	Northern Uganda	Alebtong	227,541 (2014 Census)	Lat 2.257959	Lon 33.290910
Uganda	Northern Uganda	Dokolo	183,093 (2014 Census)	Lat 1.927760	Lon 33.075794
Uganda	Northern Uganda	Otuke	104,254 (2014 Census)	Lat 2.518926	Lon 33.397837
Uganda	Northern Uganda	Kole	239,327 (2014 Census)	Lat 2.370110	Lon 32.763304

A.3. Reference of applied methodology

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Technologies and Practices to Displace Decentralised Thermal Energy Consumption v1 Methodology applied.

GS Gender Equality Requirements & Guidelines document has been consulted for the project's gender equality annex.

A.4. Crediting period of project

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GS5106: 10/12/2016 to 09/12/2023

GS5186: 09/12/2016 to 08/12/2023

GS5187: 12/10/2016 to 11/10/2023

GS5188: 14/10/2016 to 13/10/2023

GS5189: 01/03/2017 to 28/02/2024

GS5190: 02/03/2017 to 01/03/2024

GS5191: 28/02/2017 to 27/02/2024

GS5192: 03/05/2017 to 02/05/2024

GS5193: 03/05/2017 to 02/05/2024

GS5194: 18/10/2016 to 17/10/2023

GS5196: 03/05/2018 to 02/05/2025

GS5197: 03/05/2018 to 02/05/2025

GS6349: 07/05/2018 to 06/05/2025

GS6350: 21/09/2018 to 20/09/2025

GS6351: 19/09/2018 to 18/09/2025

GS7362: 12/06/2019 to 11/06/2026

GS7363: 12/06/2019 to 11/06/2026

GS7364: 12/06/2019 to 11/06/2026

GS7365: 11/06/2019 to 10/06/2026

GS7366: 11/06/2019 to 10/06/2026

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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In Uganda over 45% of the rural population do not have access to safe water and rely exclusively on unprotected wells, lakes and other open water sources that are highly susceptible to contamination. Many existing boreholes in Lango sub-region, including the districts of Alebtong, Dokolo, Otuke and Kole, are owned by community groups or community-based organizations (CBOs) and have fallen into disrepair because maintenance programmes have been poorly managed, or proven too expensive.

CO2balance has worked with community groups in the project districts to identify broken down water points, renovate them and supply a maintenance programme to ensure that clean, safe water is delivered as a result of this project. The water points included under the project are entirely human operated and fitted with hand pump models that are commonly used in the area such India Mark II pumps. The depth of the boreholes is limited to 100m or less.

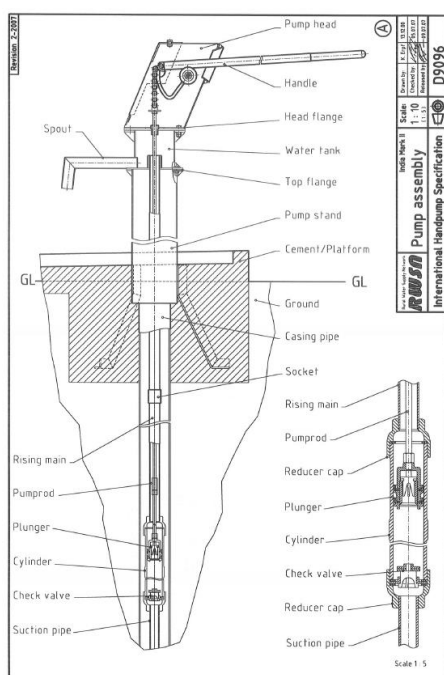


Figure 1. Components of an uninstalled hand pump (left) and an India Mark II pump in operation (right)

Table 2. Borehole technology specifications

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

India Mark II Specification¹:



¹ Rural Water Supply Network (2018) 'India Mark II'

<http://www.rural-water-supply.net/en/implementation/public-domain-handpumps/india-mark-ii>

The maintenance programme ensures that all project boreholes are functional. The Water Resource Committees are trained to maintain the boreholes and carry out small repairs. For more technical maintenance the CO2balance field team arrange for technicians to visit the boreholes. Each borehole is visited frequently during the monitoring period to meet with the WRC and inspect the hand pump and surrounding area. The project ensures that the boreholes provide water of a sufficient quality through a programme of WASH training and management of the surrounding areas, and this is confirmed by annual water quality tests.

In total 169 boreholes have been rehabilitated across 20 VPAs between 11th October 2016 – 16th September 2019. The date, location and number of people served by each borehole is given in the Emission Reduction Calculations Sheet, which forms the project database. Boreholes that have not met the requirements for crediting, will be removed within the ER calculations; there are 6 boreholes that are not active this monitoring period (highlighted in grey in ER calcs).

B.1.1. Forward Action Requests

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Forward Action Request # 1: The PD shall take into account the seasonal variations, while conducting the WCFT during the next monitoring period.

The WCFT for this monitoring period was carried out between February and March 2023 in order to account for both the rainy and dry seasons in Northern Uganda.

Forward Action Request # 2: PD shall identify the root cause reduction in time saving spent on water collected and put in place measures to address prolonged/frequent breakdowns and in order to ensure that the end users do not spend a lot of time collecting water. If the time spent on fetching water prolongs, then the project contribution to SDG5 will be affected and the PD claim on SDG will be impacted.

There is an increase in reduction in time spent collecting water this monitoring period (19.6%) compared to the previous monitoring period (11%), demonstrating progress towards achieving this aim. Water Sensors are being trialed on project water points in this project to improve the data on breakdowns and therefore enable to opportunity to reduce the number of downdays. Toll-free phone lines are also being trialed in a

number of communities to encourage the communities to report breakdowns quickly and at no cost to them.

Forward Action Request # 3: Based on the identified root cause of water quality failure, PD shall document measures initiated and track their implementation to ensure that the affected boreholes pass the water quality test. The measures put in place shall be documented in the MR during the next verification and be verified by the VVB.

PD has continued to work with the National Water Laboratory to gain advice on relevant interventions when a borehole fails for poor water quality that is potentially harmful to health. PD continues to deliver annual WASH training and reviews hygiene status of the borehole and surrounding area during frequent follow up visits. Evidence cannot be shown for this monitoring period due to the FAR being received after the end of the monitoring period.

Forward Action Request # 4: PD should recalculate the fNRB in-house for the next verification.

The fNRB has been recalculated in-house for this monitoring period and updated the figure to 0.81. Please refer to the fNRB report for a breakdown of the calculation.

B.2. Post-Design Certification changes

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

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No temporary deviations have been made.

B.2.2. Corrections

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No corrections have been made.

B.2.3. Changes to start date of crediting period

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No changes have been made to any crediting periods.

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

>>

No permanent changes have been made.

B.2.5. Changes to project design of approved project

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No changes have been made to the project design.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

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During this monitoring period, 150 project and usage surveys were conducted between the 27th of February 2023 and 7th of March 2023. The random sample was made up of 190 households, to ensure that number of HHs surveyed satisfies the methodological requirement of >100.

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 sent to the UK head office for data analysis. The documentation procedure that CO2balance has devised ensures a minimum chance of original data being lost – all original copies of our project documentation are retained in the Uganda 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. The sample employs age sensitive sampling as the boreholes have been rehabilitated over multiple years. The boreholes are grouped into those rehabilitated in 2016, 2017, 2018 and 2019. GS5195 is included in the random sample. This totals 170 boreholes, 169 of which fill the VPAs covered in this monitoring report, and the other 1 borehole has a separate monitoring report, but all are monitored as a homogenous group. The final number of boreholes included in the random sample selection process may vary from the overall borehole database list in this monitoring report due to boreholes becoming inactive throughout the monitoring period. Boreholes selected in the random sample may also become inactive following this, as was the case with LAN145 in this monitoring period. Based on the 90/30 precision defined in the methodology, 7 boreholes from each age group are included in the sample. The boreholes of each age group are assigned a random

number. This is then sorted from lowest to highest, and the boreholes numbered 1-7 selected for the sample.

The household (HH) list for each randomly selected borehole is collated and each HH assigned a random number. This is then sorted in order from lowest to highest and based on a weighted average, the number of HHs are selected for the survey. This provides a random sample of a total of 190 HHs in total. This more than satisfies the minimum required sample of 30 households per age group.

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

Initial lists are provided by the community group/district officials with which boreholes to rehabilitate and how many households/people are in each community. After the rehabilitation has been completed, field officers collect user lists throughout the crediting period in order to ensure the number of people using each borehole is kept up to date. These further studies are conducted to screen and determine the exact number of people using 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 $Q_{p,y}$ and $Q_{p,rawboil,y}$)
 - Completed prior to first verification and then biennially on a minimum sample of 40 households. Completed in this monitoring period.
- **Quality of the treated water** - The quality of the treated water was assessed to ensure that it is fit for human consumption. The parameters used to assess the water quality is in line with Ugandan standards for potable water. Any boreholes which failed to meet water quality standards, were removed from crediting from the monitoring period. The water quality tests (WQTs) are carried out by the National Water Quality Reference Laboratory – Entebbe, as part of the Ministry of Water and Environment. When a WQT has concluded that the water provided by a borehole is not meeting the requirements to be safe drinking water, the country manager liaises with the Water Quality Analyst from the National Laboratory to discuss intervention approaches. In many cases it is a result of natural causes which the PD cannot control such as flooding increasing turbidity. If the Water Quality Analyst states that intervention is recommended, the PD will take action. This usually involves improving the WASH system. In most cases within this monitoring period, the WQT parameters that failed to meet the drinking water standards (such as total iron and chlorides) don't require serious intervention. This is usually only required for parameters such as E.coli, in which case chlorination of the borehole will occur where needed. In this monitoring period, no chlorination of boreholes occurred due to the cause of failure either being heavy rainfall (out of PD control), or poor hygiene (further WASH trainings and follow-up visits undertaken). The Ministry of Water has advised against chlorination action to remain in line with other stakeholders in the area. The results of any intervention measures are reflected within subsequent WQTs.
- **Usage Survey** - The annual usage survey was conducted using a sample size of 190 households. 150 households were surveyed, meeting the minimum requirements of over 100.
- **Project Survey** – The project survey was conducted using the same sample as the Usage Survey, surveying end users currently using project technologies to explore changes in project scenario over time. 150 households were surveyed, meeting the minimum requirements of over 100.

- **Leakage** - The PDD has described which sources of leakage detailed within the methodology are relevant to this project and which have been discounted. Individual participants were selected from the borehole user database using the random sampling process outlined in the monitoring plan. Sample sizes are in line with the Gold Standard requirements.
- **Monitoring Site Visits** – Occur on a quarterly basis, as a minimum. Visits involve ensuring operationality of BH, carrying out any required WASH activities with WRC and that the WRC is active.
- **Hygiene Campaign** – The in-country partner ensures that staff are trained in order to conduct the WASH training session to the community. The people attending are recorded by the local partner and allows for an assessment to be made on the effectiveness of the training program and identify areas for improvement. By conducting these trainings, the project improves the health and well-being of the project users by promoting good hygiene practices and better water management. It also ensures that users are minimizing risk of contamination to the safe water provided by the project activity.
- **Gender** – The project is Gender Equality certified under Gold Standard, which allows project developers and funders to quantify and certify the impacts of climate action on SDG 5 (Gender Equality). As part of this, CO2balance carry out frequent monitoring activities and training events relating to gender.

The first large-scale event, a Gender Sensitive Local Stakeholder Consultation (LSC) Meeting, took place in May 2018 in Alebtong District. The consultation aimed to seek the views of the community on how gender impacted the project beneficiaries in relation to various factors, such as female empowerment and decision making. Survey questions were designed in response to the event and added to the annual Project Survey. Analysis is carried out on these results to determine the current situation relating to gender-based violence in the community and if the project has improvement the baseline situation.

Following this initial event, in November and December 2018 a Sensitisation Campaign commenced in all the project Districts (Kole, Otuke, Alebtong, Dokolo). This was to enable the members of water user committees to acquire

knowledge on gender-based violence and group dynamics with the aim of improving relations and interactions among the water user groups for improved water point management and maintenance.

In December 2021, a large-scale refresher Sensitisation Campaign event took place with the main purpose to recap the skills and knowledge given in the 2018 event to the water users. The follow-up activity included water point user committees who had attended the 2018 event as well as new members who had not been part of that event.

From 2019 to present day, annual community follow up surveys were conducted to ensure the information from the 2018 and 2021 large-scale events had been disseminated across the water point communities. The surveys also assessed the current situation relating to gender equality and gender-based violence. These findings, paired with the results from the annual Project Surveys, are assessed and referenced in this report and the Gender Equality Annex Report to demonstrate the impacts of the project on gender aspects.

SECTION D. DATA AND PARAMETERS

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

>>

Relevant SDG Indicator	SDG 3, 6 & 13
Data/parameter:	C_j
Unit	Percentage
Description	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply.
Source of data	Baseline study. Credible literature, studies, survey, reports, relevant to the project target area.
Value(s) applied)	4.56%
Choice of data or measurement methods and procedures	The portion of safe water users is determined through the baseline project survey and refers to the number of users that already use safe water from water sources such as boreholes.
Purpose of data	Calculate ERs, SDG 3 & 6
Additional comments	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination SDG 5: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate. SDG 6: By 2030, achieve universal and equitable access to safe and affordable drinking water for all SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

Relevant SDG Indicator	SDG 13
Data/parameter:	EF _{b,co2} (EF _{b,fuel,co2})
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor arising from use of fuels in baseline scenario
Source of data	IPCC default value: Volume 2: 2006 IPCC Guidance for National Greenhouse Gas Inventories, Chapter 2, Table 2.5: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate ERs
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 13
Data/parameter:	EF _{b,non CO2} (EF _{b,fuel,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 emissions factor: Non-CO ₂ Emissions from Stationary Combustion. Annex 1, Table 2 and Table 3. https://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_2_Non-CO2_Stationary_Combustion.pdf Global Warming Potential: https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf
Value(s) applied)	9.46 (2021)
Choice of data or measurement methods and procedures	Deemed valid by Methodology

	Gas	Default Emissions factor (kg_gas/TJ _{NCV})	GWP of gas	Default Emissions factor (kg_CO ₂ e/TJ _{NCV})	Default Emissions factor (t_CO ₂ e/TJ _{NCV})
	CH ₄	300	28 (2021)	8,400 (2021)	8.4 (2021)
	N ₂ O	4	265 (2021)	1,060 (2021)	1.06 (2021)
				Total	9.46 (2021)
Purpose of data	Calculate ERs				
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities. Following the new rule update regarding the applicability of global warming potential for GS for the Global Goals Projects, AR5 has been applied to 2021 ERs and AR4 to 2020 ERs. The parameter is updated when the IPCC release new figures. EF_{b,non,CO2} (Non-CO2 emission factor arising from use of fuels in baseline scenario) and EF_{p,non,CO2} (Non-CO2 emission factor arising from use of fuels in project scenario) values are set by the IPCC value. This value is updated intermittently and, as per the methodology, the newest figures are included in the Monitoring Report and Emission Reduction Calculations.				

Relevant SDG Indicator	SDG 13
Data/parameter:	NCV _b (NCV _{b,fuel})
Unit	TJ/ton
Description	Net calorific value of the fuels used in the baseline
Source of data	IPCC default value (referenced in TPDDTEC v1)
Value(s) applied)	0.0156
Choice of data or measurement methods and procedures	Deemed valid by Methodology

Purpose of data	Calculate ERs
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 13
Data/parameter:	NCVp
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	IPCC default value (referenced in TPDDTEC v1)
Value(s) applied)	0.0156
Choice of data or measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Calculate ERs
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG13
Data/parameter:	EFp,CO2
Unit	tCO ₂ /TJ
Description	CO2 emission factor arising from use of fuels in project scenario
Source of data	Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5; https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
Value(s) applied)	112
Choice of data or measurement methods and procedures	Deemed valid by Methodology

Purpose of data	Calculation ERs
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

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 emissions factor: Non-CO ₂ Emissions from Stationary Combustion. Annex 1, Table 2 and Table 3. https://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_2_NonCO2_Stationary_Combustion.pdf Global Warming Potential: https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf																							
Value(s) applied)	9.46 (2021)																							
Choice of data or measurement methods and procedures	Deemed valid by Methodology <table border="1"> <thead> <tr> <th></th><th>Default Emissions factor (kg_{gas}/TJ_{NCV})</th><th>GWP of gas</th><th>Default Emissions factor (kg_{CO₂e}/TJ_{NCV})</th><th>Default Emissions factor (t_{CO₂e}/TJ_{NCV})</th></tr> </thead> <tbody> <tr> <td>CH₄</td><td>300</td><td>28 (2021)</td><td>8,400 (2021)</td><td>8.4 (2021)</td></tr> <tr> <td>N₂O</td><td>4</td><td>265 (2021)</td><td>1,060 (2021)</td><td>1.06 (2021)</td></tr> <tr> <td></td><td></td><td></td><td>Total</td><td>9.46 (2021)</td></tr> </tbody> </table>					Default Emissions factor (kg _{gas} /TJ _{NCV})	GWP of gas	Default Emissions factor (kg _{CO₂e} /TJ _{NCV})	Default Emissions factor (t _{CO₂e} /TJ _{NCV})	CH ₄	300	28 (2021)	8,400 (2021)	8.4 (2021)	N ₂ O	4	265 (2021)	1,060 (2021)	1.06 (2021)				Total	9.46 (2021)
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CH ₄	300	28 (2021)	8,400 (2021)	8.4 (2021)																				
N ₂ O	4	265 (2021)	1,060 (2021)	1.06 (2021)																				
			Total	9.46 (2021)																				
Purpose of data	Calculate ERs																							
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities. Following the new rule update regarding the applicability of global warming potential for GS for the Global Goals Projects, AR5 has been applied to 2021 ERs and AR4 to 2020 ERs.																							

	The parameter is updated when the IPCC release new figures. EF_{b,non,CO2} (Non-CO₂ emission factor arising from use of fuels in baseline scenario) and EF_{p,non,CO2} (Non-CO₂ emission factor arising from use of fuels in project scenario) values are set by the IPCC value. This value is updated intermittently and, as per the methodology, the newest figures are included in the Monitoring Report and Emission Reduction Calculations.
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Relevant SDG Indicator	SDG 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)	0.0004
Choice of data or measurement methods and procedures	Gold Standard BAMG Cap.
Purpose of data	Calculation ERs
Additional comments	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

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)	0.0004
Choice of data or measurement methods and procedures	Gold Standard BAMG Default.

Purpose of data	Calculate ERs
Additional comments	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 13
Data/parameter:	Xboil (Non-suppressed demand)
Unit	Percentage
Description	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary
Source of data	Baseline study. Credible literature, studies, survey, reports, relevant to the project target area.
Value(s) applied)	8.91
Choice of data or measurement methods and procedures	Suppressed demand is 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	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 3
Data/parameter:	Pb,boil
Unit	Percentage
Description	Percentage of persons boiling water for purification in the baseline scenario
Source of data	Baseline study (Qs 18-19)
Value(s) applied)	0.8
Choice of data or measurement methods and procedures	The percentage of people stating that they used to boil their water for purification in the baseline scenario, evaluated through the baseline survey.
Purpose of data	Determination of number of persons boiling water in the baseline
Additional comments	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. 3.9.1: Mortality rate attributed to household and ambient air pollution. 3.9.2: Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services SDG 3

Relevant SDG Indicator	SDG 5
Data/parameter:	Tb,y
Unit	Minutes
Description	Time spent collecting water per household per day prior to project
Source of data	Gender Baseline Survey
Value(s) applied)	169.5
Choice of data or measurement methods and procedures	Survey
Purpose of data	Calculating time saved by project
Additional comments	SDG 5 (Gender Equality) 5.4: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection

	policies and the promotion of shared responsibility within the household and the family as nationally appropriate. 5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location
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D.2. Data and parameters monitored

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Relevant SDG Indicator	SDG 13
Data / Parameter	$f_{NRB,i,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	In-house calculation
Value(s) applied	0.81
Measurement methods and procedures	FNRB Assessment
Monitoring frequency	Fixed by baseline study for a given crediting period, updated if necessary, as specified in section III.1 of methodology.
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculate Emissions Reductions
Additional comment	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 13
Data/parameter:	$N_{p,y}$
Unit	Project Technology Days
Description	Number of persons consuming water supplied by project scenario p through year y
Measured/calculated/default	Measured

Source of data	Borehole Project Database
Value(s) of monitored parameter	GS5106: 921,260 GS5186: 969,513 GS5187: 792,800 GS5188: 861,674 GS5189: 603,750 GS5190: 513,075 GS5191: 832,200 GS5192: 1,100,585 GS5193: 1,040,250 GS5194: 363,546 GS5196: 699,650 GS5197: 643,915 GS6349: 780,534 GS6350: 791,630 GS6351: 804,078 GS7362: 832,200 GS7363: 823,844 GS7364: 694,540 GS7365: 801,339 GS7366: 832,200 Total: 15,702,583
Monitoring equipment	Borehole Database
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Borehole users * days in MP – breakdown days
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculate ERs
Additional comments:	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 3, 6 & 13
Data/parameter:	$U_{p,y}$
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	99.56% (95% cap used in ERs)
Monitoring equipment	The usage survey has been carried out by staff trained by CO2balance to meet the specific requirements of the methodology. All data presented in Excel is subject to checking and cross referencing of a sample of the raw data by the project developers.
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	-
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculate ERs
Additional comments:	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. SDG 6: By 2030, achieve universal and equitable access to safe and affordable drinking water for all. SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 3 & 13
Data/parameter:	$Q_{p,y}$
Unit	Litres per person per day
Description	Quantity of safe water supplied in the project scenario p during the year y using the zero or low emissions clean water supply technology
Measured/calculated/default	Measured

Source of data	Water Consumption Field Test (WCFT)
Value(s) of monitored parameter	7.5 (Capped), 25.98 (2023 WCFT result value)
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. Volume capped at 7.5 litres per person per day as per the methodology The WCFT is be carried out by staff trained by CO2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by CO2balance UK Ltd.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculate ERs
Additional comments:	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 3 & 13
Data/parameter:	$Q_{p, \text{cleanboil}, y}$
Unit	Litres per person per day
Description	Quantity of safe water boiled in the project scenario p during the year y using the zero or low emissions clean water supply technology
Measured/calculated/default	Measured
Source of data	WCFT
Value(s) of monitored parameter	0
Monitoring equipment	-
Measuring/reading/recording frequency:	Biennial

Calculation method (if applicable):	
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculate ERs
Additional comments:	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 3 & 13
Data/parameter:	$Q_{p,rawboil,y}$
Unit	Litres per person per day
Description	The raw of unsafe water that is still boiled after installation of the water treatment technology.
Measured/calculated/default	Measured
Source of data	WCFT
Value(s) of monitored parameter	0
Monitoring equipment	-
Measuring/reading/recording frequency:	Biennial
Calculation method (if applicable):	-
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculate ERs
Additional comments:	SDG 3: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

Relevant SDG Indicator	SDG 6
Data/parameter:	Quality of Treated Water
Unit	Parameters as per national standards
Description	Performance of the treatment technology
Measured/calculated/default	Measured
Source of data	Water quality tests
Value(s) of monitored parameter	Pass (97%) / Fail (3%)
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	-
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Ensure water is safe for human consumption without treatment using the baseline technology.
Additional comments:	SDG 6: By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

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:	Transparent data analysis and reporting
Purpose of data:	Calculate ERs
Additional comments:	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small

	island developing States, including focusing on women, youth and local and marginalized communities.
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Relevant SDG Indicator/Safeguarding Principle	SDG 6
Data / Parameter	Py
Unit	Number
Description	Number of persons having access to safe water in the project activity
Measured/calculated/default	Calculated
Source of data	Household lists
Value(s) of monitored parameter	GS5106: 2,775 GS5186: 2,796 GS5187: 2,500 GS5188: 2,485 GS5189: 1,800 GS5190: 1,500 GS5191: 2,400 GS5192: 3,174 GS5193: 3,000 GS5194: 1,626 GS5196: 2,186 GS5197: 1,857 GS6349: 2,251 GS6350: 2,283 GS6351: 2,329 GS7362: 2,400 GS7363: 2,395 GS7364: 2,003 GS7365: 2,311 GS7366: 2,400 Total: 46,471
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual (recorded continuously)
Calculation method (if applicable):	Sum of the total number of people using each water

	point in the project. The total number of households using each water point will be established through lists supplied by the water resource committee and/or community group and/or district officer responsible for that water point. Using this method, the total number of people using each water point will be known.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculating access to safe water
Additional comments:	SDG 6: By 2030, achieve universal and equitable access to safe and affordable drinking water for all

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	1. (Unpaid) Domestic work (includes cooking and caring for family members): 100% 2. Income generating activities: 99% 3. Religious activities: 94% 4. Social and leisure activities: 93% 5. Voluntary activities: 73% 6. Education and training: 49% 7. Other (Specify): 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:	Transparent data analysis and reporting
Purpose of data	To quantify how time which was previously spent on water collection is now being used
Additional comments:	SDG 5: Recognize and value unpaid care and domestic

	work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.
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Relevant SDG	SDG5
Indicator/Safeguarding Principle	
Data / Parameter	Tp,y
Unit	Minutes
Description	Time spent collecting water per household per day in project
Measured/calculated/default	Measured
Source of data	Project survey
Value(s) of monitored parameter	136.3
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Project Survey
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data	Calculate time saved for women by the project
Additional comments:	SDG 5: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.

Relevant SDG	SDG 3 (Good Health and Wellbeing)
Indicator/Safeguarding Principle	
Data / Parameter	P _{safe}
Unit	Number
Description	Number of additional persons consuming safe water in the project activity compared to the baseline scenario.
Measured/calculated/default	Calculated

It	
Source of data	Household lists and Usage Survey
Value(s) of monitored parameter	GS5106: 2,496 GS5186: 2,515 GS5187: 2,248 GS5188: 2,235 GS5189: 1,619 GS5190: 1,349 GS5191: 2,159 GS5192: 2,855 GS5193: 2,698 GS5194: 1,462 GS5196: 1,966 GS5197: 1,670 GS6349: 2,025 GS6350: 2,053 GS6351: 2,095 GS7362: 2,159 GS7363: 2,154 GS7364: 1,801 GS7365: 2,078 GS7366: 2,159 Total: 41,795 persons consuming safe water across all VPA's
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Review the number of people using the water point according to the household lists for each VPA and multiply by the usage rate to calculate the number of people now using a safe water source in order to calculate the amount of biomass that would have been burnt to purify the water in the baseline scenario. Deduct from this any individuals that still boil water in the project scenario.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data	To calculate the additional number of persons having access to safe water in the project activity compared to the baseline scenario.

Additional comments:	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities
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Relevant SDG Indicator/Safeguarding Principle	SDG 5
Data / Parameter	TR _y
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	19.6% (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:	Transparent data analysis and reporting -
Purpose of data	To quantify whether the project has contributed to a reduction in the amount of time spent collecting water compared to the pre-project scenario
Additional comments:	SDG 5: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

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	GS5106: 2,516 GS5186: 2,535 GS5187: 2,267 GS5188: 2,253 GS5189: 1,632 GS5190: 1,360 GS5191: 2,176 GS5192: 2,878 GS5193: 2,720 GS5194: 1,474 GS5196: 1,982 GS5197; 1,684 GS6349: 2,041 GS6350: 2,070 GS6351: 2,112 GS7362: 2,176 GS7363: 2,171 GS7364: 1,816 GS7365: 2,095 GS7366: 2,176 Total: 42,134 additional persons with access to safe water in the project activity across all VPAs
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Water point users * Usage rate
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	To calculate the additional number of persons having access to safe water in the project activity compared to the baseline scenario
Additional comments:	SDG 6: By 2030, achieve universal and equitable access to safe and affordable drinking water for all

Relevant SDG Indicator	SDG 13
Data / Parameter	Failure Days _y
Unit	Number
Description	Number of days a particular water point was non-functioning due to breakdown during year y
Source of data	Borehole visits, communications from WRC
Value(s) applied	746 days
Measurement methods and procedures	RCF collection, Borehole visits, communications from WRC. Please see ER calculations on how these days are incorporated.
Monitoring frequency	Ongoing
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculating ERs
Additional comment	SDG 13: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
Psafe	41,795	41,618
TRy	19.6%	11.0%
Paccess	42,134	41,955
Py	46,471	46,771
Failure Days _y	746 days	834 days
Tp _y	136.3	150.9
Usage of time saved on water collection	1. (Unpaid) Domestic work (includes cooking and caring for family members): 100% 2. Income generating activities: 99% 3. Religious activities: 94%	1. (Unpaid) Domestic work (includes cooking and caring for family members): 93% 2. Income generating activities: 52% 3. Religious activities: 40%

	4. Social and leisure activities: 93%	4. Social and leisure activities: 47%
	5. Voluntary activities: 73%	5. Voluntary activities: 20%
	6. Education and training: 49%	6. Education and training: 5%
	7. Other (Specify): 0%	7. Other (Specify): 0%
Up,y	99.56 (94% cap)	94% (95% cap)
Qp,y	25.98 (7.5 cap)	24.7 (7.5 cap)
Np,y (PTD Total)	15,702,583	12,399,258
Qp,rawboil,y	0	0
QP,cleanboil,y	0	0
LEp,y	0	0

D.4. Implementation of sampling plan

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The project proponent has elected to cross-sample technologies across all its homogenous borehole VPAs located within the Lango sub-regions. Cross sampling of devices was applied across VPAs GS5106, GS5186, GS5187, GS5188, GS5189, GS5190, GS5191, GS5192, GS5193, GS5194, GS5196, GS5197, GS6349, GS6350, GS6351, GS7362, GS7363, GS7364, GS7365 and GS7366. As all VPAs are homogenous - located in the same region, use the same technology, and share a common baseline - cross sampling of devices shall be applied across all VPAs rather than on a VPA by VPA basis.

Cross sampling was applied to the following surveys:

- Project surveys
- Usage surveys
- Water Consumption Field Test surveys

As per the methodology, for sampling purposes the boreholes were separated by age groups. Rehabilitation took place between October 2016 and October 2019. Therefore, boreholes were split into those from 2016, 2017, 2018 and 2019. The final number of boreholes included in the random sample selection process may vary from the overall borehole database list in this monitoring report due to boreholes becoming inactive throughout the monitoring period. Boreholes selected in the random sample may also

become inactive following this, as was the case with LAN145 in this monitoring period. The monitoring system follows the 90/30 rule set out in TPDDTEC for selecting a sample. Based on this rule, the appropriate sample size for each age group is 7 boreholes. For all age groups, each borehole was assigned a random number using an online tool, with the first 7 selected for sampling. The household lists for these 7 boreholes were put together and assigned a random number with the same online tool. This is then sorted from lowest to highest, and the boreholes numbered 1-7 selected for the sample. The household (HH) list for each randomly selected borehole is collated and each HH assigned a random number. This is then sorted in order from lowest to highest and based on a weighted average, the number of HHs are selected for the survey. This provides a random sample of a total of 190 HHs in total. This more than satisfies the minimum required sample of 30 households per age group.

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

SECTION E. CALCULATION OF SDG IMPACTS

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

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SDG 3 (Good Health and Wellbeing)

The outcome for SDG 3 is quantified as the additional number of persons consuming safe water in the project activity compared to the baseline scenario (P_{safe}). The number of persons using each borehole is determined in the sensitization process during the rehabilitation. The percentage of users who were already consuming safe water in the baseline without boiling it (C_j) is determined through the baseline survey and deducted. Additionally, the percentage of users who consumed safe water by boiling it in the baseline ($P_{b,boil}$) is deducted. Calculations are as follows:

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

Where:

P_{safe}	Number of additional persons consuming safe water in the project activity compared to the baseline scenario.
P_y	Number of persons having access to safe water in the project activity.
C_j	Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.
$P_{b,boil}$	Percentage of persons boiling water for purification in the baseline scenario.

SDG 5 (Gender Equality)

By ensuring that there is a safe water source at the centre of communities, the projects have the potential to reduce the time poverty of women, because the time burden of collecting water, which falls disproportionately on women, will be reduced. As the safe water sources are located centrally within communities, closer to public institutions and villages, the distance travelled to collect water will be reduced, reducing the time per trip spent collecting water. In addition, as the water sources will be maintained, they will provide a reliable water supply, ensuring that water needs for

cooking, drinking, and food preparation can be met by one central water source, so the time spent collecting water is minimised. The average % decrease per household in time spent collecting water will be taken as a proxy contribution towards the SDG target.

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

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

Where:

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

SDG 6 (Clean Water and Sanitation)

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

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

Where:

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

C_j	Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.
$U_{p,y}$	Usage rate in project scenario p during year y

SDG 13 (Climate Action)

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

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

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

Where:

$$B_{p,y} = (1 - C_j) * N_{j,y} * W_{t,y} * (Q_{j,y} + Q_{j,rawboil,y}) \quad (11)$$

Where:

$N_{j,y}$	Number of person.days consuming water supplied by project scenario p through year y ⁴⁷
C_j	Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it
$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during the year y in tons
$Q_{p,y}$	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day
$W_{b,y}$	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y , as per Baseline Water Boiling Test.

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

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SDG 3 (Good Health and Wellbeing)

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

SDG 5

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

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 ($PE_{b,y}$)

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

Where:

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

C_j	Expressed as a percentage, this is the portion of users of the project technology j or who in the baseline were already consuming safe water without boiling it
$B_{p,y}$	Quantity of fuel consumed in project scenario p during the year y in tons
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day
$Q_{p,cleannoil,y}$	Quantity of safe water boiled in the project scenario p per person per day
$W_{p,y}$	Quantity of wood fuel or fossil fuel in tons required to treat 1 litre of water using technologies representative of the project scenario p during project year y

E.3. Calculation of leakage

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Leakage Assessment

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

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

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

b) Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity

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

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

There are currently no other CDM or VER projects in the project area, however, this will be reviewed biennially.

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

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

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

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

A value of 0 is applied for leakage, which will be monitored biennially, following first verification as per the requirements of the methodology.

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

SDG 3

$$P_{\text{safe}} = 41,795 = 46,471 * (1 - 0.0456) * (1 - 0.008) * 0.95$$

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

*N.B. This is a sum of all VPA's P_{safe} and P_y figures, demonstrating the calculation. See individual VPA values and calculations in ER Calculation spreadsheet.

Where:

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

P_y	Number of persons having access to safe water in the project activity
C_j	Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.
$P_{b,boil}$	Percentage of persons boiling water for purification in the baseline scenario
$U_{p,y}$	Usage rate in project scenario p during year y

SDG 5

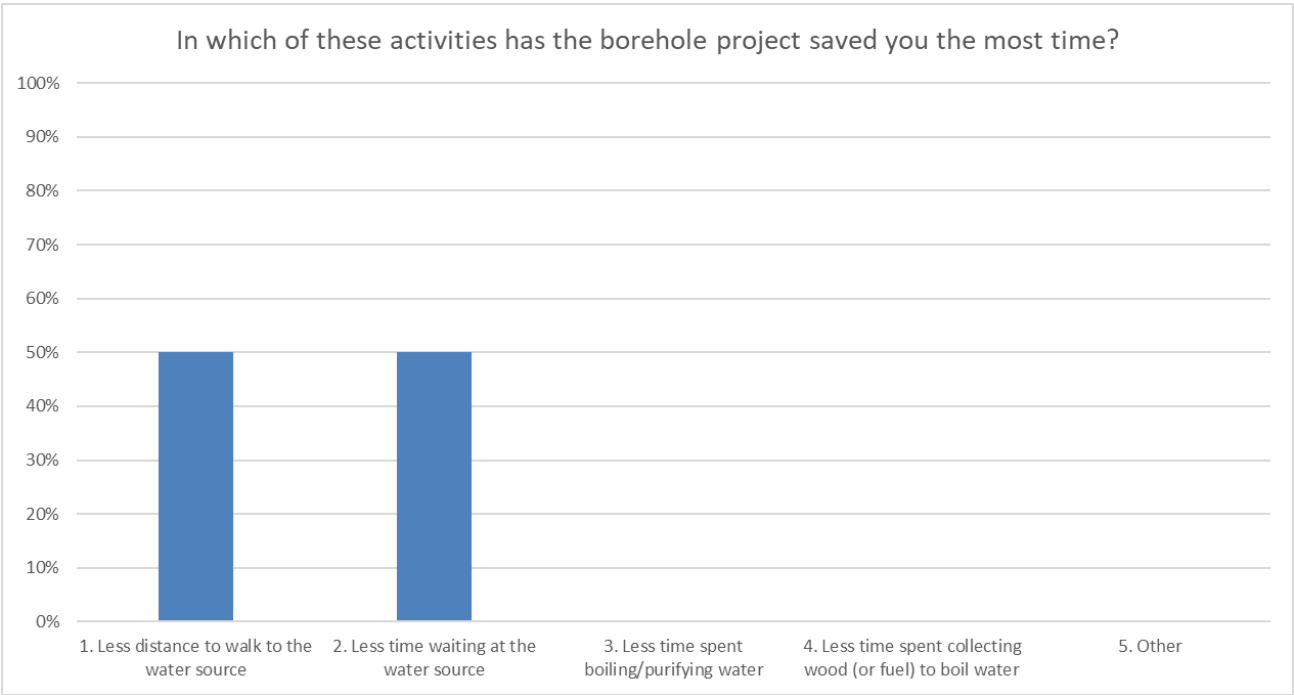
$$TR_y = 19.6\% = (169.5 - 136.3) / 169.5$$

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

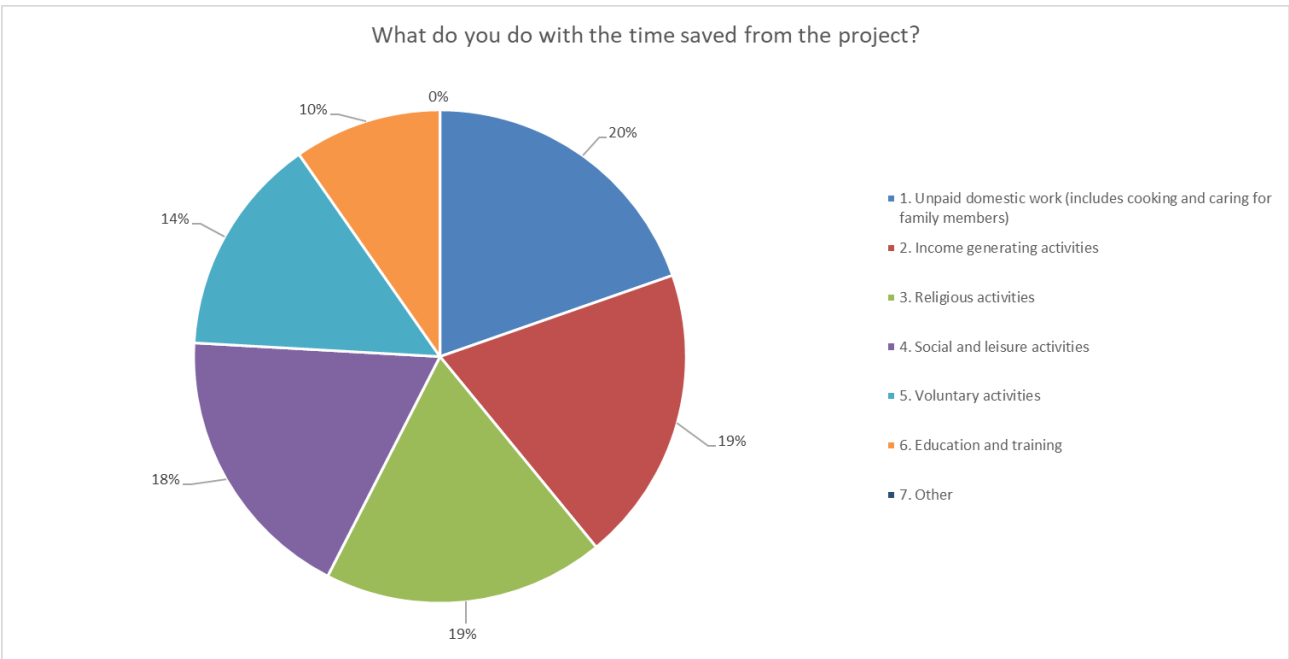
Where:

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

The project has saved households on average 136.3 minutes per day. 100% of households stated that the borehole project has saved them time, with 50% saying it has reduced the walking distance to the water source and 50% saying they have spent less time waiting at the water source.



The time saved from the project is used in the following ways:



SDG 6

$$P_{\text{access}} = 42,134 = 46,471 * (1 - 0.0456) * 0.95$$

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

*N.B. This is a sum of all VPA's P_y and P_{access} figures, demonstrating the calculation. See individual VPA values and calculations in ER Calculation spreadsheet.

Where:

P_{access}	Number of additional persons having access to safe water in the project activity compared to the baseline scenario.
P_y	Number of persons having access to safe water in the project activity.
C_j	Expressed as a percentage, the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.
$U_{p,y}$	Usage rate in project scenario p during year y

SDG 13 & Emission Reductions

In MP7 the project achieved a total capped ERs of 60,139 tCO₂e. Below is a summary of the ERs by VPA and vintage.

GS5106

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		921,260
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2637.75
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		921,260
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TJ/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	4,122
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,916
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of non-suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,529
Emission Reductions claimed	ERy	tCO2/y	3,529

GS5186

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		969,513
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2775.91
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		969,513
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	4,338
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	4121
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,713
Emission Reductions claimed	ERy	tCO2/y	3,713

GS5187

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		792,800
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2269.94
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		792,800
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,547
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,370
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,036
Emission Reductions claimed	ERy	tCO2/y	3,036

GS5188

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		861,674
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2467.14
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		861,674
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	Tco2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,856
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,663
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,300
Emission Reductions claimed	ERy	tCO2/y	3,300

GS5189

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		603,750
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	1728.66
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		603,750
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	Tco2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,702
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	2,566
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of non-suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	2,312
Emission Reductions claimed	ERy	tCO2/y	2,312

GS5190

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		513,075
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	1469.04
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		513,075
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	Tco2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,296
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	2,181
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	1,965
Emission Reductions claimed	ERy	tCO2/y	1,965

GS5191

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		832,200
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2382.76
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		832,200
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	Tco2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,724
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,538
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,188
Emission Reductions claimed	ERy	tCO2/y	3,188

GS5192

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		1,100,585
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	3151.19
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		1,100,585
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	Tco2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	4,925
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	4,678
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	4,215
Emission Reductions claimed	ERy	tCO2/y	4,215

GS5193

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		1,040,250
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2978.44
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		1,040,250
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	Tco2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	4,655
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	4,422
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of non-suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,984
Emission Reductions claimed	ERy	tCO2/y	3,984

GS5194

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		363,546
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	1040.90
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		363,546
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	1,627
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	1,545
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	1,392
Emission Reductions claimed	ERy	tCO2/y	1,392

GS5196

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		699,650
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2003.24
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		699,650
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,131
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	2,974
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	2,680
Emission Reductions claimed	ERy	tCO2/y	2,680

GS5197

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		643,915
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	1843.66
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		643,915
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	2,881
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	2,737
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of non-suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	2,466
Emission Reductions claimed	ERy	tCO2/y	2,466

GS6349

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		780,534
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2234.83
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		780,534
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	TCO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,493
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,318
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of non-suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	2,989
Emission Reductions claimed	ERy	tCO2/y	2,989

GS6350

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		791,630
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2266.60
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		791,630
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,542
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,365
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,031
Emission Reductions claimed	ERy	tCO2/y	3,031

GS6351

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		804,078
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2302.24
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		804,078
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,598
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,418
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,079
Emission Reductions claimed	ERy	tCO2/y	3,079

GS7362

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		832,200
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2382.76
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		832,200
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,724
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,538
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,188
Emission Reductions claimed	ERy	tCO2/y	3,188

GS7363

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		823,844
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2358.83
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		823,844
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,686
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,502
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,156
Emission Reductions claimed	ERy	tCO2/y	3,156

GS7364

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		694,540
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	1988.61
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		694,540
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,108
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	2,952
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	2,660
Emission Reductions claimed	ERy	tCO2/y	2,660

GS7365

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		801,339
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2294.39
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		801,339
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,586
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,406
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,068
Emission Reductions claimed	ERy	tCO2/y	3,068

GS7366

Total Emission Reductions for Monitoring Period 7			
Baseline Fuel Use (Bby)			
Portion using safe water	Cj	fraction	4.56%
Project Technology Days	Npy		832,200
Fuel to treat 1 litre of water using baseline tech	Wb,y	T/L	0.0004000
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	2382.76
Project Fuel Use (Pby)			
Portion of safe users	Cj	fraction	4.56%
Project Technology Days	Npy		832,200
Fossil fuel required to treat 1 litre for water in project scenario	Wp,y	T/L	0.0004000
Quantity of raw water boiled in addition to project tech water	Qp, rawboil, y	L/pd	0
Quantity of safe water boiled	Qp, cleanboil, y	L/pd	0.00
Quantity of fuel consumed in project scenario per HH	Bp,y	T	0
Constants			
NRB	NRB	Fraction	0.81000
Emissions factor fuel (co2)	EFb,fuel,co2	tCO2/TJ	112
Emissions factor fuel (non-co2)	EFb, fuel, non-co2	T CO2/TJ	9.46
Net calorific value of fuel	NCV,b,fuel	TJ/T	0.0156
Emissions Reductions			
Baseline emissions per year	BEb,y	tCO2/y	3,724
Project emissions per year	PEp,y	tCO2/y	0
Usage rate	Up,y	fraction	0.95
Leakage	LEp,y	tCO2/y	0
Emission Reductions	Ery	tCO2/y	3,538
Suppressed Demand Assessment			
Percentage of suppressed demand users			91.09%
Percentage of <u>non</u> -suppressed demand users	Xboil	Percentage	8.91%
Emission Reductions	ERy	tCO2/y	3,188
Emission Reductions claimed	ERy	tCO2/y	3,188

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
3	Additional persons consuming safe water in the project activity compared to the baseline scenario	GS5106: 279	GS5106: 2,775	GS5106: 2,496
		GS5186: 281	GS5186: 2,796	GS5186: 2,515
		GS5187: 252	GS5187: 2,500	GS5187: 2,248
		GS5188: 250	GS5188: 2,485	GS5188: 2,235
		GS5189: 181	GS5189: 1,800	GS5189: 1,619
		GS5190: 151	GS5190: 1,500	GS5190: 1,349
		GS5191: 241	GS5191: 2,400	GS5191: 2,159
		GS5192: 319	GS5192: 3,174	GS5192: 2,855
		GS5193: 302	GS5193: 3,000	GS5193: 2,698
		GS5194: 194	GS5194: 1,926	GS5194: 1,462
		GS5196: 220	GS5196: 2,186	GS5196: 1,966
		GS5197: 187	GS5197: 1,857	GS5197: 1,670
		GS6349: 226	GS6349: 2,251	GS6349: 2,025
		GS6350: 230	GS6350: 2,283	GS6350: 2,053
		GS6351: 234	GS6351: 2,329	GS6351: 2,095
		GS7362: 241	GS7362: 2,400	GS7362: 2,159
		GS7363: 241	GS7363: 2,395	GS7363: 2,154
		GS7364: 202	GS7364: 2,003	GS7364: 1,801
		GS7365: 233	GS7365: 2,311	GS7365: 2,078
		GS7366: 241	GS7366: 2,400	GS7366: 2,159
5	Total reduction time spent collecting water for project activity in MP	169.5 minutes collecting water	136.3 minutes collecting water	19.6% reduction in time spent collecting water
6	Additional persons having access to safe water in the project activity compared to the baseline scenario	GS5106: 259	GS5106: 2,775	GS5106: 2,516
		GS5186: 261	GS5186: 2,796	GS5186: 2,535
		GS5187: 233	GS5187: 2,500	GS5187: 2,267
		GS5188: 232	GS5188: 2,485	GS5188: 2,253
		GS5189: 168	GS5189: 1,800	GS5189: 1,632
		GS5190: 140	GS5190: 1,500	GS5190: 1,360
		GS5191: 224	GS5191: 2,400	GS5191: 2,176
		GS5192: 296	GS5192: 3,174	GS5192: 2,878
		GS5193: 280	GS5193: 3,000	GS5193: 2,720
		GS5194: 180	GS5194: 1,926	GS5194: 1,474
			GS5196: 2,186	GS5196: 1,982

		GS5196: 204	GS5197: 1,857	GS5197; 1,684
		GS5197: 173	GS6349: 2,251	GS6349: 2,041
		GS6349: 210	GS6350: 2,283	GS6350: 2,070
		GS6350: 213	GS6351: 2,329	GS6351: 2,112
		GS6351: 217	GS7362: 2,400	GS7362: 2,176
		GS7362: 224	GS7363: 2,395	GS7363: 2,171
		GS7363: 224	GS7364: 2,003	GS7364: 1,816
		GS7364: 187	GS7365: 2,311	GS7365: 2,095
		GS7365: 216	GS7366: 2,400	GS7366: 2,176
		GS7366: 224		
13	ERy (Tonnes of Carbon Dioxide equivalent)	GS5106: 4,076	GS5106: 0 tCO2e	
		GS5186: 4,290	GS5186: 0 tCO2e	Emissions
		GS5187: 3,553	GS5187: 0 tCO2e	reduced by
		GS5188: 3,813	GS5188: 0 tCO2e	GS5106: 3,529
		GS5189: 2,677	GS5189: 0 tCO2e	GS5186: 3,713
		GS5190: 2,271	GS5190: 0 tCO2e	GS5187: 3,036
		GS5191: 3,682	GS5191: 0 tCO2e	GS5188: 3,300
		GS5192: 4,870	GS5192: 0 tCO2e	GS5189: 2,312
		GS5193: 4,603	GS5193: 0 tCO2e	GS5190: 1,965
		GS5194: 2,955	GS5194: 0 tCO2e	GS5191: 3,188
		GS5196: 3,354	GS5196: 0 tCO2e	GS5192: 4,215
		GS5197: 2,849	GS5197: 0 tCO2e	GS5193: 3,984
		GS6349: 3,454	GS6349: 0 tCO2e	GS5194: 1,392
		GS6350: 3,503	GS6350: 0 tCO2e	GS5196: 2,680
		GS6351: 3,573	GS6351: 0 tCO2e	GS5197: 2,466
		GS7362: 3,682	GS7362: 0 tCO2e	GS6349: 2,989
		GS7363: 3,648	GS7363: 0 tCO2e	GS6350: 3,031
		GS7364: 3,073	GS7364: 0 tCO2e	GS6351: 3,079
		GS7365: 3,546	GS7365: 0 tCO2e	GS7362: 3,188
		GS7366: 3,682	GS7366: 0 tCO2e	GS7363: 3,156
				GS7364: 2,660
		tCO2e	tCO2e	GS7365: 3,068
		emitted	emitted	GS7366: 3,188
				tCO2e

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

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values ² achieved during this monitoring period
3	GS5106: 3,713	GS5106: 2,496
	GS5186: 3,713	GS5186: 2,515
	GS5187: 3,713	GS5187: 2,248
	GS5188: 3,713	GS5188: 2,235
	GS5189: 3,713	GS5189: 1,619
	GS5190: 3,713	GS5190: 1,349
	GS5191: 3,713	GS5191: 2,159
	GS5192: 3,713	GS5192: 2,855
	GS5193: 3,713	GS5193: 2,698
	GS5194: 3,713	GS5194: 1,462
	GS5196: 3,726	GS5196: 1,966
	GS5197: 3,726	GS5197: 1,670
	GS6349: 3,726	GS6349: 2,025
	GS6350: 3,726	GS6350: 2,053
	GS6351: 3,726	GS6351: 2,095
	GS7362: 3,726	GS7362: 2,159
	GS7363: 3,726	GS7363: 2,154
	GS7364: 3,726	GS7364: 1,801
	GS7365: 3,726	GS7365: 2,078
	GS7366: 3,726	GS7366: 2,159
5	53.8% reduction in time spent collecting water	19.6% reduction in time spent collecting water
6	GS5106: 2,970	GS5106: 2,516
	GS5186: 2,970	GS5186: 2,535
	GS5187: 2,970	GS5187: 2,267
	GS5188: 2,970	GS5188: 2,253

² Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

13	GS5189: 2,970	GS5189: 1,632
	GS5190: 2,970	GS5190: 1,360
	GS5191: 2,970	GS5191: 2,176
	GS5192: 2,970	GS5192: 2,878
	GS5193: 2,970	GS5193: 2,720
	GS5194: 2,970	GS5194: 1,474
	GS5196: 3,757	GS5196: 1,982
	GS5197: 3,757	GS5197: 1,684
	GS6349: 3,757	GS6349: 2,041
	GS6350: 3,757	GS6350: 2,070
	GS6351: 3,757	GS6351: 2,112
	GS7362: 3,757	GS7362: 2,176
	GS7363: 3,757	GS7363: 2,171
	GS7364: 3,757	GS7364: 1,816
	GS7365: 3,757	GS7365: 2,095
	GS7366: 3,757	GS7366: 2,176
	GS5106: 9,977	GS5106: 3,529
	GS5186: 9,977	GS5186: 3,713
	GS5187: 9,977	GS5187: 3,036
	GS5188: 9,977	GS5188: 3,300
	GS5189: 9,977	GS5189: 2,312
	GS5190: 9,977	GS5190: 1,965
	GS5191: 9,977	GS5191: 3,188
	GS5192: 9,977	GS5192: 4,215
	GS5193: 9,977	GS5193: 3,984
	GS5194: 9,977	GS5194: 1,392
	GS5196: 9,973	GS5196: 2,680
	GS5197: 9,973	GS5197: 2,466
	GS6349: 9,973	GS6349: 2,989
	GS6350: 9,973	GS6350: 3,031
	GS6351: 9,973	GS6351: 3,079
	GS7362: 7,978	GS7362: 3,188
	GS7363: 7,978	GS7363: 3,156
	GS7364: 7,978	GS7364: 2,660
	GS7365: 5,546	GS7365: 3,068
	GS7366: 5,546	GS7366: 3,188
	Total: 184,661	Total: 60,139

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

>>

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

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

>>

SDG 3

The estimation in the baseline scenario is higher as this was based on more users per VPA and did not take into account borehole users being removed from crediting due to not meeting water quality standards.

SDG 5

Estimated value was a conservative estimate. Although monitoring data has not identified a greater reduction in time saved from collecting water (19.6%) compared to the estimated value (53.8%), this will continue to be monitored over time. The barriers to water collection, such as overcrowding at the water point, will be investigated to determine how time saved from collecting water can be reduced further.

SDG 6

The estimation baseline scenario is higher as this was based on more users per VPA and did not take into account borehole users being removed from crediting due to not meeting water quality standards.

SDG 13

The actual values achieved in this monitoring period are mainly lower due to the accounting of breakdown days, including water quality failures, and a 300-user cap whereas the ex-antes did not account for these restrictions.

SECTION F. SAFEGUARDS REPORTING

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Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Monitoring
1 Human Rights	a. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. b. The Project shall not discriminate with regards to participation and inclusion.	No	The project will adhere to all human rights requirements including respecting internationally proclaimed human rights and Universal Declaration of Human Rights and will not discriminate in any way.	During all trainings, it will be emphasised that project beneficiaries should support vulnerable or less mobile community members to access water
2 Gender Equality and Women's Rights	The Project shall not directly or indirectly reinforce gender-based discrimination and shall not lead			SDG 5 $T_{p,y}$ $TR_{,y}$ The time spent collecting wood fuel is monitored in the project survey. The

	to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive): (a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. (b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of	No No	The burden on the whole community of travelling far to collect water and gather firewood for water purification will be reduced. This will also mitigate the social isolation of spending a long time collecting these resources The project will decrease the drudgery by reducing time spent on water and	project aims to reduce the burden on the whole community of traveling far to collect wood and in particular to women who perform the majority of unpaid domestic work.
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	women and girls.		firewood collection	
	(c)Restriction of women's rights or access to resources (natural or economic).	No	The project will increase women's access to resources such as water by making safe water available in the community. The project will increase women's ability to use, develop and protect natural resources by making safe water more readily available and enabling women to participate in project decision-making.	
	(d) Recognise women's ownership rights regardless of marital status – adopt project	No	The project will decrease the workload of women in collecting water and firewood,	

	measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically: (a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the		thereby allowing more time to engage in other activities.	
	(a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the	Yes	Equal participation of women and men in decision making will be encouraged by promoting their equal membership on water point committees (WPCs). These WPCs will be trained to facilitate the participation	

	identified tasks/activities.		of members depending on their specific circumstances. They will also assist all communities members to provide feedback on the project, regardless of their situation.	
	(b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.	Yes	The project aims to benefit the whole community equally and women's equal participation in the LSC and water point committees is encouraged	
	(c) Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits.	Yes	The project will encourage equal participation of men and women.	

	3.2.3 The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	Yes	The analysis of the project is in line with the country gender strategy is in section A.8. of the PDD	
3 Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	Yes	The project will reduce the community exposure to water borne illness through the provision of a safe water source, and will reduce the risk of household air pollution by removing the need for households to boil water for purification.	SDG 3, 6 and 13 $N_{p,y}$ $Q_{p,y}$ $Q_{p, \text{cleanboil}, y}$ Quality of Treated Water P_{safe} P_{access} $P_{,y}$ $P_{p,y}$ Incidences of water borne illnesses are monitored through the annual Monitoring Project Survey. A WASH programme is carried out by the project including WASH training at the beginning of the project, as

				well as subsequent WASH follow-up training
4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?	No	The project area does not include sites or structures of historic and cultural value. Project activities do not compromise historic, cultural or religious practices.	
4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project will not impact the physical or economic relocation of peoples. The focus of the project is rehabilitating and installing water point infrastructure only.	
4.3 Land Tenure and Other Rights	Does the Project require any change to land tenure arrangements	No	The project will not impact on land tenure arrangements or rights.	

	and/or other rights?			
4.4 Indigenous Peoples	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project will take place on land owned either by the county government or by local people for which their permission will first be sought.	
5 Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	The project shall ensure that all forms of corruption are avoided. Project beneficiaries are able to contact the project developer and implementer through the continuous grievance mechanism to report any form of corruption.	
6.1 Labour Rights	The Project Developer shall ensure that there is no forced labour and that all	No	The project will adhere to labour laws and requirements	

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

	economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?		negative economic impacts or cause any risks.	points, and avoid unexpected breakdowns and spending, training was conducted at the beginning of the project on conducting minor maintenance. The project is expected to benefit all members of the community
7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	Yes	The project will reduce greenhouse gas emissions compared to the baseline scenario.	SDG 13 The ERs are monitored during the MP. During this MP a large number of emission reductions were achieved
7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	Only hand pumped boreholes that use no electricity are included in the project. The project will reduce fuel use due to reducing the need for water purification by boiling	

8.1 Impact on natural water patterns/flows	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	There will be no significant change in the volume of water consumed by the households.	
8.2 Erosion and/or water body instability	Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?	No	The water is taken from boreholes at household usage levels. Therefore it is extremely unlikely that there will be additional erosion and/or water body instability or disruption of the natural pattern of erosion.	
9.1 Landscape modification and soil	Does the Project involve the use of land and soil for production	No	No crops or other products will be produced in the project.	

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

9.5 Hazardous and Non- hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project does not deal with hazardous or non-hazardous chemicals and/or materials.	
9.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	No pesticides and/or fertilisers will be used in the project.	
9.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	As the project reduces the consumption of firewood, there is a positive impact on forests.	
9.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project has no impact on the quantity or nutritional quality of food.	
9.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The project will not involve	

			animal husbandry.	
9.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The project rehabilitates water points and decreases the consumption of firewood, having a positive impact on conserving forest ecosystems.	
9.11 Endangered Species	Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No No	The project is not envisaged to have any impact on their habitat as it only affects borehole infrastructure. The project only impacts borehole infrastructure and does not impact other areas where endangered species are present.	

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

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

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No inputs or grievances were received during the monitoring period.

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

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

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

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No legal contests or disputes arose during the monitoring period.

Revision History

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