

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

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

This document contains the following Sections

Key Project Information

SECTION A - Description of project

SECTION B - Implementation of project

SECTION C - Description of monitoring system applied by the project

SECTION D - Data and parameters

SECTION E - Calculation of SDG Impacts

SECTION F - Safeguards Reporting

SECTION G - Stakeholder inputs and legal disputes

KEY PROJECT INFORMATION

GS ID (s) of Project (s)	GS11207
Title of the project (s) covered by monitoring report	Multi-Layer Household Water Filtration System in Kenya
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	06
Version number of the monitoring report	03
Completion date of the monitoring report	21/10/2024
Date of project design certification	17/11/2021
Date of Last Annual Report	N/A
Monitoring period number	4 th
Duration of this monitoring period	The 4 th monitoring period, first and last days included (01/08/2023 to 31/07/2024)
Project Representative	The official focal point and developer: Profit Carbon Environmental Energy Technology (Shanghai) Co., Ltd. Project owner: Climate Neutral Kenya Limited
Host Country	Republic of Kenya
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	<i>Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0)</i>
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
SDG13 Climate Action (mandatory)	Emissions Reductions	346,768	GS VERs
SDG6 Clean Water and Sanitation	Total number of person.days served with satisfactory level of safe water	550,141,027	Person.days
SDG7 Affordable and Clean Energy	Number of water purifiers sold each year	0 ¹	Units
SDG8 Decent Work and Economic Growth	Number of males and females employed by the project	12 jobs created including 6 males and 6 females	Number
SDG8 Decent Work and Economic Growth	Percentage of employees with salaries paid at par with the average wage of Kenya ² .	100	%

TABLE 2 – PRODUCT VINTAGES

SDG13		Amount Achieved
Start Dates	End Dates	VERs(tCO ₂ e)
01/08/2023	31/12/2023	151,096
01/01/2024	31/07/2024	195,672

¹ Although 0 water purifiers sold in 2nd MP, 3rd MP and this MP, total 467,123 units water purifiers involved in this monitoring period which were sold in the 1st monitoring period, so, total 467,123 households still can access to Affordable and Clean Energy (SDG7) in this monitoring period.

² The average salary in kenya in 2024 is 147,000KES (<http://www.salaryexplorer.com/salary-survey.php?loc=111&loctype=1#:~:text=A%20person%20working%20in%20Kenya%20typically%20earns%20around%20147%2C000%20KES,%2C%20transport%2C%20and%20other%20benefits>), the average salary of employee in this project is 235,000 KES which higher than 147,000KES, so the impact of SDG8 is 100%.

TEMPLATE

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

>>

The Multi-Layer Household Water Filtration System in Kenya (hereinafter referred to as “the project”) is implement in Kenya. The project will be sold 644,850 water purifiers to residents in Makueni County, Trans Nzoia County, Kirinyaga County, Bungoma County and Nakuru County of Kenya. The water purifiers of the project will offer an affordable, long-term and zero emission solution for households that generally consume unsafe drinking water. It will not only dramatically increase access to safe drinking water but also reduce consumption for woody fuels previously required to treat drinking water, which will decrease environmental degradation and greenhouse gas emissions.

It is estimated that about 644,850³ water purifiers will be sold and about 2.5149 million people would have access to clean water during the first crediting period. 459,638 tCO₂e emission reductions will be produced annually and the total emission reductions during the first crediting period is 2,298,193 tCO₂e.

The first monitoring period of this project is from 10/10/2020⁴ to 31/07/2021. During the first monitoring period, total 467,123 sets project water purifier were sold. The 2nd monitoring period is from 01/08/2021 to 31/07/2022, the 3rd monitoring period is from 01/08/2022 to 31/07/2023, this monitoring period is the 4th monitoring period which is from 01/08/2023 to 31/07/2024. Influenced by international environment and regional market saturation and as per prediction on future water purifier market, the project owner has adjusted the corresponding business plan and has suspended the sales work in project area, and expanded to other regions of Kenya as well as other countries of Africa, so, no water purifiers have been sold since the second monitoring period⁵, so the actual number of water purifiers involved in this monitoring period is still the 467,123 water purifiers sold in the first monitoring period, and the total emission reductions achieved by the 467,123 sets water purifier in this monitoring period is 346,768 tCO₂e.

³ This value is the estimated value of the project's business plan. The actual sales situation will be affected by the regional market and international environment, and will be monitored during each monitoring period.

⁴ Although, the water purifiers involved in this project have been sold start on 09/10/2020, While, based on conservative considerations, in the calculation of emission reductions, it is considered that the water purifiers are used on the second day of purchase, so the start date of credit period is 10/10/2020.

⁵ The water purifier in this project is an imported product. Due to the impact of the international environment, regional market saturation and the COVID-19, the production, import and sales of the project products require huge manpower, material resources and time costs. Therefore, the actual sales didn't proceed as the originally business plan.

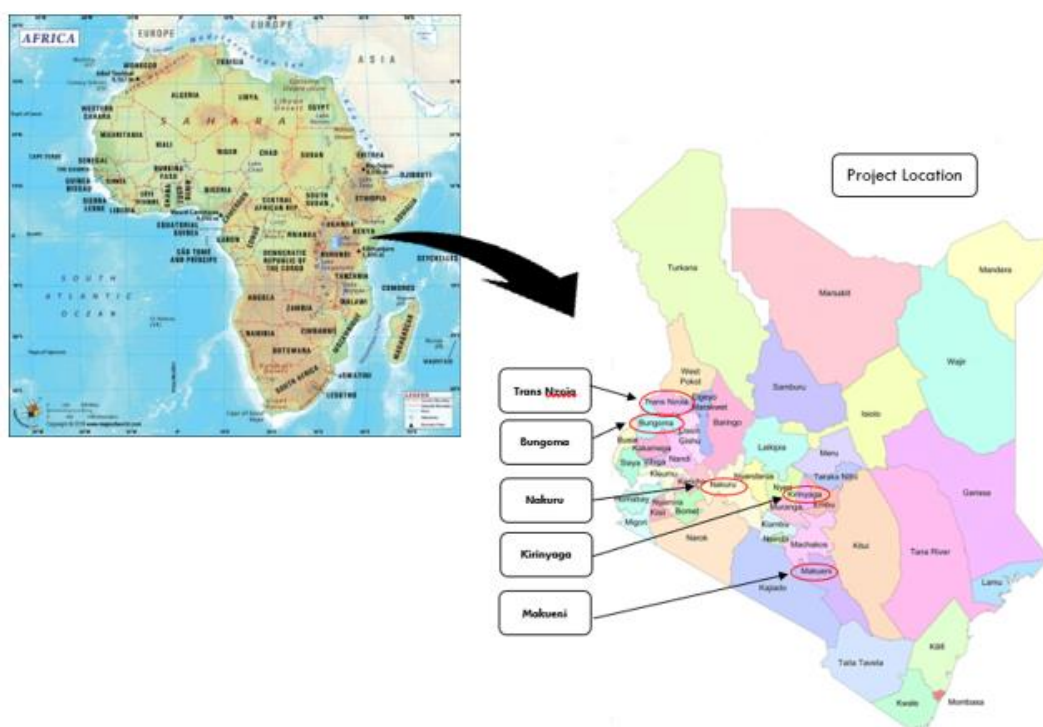
In addition, this project has so far been registered under GS4GG only and is not registered with any other compliance or voluntary market-based mechanism. Therefore, this project shall claim emission reductions achieved in this monitoring period from 01/08/2023 to 31/07/2024 once only under GS4GG and cannot claim VERs for the same vintage in another standard other than GS4GG. Also, PP has signed the "Declaration of No Double Counting and not involved in other GHG scheme statement", including but not limited to:

- i). The project will not be included in any other voluntary or compliance program other than GS4GG;
- ii). It will request the issuance of GS VERs only once of a given vintage. No other type of carbon credits will be issued at the same vintage;
- iii). It has obtained a letter of no objection to avoid double counting with national climate policies or programs;
- iv). The project owner has full and uncontested legal ownership of the GS VERs issued, and no other entity will have the ownership of it;
- v). The emission reductions benefit of the project will only be claimed once.

A.2. Location of project

>>

The project crosses five counties of Kenya (Kenya has a latitude of 0.0236° S, and longitude of 37.9062° E⁶), including Makueni County ($1^{\circ}48'S$ and $37^{\circ}37'E$), Trans Nzoia County ($1^{\circ}6'N$ and $34^{\circ}57'E$), Kirinyaga County ($0^{\circ}30'S$ and $37^{\circ}17'E$), Bungoma County ($0^{\circ}34'S$ and $34^{\circ}34'E$) and Nakuru County ($0^{\circ}18'S$ and $36^{\circ}4'E$). The location of the project is illustrated in Figure 1.



⁶ <https://worldpopulationreview.com/country-locations/where-is-kenya>

Figure 1 The Geographic Location of the project

A.3. Reference of applied methodology

>>

Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0) is applicable to the project. The methodology can be obtained from the following URL:

<https://globalgoals.goldstandard.org/429-ee-sws-emission-reductions-from-safe-drinking-water-supply/>

Tool applied:

CDM Tool 30: calculation of the fraction of non-renewable biomass (Version 03.0)⁷.

Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC, Version 3.1)⁸.

A.4. Crediting period of project

>>

Start date of crediting period: 10/10/2020⁹

End date of crediting period: 09/10/2025

Total length of crediting period: 5 years renewable (two renewal cycles and in total 15 years).

Expected operational lifetime of the project: 15 years¹⁰.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

>>

The project owner (Climate Neutral Kenya Limited) invested in purchasing the Multi-Layer water purifiers produced by Zhejiang Duanqi Renewable Energy Co., Ltd., and sold the Multi-Layer water purifiers in Makueni County, Trans Nzoia County, Kirinyaga County, Bungoma County and Nakuru County of Kenya. For this project, the sale of water purifiers started on 09/10/2020 which is the date of Sales contract signed between the project owner and the End-user and the date of implementation of the first water purifier. The current monitoring period is the 4th monitoring period. In the first monitoring period (10/10/2020-31/07/2021), total 467,123 sets project water purifier were sold, no water purifiers were sold since the 2nd monitoring period. So, all water purifiers involved in this monitoring period is the 467,123 sets water purifier sold in the 1st monitoring period, so all the water purifier operated in this monitoring period have the same age.

⁷ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf>

⁸ https://globalgoals.goldstandard.org/standards/407_V3.1_EE_ICs_Technologies-and-Practices-to-Displace-Decentralized-Thermal-Energy-TPDDTECConsumption-.pdf

⁹ Although the project start date is 09/10/2020, which is the date of the first purchase receipt for the water purifier sold to an end-user, While, based on conservative considerations, in the calculation of emission reductions, it is considered that the water purifiers are used on the second day of purchase, so the start date of credit period is 10/10/2020.

¹⁰ According to the technical manual of the Water Purifier, the Technical life of equipment is no less than 15 years.

The main action made for the project implementation during this monitoring period are generalized in the following:

Table 1 The main action made for the project implementation

Time	Milestone
07/08/2020	Completion of the project proposal (Including sales plan for the water purifiers and prior consideration of carbon revenue).
25/08/2020	Conducted business management meeting determining to apply for Gold Standard certification of this project.
09/10/2020	Start date of the project (first purchase receipt for the water purifier sold to an end-user).
10/10/2020	Start date of the crediting period
01/12/2020	All water purifiers put into operation
17/11/2021	The date of project complete design certificated
09/01/2023-19/01/2023	Project survey and Water consumption field test for 2023
01/03/2023	The Monitor staff training time for 2023
06/03/2023-07/03/2023	Usage rate survey for 2023
13/03/2023-17/03/2023	Water hygiene education campaigns and water quality test sampling for 2023
14/02/2024-15/02/2024	Project survey for 2024
23/02/2024	The Monitor staff training time for 2024
20/03/2024-21/03/2024	Usage rate survey for 2024
13/05/2024-16/05/2024	Water hygiene education campaigns and water quality test sampling for 2024

The proposed project involves in selling Multi-Layer water purifiers in Makueni County, Trans Nzoia County, Kirinyaga County, Bungoma County and Nakuru County of Kenya. The Multi-Layer water purifiers will displace the use of woody fuels traditionally used to treat drinking water. The water filtration system requires no energy input or consumables, so, the Multi-Layer water purifiers is not only dramatically increase access to safe drinking water but also reduce consumption for woody fuels previously required to treat drinking water, which will decrease environmental degradation and greenhouse gas emissions. For this project, the sale of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 water purifier were sold in the first monitoring period, no water purifier was sold since 2nd monitoring period. So all Multi-Layer water purifiers operated in this monitoring periods have the same age.

The Multi-Layer water purifiers involve in this project consist of 8 step filtration system and can purify water 3 liter/hour. The lifespan of the water purifiers are over 15 years and the dome ceramic, carbon cartridge and mineral stone should be changed when purify every 10,000 L

water. A whole set of the alternative dome ceramic, carbon cartridge and mineral stone will be supplied to the end-users together with the water purifiers. All the alternative filtration system can be changed easily and will not affect the usage of the water purifiers on that day. Considering carbon revenue of the project, some alternative materials needed will be provided by the project owner for free, such as Dome ceramic filter, Mineral stone, Granular activated carbon, Silica sand, Zeolite, Magnetic Water Tap.

The Step Filtration System in the project are listed below:

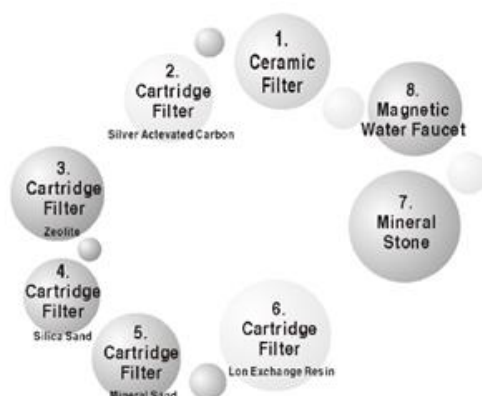


Figure 2 Step Filtration System

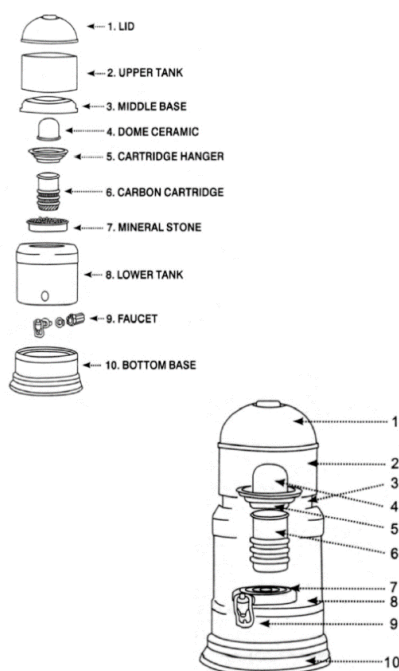


Figure 3 Components of the Water Purifier



Figure 4 Examples of the Water Purifier engaged in the project

The water purifier sold in this project has a unique number, and during use, due to the quality of the water purifier itself, the project owner is responsible for the replacement of parts and other alternative materials to maintain the normal use of the water purifier. The maintenance situation in this monitoring period such as parts replacement were carried out smoothly, without affecting the normal use of the water purifier. The actual operation situation of this monitoring period has no change comparing with the registered PDD.

B.1.1. Forward Action Requests

>>

As this monitoring period is the 4th monitoring period, so this part should describe the “Declare any Forward Action Requests from the performance certification no.1-3, design certification and validation”. No FARs were raised in the performance certification No.3, and total 5¹¹ FARs were raised in the design certification, project validation and performance certification no 1-2, 1 of which is closed during the design review and performance review no.1 and no need to address this monitoring period, 4 FARs need to be clarified during this monitoring period.

- FARs from the design certification that have been closed and no further actions required:

The FAR#1 from design certification and project validation that has been closed in the design review and performance review no.1 is: During next verification, the PP must demonstrate that the project area does not overlap with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature. E.g., if the household use water from boreholes which the clean water is claimed by existing carbon project, that same amount of water will be double counted under this project activity.

Reply: In order to avoid the double counting and the overlap with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature. When the water purifier was sold, the user's related information (include the date of sale, Geographic area of sale, Model/type of project technology sold and unique water purifier serial number, Mode of use: commercial, institutional, domestic and other, Number of water purifiers sold, Name, telephone number and address) were recorded. For the water purifiers sold by the project, the cross-serial number is not allowed between different projects and each project has a unique serial number naming rule. Furthermore, each water purifier also has its unique serial number, if there are other water purifier that don't belong to the proposed project was used within the project boundary, these water purifiers will not have the unique serial number and will not be taken into account.

Also, from the project survey, the end users are investigated whether to participant in another Gold Standard or other voluntary or compliance standard programme of a similar nature and the source of drinking water that is usually collected. The results showed that project users did not participate in another Gold Standard or other voluntary or compliance standard programme of a similar nature, and the water source is a nearby river, so the end users involved in this project will not overlap with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature.

- The 4 FARs that still needs to be clarified during this monitoring period:

¹¹ The three FARs that need to be clarify during design certification are the same as the three FARs during validation. There are two FARs that need to be clarify in the performance certification no.1 and the second FAR is consistent with the FAR#3 in design review. There are one FAR raised in the performance certification no.2 and no FARs was raised in the performance certification no.3. Therefor, total 5 FARs were raised during the design certification, project validation and previous performance certification.

FAR#1 from performance certification no.1 under GS4GG : To ensure transparency of sampling process, the PP shall use the online number generator and keep the screenshot of generated result.

Reply: The sampling process of this project is implemented by online number generator (<https://www.randomizer.org/>) , and the evidence of generated results have been provided to VVB.

FAR#2 from performance certification no.2¹² under GS4GG: The VVB shall randomly visit and interview the retailers from the list of retailers that provided by PP during Design Certification to verify the date, number of sales, procedure of recording the sales to PP's database.

Reply: The retailer instructions and the reseller list has been provided to VVB and all the information can be verified by the VVB and VVB can interview the retailers for on-site visit during this monitoring period.

FAR#2 from design certification and project validation: The VVB shall verify the replacement for the core filters after their lifetime and the availability of the spare filter at user premises.

Reply: The full original version of technical manual of water filter manufacturer has been provided to VVB, and from this document, it can be confirmed that the technology of the water purifier involved in this project is over 15 years.

In addition, when the water purifier has been used for less than 22 months, if the user needs to replace the filter element, a request can be sent to the project owner, and the user can use a spare filter element during the time period when the project owner comes to replace it. Of course, after receiving the request, the project owner will immediately go to the user's home to replace the core filter. When the water purifier has been used for 22 months, the project owner will replace the alternative materials of all the water purifier sold. This monitoring period is from 01/08/2023-31/07/2024 and all water purifier filters have been replaced twice, the first core filter replaced occurred on 05/2022-07/2022, the second core filter replaced occurred on 01/2024-04/2024, so the equipment lifetime will not be affected by the core filters. Besides, the spare filter can be presented during the VVB in-site review for inspection.

FAR#1 from performance review no.2 under GS4GG: 5.1.39- Transparent, annual update reports need to be provided for Projects that have achieved the Project Design Certification stage or have successfully transitioned to Gold Standard for the Global Goals. An annual report shall be submitted for each monitoring year by end of next calendar year for which verification is not completed. If a verification is in progress but not completed, then an Annual Report is still required by the end of calendar year.

¹² FAR#2 in performance certification no.2 is consistent with FAR#3 in design certification and project validation.

Reply: The first crediting period of this project is 10/10/2020-09/10/2025, the first monitoring period is from 10/10/2020-31/07/2021 and the corresponding verification was finished on 08/10/2021, which is before the end of next calendar year for the first monitoring period. The second monitoring period is from 01/08/2021 to 31/07/2022 and the corresponding verification was finished on 10/03/2023, which is also before the end of next calendar year for the second monitoring period. The third monitoring period is from 01/08/2022 to 31/07/2023 and the corresponding verification was finished on 20/09/2023, which is also before the end of next calendar year for the third monitoring period. This monitoring period is the fourth monitoring period which is from 01/08/2023 to 31/07/2024 and the corresponding verification will be finished before the end of next calendar year for this monitoring period, there are no Annual Report was required.

B.2. Post-Design Certification changes

>>

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

>>

None.

B.2.2. Corrections

>>

None.

B.2.3. Changes to start date of crediting period

>>

None.

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

>>

None.

B.2.5. Changes to project design of approved project

>>

None.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

>>

According to section B.7.1 of the registered PDD, there are fourteen parameters to be monitored:

- (1) Water hygiene education campaigns.
- (2) Number of water purifiers sold in year y .
- (3) Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country (KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water), $M_{q,y}$;
- (4) Number of individuals per premises type p in the project boundary in year y , $HN_{p,y}$;
- (5) Accumulated number of premises type p with at least one individual project technology in year y , $N_{p,y}$.
- (6) Average days the project technology is present for end-users in the premises p in year y , $DP_{p,y}$.
- (7) Usage rate of the project technology by premises type p during year y , $U_{p,y}$.
- (8) Volume of drinking water per person per day for premises type p , QPW_p .
- (9) Average number of individual project technologies in each project premises type p in year y , $DN_{p,y}$.
- (10) Usage time of the project technology by premises type p in year y , $t_{p,y}$.
- (11) Proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in year y , $X_{cleanboil,y}$.
- (12) Leakage emissions during year y , LE_y .
- (13) Number of males and females employed, $SDG8$.
- (14) Percentage of employees with salaries paid at par with the average wage of Kenya, $SDG8$.

For parameter 2 and parameter 5: Number of water purifiers sold in year y and Accumulated number of premises type p with at least one individual project technology in year y ($N_{p,y}$). According to sales database, PP can obtain those two parameters.

For parameter 6: Average days the project technology is present for end-users in the premises p in year y ($DP_{p,y}$). According to sales database, PP can know the sales date of the water purifier equipment, and then get the actual operating days of every equipment during the monitoring period. The average days the project technology is present for end-users can be calculated by the sum of the actual operating days of each water purifier divided by the total number of water purifiers. As no water purifier sold since the 2nd monitoring period, so the water purifier operated in this monitoring period is the 467,123 sets water purifiers sold in first monitoring period, so

the $DP_{p,y}$ used in the emission reduction calculations for this monitoring period is the number of days in this monitoring period.

For parameter 9: Average number of individual project technologies in each project premises type p in year y ($DN_{p,y}$). As description in registered PDD, to cover more households with high-quality water purifiers at a lower price, it is restricted in the project that each household can only buy one set of water purifier. Also, according to sales database, average number of individual project technologies in each project premises is 1.

For parameter 10: Usage time of the project technology by premises type p in year y ($t_{p,y}$), according to applied methodology and registered PDD, value(s) applied of this parameter is default of 5 hours.

For parameter 12: Leakage emissions during year y (LE_y), according to the applied methodology, If the ex-ante evaluation shows that leakage emissions are less than 5% of total emission reductions, then no monitoring is needed, and emission reductions simply shall be adjusted 5% down. In the registered PDD, the leakage emissions are less than 5% of total emission reductions, so, the leakage emissions in this monitoring period are 5% of the total emission reduction. As per section D.1 of approved PDD, the mitigation measures for safeguarding principle 7.1 was that the leakage emission should be re-assessed every two years. For this project, the last leakage emission have been re-assessed on 18/04/2023-20/04/2023, the result shows that the leakage risks of the project activity are still very low and can be ignored. This monitoring period is from 01/08/2023-31/07/2024, which is within the two years of last leakage emission assessment, therefore, no leakage emission assessment is required in this monitoring period and the emission reductions only needs to be adjusted 5% down.

For parameter 13: the number of males and females employed by this project, according to employment records or labor contract signed with employee, 12 jobs (including 6 females and 6 males) for local people were created in the 4th monitoring period.

For parameter 14: the percentage of employees with salaries paid at par with the average wage of Kenya, according to the employment records or Payroll, the salary of all employees is higher than or equal to the Kenyan average salary.

Above all, the monitoring system only need to address the monitoring of Water hygiene education campaigns, $M_{q,y}$, $HN_{p,y}$, $U_{p,y}$, QPW_p and $X_{cleanboil,y}$. Below is the organization structure of the monitoring system for the related parameters.

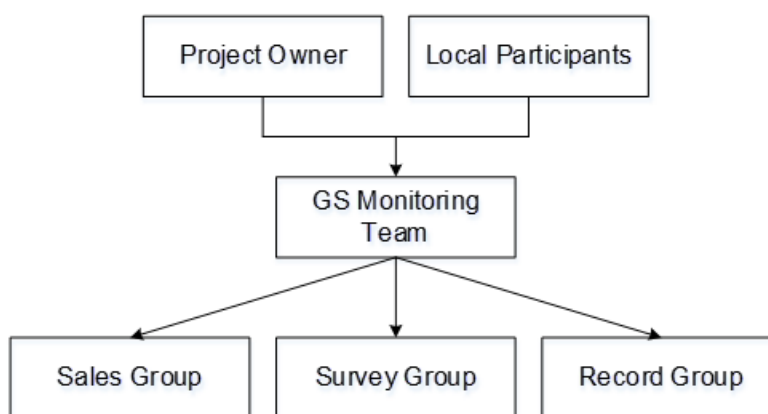


Figure 5 The organization of the project monitoring

Responsibility of each group are summarized as follows:

Local participants: For this project, the local participant is TRIOPT AFRICA LIMITED¹³, which is a subsidiary of TAL HOLDING LIMITED (one of the funders of the project owner CNKL). Based on the trend of common interests and trust, a better internal communication mechanism will be more conducive to the development of sales and develop the project as an emission reduction project under the GS mechanism.

TRIOPT AFRICA LIMITED TAL is a subsidiary under TAL HOLDING LIMITED, which is an independent, ambitious and fast growing in African telecom sector. It has years of professional distribution experiences in telecom industry within East Africa across Ke-nya, Tanzania, Uganda, Rwanda and Mozambique. TAL HOLDING LIMITED had cooperated with ROTOR ENERGY TECHNOLOGY CORPORATION LIMITED to carry out Akon Lighting Africa Initiative, which covered 25 African counties, provided solutions to the energy poverty in rural areas in Africa through innovative, clean and accessible solar solutions. The shareholding structure is as follows:

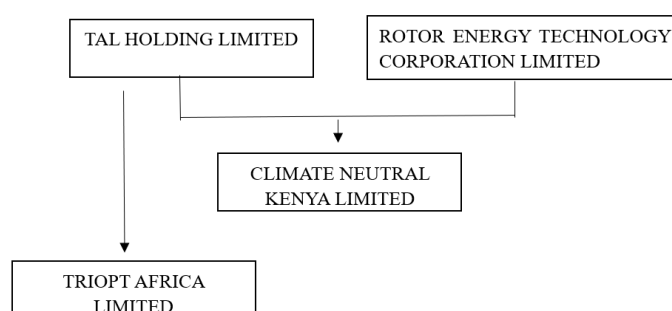


Figure 6 The shareholding structure of the project owner and local participant

For this project, Climate Neutral Kenya Limited took advantage of the sales network that TRIOPT AFRICA LIMITED had built and delegated the sales work to TRIOPT AFRICA LIMITED, with their help, achieved gratifying sales performance. The specific sales model of this project is as follows:

¹³ TRIOPT AFRICA LIMITED is a subsidiary of TAL HOLDING LIMITED, the project owner CNKL is established by TAL HOLDING LIMITED cooperated with ROTOR ENERGY TECHNOLOGY CORPORATION LIMITED, so the TRIOPT AFRICA LIMITED and the project owner CNKL has the same investor.

In areas with relatively prosperous economy, such as main urban areas and counties, TRIOPT has set up special sales points to sell products directly. In relatively remote townships and rural areas where the economy is slightly underdeveloped, the sales work was conducted by using the distribution network (for example, township convenient stores, rural shops) established by TRIOPT, i.e., using the local resellers developed by TRIOPT to sell the water purifiers. There are 224 sales points in this project (including the project owner's own direct special sales points and the local resellers it develops).

At the same time, each county will establish a sales management center to be responsible for statistics and analysis of sales in each county, and to solve various problems from the sales process. For the specific assignments, TRIOPT designated its five staff with professional sales experience as sales management center manager to respectively take charge of the sales of water purifiers in above five counties by means of the distribution network and connections established and obtained by TRIOPT in telecom industries over the years. No matter what kind of sales model, at a time of water purifier pick up, the end user signs a sales contract with the project owner to give up carbon emission ownership and get a receipt issued by the seller. The sales management center picks up the sales contract and the copy of this receipt weekly and summarizes the information of end users on the contracts weekly, and then forwarding the sales contract and the copy of this receipt to project owners, the contract and a copy of this receipt are kept by project owner.

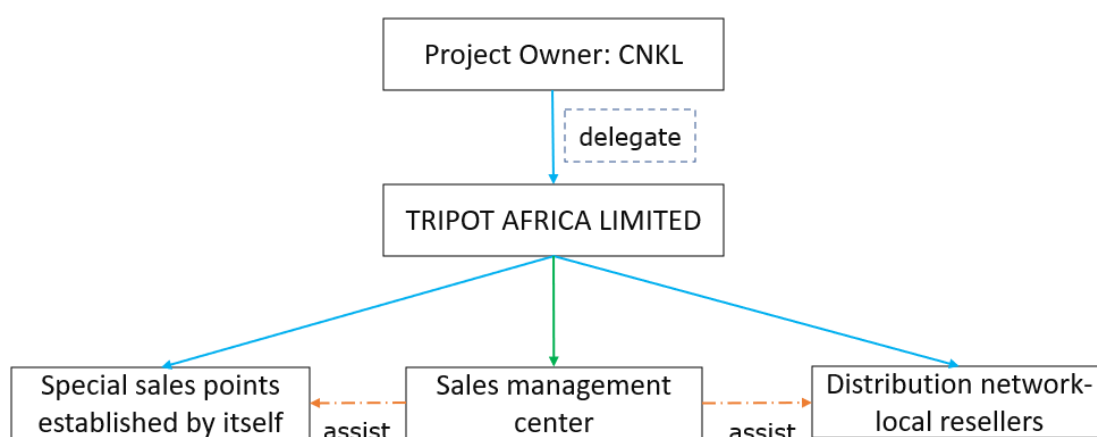


Figure 7 The Sales Network Diagram

In addition, when the product is sold, the salesperson in special sales points and the local resellers will record the buyer's information (such as name, gender, age, address etc.) and the water purifier serial number. The project record adopts a sales management system, which can perform real-time numbering according to the order of sales of water purifiers and can generate the excel sheet of Sales Record Database.

Sales group: Maintain and updated the sales database in a timely manner. The project proponent

must maintain an accurate and complete electronic database for enabling the unique identification of the project water purifiers. It is envisaged that the database will include at least the following information:

- Date of sale
- Geographic area of sale
- Model/type of project technology sold and unique water purifier serial number
- Mode of use: commercial, institutional, domestic and other
- Number of water purifiers sold
- Name, telephone number and address.

Survey group: To carry out project survey, usage survey, water quality survey test and hygiene practices assessment.

Record group: Data verification and filing and managing the project documents.

Specifically, there were monitoring teams for the monitoring of Water hygiene education campaigns, $M_{q,y}$, $HN_{p,y}$, $U_{p,y}$, QPW_p and $X_{cleanboil,y}$. For the details monitoring process implemented of the monitoring parameters please refer to the table below.

Table 2 The details Monitoring Process of the monitoring parameters engaged in the project

Monitoring Plan in PDD	Monitoring Process Implemented
For water hygiene education campaigns: B.7.3.4 of PDD: The drinking water and hygiene practices will be assessed using the WHO/UNICEF Joint Monitoring Programme guidelines (JMP 2018). In-person or telephone or by messaging based survey including all the JMP core questions for drinking water and core questions for hygiene will be conducted. B.7.2.5 of PDD: This parameter can be conducted with water Quality Testing using the same sample and the calculation of the sample size for the monitoring shall be based upon a 0.6 Coefficient of Variation (COV) under a 90/10 approach as provided in Table 3 of Annex 4 of TPDDTEC (Version 3.1).	For water hygiene education campaigns: As this monitoring period covers 2023 and 2024 years, for year 2023, the water hygiene education campaigns has been conducted on 13/03/2023-17/03/2023 (last monitoring period). So, there is also need to implement the water hygiene education campaigns in 2024. The specific process of water hygiene education campaigns conducted in 2024 is as follows: A serial number was put on each of Multi-Layer water purifiers sold to the users. A list of all the users and the corresponding serial numbers of their Multi-Layer water purifiers was kept. The sale of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 sets water purifier were sold in the first monitoring period (10/10/2020-31/07/2021), no water purifier sold since the second

	monitoring period. So, all water purifiers operated in this monitoring period have the same age. As the calculation of the sample size in approved PDD. The sample size for water hygiene education campaigns is 101. 101 samples were randomly selected from 467,123 water purifiers users using number online generator¹⁴ by the Survey Group at the beginning of 2024. The monitoring of this parameter was conducted by GS monitoring team, which consisted of sales group, survey group and record group. For this monitoring period, all the team members were properly trained on 23/02/2024, so that they were fully aware of the monitoring procedures and the conservative principle. The water hygiene education campaigns, and water Quality Testing have been conducted together on 13/05/2024-16/05/2024 during the monitoring team member visiting to end-user' homes to take water quality samples for water quality testing. The monitoring team member conducted in-person survey including all the JMP core questions for drinking water and core questions for hygiene and ask them to fill the questionnaires. Samples of survey questionnaires, photos of in-person survey for hygiene education campaigns have been taken as evidence. The result of the water hygiene education campaigns conducted on 13/03/2023-17/03/2023 is: the fraction of the households where safe water is found to fulfill "safely managed" is 100%, i.e., All the project users have access to safe water because they have water purifiers; The fraction of the households where Hygiene practices are found to fulfill basic requirements is 10.89%, i.e., Among the 101 sample users surveyed, 11 users can get soap when washing their hands at home.
--	--

¹⁴ <https://www.randomizer.org/>

	The result of the water hygiene education campaigns conducted on 13/05/2024-16/05/2024 is: the fraction of the households where safe water is found to fulfill "safely managed" is 100%, i.e., All the project users have access to safe water because they have water purifiers; The fraction of the households where Hygiene practices are found to fulfill basic requirements is 12.87%, i.e., Among the 101 sample users surveyed, 13 users can get soap when washing their hands at home.
For ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country (KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water), $M_{q,y}$: B.7.3.4 of PDD: The quality of the treated water will be assessed to ensure that it is fit for human consumption. Water quality test will be conducted based on section E of Annex 3 of TPDDTEC (Version 3.1). Accredited laboratory will be used to conduct the water quality test based on WHO standard of less than 1 Colony Forming Unit (CFU) of E.Coli/100 ml and the Quality Standards for Sources of Domestic Water of The Environmental Management And Co-Ordination (Water Quality) Regulations, 2006 . The laboratory used must demonstrate that it has an adequate quality management plan in place which addresses both quality assurance and quality control test procedures. Field testing kits also are eligible, e.g., based on Colony Forming Unit method or Most Probable Number method. To use the field testing kits the project shall meet the following requirements: Testing kits must be approved by national agency or meet standards set by relevant international organization e.g., US-EPA, or testing kits shall be tested for its accuracy and robustness prior to application for	For ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country (KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water), $M_{q,y}$: As this monitoring period covers 2023 and 2024 years, the $M_{q,y}$ used in emission reduction calculations in 2023 has been determined in the water quality test conducted on 13/03/2023-17/03/2023 (conducted in last monitoring period), the result is 100%. So it is only necessary to determine the $M_{q,y}$ used in emission reduction calculations in 2024. For $M_{q,y}$ used in emission reduction calculations in 2024 was determined in water quality test conducted on 13/05/2024-16/05/2024, The specific process are as follows: A serial number was put on each of Multi-Layer water purifiers sold to the users. A list of all the users and the corresponding serial numbers of their Multi-Layer water purifiers was kept. The sale of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 sets water purifier were sold in the first monitoring period (10/10/2020-31/07/2021), no water purifier sold since the 2nd monitoring period. So, all water purifiers operated in this monitoring period have the same age. As the calculation of the sample size in approved PDD. The

project level monitoring. Local or accredited laboratory shall conduct water quality tests using testing kits and a relevant ISO standard or an equivalent standard, in parallel with field testing kits. The water test results will be compared against values provided for different parameters under the manufacturer's specifications of the project technologies. The water quality must be tested annually, and the first round of testing shall be conducted at least after six months from the start date. The monitoring report may include: -A full description of the water quality process which may be conducted either in the field or by transportation to laboratories. -Endorsement by third parties of the testing. -Justification of the appropriateness of the testing approach. B.7.2.4 of PDD: The sample size is following 90/10 precision rule and the water sample is taken at water outlet randomly from project database. The calculation of the sample size for the test shall be based upon a 0.6 Coefficient of Variation (COV) under a 90/10 approach as provided in Table 3 of Annex 4 of TPDDTEC (Version 3.1).	sample size for water hygiene education campaigns is 101¹⁵ in line with the requirement of Table 5 of Annex 2 of TPDDTEC (Version 4.0). 101 samples were randomly selected from 467,123 water purifiers users using online number generator by the Survey Group at the beginning of 2024. The monitoring of this parameter was conducted by GS monitoring team, which consisted of sales group, survey group and record group. All the team members were properly trained on 23/02/2024, so that they were fully aware of the monitoring procedures and the conservative principle. The water quality testing have been conducted on 13/05/2024-16/05/2024 by the monitoring team member with water sampler visiting to end-user' homes to take water quality samples for water quality testing. The specific sampling process are: Fill a numbered (which can identify the source of the sample) sterilized sampling bottle with water from outlet of the water purifier. Avoid contamination of the mouth with fingers and other objects during sampling. After sampling, the samples were stored at low temperature (0~4℃) and protected from light. Water quality samples have been sent to the laboratory for water quality monitoring and analysis immediately after the completion of water quality collection. Entrust a qualified third-party testing agency-a microbiology laboratory affiliated with the Kenya Bureau of Standards (KEBS)¹⁶ to test the water quality, which is official organization with the ability to issue qualifications to other institution, so, the KEBS has the undoubted accreditation. Also, in order to ensure that the testing activities meet the requirements, in addition to obtaining ISO/IEC
---	--

¹⁵ The calculation of the sample size for the test is based upon a 0.6 Coefficient of Variation (COV) under a 90/10 approach as provided in Table 5 of Annex 2 of TPDDTEC (Version 4.0).

¹⁶ https://www.kebs.org/index.php?option=com_content&view=article&id=94:microbiology-laboratory&catid=30&Itemid=161

	17025 accreditation, the laboratory has formulated a strict quality management plan¹⁷. Sampling photos and test results report have been taken as evidence. From the results of water quality testing, the $M_{q,y}$ used in emission reduction calculations claimed in this monitoring period is 100%.
For number of individuals per premises type p in the project boundary in year y, $HN_{p,y}$: B.7.1 of PDD: The source of this parameter is project survey. So, the monitoring method of this parameter is consistent with project survey. B7.2.1 of PDD: The safe water project survey is conducted with end user's representative of the project scenario target population and currently using the safe water project technology. The project survey will be carried out using representative and random sampling following the GS guidelines for minimum sample size: Group size <300: Minimum sample size 30 Group 300 to minimum to 1,000: Minimum sample size 10% of group size Group size >1,000: Minimum sample size 100 The project survey will likely have a minimum sample size of 100 as the number of water purifier sold is estimated to be greater than 1,000. End users for the project survey will be selected using representative sampling techniques to ensure adequate representation of users with technologies of different ages. Common sampling approach such as clustered random sampling is allowed, and geographic distribution will be	For number of individuals per premises type p in the project boundary in year y, $HN_{p,y}$: As this monitoring period covers 2023 and 2024 years, the $HN_{p,y}$ used in emission reduction calculations in 2023 has been determined in the project survey conducted in 09/01/2023-19/01/2023 (conducted in last monitoring period), which is 3.92 (396/101) number. So it is only necessary to determine the $HN_{p,y}$ used in emission reduction calculations in 2024. For $HN_{p,y}$ used in emission reduction calculations in 2024 was determined in project survey conducted in 14/02/2024-15/02/2024 (in this monitoring period). The specific survey process is as follows: A serial number was put on each of Multi-Layer water purifiers sold to the users. A list of all the users and the corresponding serial numbers of their Multi-Layer water purifiers was kept. The sale of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 sets water purifier were sold in the first monitoring period (10/10/2020-31/07/2021), no water purifier sold since the 2nd monitoring period. So, all water purifiers operated in this monitoring period have the same age. As the Project Survey and the WCFT can be conducted concurrently using the same sample, As the description of the sample size in approved PDD. For project survey, the minimum sample size is 100,

¹⁷ https://www.kebs.org/?option=com_content&view=article&id=89&Itemid=353

factored into selection criteria. End users can be surveyed at any time throughout the year with care taken to collect information pertaining to seasonal variations in technology and fuel use patterns. B.7.3.2 of PDD: The project survey provides critical information on year-to-year trends in end user characteristics such as technology use, fuel consumption and seasonal variations. Questionnaire which is similar to the baseline survey (Refer to Table B4.1 of PDD for sample questionnaire) will be adapted. It will be conducted with end-user's representative of the project scenario target population and currently using the safe water project technology. Related data and information will be collected through in-person paper surveys, which will be then entered into an excel file to be used to analyze the data. In the guidance on data collected, questions about end user characteristics and baseline technology and fuels should be treated as specific to safe water supply and boiling. These questions should be asked twice, first in regard to the baseline scenario water supply and water treatment, including boiling technologies, and second in regard to the project scenario clean water supply, including treatment and boiling technologies. The Project Survey and the WCFT can be conducted concurrently using the same sample.	for WCFT, the sample size is 101. So, the final sample size is 101, 101 samples were randomly selected from 467,123 water purifiers users using online number generator by the Survey Group at the beginning of 2024. The project survey was conducted by GS monitoring team, which consisted of sales group, survey group and record group. All the team members were properly trained on 23/02/2024, so that they were fully aware of the monitoring procedures and the conservative principle. The monitoring team member conducted the in-person paper survey on 14/02/2024-15/02/2024. During the project survey, the monitoring team member ask the End-user to fill the questionnaire, the questionnaire which is similar to the baseline survey (Refer to Table B4.1 of approved PDD for sample questionnaire) was adapted. The critical information including end user basic characteristics, family size, technology use, fuel consumption and seasonal variations, etc. After the project survey, the questionnaires were collected, and the results were summarized. Samples of project survey questionnaires, project survey summary table and photos can be been taken as evidence. From project survey questionnaires, the average number of individuals per premises in 2023 and 2024 is 3.92 (396/101) and 3.93 (397/101) number. The value applied shall be cross-checked against at least one other source on the list. As per 2019 Kenya Population and Housing Census Volume I: Population by County and Sub- County , there are 1,647,507 households and 6,421,177 people in Makueni County, Trans Nzoia County, Kirinyaga County, Bungoma County and Nakuru County of Kenya. Number of individuals per household can be
---	---

	calculated as $6,421,177/1,647,507=3.9$. In summary , the $HN_{p,y}$ used in emission reduction calculations claimed in this monitoring period is 3.9 number.
For proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in year y, $X_{cleanboil,y}$: B.7.1 of PDD: The source of this parameter is project survey. So, the monitoring method of this parameter is consistent with project survey. B7.2.1 of PDD: The safe water project survey is conducted with end user's representative of the project scenario target population and currently using the safe water project technology. The project survey will be carried out using representative and random sampling following the GS guidelines for minimum sample size: Group size <300: Minimum sample size 30 Group 300 to minimum to 1,000: Minimum sample size 10% of group size Group size >1,000: Minimum sample size 100 The project survey will likely have a minimum sample size of 100 as the number of water purifier sold is estimated to be greater than 1,000. End users for the project survey will be selected using representative sampling techniques to ensure adequate representation of users with technologies of different ages. Common sampling approach such as clustered random sampling is allowed, and geographic distribution will be factored into selection criteria. End users can be surveyed at any time throughout the year with care taken to collect information pertaining to	For proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in year y, $X_{cleanboil,y}$: As this monitoring period covers 2023 and 2024 years, the $X_{cleanboil,y}$ used in emission reduction calculations in 2023 has been determined in the project survey conducted in 09/01/2023-19/01/2023 (in last monitoring period), which is 0%. So it is only necessary to determine the $X_{cleanboil,y}$ used in emission reduction calculations in 2024. For $X_{cleanboil,y}$ used in emission reduction calculations in 2024 was determined in project survey conducted in 14/02/2024-15/02/2024 (in this monitoring period). The specific survey process is as follows: A serial number was put on each of Multi-Layer water purifiers sold to the users. A list of all the users and the corresponding serial numbers of their Multi-Layer water purifiers was kept. The sold of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 sets water purifier were sold in the first monitoring period (10/10/2020-31/07/2021), no water purifier sold since the 2nd monitoring period. So, all water purifiers operated in this monitoring period have the same age. As the Project Survey and the WCFT can be conducted concurrently using the same sample, As the description of the sample size in approved PDD. For project survey, the minimum sample size is 100, for WCFT, the sample size is 101. So, the final sample size is 101, 101 samples were randomly selected from 467,123 water purifiers users using online number generator by the Survey Group at the beginning of 2024.

seasonal variations in technology and fuel use patterns. B.7.3.2 of PDD: The project survey provides critical information on year-to-year trends in end user characteristics such as technology use, fuel consumption and seasonal variations. Questionnaire which is similar to the baseline survey (Refer to Table B4.1 of PDD for sample questionnaire) will be adapted. It will be conducted with end-user's representative of the project scenario target population and currently using the safe water project technology. Related data and information will be collected through in-person paper surveys, which will be then entered into an excel file to be used to analyze the data. In the guidance on data collected, questions about end user characteristics and baseline technology and fuels should be treated as specific to safe water supply and boiling. These questions should be asked twice, first in regard to the baseline scenario water supply and water treatment, including boiling technologies, and second in regard to the project scenario clean water supply, including treatment and boiling technologies. The Project Survey and the WCFT can be conducted concurrently using the same sample.	The project survey was conducted by GS monitoring team, which consisted of sales group, survey group and record group. All the team members were properly trained on 23/02/2024, so that they were fully aware of the monitoring procedures and the conservative principle. The monitoring team member conducted the in-person paper survey on 14/02/2024-15/02/2024. During the project survey, the monitoring team member ask the End-user to fill the questionnaire, the questionnaire which is similar to the baseline survey (Refer to Table B4.1 of approved PDD for sample questionnaire) was adapted. The critical information including end user basic characteristics, family size, technology use, fuel consumption, do you boil safe water and seasonal variations, etc. After the project survey, the questionnaires were collected, and the results were summarized. Samples of project survey questionnaires, project survey summary table and photos have been taken as evidence. From project survey questionnaires, the proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in 2024 is 0. In summary, the $X_{cleanboil,y}$ used in emission reduction calculations in this monitoring period is 0.
Volume of drinking water per person per day for premises type p, QPW_p: B.7.2.2 of PDD: For WCFT statistical analysis, 90/10 precision level will be selected. The survey will be a single sample for establishing project scenario water consumption. The calculation of the sample size for the survey shall be based upon a 0.6 Coefficient of Variation (COV) under a 90/10	Volume of drinking water per person per day for premises type p, QPW_p: As per the applied methodology, the monitoring frequency of this parameter is every two years. The last water consumption field test have been conducted on 09/01/2023 to 12/01/2023 and 16/01/2023 to 19/01/2023. This monitoring period is from 01/08/2023-31/07/2024, which is within 2 years of the last water consumption field test date.

approach as provided in Table 3 of Annex 4 of TPDDTEC (Version 3.1). B.7.3.3 of PDD The water consumption field test (WCFT) measures project-supplied clean water consumption volumes. The WCFT is conducted with end user's representative of the project scenario target population and currently using the project technology. The WCFT must be designed to ensure that monitoring is representative of typical technology use practices and that: - it is transparent and can easily be replicated, - it is evidently conservative, - the sample is randomly selected so as to not introduce a material bias, and - the impact of daily and seasonal variations on the expected average water consumption is accounted for. The WCFT must be conducted over 3 days, not including weekends, and averaged value (L/person/day) value should be determined after excluding outliers. It must be made explicit to the households/institutions that they must behave and consume water normally, reflecting typical daily water consumption pattern. WCFT protocol are designed for the project based on the Kitchen Project Test (KPT) guidelines in Annex 4 of TPDDTEC (Version 3.1). The protocol will be executed over a four-day period with the first day targeted at questionnaires and surveys with the remaining three left dedicated to WCFT exercises. The four-day period shall not be carried out over a holiday period to ensure conservative quantification of water consumption per end user. Day 0: Training of field enumerators The PP will carry out training exercise with the enumerators who would then proceed to carry out the WCFT. The PP will go over the survey	So there is no need to conduct the water consumption field test during this monitoring period. The value of this parameter used in the emission reduction calculations in this monitoring period has been determined in the water consumption field test conducted on 09/01/2023 to 12/01/2023 and 16/01/2023 to 19/01/2023, the value is 3.72 L/person/day.
---	--

questions to be asked during WCFT exercise as well as did mock examples of real WCFT with the enumerators to ensure they understood what would take place in a real-world situation in the field. Calibrated buckets are issued to each of the enumerators which they would use in the field in measuring the water volume consumed in a day per household. Enumerators are expressly told to ensure maximum accuracy in measuring water using the buckets. Day 1: Surveys and Introduction The project proponent will inform the end-users of the 3-day WCFT exercise that them that they should treat water as usual. Households will report on the times at which they treat water every day. The times reported shall be recorded to allow enumerators to go to the end-user's residence the following day before raw water is treated. Distribute calibration flasks for measurement to users. Day 2 – 4: WCFT exercise Distribute a Water consumption survey record form to users every morning before the user's beginning to use water. When users want to use water, use a volumetric flask to collect water from the water purifier and record the amount of water received. Daily Water consumption by the end users will be measured in these flasks filtered through the water filter. In every evening the Water consumption survey record form will be collected. The mean value of the total water consumption (the total water consumption per day aggregated over a three-day period) will establish the value QPW_p per end user. Which will then be aggregated (after elimination of outliers) to determine the value used to calculate Emission Reductions for the whole project per technology. The end user will then be asked if at all they boil any of the clean water or if they consume any	
--	--

raw water without boiling. Water consumption for the water filter will be capped at 5.5 litres per person per day in accordance with the applied GS methodology.	
For usage rate of the project technology by premises type p during year y, $U_{p,y}$: As B.7.3.4 of PDD, the monitoring of the parameter is according to Annex 1 of applied methodology. The guidelines outline six topics which must be successfully completed for the survey respondent to be classed as a user. Additionally, other topics relevant to specific technology types and project conditions are required to provide accurate estimates of the usage of the water purifiers. If all six topics outlined are successfully completed the survey respondent can be classed as a user. If failure occurs in one or more of the topics, then the respondent is classed as a non-user. The project proponent needs to clearly define what is deemed a success or a failure for each topic area as part of its usage plan. It is required that sufficient precautions are taken by enumerators to ensure that there is no bias while conducting the usage surveys. For example: - The survey should not be conducted immediately after capacity building/awareness programs in the target households. - Surveyors should not wear clothes with logos of their employers, etc. B.7.2.3 of PDD: The minimum total sample size for Usage Survey is 100, with at least 30 samples for project technologies of each age being credited. The majority of interviews in a usage survey must be conducted in person. Thus, if technologies of age 1-5 are credited, the usage survey must include 30 representative samples from each age for	For usage rate of the project technology by premises type p during year y, $U_{p,y}$: As this monitoring period covers 2023 and 2024 years, the $U_{p,y}$ used in ER_y calculations in 2023 has been determined in the usage rate survey conducted on 06/03/2023-07/03/2023 (last monitoring period), which is 86%. So it is only necessary to determine the $U_{p,y}$ used in emission reduction calculations in 2024. The $U_{p,y}$ used in ER_y calculations in 2024 was determined in usage rate survey conducted on 20/03/2024-21/03/2024 (this monitoring period). The specific survey process is as follows: A serial number was put on each of Multi-Layer water purifiers sold to the users. A list of all the users and the corresponding serial numbers of their Multi-Layer water purifiers was kept. The sale of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 sets water purifier were sold in the first monitoring period (10/10/2020-31/07/2021), no water purifier sold since the 2nd monitoring period. So, all water purifiers operated in this monitoring period have the same age. As the description of the sample size in approved PDD, the sample size for usage rate survey is 100. 100 samples were randomly selected from 467,123 water purifiers users using online number generator at the beginning of 2024. The Usage rate survey was conducted by GS monitoring team, which consisted of sales group, survey group and record group. All the team members were properly trained on 23/02/2024, so

total of 150 samples. The resulting usage parameter should be weighted based on the proportion of technologies in the borehole database of each age. In line with the applied GS methodology, any sampling methods can be used, provided that the sample is selected randomly. If sampling approach other than simple random sampling is applied, CDM Guideline: Sampling and surveys for CDM project activities and programmes of activities (Version 04.0) must be followed.	that they were fully aware of the monitoring procedures and the conservative principle. The monitoring activity of this parameter was completed successively on 20/03/2024-21/03/2024¹⁸. According to Annex 1 of applied methodology. The guidelines outline six topics which must be successfully completed for the survey respondent to be classed as a user. Additionally, other topics relevant to specific technology types and project conditions are required to provide accurate estimates of the usage of the water purifiers. During the usage rate survey, End users were invited to fill out the questionnaire. The questionnaire contains the following six topics according to Annex 1 of applied methodology: Topic 1: Introductory question and water treatment. Q1: Are you the main user /operator of the water purifier in the household? Q2: Did you do anything to make your water safer to drink? Q3: How did you make this water safer to drink? The first question can confirm that all respondents were the main user /operator of the water purifier in their households. Topic 2: Rate of usage. Q1: How often do you filter water? Q2: When was the last time you filtered water using the project water purifier? Q3: Have you used the project water purifier in the last two days? As description in PDD, the households that show at least once-in-two-days use may be counted as users. Topic 3: Water storage Q1. Is there a safe storage container that contains filtered water in it? Q2: If 'no', when was the last time there was filtered
--	--

¹⁸ The monitoring team consists of 12 people, each of whom is responsible for the monitoring of 8-10 samples.

	water in it? Topic 4: Physical signs of usage Q1: Observe to see if the project water purifier shows signs of usage? Topic 5: Demonstration & knowledge Q1: Can you please show us how you filter water? Q2: Can you please give us a cup of drinking water? Topic 6: Functionality Q1: Observe whether the HWT unit is currently functional. After the Usage rate survey, the questionnaires were collected, and the results were summarized. Samples of Usage survey questionnaires, Usage survey summary table and photos have been taken as evidence. From the completion of six topics questionnaires and the survey of Topic 2, the usage rate of the water purifier in 2023 and 2024 are 86% ($86/100 \times 100\%$) and 80% ($80/100 \times 100\%$), respectively. In summary, the $U_{p,y}$ used in ER_y calculations claimed in 2023 and 2024 are 86% and 80%, respectively.
--	--

Due to the non-industrial nature of the project, emergency procedures are not applicable to the project. For QA/QC procedure, please refer to QA/QC procedures in section D.2.

Avoiding Double Counting

The Avoiding Double Counting of this project is detailed below:

The project owner is the overall data management department and all the data collected should be submitted to the project owner for the purpose of effective management. To avoiding double counting, the following measures will be taken:

(i) In order to cover more households with high-quality water purifiers at a lower price, it is restricted in the project that each household can only buy one set of water purifier. After the

project put into operation, the project owner will arrange for relevant personnel to conduct irregular surveys on the use of the water purifier, the survey member inform the End-user that if the water purifier is damaged or parts need to be replaced, the project owner can be notified in time, and the project owner will repair and replace parts free of charge in time to ensure the water purifier in normal use. Also, each water purifier sold has a unique number with a unique naming rule¹⁹. If the project owner uses other types of water purifiers that are not within the project boundary, these water purifiers will not have a unique serial number that complies with this naming rule and will not be included in the calculation of emission reductions.

Therefore, only one water purifier per household is considered in the emission reduction calculation and only calculated once.

(ii) Declaration of Declaration of No Double Counting and not involved in other GHG scheme statement by the project owner was signed by project owner.

SECTION D. DATA AND PARAMETERS

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

>>

Related to water quality

Parameter ID	SDWS 2
Data/parameter	<i>Project technology description</i>
Unit	N/A
Description	The Multi-Layer water purifiers are produced by Zhejiang Duanqi Renewable Energy Co., Ltd., which consist of 8 step filtration system and can purify water 3 liter/hour. The lifespan of the water purifiers are over 15 years and the dome ceramic, carbon cartridge and mineral stone should be changed when purify every 10,000 L water. The project equipment provides safe drinking water that are free from pathogens and elevated levels of toxic substances. In addition, the water purifier involved in this project obtain the pre-export verification of conformity by KEBS (Kenya bureau of standards). Moreover, according to the water quality test report by the KEBS, the purified water quality of the product meets the

¹⁹ The name of water purifier consists of project name (KWFP), sales region (K, N, M, T, B) and sales serial number, such as KWFP-B-1 means the first water purifier sold in Bungoma county of this project.

	standards of KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water.
Source of data	Manufacturer specifications and the pre-export verification of conformity.
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	The manufacturer specifications, the pre-export verification of conformity and the water quality test report provide an accurate evidence of compliance with relevant standards. It also can be known from the sales contract that the water purifier is also presented with a filter element as a spare when it is sold. When the water purifier has been used for less than 22 months, when the user needs to replace the filter element, a request can be sent to the project owner, and the user can use a spare filter element during the time period when the project owner comes to replace it. Of course, after receiving the request, the project owner will immediately go to the user's home to replace the core filter. When the water purifier has been used for 22 months, the project owner will replace the alternative materials of all the water purifier sold. The use of Multi-Layer water purifiers started on 10/10/2020, as of the end of this monitoring period, all water purifier filters have been replaced twice, the first replacement occurred on 01/05/2022-29/07/2022 (within the 2nd monitoring period which is from 01/08/2021 to 31/07/2022), the second replacement occurred on 05/01/2024-05/04/2024²⁰ (within this monitoring period which is from 01/08/2023-31/07/2024). The replacement of core filter and components during this monitoring period happened and the replacement information has been recorded in the "Replacement and Maintenance record".
Purpose of data	The Project technology of the water purifier involved in this project meet the relevant standard and the product is eligible products.
Additional comment	N/A

Parameter ID	SDWS 4
Data/parameter	<i>Regulatory framework for safe water supply</i>

²⁰ During the 05/01/2024-05/04/2024, the project owner arranges replacement personnel to come to the door to replace the filter element for the user free of charge and record the replacement information in the "replacement and maintenance record", the project owner aggregates the necessary replacement information into the sales database.

Unit	N/A
Description	Water scarcity in various regions of Kenya has been an issue for decades. The government has issued some water resources related policies and regulations. The <i>Water Act 2016</i> provides for the regulation, management and development of water resources and water and sewerage services in line with the Constitution. The <i>National Water Quality Management Strategy (NWQMS)</i> issued by the Ministry of Water and Irrigation to improve water quality. The <i>Kenya National Water Master Plan 2030</i> developed by Ministry of Environment, Water and Natural Resources recognizes water as an enabler in socio-economic development and aims to improve water and sanitation availability and access to all by 2030. The implementation of the project is fully in line with the relevant water resources policies of Kenya.
Source of data	National authorities
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	National authorities provide the powerful regulatory framework for safe water supply
Purpose of data	The Kenyan government attaches great importance to the issue of water resources. This project could bring water benefits to the Kenyan people. So, the implementation of the project is fully in line with the relevant water resources policies of Kenya.
Additional comment	N/A

Parameter ID	SDWS 5
Data/parameter	<i>Water sources in the project boundary</i>
Unit	N/A
Description	The water source in the project boundary and whether they are used for drinking water, and for all that are used for drinking water, classify them as improved and unimproved water source.
Source of data	Baseline study conducted from 10/10/2020 to 20/12/2020.
Value(s) applied	0.59% (3HH/505HH) of the households are available of piped water. 6.7% (34HH/505HH) of the households take water from boreholes or protected wells. As per Annex 2 of the applied GS methodology, piped water and water from boreholes or protected

	wells belong to improved sources of drinking water. For the rest of 92.7% (468HH/505HH) households, the most common sources of water are from unprotected well, unprotected spring and surface water, which belong to unimproved sources of drinking water.
Choice of data or Measurement methods and procedures	The baseline study conducted from 10/10/2020 to 20/12/2020 provided the water source in project boundary.
Purpose of data	From the baseline survey, the most people in Kenya can't obtained the safety water from improved water source, so the implementation of this project is important for the safety of drinking water for Kenyans. Demonstrated the reasonableness of project implementation.
Additional comment	N/A

SDG13

Parameter ID	SDWS 6
Data/parameter	<i>Stove technologies used in the project boundary</i>
Unit	N/A
Description	The proportion of different stove types used in premises in the geographical area of the project.
Source of data	Baseline survey conducted from 10/10/2020 to 20/12/2020.
Value(s) applied	The stove used to boil water in baseline scenario is three-stone stoves (67.2%, 223HH/332HH), Conventional stoves (19.3%, 64HH/332HH), improved stoves (6.3%, 21HH/332HH) and LPG stoves (7.2%, 24HH/332HH). The project is implemented in Makueni, Trans Nzoia, Kirinyaga, Bungoma and Nakuru Counties of Kenya, the proportion of different stove types are defined for each county. Refer to section B.4.1 of the PDD for more details.
Choice of data or Measurement methods and procedures	The baseline study conducted from 10/10/2020 to 20/12/2020 provided the proportion of different stove types used in premises in the geographical area of the project.
Purpose of data	To calculate the baseline emissions.
Additional comment	N/A

Parameter ID	SDWS 7
--------------	---------------

Data/parameter	<i>Expected technical life of project technology</i>
Unit	Operational lifespan of the water purifiers are more than 15 years
Description	As per manufacturer specifications of the water purifiers, the dome ceramic should be cleaned every 7 days with toothbrush, the outside of carbon cartridge should be cleaned every 10 days and the dome ceramic, carbon cartridge and mineral stone should be changed when purify every 10,000 L water (about 22 months).
Source of data	Manufacturer specifications
Value(s) applied	More than 15 years
Choice of data or Measurement methods and procedures	The manufacturer specifications provided the accuracy information of expected technical life of an individual project technology and the details include both technology/device life and filter life. Consider conservatively, it is believed that the water purifier involved in this project began to use on 10/10/2020. As per the technical manual of the water purifier, the frequency of replacement is every 10,000 L water (about 22 months). For this project, as of the end of this monitoring period, all water purifier filters have been replaced twice, the first replacement occurred on 01/05/2022-29/07/2022, the second replacement occurred on 05/01/2024-05/04/2024. In addition, the water purifier product involved in this project is assembled from multiple components, any components (such as covers, faucets, etc.) that are damaged during this monitoring period have been replaced and recorded by PP. Therefore, the replacement of core filter and components during this monitoring period happened and the replacement information has been recorded in the "Replacement and Maintenance record".
Purpose of data	The expected technical life of project technology meets the total length of crediting period.
Additional comment	N/A

Parameter ID	SDWS 8
Data/parameter	<i>X_{firewood}/X_{charcoal}/X_{LPG}</i>
Unit	Percentage of firewood, charcoal and LPG
Description	The proportion of each different household cooking fuel (firewood, charcoal and LPG) used in the project boundary

Source of data	Baseline survey conducted from 10/10/2020-20/12/2020.																															
Value(s) applied	<table><tr><td>County</td><td>$X_{firewood}$</td><td>$X_{charcoal}$</td><td>X_{LPG}</td></tr><tr><td>Makueni</td><td>81.3</td><td>18.8</td><td>0</td></tr><tr><td>Trans Nzoia</td><td>78.3</td><td>19.6</td><td>2.2</td></tr><tr><td>Kirinyaga</td><td>93.1</td><td>6.9</td><td>0</td></tr><tr><td>Bungoma</td><td>79.7</td><td>17.4</td><td>2.9</td></tr><tr><td>Nakuru</td><td>56.7</td><td>21.6</td><td>21.6</td></tr><tr><td>Total</td><td>75.9</td><td>16.9</td><td>7.2</td></tr></table>	County	$X_{firewood}$	$X_{charcoal}$	X_{LPG}	Makueni	81.3	18.8	0	Trans Nzoia	78.3	19.6	2.2	Kirinyaga	93.1	6.9	0	Bungoma	79.7	17.4	2.9	Nakuru	56.7	21.6	21.6	Total	75.9	16.9	7.2			
County	$X_{firewood}$	$X_{charcoal}$	X_{LPG}																													
Makueni	81.3	18.8	0																													
Trans Nzoia	78.3	19.6	2.2																													
Kirinyaga	93.1	6.9	0																													
Bungoma	79.7	17.4	2.9																													
Nakuru	56.7	21.6	21.6																													
Total	75.9	16.9	7.2																													
Choice of data or Measurement methods and procedures	505 households participated the baseline survey (101 households for each County). 332 households (Makueni 48, Trans Nzoia 46, Kirinyaga 72, Bungoma 69 and Nakuru 97) treat unsafe drinking water by boiling. The questionnaire shown in Table B4.1 of PDD are adapted to capture the information of fuel types and stove types used to boil water. The data was collected through paper surveys, which were then entered into an excel file to be used to analyze the data. Refer to section B4.1 of registered PDD for more details.																															
Purpose of data	To demonstrate contribution to SDG 13.																															
Additional comment	The proportion of different fuel types are defined for each County. According to applied methodology, the percentages applied shall be cross-checked against at least one other source on the list. For cross-check purposes, sources applied may be up to 5 years old. In this project the cross-check document is <i>Water Survey Report</i> approved by National Environment Management Authority, which belongs to credible published literature for project region. According to <i>Water Survey Report</i> approved by National Environment Management Authority, in Turkana, Makueni, Kirinyaga, Mandera, Tran Nzoia, Bungoma and Nakuru County, the main fuel used for boiling water were firewood and products of wood 77.1%, charcoal 17.1% and LPG 5.8%. So, consider conservative principles, the percentage of firewood, charcoal and LPG is 75.9%, 16.9% and 7.2% in the calculation of baseline emissions.																															

Parameter ID	SDWS 9
Data/parameter	$EF_{b,firewood,CO2}$
Unit	tCO ₂ /TJ

Description	CO ₂ emissions factor of the fuel (firewood) that it substituted or reduced
Source of data	IPCC default value. As per applied methodology " <i>Methodology for Emission reductions from safe drinking water supply</i> (Version 1.0)", this parameter should sourced from IPCC default and the value is 112 tCO ₂ /TJ.
Value(s) applied	112
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 9
Data/parameter	$EF_{b,charcoal,CO_2}$
Unit	tCO ₂ /TJ
Description	CO ₂ emissions factor of the fuel (charcoal) that it substituted or reduced
Source of data	<i>Methodology for Emission reductions from safe drinking water supply</i> (Version 1.0)
Value(s) applied	165.22 (includes charcoal production emissions)
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 9
Data/parameter	EF_{b,LPG,CO_2}
Unit	tCO ₂ /TJ
Description	CO ₂ emissions factor of the fuel (LPG) that it substituted or reduced
Source of data	IPCC 2006 default value (Table 2.4 of Chapter 2) ²¹

²¹ The latest IPCC methodology report "2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories" did not revise this parameter, so this parameter is still sourced from IPCC 2006 and the value is 63.1 tCO₂/TJ.

Value(s) applied	63.1
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 10
Data/parameter	$EF_{b,firewood,nonCO2}$
Unit	t/TJ
Description	Non CO ₂ emissions factor of the firewood that is substituted or reduced
Source of data	Table 2.5 of Chapter 2 Stationary Combustion (IPCC 2006 ²²) and Table 8.7 of 2013 Climate Change 2013 The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).
Value(s) applied	9.46 (0.3t/TJ*28+ 0.004t/TJ*265)
Choice of data or Measurement methods and procedures	Determined as per IPCC default figures.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 10
Data/parameter	$EF_{b,charcoal,nonCO2}$
Unit	t/TJ
Description	Non CO ₂ emissions factor of the firewood that is substituted or reduced
Source of data	<i>Methodology for Emission reductions from safe drinking water supply</i> (Version 1.0)
Value(s) applied	44.83 (includes production emissions of CH ₄ and N ₂ O)

²² The latest IPCC methodology report "2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories" did not revise the relevant data for calculating this parameter, so the source is still IPCC 2006.

Choice of data or Measurement methods and procedures	Determined as per IPCC default figures.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 10
Data/parameter	$EF_{b,LPG,nonCO2}$
Unit	t/TJ
Description	Non CO ₂ emissions factor of the LPG that is substituted or reduced
Source of data	Table 2.5 of Chapter 2 Stationary Combustion (IPCC 2006 ²³) and Table 8.7 of 2013 Climate Change 2013 The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).
Value(s) applied	0.1665 (0.005t/TJ*28+ 0.0001t/TJ*265)
Choice of data or Measurement methods and procedures	Determined as per IPCC default figures.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 11						
Data/parameter	η_{wb}						
Unit	%						
Description	Weighted average efficiency of the baseline water boiling. Calculate the weighted average of the water boiling efficiency in the project boundary using the proportion of different stove types used and the stove efficiencies.						
Source of data	Baseline Survey conducted from 10/10/2020-20/12/2020.						
Value(s) applied	<table border="1"> <thead> <tr> <th>County</th><th>η_{wb}</th></tr> </thead> <tbody> <tr> <td>Makueni</td><td>12.9</td></tr> <tr> <td>Trans Nzoia</td><td>14.8</td></tr> </tbody> </table>	County	η_{wb}	Makueni	12.9	Trans Nzoia	14.8
County	η_{wb}						
Makueni	12.9						
Trans Nzoia	14.8						

²³ The latest IPCC methodology report "2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories" did not revise the relevant data for calculating this parameter, so the source is still IPCC 2006.

	<table> <tr> <td>Kirinyaga</td><td>11.3</td></tr> <tr> <td>Bungoma</td><td>14.6</td></tr> <tr> <td>Nakuru</td><td>22.9</td></tr> </table>	Kirinyaga	11.3	Bungoma	14.6	Nakuru	22.9
Kirinyaga	11.3						
Bungoma	14.6						
Nakuru	22.9						
Choice of data or Measurement methods and procedures	505 households participated the baseline survey (101 households for each County). 332 households (Makueni 48, Trans Nzoia 46, Kirinyaga 32, Bungoma 69 and Nakuru 137) treat unsafe drinking water by boiling. The questionnaire shown in Table B4.1 of registered PDD are adapted to capture the information of fuel types and stove types used to boil water. The data was collected through paper surveys, which were then entered into an excel file to be used to analyze the data. Refer to section B4.1 of registered PDD for more details. Default efficiency values for different type of stoves: three-stone stoves 10%, conventional stoves 20%, improved stoves 30%. As per manufacturer specifications of the baseline LPG stoves, the highest efficiency is 50%.						
Purpose of data	To demonstrate contribution to SDG 13.						
Additional comment	N/A						

Parameter ID	SDWS 12
Data/parameter	C_b
Unit	%
Description	Proportion of project households who in the baseline were already using a safe water supply that did not require boiling.
Source of data	Baseline Survey conducted from 10/10/2020-20/12/2020.
Value(s) applied	20.0
Choice of data or Measurement methods and procedures	The percentage of households who are available of safe drinking water before project activity is 7.3% (37HH/505HH). 78.4% (396HH/505HH) treat unsafe water before drinking and 14.3% (72HH/505HH) drink unsafe water directly without any treatment. Data and information collected from the questionnaires show that all the households surveyed are involved in water treatment for domestic consumption. Among those who treat water, 83.8% (332HH/396HH) of them boil water before drinking and 16.2% (64HH/396HH) use gravity household water filters, ultraviolet radiation treatment, reverse osmosis, chlorine tablets and other

	technologies. Therefore, C_b can be calculated as $7.3\% + 78.4\% \times 16.2\% = 20.0\%$.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	According to applied methodology, the percentages applied shall be cross-checked against at least one other source on the list. For cross-check purposes, sources applied may be up to 5 years old. In this project the cross-check document is <i>Water Survey Report</i> approved by National Environment Management Authority, which belongs to Credible published literature for project region. According to <i>Water Survey Report</i> approved by National Environment Management Authority, in Turkana, Makueni, Kirinyaga, Mandera, Tran Nzoia, Bungoma and Nakuru County, 0.43% (2HH/462HH) of the households were available of piped water or bottled water. 5.8% (27HH/462HH) of the households got water from boreholes or protected wells. Piped water, bottled water and water from boreholes or protected wells were improved sources for drinking (6.3%, 29HH/462HH). Among those who were not available of safe water (93.7%, 433HH/462HH), 12.9% (56HH/433HH) will treat unsafe water before drinking by chlorine tablets, water filters or similar technologies, 75.5% (327HH/433HH) will drink boiled water and the rest of them (18.2%, 79HH/433HH) will drink unsafe water directly. Therefore, the proportion of households who were already using a safe water supply that did not require boiling it can be calculated as $6.3\% + 12.9\% \times 93.7\% = 18.4\%$, which is less than 20.0%.

Parameter ID	SDWS 13
Data/parameter	q_i
Unit	Liters per hour
Description	Capacity of the household water treatment technology
Source of data	Manufacturer specifications
Value(s) applied	3
Choice of data or Measurement methods and procedures	Manufacturer specifications provides the capacity, lifetime and water quality of the household water treatment technology.
Purpose of data	To demonstrate contribution to SDG 13.

Additional comment	N/A
--------------------	-----

Parameter ID	SDWS 21
Data/parameter	$f_{NRB,f,y}$
Unit	%
Description	Fractional non-renewability status of woody biomass fuel during year y , in case the baseline fuel is biomass or charcoal
Source of data	Determined by CDM Tool 30 Calculation of the fraction of non-renewable biomass (Version 03.0)
Value(s) applied	66.4
Choice of data or Measurement methods and procedures	Since it is difficult to estimate the locations and extent of areas from which woody biomass fuel used by the project is collected, the project proponent aggregates all reachable woody biomass fuel collection areas within Kenya and apply a single fraction derived from all collection areas in the country. According to <i>East African Civil Society for Sustainable Energy and Climate Action</i> (EASE & CA) published on August 2020²⁴, biomass fuels consumption in Kenya in 2017 was 724 PJ²⁵, in which sustainable potential of solid biomass was 243 PJ. Therefore, RB is 243 PJ, NRB equals to $724-243=481$ PJ. $f_{NRB}=481/(481+243)=66.4\%$ The f_{NRB} of 66.4% is fixed based on the results of the NRB assessment for the first crediting period.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

D.2. Data and parameters monitored

>>

Related to water quality

Parameter ID	SDWS 20
Data / Parameter	<i>Water hygiene education campaigns</i>
Unit	N/A

²⁴ https://www.inforse.org/africa/pdfs/Pub_100-Renewable-Energy-Plan-for-Kenya-by-2050-12-08-2020.pdf

²⁵ 1PJ=10¹⁵J.

Description	Hygiene campaigns carried out among project technology users. The drinking water and hygiene practices will be assessed using the WHO/UNICEF Joint Monitoring Programme guidelines ²⁶ (JMP 2018). In-person or telephone or by messaging based survey will be conducted including all the JMP core questions for drinking water and core questions for hygiene. Refer to section B.7.3 of approved PDD for more details.															
Source of data	Hygiene practices assessment															
Value(s) applied	In 2023, the <i>Water hygiene education campaigns</i> was conducted on 13/03/2023-17/03/2023 and the result is as follows: the fraction of the households where safe water are found to fulfill "safely managed" is 100%,i.e., All the project users have access to safe water because they have water purifiers. The fraction of the households where Hygiene practices are found to fulfill basic requirements is 10.89%, i.e., Among the 101 sample users surveyed, 11 users can get soap when washing their hands at home. In 2024, the <i>Water hygiene education campaigns</i> was conducted on 13/05/2024-16/05/2024 and the result is as follows: the fraction of the households where safe water are found to fulfill "safely managed" is 100%,i.e., All the project users have access to safe water because they have water purifiers. The fraction of the households where Hygiene practices are found to fulfill basic requirements is 12.87%, i.e., Among the 101 sample users surveyed, 13 users can get soap when washing their hands at home. <table><tr><th>Period</th><th>Parameter</th><th>Actual result</th></tr><tr><td>01/08/2023-31/12/2023</td><td>The fraction of the households where safe water is found to fulfill "safely managed"</td><td>100%</td></tr><tr><td>01/08/2023-31/12/2023</td><td>The fraction of the households where Hygiene practice are found to fulfill basic requirements</td><td>10.89%</td></tr><tr><td>01/01/2024-31/07/2024</td><td>The fraction of the households where safe water is found to fulfill "safely managed"</td><td>100%</td></tr><tr><td>01/01/2024-31/07/2024</td><td>The fraction of the households where Hygiene practices are found to fulfill basic requirements</td><td>12.87%</td></tr></table>	Period	Parameter	Actual result	01/08/2023-31/12/2023	The fraction of the households where safe water is found to fulfill "safely managed"	100%	01/08/2023-31/12/2023	The fraction of the households where Hygiene practice are found to fulfill basic requirements	10.89%	01/01/2024-31/07/2024	The fraction of the households where safe water is found to fulfill "safely managed"	100%	01/01/2024-31/07/2024	The fraction of the households where Hygiene practices are found to fulfill basic requirements	12.87%
Period	Parameter	Actual result														
01/08/2023-31/12/2023	The fraction of the households where safe water is found to fulfill "safely managed"	100%														
01/08/2023-31/12/2023	The fraction of the households where Hygiene practice are found to fulfill basic requirements	10.89%														
01/01/2024-31/07/2024	The fraction of the households where safe water is found to fulfill "safely managed"	100%														
01/01/2024-31/07/2024	The fraction of the households where Hygiene practices are found to fulfill basic requirements	12.87%														

²⁶ <https://washdata.org/report/jmp-2018-core-questions-household-surveys>

	Therefore, the implementation of the Water hygiene education campaigns contributes to an increasing of the fraction of the households where safe water and hygiene practices are found to fulfill “safely managed” or “basic” requirements over time.
Measurement methods and procedures	Although this monitoring period covers 2023 and 2024 years, for year 2023, the water hygiene education campaigns has been conducted on 13/03/2023-17/03/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Therefore, only once water hygiene education campaigns should be conducted during this monitoring period, which was conducted on 13/05/2024-16/05/2024. The specific process has been described in section C of this MR. According to section 7.2 sample plan in approved PDD, 101 samples is sufficient to represent the entire population of 467,123 and the 101 samples were randomly selected from 467,123 water purifiers users using online number generator by the Survey Group at the beginning of 2024. So, there are 101 samples in 2023 for monitoring this parameter. The hygiene education campaigns have been conducted together on 13/05/2024-16/05/2024 during the monitoring team member visiting to end-user’ homes and the monitoring team member conducted in-person survey including all the JMP core questions for drinking water and core questions for hygiene and ask them to fill the questionnaires.
Monitoring frequency	Annually
QA/QC procedures	The fraction of the households where Safe water and Hygiene practices are found to fulfill “safely managed” or “basic” requirements is expected to increase over time as a result of the hygiene campaigns.
Purpose of data	N/A
Additional comment	N/A

SDG 7

Parameter ID	SDWS 19
Data / Parameter	<i>Number of water purifiers sold in year y</i>
Unit	Sets

Description	Number of water purifiers sold in year y
Source of data	Sales database
Value(s) applied	According to the sales database in this monitoring period, no water purifiers sold in this monitoring period.
Measurement methods and procedures	Influenced by international environment and regional market saturation and as per prediction on future water purifier market, the project owner adjusted the corresponding business plan. It decided to suspend the sales work in project area, and expand to other regions of Kenya as well as other countries of Africa, so, no water purifiers were sold during this monitoring period, so the actual number of water purifiers in normal operation in this monitoring period is still the 467,123 water purifiers sold in the first monitoring period. The water purifiers involved in the project are sold at the sales point in each region. For each water purifier sold, the sales personnel signed a sales contract with the buyer and filled the buyer's name, gender, water purifier number, sales time, sold region and other information in the sales record system. GS monitoring team exported the sales information in the system and summarized the sales record table into excel.
Monitoring frequency	Yearly
QA/QC procedures	The number of water purifiers sold was based on the sale database and cross checked by the purchase receipt. After verification, the value in the sale database and purchase receipt are consistent.
Purpose of data	To demonstrate contribution to SDG 7.
Additional comment	N/A

SDG 6/SDG 13

Parameter ID	SDWS 18
Data / Parameter	$M_{q,y}$
Unit	%
Description	Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country (<i>KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water</i>).

Source of data	Testing of the water that exits the treatment technology.										
Value(s) applied	From the summary table of WQT in 2023 and 2024, the quality of all the filtered water samples meets the standards of "KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water", so the modifier for the water quality used to calculate emission reductions is: <table> <tr> <th>Period</th><th>$M_{q,y}$</th></tr> <tr> <td>01/08/2023-31/12/2023</td><td>100%</td></tr> <tr> <td>01/01/2024-31/07/2024</td><td>100%</td></tr> </table>	Period	$M_{q,y}$	01/08/2023-31/12/2023	100%	01/01/2024-31/07/2024	100%				
Period	$M_{q,y}$										
01/08/2023-31/12/2023	100%										
01/01/2024-31/07/2024	100%										
Measurement methods and procedures	Although this monitoring period covers 2023 and 2024 years, for year 2023, the water quality testing has been conducted on 13/03/2023-17/03/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Therefore, only once water quality testing should be conducted during this monitoring period, which is conducted on 13/05/2024-16/05/2024. The specific process has been described in section C of this MR. The water quality test applied the bacterial quality standard <1 cfu/100ml, and the sampling determines the proportion of pass and fail results. The sample size is following 90/10 precision rule and a minimum sample size of 30 must be selected. The calculation of the sample size for the test was based upon a 0.6 Coefficient of Variation (COV) under a 90/10 approach as provided in Table 3 of Annex 4 of TPDDTEC (Version 3.1). So, the sample size is 101 and 101 samples were selected from 467,123 water purifier at the beginning of 2024 using online number generator in this monitoring period. The water sample is taken at water outlet of the project water purifiers from the 101 samples and project owner Entrust a third-party testing agency - a microbiology laboratory affiliated with the Kenya Bureau of Standards (KEBS) to test the water quality. Refer to Section C for the specific execution process. From the laboratory test report, the monitoring parameters and monitoring methods are shown in the following table: <table> <tr> <th>Parameters</th><th>Test Method No.</th></tr> <tr> <td>E.Coli</td><td>TES/MIC/TM/14</td></tr> <tr> <td>Pseudomonas aeruginosa fluorescence</td><td>TES/MIC/TM/12B</td></tr> <tr> <td>Salmonella</td><td>TES/MIC/TM/15</td></tr> <tr> <td>Staphylococcus aureus</td><td>TES/MIC/TM/27*</td></tr> </table>	Parameters	Test Method No.	E.Coli	TES/MIC/TM/14	Pseudomonas aeruginosa fluorescence	TES/MIC/TM/12B	Salmonella	TES/MIC/TM/15	Staphylococcus aureus	TES/MIC/TM/27*
Parameters	Test Method No.										
E.Coli	TES/MIC/TM/14										
Pseudomonas aeruginosa fluorescence	TES/MIC/TM/12B										
Salmonella	TES/MIC/TM/15										
Staphylococcus aureus	TES/MIC/TM/27*										

	Streptococcus Faecalis	TES/MIC/TM/21B
Monitoring frequency	Annual sampling, and the first round of testing shall be conducted at least after six months from the start date. For this project, the start date is 09/10/2020, the first round of testing conducted on 02/06/2021-11/06/2021, therefore, the date of first round of testing meets the requirements of at least after six months from the start date. The water quality testing conducted in this monitoring period was the 4th round of testing.	
QA/QC procedures	1. Laboratories used for water quality testing must be approved by local health authorities and/or have quality accreditation- The organization that carries out the water quality testing in this monitoring period is KEBS (Kenya Bureau of Standards), which is an official organization with the ability to issue qualifications to other institution. So, the KEBS has the undoubted accreditation. 2. The laboratory used must demonstrate that it has an adequate quality management plan in place which addresses both quality assurance and quality control test procedures- In order to ensure that the testing activities meet the requirements, in addition to obtaining ISO/IEC 17025 accreditation, the laboratory has formulated a strict quality management plan²⁷. 3. Field testing kits also are eligible, e.g., based on Colony Forming Unit method or Most Probable Number method. To use the field testing kits the project shall meet the following requirements: a. Testing kits must be approved by national agency or meet standards set by relevant international organization e.g., US-EPA, and b. Testing kits shall be tested for its accuracy and robustness prior to application for project level monitoring, whereby local or accredited laboratory shall conduct water quality tests using testing kits and a relevant ISO standard or an equivalent standard, in parallel with field testing kits- After the sampler collects the water quality sample from the user's home on site, the water sample were brought to laboratory for analysis, so field testing is not involved, and this article does not application.	
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.	

²⁷ https://www.kebs.org/index.php?option=com_content&view=article&id=89&Itemid=353

Additional comment	If the proportion of samples not meeting Safe Drinking Water Quality Standards exceeds a threshold, no emission reductions can be claimed for the corresponding monitoring period. Thresholds: - Project or VPA year 1: 20% - Project or VPA year 2: 15% - Project or VPA year 3 or above: 10% When the crediting period is renewed, the year number count continues, i.e., the second crediting period would encompass year 6, year 7, year 8, etc. Additionally, when the threshold is exceeded, the project shall provide an explanation for why this occurred and provide a remediation plan.
--------------------	---

Parameter ID	SDWS 25							
Data/parameter	$HN_{p,y}$							
Unit	Number							
Description	Number of individuals per premises type p in the project boundary in year y							
Source of data	Project Survey							
Value(s) applied	<table><tr><td>Period</td><td>Value</td></tr><tr><td>01/08/2023-31/12/2023</td><td>3.9</td></tr><tr><td>01/01/2024-31/07/2024</td><td>3.9</td></tr></table>		Period	Value	01/08/2023-31/12/2023	3.9	01/01/2024-31/07/2024	3.9
Period	Value							
01/08/2023-31/12/2023	3.9							
01/01/2024-31/07/2024	3.9							
Measurement methods and procedures	Although this monitoring period covers 2023 and 2024 years, for year 2023, the project survey has been conducted on 09/01/2023-19/01/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Therefore, only once project survey should be conducted during this monitoring period, which is conducted on 14/02/2024-15/02/2024, the specific survey process has been described in section C of this MR. The project survey can be conducted carried out together with WCFT. 101 samples are sufficient to represent the entire end-user of 467,123 and 101 samples were selected from 467,123 End-user by simple sampling method. During this monitoring period, the project survey was conducted on 14/02/2024-15/02/2024 and the project questionnaires were							

	filled by the 101 samples, and then summarize the survey results into an Excel table. Project survey conducted in 2023 contained 101 sample users, including 396 individuals. So, $HN_{p,y}$ can be calculated as $396/101=3.92$. Project survey conducted in 2024 contained 101 sample users, including 397 individuals. So, $HN_{p,y}$ can be calculated as $397/101=3.93$.
Monitoring frequency	Annually
QA/QC procedures	The value applied shall be cross-checked against at least one other source on the list. For cross-check purposes, sources applied may be up to 5 years old. Further, cross-check with older sources may be used provided they provide conservative results.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	As per <i>2019 Kenya Population and Housing Census²⁸ Volume I: Population by County and Sub-county²⁹</i> , there are 1,647,507 households and 6,421,177 people in Makueni County, Trans Nzoia County, Kirinyaga County, Bungoma County and Nakuru County of Kenya. Number of individuals per household can be calculated as $6,421,177/1,647,507=3.9$. To be conservative principle, the value of this parameter used in the emission reduction calculations in this monitoring period is 3.9.

Parameter ID	SDWS 28
Data / Parameter	$N_{p,y}$
Unit	Number
Description	Accumulated number of premises type p with at least one individual project technology in year y
Source of data	Sales database
Value(s) applied	Total 467,123 sets water purifier sold in the last monitoring period, Influenced by international environment and regional market saturation and as per prediction on future water purifier market, the project owner adjusted the corresponding business plan. It decided to suspend the sales work in project area, and

²⁸ This is the latest official data publicly available.

²⁹ <https://www.knbs.or.ke/?wpdmpo=2019-kenya-population-and-housing-census-volume-i-population-by-county-and-sub-county>

	expand to other regions of Kenya as well as other countries of Africa, so, no water purifiers were sold since the 2nd monitoring period, so the actual number of water purifiers in normal operation in this monitoring period is still the 467,123 water purifiers sold in the first monitoring period. <table border="1"> <thead> <tr> <th>Year</th><th>$N_{p,y}$ (Sets)</th></tr> </thead> <tbody> <tr> <td>01/08/2023-31/12/2023</td><td>467,123</td></tr> <tr> <td>01/01/2024-31/07/2024</td><td>467,123</td></tr> </tbody> </table>	Year	$N_{p,y}$ (Sets)	01/08/2023-31/12/2023	467,123	01/01/2024-31/07/2024	467,123
Year	$N_{p,y}$ (Sets)						
01/08/2023-31/12/2023	467,123						
01/01/2024-31/07/2024	467,123						
Measurement methods and procedures	Sale database was recorded and maintained according to the monitoring plan. From the sale database, the follow contents can be obtained: i. Date of sale ii. Geographic area of sale iii. Model/type of project technology sold iv. Quantity of project technology sold V. Name and telephone number.						
Monitoring frequency	Annually						
QA/QC procedures	The number of water purifiers sold was cross checked by the purchase receipt. After Verification, the parameter's value in sale database and purchase receipt are consistent. The accumulated number of water purifiers operated in this monitoring period were sold in the first monitoring period and all the water purifiers operation in this monitoring period are within the normal technical lifetime (the technical lifetime of the equipment shall not be less than 15 years), so the 467,123 water purifiers were counted in $N_{p,y}$.						
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.						
Additional comment	Units shall not be counted in $N_{d,y}$ after the end of their technical life, unless this is addressed by the measures to manage the cases where the expected technical life of the project technology is shorter than the crediting period. The lifespan of the water purifiers involved in this project is over 15 years and the core filters should be changed when purifying every 10,000 L water (about 22 months). The use of multi-layer water purifiers started on 10/10/2020, all the water purifiers filters involved in this project have been replaced once on 05/2022-07/2022 (within in the 2nd monitoring period from 01/08/2021 to 31/07/2022). From the last core filters						

	replacement date to the end of this monitoring period (31/07/2024), more over 22 months, therefore, during this monitoring period, all of the project core filters were fully replaced for second time on 05/01/2024-05/04/2024. Outside of all replacement schedules, if some households who need to replace the core filter or damaged components (such as covers, faucets, etc.), PP had replaced it after receiving the replacement request and recorded the replacement information to maintain the normal use of the water purifier. Therefore, all of the 467,123 water purifiers can be counted.
--	--

Parameter ID	SDWS 31	
Data / Parameter	$DP_{p,y}$	
Unit	Days	
Description	Average days the project technology is present for end-users in the premises p in year y	
Source of data	Sales database	
Value(s) applied		Average days the project technology is present for end-users in the premises
	01/08/2023-31/08/2023	31
	01/09/2023-30/09/2023	30
	01/10/2023-31/10/2023	31
	01/11/2023-30/11/2023	30
	01/12/2023-31/12/2023	31
	01/01/2024-31/01/2024	31
	01/02/2024-29/02/2024	29
	01/03/2024-31/03/2024	31
	01/04/2024-30/04/2024	30
	01/05/2024-31/05/2024	31
	01/06/2024-30/06/2024	30
	01/07/2024-31/07/2024	31
	Total	366
Measurement methods and procedures	Based on the sale database, no water purifier sold since the 2 nd monitoring period, the number of water purifier operated in this monitoring period was sold in first monitoring period, so the water purifiers operated in this monitoring period is within the	

	normal technical lifetime (the technical lifetime of the equipment shall not be less than 15 years), so the $DP_{p,y}$ used in the emission reduction calculations for this monitoring period is the number of days in this monitoring period ³⁰ .
Monitoring frequency	Annually
QA/QC procedures	N/A
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.
Additional comment	N/A

Parameter ID	SDWS 29						
Data / Parameter	$U_{p,y}$						
Unit	%						
Description	Usage rate of the project technology by premises type p during year y						
Source of data	Annex 1: Usage Surveys Guidelines – HWT Technologies. For this monitoring period, this parameter was from the Usage rate survey.						
Value(s) applied	<table border="1"> <thead> <tr> <th>Year</th><th>$U_{p,y}$</th></tr> </thead> <tbody> <tr> <td>01/08/2023-31/12/2023</td><td>86%</td></tr> <tr> <td>01/01/2024-31/07/2024</td><td>80%</td></tr> </tbody> </table>	Year	$U_{p,y}$	01/08/2023-31/12/2023	86%	01/01/2024-31/07/2024	80%
Year	$U_{p,y}$						
01/08/2023-31/12/2023	86%						
01/01/2024-31/07/2024	80%						
Measurement methods and procedures	In-person survey of project households following Annex 1 of the applied GS methodology. Households that show at least once-in-two-days use may be counted as users. The resulting fraction is multiplied by 100% to get $U_{p,y}$. The minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited. As this monitoring period covers 2023 and 2024 years, the $U_{p,y}$ used in ERY calculations in 2023 has been determined in the usage rate survey conducted on 06/03/2023-07/03/2023 (last monitoring period), which is 86%. So it is only necessary to determine the $U_{p,y}$ used in ERY calculations in 2024. The sold of Multi-Layer water purifiers started on 09/10/2020 and total 467,123 sets water purifier were sold in the first monitoring period (10/10/2020-31/07/2021), no water purifier sold since the 2nd monitoring period. So, all water purifiers operated in this						

³⁰ This parameter is calculated by Sum up the present days for end user of each water purifier / the total number of water purifier. Since the water purifiers involved in this monitoring period is sold in the first monitoring period, 467,123 water purifiers were involved during this monitoring period, this monitoring period is from 01/08/2023-31/07/2024 (total 366 days), so the $DP_{p,y} = 467,123 \text{ sets} \times 366 \text{ days} / 467,123 \text{ sets} = 366 \text{ days}$.

	monitoring period have the same age. 100 samples were selected from the 467,123 End-users by random survey method using online number generator at the beginning of 2024. The monitoring activities has been conducted on 20/03/2024-21/03/2024. The specific survey process has been described in section C of MR. Also, in line with the usage survey guideline of Annex 1 of the applied GS methodology, the usage rate monitoring cover six topics: Introductory question and water treatment, Rate of usage, Water storage, Physical signs of usage, Demonstration & knowledge and Functionality.
Monitoring frequency	Annually
QA/QC procedures	Water Consumption Field Test (WCFT) may be used to cross check the usage percentage. The results of WCFT conducted in January-2023 show that users consumed the filtered water from the water purifier every day. Therefore, from the perspective of WCFT, the usage rate of the water purifier is 100%. However, we also conducted a usage survey and defined that the households at least once-in-two-days use may be counted as users. The usage survey results show that the usage rate of the project in 2023 and 2024 are 86% and 80%, respectively. Considering the conservative principle, the usage rate used to calculate ERY in 2023 and 2024 are 86% and 80%, respectively.
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.
Additional comment	The usage survey provides a single usage parameter that is representative for project technologies in the total sales record.

SDG 13

Parameter ID	SDWS 24
Data / Parameter	QPW_p
Unit	Liters/person/day
Description	Volume of drinking water per person per day for premises type p
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	For this monitoring period, the result of 3.72 L/person/day from WCFT conducted on 09/01/2023-19/01/2023 was used which meet the requirement of methodology- capped at 5.5L per person per day.

Measurement methods and procedures	The WCFT has been conducted with end user's representative of the project scenario target population and currently using the project technology. The WCFT must be designed to ensure that monitoring is representative of typical technology use practices and that: - it is transparent and can easily be replicated, - it is evidently conservative, - the sample is randomly selected so as to not introduce a material bias, and - the impact of daily and seasonal variations on the expected average water consumption is accounted for The WCFT must be conducted over 3 days, not including weekends, and averaged value (L/person/day) value should be determined after excluding outliers. It must be made explicit to the households that they must behave and consume water normally, reflecting typical daily water consumption pattern. Minimum sample size is 30. Any sampling methods can be used, provided that the sample is selected randomly. The monitoring activities has been conducted on 09/01/2023 to 12/01/2023 (four days) and 16/01/2023 to 19/01/2023 (four days), which is not the weekends and holidays. The daily water consumption survey record forms have been filled by end-user. Sum each water consumption record can get the daily water consumption. The mean value of the total water consumption (the total water filtered per day aggregated over a three-day period) was the final value QPW_p per end user. The volume of drinking water per person per day of this monitoring period is 3.72 L/person/day.
Monitoring frequency	Every two years
QA/QC procedures	As the monitoring frequency of this parameter is every two years. The last WCFT was conducted on 09/01/2023 to 12/01/2023 (four days) and 16/01/2023 to 19/01/2023. This monitoring period is from 01/08/2023-31/07/2024, which is within 2 years of the last water consumption field test date. So there is no need to conduct the water consumption field test during this monitoring period.

	The value of this parameter used in the ERY calculations in this monitoring period has been determined in the WCFT have been conducted on 09/01/2023 to 12/01/2023 and 16/01/2023 to 19/01/2023, which is 3.72 L/person/day.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	The value is capped at 5.5 L/person/day, which is determined based on WHO recommendations (Domestic Water Quantity, Service Level and Health, Table 2: Volumes of water required for hydration, WHO 2003 ³¹).

Parameter ID	SDWS 32						
Data / Parameter	$DN_{p,y}$						
Unit	Number						
Description	Average number of individual project technologies in each project premises type p in year y						
Source of data	Sales database						
Value(s) applied	In order to cover more households with high-quality water purifiers at a lower price, it is restricted in the project that each household can only buy one set of water purifier. <table border="1"> <tr> <td>Period</td><td>$DN_{p,y}$</td></tr> <tr> <td>01/08/2023-31/12/2023</td><td>1</td></tr> <tr> <td>01/01/2024-31/07/2024</td><td>1</td></tr> </table>	Period	$DN_{p,y}$	01/08/2023-31/12/2023	1	01/01/2024-31/07/2024	1
Period	$DN_{p,y}$						
01/08/2023-31/12/2023	1						
01/01/2024-31/07/2024	1						
Measurement methods and procedures	Based on the sales records of "Quantity of project technologies sold" and identifying information of buyer/recipient, calculate the average number of project devices per household.						
Monitoring frequency	Annually						
QA/QC procedures	-						
Purpose of data	To demonstrate contribution to SDG 13.						
Additional comment	N/A						

Parameter ID	SDWS 30
Data / Parameter	$t_{p,y}$
Unit	Hours per day

³¹ <https://www.who.int/publications/i/item/9789240015241>

Description	Usage time of the project technology by premises type p in year y
Source of data	<i>Methodology for Emission Reductions from Safe Drinking Water Supply</i> (Version 1.0)
Value(s) applied	5 hours.
Measurement methods and procedures	Option 3. Default of 5 hours.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 22							
Data / Parameter	$X_{cleanboil,y}$							
Unit	%							
Description	Proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in year y							
Source of data	Project survey							
Value(s) applied	<table><tr><td>Period</td><td>$X_{cleanboil,y}$</td></tr><tr><td>01/08/2023-31/12/2023</td><td>0%</td></tr><tr><td>01/01/2024-31/07/2024</td><td>0%</td></tr></table>		Period	$X_{cleanboil,y}$	01/08/2023-31/12/2023	0%	01/01/2024-31/07/2024	0%
Period	$X_{cleanboil,y}$							
01/08/2023-31/12/2023	0%							
01/01/2024-31/07/2024	0%							
Measurement methods and procedures	Although this monitoring period covers 2023 and 2024 years, for year 2023, the project survey has been conducted on 09/01/2023-19/01/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Therefore, only once project survey should be conducted during this monitoring period, which is conducted on 14/02/2024-15/02/2024, the specific survey process has been described in section C of this MR. The project survey can be conducted carried out together with WCFT. 101 samples are sufficient to represent the entire end-user of 467,123 in this monitoring period and 101 samples were selected from 467,123 End-user by sample sampling method.							

	The project was conducted on 14/02/2024-15/02/2024 and the project questionnaires were filled by the 101 samples, and then summarize the survey results into an Excel table.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 35																												
Data / Parameter	LE_y																												
Unit	tCO ₂ e per year																												
Description	Leakage emissions during year y																												
Source of data	Sources established by following Leakage emissions section																												
Value(s) applied	The LE_y for this monitoring period as shown in the table below: <table> <tr> <th>Time</th><th>Leakage emissions (tCO₂e)</th></tr> <tr> <td>01/08/2023-31/08/2023</td><td>1,612</td></tr> <tr> <td>01/09/2023-30/09/2023</td><td>1,560</td></tr> <tr> <td>01/10/2023-31/10/2023</td><td>1,612</td></tr> <tr> <td>01/11/2023-30/11/2023</td><td>1,560</td></tr> <tr> <td>01/12/2023-31/12/2023</td><td>1,612</td></tr> <tr> <td>01/01/2024-31/01/2024</td><td>1,499</td></tr> <tr> <td>01/02/2024-29/02/2024</td><td>1,403</td></tr> <tr> <td>01/03/2024-31/03/2024</td><td>1,499</td></tr> <tr> <td>01/04/2024-30/04/2024</td><td>1,451</td></tr> <tr> <td>01/05/2024-31/05/2024</td><td>1,499</td></tr> <tr> <td>01/06/2024-30/06/2024</td><td>1,451</td></tr> <tr> <td>01/07/2024-31/07/2024</td><td>1,499</td></tr> <tr> <td>total</td><td>18,257</td></tr> </table>	Time	Leakage emissions (tCO ₂ e)	01/08/2023-31/08/2023	1,612	01/09/2023-30/09/2023	1,560	01/10/2023-31/10/2023	1,612	01/11/2023-30/11/2023	1,560	01/12/2023-31/12/2023	1,612	01/01/2024-31/01/2024	1,499	01/02/2024-29/02/2024	1,403	01/03/2024-31/03/2024	1,499	01/04/2024-30/04/2024	1,451	01/05/2024-31/05/2024	1,499	01/06/2024-30/06/2024	1,451	01/07/2024-31/07/2024	1,499	total	18,257
Time	Leakage emissions (tCO ₂ e)																												
01/08/2023-31/08/2023	1,612																												
01/09/2023-30/09/2023	1,560																												
01/10/2023-31/10/2023	1,612																												
01/11/2023-30/11/2023	1,560																												
01/12/2023-31/12/2023	1,612																												
01/01/2024-31/01/2024	1,499																												
01/02/2024-29/02/2024	1,403																												
01/03/2024-31/03/2024	1,499																												
01/04/2024-30/04/2024	1,451																												
01/05/2024-31/05/2024	1,499																												
01/06/2024-30/06/2024	1,451																												
01/07/2024-31/07/2024	1,499																												
total	18,257																												
Measurement methods and procedures	As per section 3.8 of the applied GS methodology: If the ex-ante evaluation shows that leakage emissions are less than 5% of total emission reductions, then no monitoring is needed, and emission reductions simply shall be adjusted 5% down of the total emission reductions. According to approved PDD, the leakage emissions in ex-ante evaluation are less than 5% of total emission reductions, so, the leakage emissions for this monitoring period is 5% of the total emission reductions.																												

	In addition, in order to meet the monitoring of safeguarding principle 7.1, the leakage emission should be re-assessed every two years. For this project, the last leakage emission have been re-assessed on 18/04/2023-20/04/2023, the result shows that the leakage risks of the project activity are still very low and can be ignored. This monitoring period is from 01/08/2023-31/07/2024, which is within the two years of last leakage emission assessment, therefore, no leakage emission assessment is required in this monitoring period and the emission reductions only needs to be adjusted 5% down.
Monitoring frequency	Every two years.
QA/QC procedures	Compliance with the general requirements for sampling and general requirements for data and information sources
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

SDG 8

Parameter ID	SDWS 19							
Data / Parameter	<i>Number of males and females employed</i>							
Unit	Number							
Description	Jobs created for both men and women.							
Source of data	Employment records							
Value(s) applied	<table><tr><th>Period</th><th>Actual result</th></tr><tr><td>01/08/2023-31/12/2023</td><td>12 jobs are created including 6 males and 6 females.</td></tr><tr><td>01/01/2024-31/07/2024</td><td>12 jobs are created including 6 males and 6 females.</td></tr></table>		Period	Actual result	01/08/2023-31/12/2023	12 jobs are created including 6 males and 6 females.	01/01/2024-31/07/2024	12 jobs are created including 6 males and 6 females.
Period	Actual result							
01/08/2023-31/12/2023	12 jobs are created including 6 males and 6 females.							
01/01/2024-31/07/2024	12 jobs are created including 6 males and 6 females.							
Measurement methods and procedures	The number of persons employed was obtained based on the employment records and cross checked by the labor contracts. After cross-check, total 12 jobs was created including 6 males and 6 females, which is consistent in employment record and labour contract.							
Monitoring frequency	Once for each monitoring period.							
QA/QC procedures	Data was collected using the standard procedures and was stored for the crediting period and an additional two years after the end							

	of the crediting period or the last issuance of GS VERs for this project activity, whichever occurs later.
Purpose of data	To demonstrate contribution to SDG 8.
Additional comment	N/A

Parameter ID	SDWS 19
Data / Parameter	Percentage of employees with salaries paid at par with the average wage of Kenya.
Unit	%
Description	This parameter will be collected to indicate the project provides decent work for both men and women.
Source of data	Employment Payroll and average wages in Kenya based on most recent information available.
Value(s) applied	Average monthly wages of Kenyans in 2024 is 147,000 KES ³² . The actual average monthly wage of the employees was 235,000KES which higher than that of Kenya. Therefore, 100% is taken.
Measurement methods and procedures	The number of employees that are paid at par with the average wage of Kenya/The number of jobs created*100%.
Monitoring frequency	Once for each monitoring period.
QA/QC procedures	Data was collected using the standard procedures and was stored for the crediting period and an additional two years after the end of the crediting period or the last issuance of GS VERs for this project activity, whichever occurs later.
Purpose of data	To demonstrate contribution to SDG 8.
Additional comment	N/A

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

There are fourteen parameters that need to be monitored, the monitoring results in this monitoring period and last monitoring period are as follows:

Monitoring parameter	Monitoring indicators	Value obtained in this monitoring period	Value obtained in last monitoring period
----------------------	-----------------------	--	--

³² Average monthly wages of Kenyans in 2024 is 147,000KES (<http://www.salaryexplorer.com/salary-survey.php?loc=111&loctype=1>), the average salary of employee in proposed project is 235,000 KES which higher than 147,000KES, so the Percentage of employees with salaries paid at par with the average wage of Kenya is 100%.

Water hygiene education campaigns	The fraction of the households where safe water is found to fulfill "safely managed", i.e., The fraction of the households involved in this project who can obtain safe water	100%		100%	
	The fraction of the households where Hygiene practices are found to fulfill “basic” requirements, i.e., the fraction of the soap availability for hand washing				
		Period	Result	Period	Result
		01/08/2023-31/12/2023	10.89%	01/08/2022-31/12/2022	9.9%
		01/01/2024-31/07/2024	12.87%	01/01/2023-31/07/2023	10.89%
Number of water purifiers sold in year y		0		0	
Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country (<i>KS EAS 153: 2018 East African Standard Specification for Packaged Drinking Water</i>), $M_{q,y}$		100%		100%	
Number of individuals per premises type p in the project boundary in year y , $HN_{p,y}$		3.9 ³³		3.9	
Accumulated number of premises type p with at least one individual project technology in year y , $N_{p,y}$		467,123		467,123	
Average days the project technology is present for end-users in the premises p in year y , $DP_{p,y}$		Month	$DP_{p,y}$	Month	$DP_{p,y}$
		01/08/2023-31/08/2023	31	01/08/2022-31/08/2022	31
		01/09/2023-30/09/2023	30	01/09/2022-30/09/2022	30
		01/10/2023-31/10/2023	31	01/10/2022-31/10/2022	31
		01/11/2023-30/11/2023	30	01/11/2022-30/11/2022	30
		01/12/2023-31/12/2023	31	01/12/2022-31/12/2022	31
		01/01/2024-31/01/2024	31	01/01/2023-31/01/2023	31
		01/02/2024-29/02/2024	29	01/02/2023-28/02/2023	28
		01/03/2024-31/03/2024	31	01/03/2023-31/03/2023	31

³³ Although the $HN_{p,y}$ from the project survey in last monitoring period and this monitoring period are 3.92 and 3.93 respectively, while after cross-checked with the "2019 Kenya Population and Housing Census Volume I: Population by County and Sub-county" the value of $HN_{p,y}$ used in emission reduction calculations claimed in 2023 and 2024 is 3.9 number.

	01/04/2024-30/04/2024	30		01/04/2023-30/04/2023	30
	01/05/2024-31/05/2024	31		01/05/2023-31/05/2023	31
	01/06/2024-30/06/2024	30		01/06/2023-30/06/2023	30
	01/07/2024-31/07/2024	31		01/07/2023-31/07/2023	31
Usage rate of the project technology by premises type p during year y , $U_{p,y}$	Period	Result		Period	Result
	01/08/2023-31/12/2023	86%		01/08/2022-31/12/2022	88%
	01/01/2024-31/07/2024	80%		01/01/2023-31/07/2023	86%
Volume of drinking water per person per day for premises type p , QPW_p (Liters/person/day)	3.72			3.72	
Average number of individual project technologies in each project premises type p in year y , $DN_{p,y}$	1			1	
Usage time of the project technology by premises type p in year y , $t_{p,y}$ (hours)	5			5	
Proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in year y , $X_{cleanboil,y}$	0%			0%	
Leakage emissions during year y , LE_y	Month	LE_y (tCO ₂ e)		Month	LE_y (tCO ₂ e)
	01/08/2023-31/08/2023	1,612		01/08/2022-31/08/2022	1,571
	01/09/2023-30/09/2023	1,560		01/09/2022-30/09/2022	1,520
	01/10/2023-31/10/2023	1,612		01/10/2022-31/10/2022	1,571
	01/11/2023-30/11/2023	1,560		01/11/2022-30/11/2022	1,520
	01/12/2023-31/12/2023	1,612		01/12/2022-31/12/2022	1,571
	01/01/2024-31/01/2024	1,499		01/01/2023-31/01/2023	1,535
	01/02/2024-29/02/2024	1,403		01/02/2023-28/02/2023	1,387
	01/03/2024-31/03/2024	1,499		01/03/2023-31/03/2023	1,535
	01/04/2024-30/04/2024	1,451		01/04/2023-30/04/2023	1,486
	01/05/2024-31/05/2024	1,499		01/05/2023-31/05/2023	1,535
	01/06/2024-30/06/2024	1,451		01/06/2023-30/06/2023	1,486
	01/07/2024-31/07/2024	1,499		01/07/2023-31/07/2023	1,535
	total	18,257		total	18,252
Number of males and females employed	12 jobs are created including 6 males and 6 females.			12 jobs are created including 6 males and 6 females.	

Percentage of employees with salaries paid at par with the average wage of Kenya.	100%	100%
---	------	------

For Water hygiene education campaigns, the monitoring indicators are: The fraction of the households where safe water is found to fulfill "safely managed", i.e., The fraction of the households involved in this project who can obtain safe water. And the fraction of the households where Hygiene practices are found to fulfill "basic" requirements, i.e., the fraction of the soap availability for hand washing. The fraction of the households involved in this project who can obtain safe water in this monitoring period is 100% which is as the same as the value in last monitoring period. The fraction of the soap availability for hand washing in this monitoring period is 12.87%, which is higher than the 10.89% in the last monitoring period. This parameter was sourced from water hygiene education campaigns conducted once per year by project owner and the result are related to the education level, family economic conditions of sample users, etc.

The number of water purifiers sold is mainly influenced by international environment and regional market saturation. Although the number of water purifiers sold since the 2nd monitoring period is 0, total 467,123 units water purifiers operation in this monitoring period, so, total 467,123 households can access to Affordable and Clean Energy.

The fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country ($M_{q,y}$) in this monitoring period is as the same as the fraction in last monitoring period, both are 100%. This parameter sourced from the water quality test conducted once per year, and which is mainly related to the performance of water purifier.

The number of individuals per premises type p in the project boundary in this monitoring period is 3.93, which is higher than the 3.92 in last monitoring period. This parameter was sourced from project survey conducted once per year, Therefore, this parameter is influenced by the sample users.

Accumulated number of premises type p with at least one individual project technology in this monitoring period is 467,123, all of which were sold in the first monitoring period.

The total average days the project technology is present for end-users ($DP_{p,y}$) in this monitoring period is 366 days, 1 days more than last monitoring period. This is mainly related to the the sales date of the water purifier and the number of days covered by the monitoring period.

The Usage rate in this monitoring period is 80% which is lower than 86% in the last monitoring period, this parameter was sourced from Usage rate survey conducted once per year, and is mainly related to the family size and people's drinking habits.

The volume of drinking water per person per day for premises type p (QPW_p) in this monitoring period is 3.72 Liters/person/day which is equal to last monitoring period, this parameter was sourced from water consumption field test conducted once two years, and this parameter is mainly related to the family size and people's life habits.

Since order to cover more households with high-quality water purifiers at a lower price, it is restricted in the project that each household can only buy one set of water purifier, so the average number of individual project technologies in each project premises type p ($DN_{p,y}$) in this monitoring period is consistent with the last monitoring period, both are 1 unit.

As the usage time of the project technology by premises type p in year y , *i.e.*, $t_{p,y}$ (hours) is a default value which is sourced from applied methodology, so the value in this monitoring period is consistent with the last monitoring period, both are 5 hours.

The proportion of project households that boil safe (treated, or from safe supply) water after installation of project technology in this monitoring period is 0% which is as the same as the value in the last monitoring.

Leakage emissions in this monitoring period is 18,257 tCO₂e, which is higher than the leakage emission in the last monitoring period (18,252 tCO₂e). As this parameter is 5% of the total emission reductions, so it is affected by the accumulative number of water purifiers ($N_{p,y}$), Days the project technology is present ($D_{p,y}$), Usage rate ($U_{p,y}$), Number of individuals per premises ($HN_{p,y}$) and Volume of drinking water per person per day (QPW_p).

12 jobs are created including 6 males and 6 females in this monitoring period, which is as the same as the last monitoring period. The salary in this monitoring period is 235,000 KES/month which is as the same as the salary in last monitoring period and the salary in the two monitoring period are higher than the average wage of Kenya.

D.4. Implementation of sampling plan

>>

The sampling approach is to be used for following surveys and tests as summarized below:

D.4.1. Project Survey and WCFT

According to approved PDD, the project survey and WCFT can be conducted together. For project survey, as the number of water purifier End-user is greater than 1,000, so the minimum sample size for project survey is 100. For WCFT statistical analysis, 90/10 precision level was selected and the calculation of the sample size for the survey was based upon a 0.6 Coefficient of Variation (COV) under a 90/10 approach as provided in Table 3 of Annex 4 of TPDDTEC (Version 3.1), i.e., the sample size for WCFT is 101. So, the sample size for project survey and WCFT is 101.

As per the applied methodology, the monitoring frequency of WCFT is every two years. The last water consumption field test have been conducted on 09/01/2023 to 12/01/2023 and 16/01/2023 to 19/01/2023¹, the result is 3.72L/person/day. This monitoring period is from 01/08/2023-31/07/2024, which is within 2 years of the last water consumption field test date. So there is no need to conduct the water consumption field test during this monitoring period. According to the TPDDTEC (Version 3.1), confidence/precision for water consumption volume have been calculated and checked using the method of the endpoints of the 90% confidence interval lie within +/- 10% of the estimated mean. The specific formula is as follows:

1.The endpoints of the 90% confidence interval is calculated with the equation below:

$$\text{The endpoints of the 90\% confidence interval} = \bar{X} \pm Z_{\alpha/2} * \frac{\sigma}{\sqrt{n}} \quad (1)$$

$\bar{X}$ Mean value of the water consumption(L/person/day)

Z 1.65

σ Standard deviation of the water consumption

n Sample size

2. The +/- 10% of the estimated mean is shown in the table below:

Table 3 The +/- 10% of the estimated mean

Category/Time	Day 2	Day 3	Day 4
Water consumption (L/person/day)	3.74	3.69	3.74
Average Water consumption (L/person/day)	3.72		
+10% of the Average Water consumption (L/person/day)	4.09		
-10% the Average Water consumption (L/person/day)	3.35		

After calculation, the endpoint of the 90% confidence interval is [3.73,3.71], +/- 10% of the estimated mean is [3.35, 4.09]. so, the 101 sample survey of WCFT are sufficient to satisfy the desired confidence and precision.

The sampling process started as soon as the target population is determined and finished before the beginning of monitoring activities. 101 sample users were selected from the 467,123 End-user at the beginning of 2024³⁴ according to the random sampling method for project survey. The monitoring team implemented the sampling investigation strictly follow the monitoring plan. The project survey questionnaires were collected.

D.4.2. Usage Survey

According to approved PDD, the minimum total sample size for Usage Survey is 100, with at least 30 samples for project technologies of each age being credited. The majority of interviews in a usage survey must be conducted in person. Thus, if technologies of age 1-5 are credited, the usage survey must include 30 representative samples from each age for total of 150 samples. The resulting usage parameter should be weighted based on the proportion of technologies in the borehole database of each age. As the Multi-Layer water purifiers operating in this monitoring were sold in the same year. So, all water purifiers involved in this monitoring period have the same age, so the sample size is 100 for this monitoring period.

The sampling process started as soon as the target population is determined and finished before the beginning of monitoring activities. 100 sample users were selected from the 467,123 End-user at the beginning of 2024³⁵ according to the random sampling method by online number generator.

D.4.3. Water Quality Testing and Water Hygiene Education Campaigns

According to approved PDD, the water quality testing and water hygiene education campaigns can be conducted together. 90/10 precision rule was selected and the calculation of the sample size for water quality testing and water hygiene education campaigns was based upon a 0.6 Coefficient of Variation (COV) under a 90/10 approach as provided in Table 3 of Annex 4 of TPDDTEC (Version 3.1), i.e., the sample size for water quality testing and water hygiene education campaigns is 101.

³⁴ Although this monitoring period covers 2023 and 2024 years, for year 2023, the project survey has been conducted on 09/01/2023-19/01/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Also, the monitoring frequency of project survey is annually, therefore, only once water quality testing should be conducted in 2024.

³⁵ Although this monitoring period covers 2023 and 2024 years, for year 2023, the usage rate survey has been conducted on 06/03/2023-07/03/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Also, the monitoring frequency is annually, therefore, only once water quality testing should be conducted in 2024.

The sampling process started as soon as the target population is determined and finished before the beginning of monitoring activities. 101 sample users were selected from the 467,123 End-user at the beginning of 2024³⁶ according to the random sampling method for water quality testing and water hygiene education campaigns.

SECTION E. CALCULATION OF SDG IMPACTS

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

>>

Baseline impact of SDG 13 Climate Action

As per section 3.6 of the applied GS methodology, baseline emissions can be calculated as follows:

$$EF_b = SE_{w,b,y} * \sum_f (x_f * (EF_{b,f,CO2} * f_{NRB,f,y} + EF_{b,f,nonCO2})) \div 10^9 \quad (2)$$

As per results of baseline survey, among those who treat drinking water by boiling, the main fuel used are non-renewable biomass of firewood, charcoal and LPG. EF_b can be calculated as the following equation.

$$EF_b = SE_{w,b,y} * (x_{firewood} * (EF_{b,firewood,CO2} * f_{NRB} + EF_{b,firewood,nonCO2}) + x_{charcoal} * (EF_{b,charcoal,CO2} * f_{NRB} + EF_{b,charcoal,nonCO2}) + x_{LPG} * (EF_{b,LPG,CO2} + EF_{b,LPG,nonCO2})) \div 10^9 \quad (3)$$

Where:

Parameters	Description	Source/value
EF_b	Emission factor for the use of fuel to obtain safe water in the baseline (tCO ₂ e/L)	Calculated as Equation (3), Makueni (2.713*10 ⁻⁴), Trans Nzoia (2.374*10 ⁻⁴), Kirinyaga (2.848*10 ⁻⁴), Bungoma (2.356*10 ⁻⁴) and Nakuru (1.493*10 ⁻⁴)
$SE_{w,b,y}$	Specific energy required to boil water (kJ/L)	Calculated as Equation (4), Makueni (2,793.52), Trans Nzoia (2,440.91), Kirinyaga (3,207.38), Bungoma (2,465.08) and Nakuru (1,576.60)
$x_{firewood}$	Proportion of firewood used in the baseline (fraction)	Baseline survey, Makueni (81.3%), Trans Nzoia (78.3%), Kirinyaga (93.1%), Bungoma (79.7%) and Nakuru (56.7%)

³⁶ Although this monitoring period covers 2023 and 2024 years, for year 2023, the water quality testing and water hygiene education campaigns has been conducted on 13/03/2023-17/03/2023 (last monitoring period), the specific process have been described in MR of last monitoring period. Also, the monitoring frequency is annually, therefore, only once water quality testing and water hygiene education campaigns should be conducted in 2024.

$x_{charcoal}$	Proportion of charcoal used in the baseline (fraction)	Baseline survey, Makueni (18.8%), Trans Nzoia (19.6%), Kirinyaga (6.9%), Bungoma (17.4%) and Nakuru (21.6%)
x_{LPG}	Proportion of LPG used in the baseline (fraction)	Baseline survey, Makueni (0%), Trans Nzoia (2.2%), Kirinyaga (0%), Bungoma (2.9%) and Nakuru (21.6%)
$EF_{b,firewood,CO_2}$	CO ₂ emission factor from use of firewood (tCO ₂ /TJ)	IPCC 2006 default value for wood (Table 1.4 of Chapter 1 Introduction), 112 tCO ₂ /TJ
$EF_{b,firewood,nonCO_2}$	Non-CO ₂ emission factor arising from use of firewood (tCO ₂ e/TJ)	<i>Methodology for Emission Reductions from Safe Drinking Water Supply</i> (Version 1.0), 9.46tCO ₂ /TJ
$EF_{b,charcoal,CO_2}$	CO ₂ emission factor from use of charcoal (tCO ₂ /TJ)	<i>Methodology for Emission Reductions from Safe Drinking Water Supply</i> (Version 1.0), 165.22 tCO ₂ /TJ (includes charcoal production emissions)
$EF_{b,charcoal,nonCO_2}$	Non-CO ₂ emission factor arising from use of charcoal (tCO ₂ e/TJ)	<i>Methodology for Emission Reductions from Safe Drinking Water Supply</i> (Version 1.0), 44.83tCO ₂ e/TJ (includes production emissions of CH ₄ and N ₂ O)
EF_{b,LPG,CO_2}	CO ₂ emission factor from use of LPG (tCO ₂ /TJ)	IPCC 2006 default value for wood (Table 1.4 of Chapter 1 Introduction), 63.1 tCO ₂ /TJ
$EF_{b,LPG,nonCO_2}$	Non-CO ₂ emission factor arising from use of LPG (tCO ₂ e/TJ)	Calculated as Equation (5), 0.1665tCO ₂ e/TJ
$f_{NRB,f,y}$	Fractional non-renewability status of woody biomass fuel during year y , in case the baseline fuel is biomass or charcoal	Baseline survey, 66.4% and fixed for the first crediting period.
f	Index for baseline fuel types	Baseline survey, the baseline fuel types are firewood, charcoal and LPG.

The specific energy required to boil water using the baseline technology ($SE_{w,b,y}$) is determined as follows, by calculating the energy input required to obtain 1 L of boiling water, including boiling and vaporization losses.

$$SE_{w,b,y} = 360.83/\eta_{wb} \quad (4)$$

Where:

- 360.83 Default amount of energy required to boil 1 L of water from a first principles approach
- η_{wb} Efficiency of the baseline water boiling (%). Weighted average of baseline stove types. Default efficiency: 10% for three-stone stove, 20% for conventional stove, 30% for improved stove. 50% for LPG stove based on manufacturer specification. Based on the results of baseline

survey, η_{wb} of each County: Makueni (12.9%), Trans Nzoia (14.8%), Kirinyaga (11.3%). Bungoma (14.6%) and Nakuru (22.9%)

$$EF_{b,LPG,nonCO2} = LPG \text{ Emission } CH_4 \text{ Conversion Factor} * GWP_{CH_4} + LPG \text{ Emission } N_2O \text{ Conversion Factor} * GWP_{N_2O} \quad (5)$$

As per Table 2.5 of Chapter 2 Stationary Combustion of IPCC 2006³⁷, *LPG Emission CH₄ Conversion Factor* is 0.005tCO₂e/TJ, *LPG Emission N₂O Conversion Factor* is 0.0001tCO₂e/TJ.

As per Table 8.7 of *2013 Climate Change 2013 The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC)³⁸, GWP₁₀₀ of CH₄ is 28CO₂e/tCH₄ (no climate-carbon feedbacks, cc fb) and GWP₁₀₀ of N₂O is 265tCO₂e/tN₂O (no climate-carbon feedbacks, cc fb).

Based on Equation (5), $EF_{b,LPG,nonCO2} = 0.005tCO_2e/TJ * 28CO_2e/tCH_4 + 0.0001tCO_2e/TJ * 265tCO_2e/tN_2O = 0.1665tCO_2e/TJ$.

Next, calculate the baseline emissions.

$$BE_y = EF_b * (1 - C_b - X_{cleanboil,y}) * Q_y * M_{q,y} \quad (6)$$

Where:

Parameters	Description	Source/value
BE_y	Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO ₂ e)	Calculated as Equation (6)
C_b	Proportion of project households who in the baseline were already using a safe water supply that did not require boiling it (%)	Baseline survey, 20.0%
$X_{cleanboil,y}$	Proportion of project households that boil safe water in the project year y (%)	project survey, 0% applied for this monitoring period.
Q_y	Quantity of safe drinking water provided by the project in year y (L)	Calculated based on Method 2 for household water treatment technologies, Calculated as Equation (7)
$M_{q,y}$	Modifier for the water quality in year y	Based on water quality test conducted in 2023 and 2024, the actual value is 100%.

³⁷ The latest IPCC methodology report "2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories" did not revise those values, so the source is still IPCC 2006.

³⁸ <https://www.ipcc.ch/report/ar5/wg1/>

The quantity of safe drinking water provided by the project (Q_y) can be calculated using Method 2, which applies to projects using household water treatment technologies.

$$Q_y = \sum_p N_{p,y} * U_{p,y} * QPW_{hh,p,y} * DP_{p,y} \quad (7)$$

Where:

Parameters	Description	Source/value
$N_{p,y}$	Number of premises type p with at least one project technology in year y	Sales database, in this monitoring period, this parameter is 467,123
$U_{p,y}$	Usage rate of the project technology by premises type p during year y (%)	Usage rate survey. $86/100*100\%=86\%$ is applied in ER calculations claimed in 2023. $80/100*100\%=80\%$ is applied in ER calculations claimed in 2024.
$QPW_{hh,p,y}$	Volume of drinking water per premises p per day in year y (L)	Calculated as Equation (8), the result is 14.5L
$DP_{p,y}$	Days the project technology is present for end-users in the premises p in year y	The actual value was determined based on the sales database. 1 is applied.

The volume of drinking water per household per day is determined by considering whether the capacity of the project device is sufficient to provide at least the default amount of drinking water, as follows.

$$QPW_{hh,p,y} = \min((q_i * t_{p,y} * DN_{p,y}), (QPW_p * HN_{p,y})) \quad (8)$$

Where:

Parameters	Description	Source/value
q_i	Capacity of the household water treatment technology (L/h)	Manufacturer specifications, 3 L/h.
$t_{p,y}$	Usage time of the project technology by premises type p in year y (h/day)	Option 3 Default value of 5 hours will be used.
$DN_{p,y}$	Average number of individual project technologies in each project premises type p in year y	The actual value was determined based on sales database in this monitoring period. 366 was applied.
$HN_{p,y}$	Number of individuals per premises type p in year y	The actual value was determined based on project survey. After cross-checked, the value of 3.9 number was used.
QPW_p	Volume of drinking water per person per day for premises type p (L)	The actual value was determined based on Water Consumption Field Tests. The survey result of 3.72 L/person/day was used in this monitoring period.

The calculation of baseline emissions:

The result is summarized in the table below:

Table 3 The calculation results of baseline emission in this monitoring periods

Date	Proportion of project households who in the baseline were already using a safe water supply that did not require boiling it (%)	Proportion of project households that boil safe water in the project year y (%)	Days the project technology is present for end-users in the premises p in year y	The quantity of safe drinking water provided by the project	Modifier for the water quality	Baseline Emission in this month
	C_b	$X_{cleanboil,y}$	$DP_{p,y}$	$Q_y(L)$	$M_{q,y}$	BE_y (tCO _{2e})
01/08/2023-31/08/2023	20%	0%	31	180,675,366	100%	32,226
01/09/2023-30/09/2023	20%	0%	30	174,847,128	100%	31,187
01/10/2023-31/10/2023	20%	0%	31	180,675,366	100%	32,226
01/11/2023-30/11/2023	20%	0%	30	174,847,128	100%	31,187
01/12/2023-31/12/2023	20%	0%	31	180,675,366	100%	32,226
01/01/2024-31/01/2024	20%	0%	31	168,070,108	100%	29,977
01/02/2024-29/02/2024	20%	0%	29	157,226,875	100%	28,043
01/03/2024-31/03/2024	20%	0%	31	168,070,108	100%	29,977
01/04/2024-30/04/2024	20%	0%	30	162,648,492	100%	29,011
01/05/2024-31/05/2024	20%	0%	31	168,070,108	100%	29,977
01/06/2024-30/06/2024	20%	0%	30	162,648,492	100%	29,011
01/07/2024-31/07/2024	20%	0%	31	168,070,108	100%	29,977

Total: 01/08/2023- 31/07/2024	/	/	366	2,046,524,646	/	365,025
--	---	---	------------	----------------------	---	----------------

Total baseline impact of SDG13 in the 4th monitoring period (01/08/2023-31/07/2024) is 365,025 tCO₂e.

Table 4 Baseline impact of SDG6, SDG7 and SDG8

Target	Baseline impact
SDG6	In the absence of the project activity, no project water purifiers would be sold, so, the total number of person.days served with satisfactory level of safe water is 0,i.e., the baseline outcome benefit of SDG6 is 0.
SDG7	In the absence of the project activity, no project water purifiers would be sold. Therefore, the baseline outcome benefit is 0.
SDG8	In baseline scenario, this project did not exist, so the number of males and females employed by the project is 0, the Percentage of employees with salaries paid at par with the average wage of Kenya is 0. Therefore, the baseline outcome benefit is 0.

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

>>

SDG 6 Clean Water and Sanitation

Total number of person.days served with satisfactory level of safe water can be calculated as follows:

$$\text{Project outcome of SDG6} = N_{p,y} * HN_{p,y} * DP_{p,y} * U_{p,y} * M_{q,y} \quad (9)$$

Where,

Parameters	Description	Source/Value
$N_{p,y}$	Number of premises type p with at least one project technology in year y	Sales database
$HN_{p,y}$	Number of individuals per premises type p in year y	The actual value was determined based on project survey. After cross-checked, the value of 3.9 number was used.
$DP_{p,y}$	Days the project technology is present for end-users in the premises p in year y	The value of this parameter please refer to Table 3 above.
$U_{p,y}$	Usage rate of the project technology by premises type p during year y .	Usage rate survey. $86/100*100\%=86\%$ is applied in ER calculations in 2023. $80/100*100\%=80\%$ is applied in ER calculations in 2024
$M_{q,y}$	Ongoing water quality indicated as the fraction of the samples that pass microbial quality	$M_{q,y}=100\%$ based on Water quality test conducted on 2023 and 2024

standard requirements specified in relevant microbial quality standard for drinking water of Kenya.

The calculation results are shown in the table below:

Table 5 Project outcome of SDG6

Date	Number of premises type p with at least one project technology	Number of individuals per premises type	Usage rate of the project technology by premises
	$N_{p,y}$ (number)	$HN_{p,y}$	$U_{p,y}$
01/08/2023-31/08/2023	467,123	3.9	86%
01/09/2023-30/09/2023	467,123	3.9	86%
01/10/2023-31/10/2023	467,123	3.9	86%
01/11/2023-30/11/2023	467,123	3.9	86%
01/12/2023-31/12/2023	467,123	3.9	86%
01/01/2024-31/01/2024	467,123	3.9	80%
01/02/2024-29/02/2024	467,123	3.9	80%
01/03/2024-31/03/2024	467,123	3.9	80%
01/04/2024-30/04/2024	467,123	3.9	80%
01/05/2024-31/05/2024	467,123	3.9	80%
01/06/2024-30/06/2024	467,123	3.9	80%
01/07/2024-31/07/2024	467,123	3.9	80%

Date	Days the project technology is present for end-users	Modifier for the water quality	Total number of person.days served with satisfactory level of safe water
	$DP_{p,y}$ (days)	$M_{q,y}$	Project outcome of SDG6
01/08/2023-31/08/2023	31	100%	48,568,646
01/09/2023-30/09/2023	30	100%	47,001,916
01/10/2023-31/10/2023	31	100%	48,568,646
01/11/2023-30/11/2023	30	100%	47,001,916
01/12/2023-31/12/2023	31	100%	48,568,646
01/08/2023-31/12/2023	153	100%	239,709,770
01/01/2024-31/01/2024	31	100%	45,180,136
01/02/2024-29/02/2024	29	100%	42,265,289
01/03/2024-31/03/2024	31	100%	45,180,136
01/04/2024-30/04/2024	30	100%	43,722,712
01/05/2024-31/05/2024	31	100%	45,180,136
01/06/2024-30/06/2024	30	100%	43,722,712
01/07/2024-31/07/2024	31	100%	45,180,136

01/01/2024-31/07/2024	213	100%	310,431,257
Total in this monitoring period	366	100%	550,141,027

Above all, from 01/08/2023 to 31/12/2023, the total number of person.days served with satisfactory level of safe water is 239,709,770. Form 01/01/2024 to 31/07/2024, the total number of person.days served with satisfactory level of safe water is 310,431,257.

For the 4th monitoring period from 01/08/2023 to 31/07/2024, the total number of person.days served with satisfactory level of safe water is 550,141,027.

SDG 7 Affordable and Clean Energy

The number of water purifiers sold will be based on the sales database and cross checked by the purchase receipts. Influenced by international environment and regional market saturation and as per prediction on future water purifier market, the project owner adjusted the corresponding business plan. It decided to suspend the sales work in project area, and expand to other regions of Kenya as well as other countries of Africa, so, no water purifiers were sold during this monitoring period.

SDG 8 Decent Work and Economic Growth Project Impact

From 01/08/2023 to 31/12/2023, 12 jobs for local people created (including 6 females and 6 males), the percentage of employees with salaries paid at par with the average wage of Kenya is 100%.

From 01/01/2024 to 31/07/2024, 12 jobs for local people created (including 6 females and 6 males), the percentage of employees with salaries paid at par with the average wage of Kenya is 100%.

For the 4th monitoring period from 01/08/2023 to 31/07/2024, 12 jobs for local people created (including 6 females and 6 males), the percentage of employees with salaries paid at par with the average wage of Kenya is 100%.

SDG 13 Climate Action Project Impact

As the section B.6.2 in registered PDD, the Multi-Layer water purifiers introduced by the project require no energy input or consumables, which will offer an affordable, long-term and zero emission solution for households that generally consume unsafe drinking water. No fossil fuel or electricity will be used in the project activity, project emissions (PE_y) is 0 tCO_{2e}.

E.3. Calculation of leakage

>>

According to the applied methodology, If the ex-ante evaluation shows that leakage emissions are less than 5% of total emission reductions, then no monitoring is needed, and emission reductions simply shall be adjusted 5% down. In the registered PDD, the leakage emissions are less than 5% of total emission reductions, so, the leakage emissions in this monitoring period

are 5% of the total emission reduction. As per section D.1 of approved PDD, the mitigation measures for safeguarding principle 7.1 was that the leakage emission should be re-assessed every two years. For this project, the last leakage emission have been re-assessed on 18/04/2023-20/04/2023, the result shows that the leakage risks of the project activity are still very low and can be ignored. This monitoring period is from 01/08/2023-31/07/2024, which is within the two years of last leakage emission assessment, therefore, no leakage emission assessment is required in this monitoring period and the leakage emission is 5% of the total emission reductions, i.e., the leakage emission = 5%*total emission reductions=5%*(Baseline emission-project emission), as per Section B.6.1 of registered PDD and Section 3.7 of applied methodology, project emissions may arise from the operation of new low-emission water treatment technologies. The water purifiers introduced by the project require no energy input or consumables, providing an affordable, long-term, and zero-emission solution for households that typically consume unsafe drinking water. Since no fossil fuel or electricity was used in the project activity, project emissions (PE_y) are 0 tCO₂e. so the leakage emission=5%*Baseline emission. The calculation result of leakage emissions is shown in the table below:

Table 6 the calculation result of leakage emission

Date	Baseline Emission (tCO ₂ e)	Leakage Emission (tCO ₂ e)
01/08/2023-31/08/2023	32,226	1,612
01/09/2023-30/09/2023	31,187	1,560
01/10/2023-31/10/2023	32,226	1,612
01/11/2023-30/11/2023	31,187	1,560
01/12/2023-31/12/2023	32,226	1,612
01/08/2023-31/12/2023	159,052	7,956
01/01/2024-31/01/2024	29,977	1,499
01/02/2024-29/02/2024	28,043	1,403
01/03/2024-31/03/2024	29,977	1,499
01/04/2024-30/04/2024	29,011	1,451
01/05/2024-31/05/2024	29,977	1,499
01/06/2024-30/06/2024	29,011	1,451
01/07/2024-31/07/2024	29,977	1,499
01/01/2024-31/07/2024	205,973	10,301
Total in this monitoring period	365,025	18,257

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

SD G	SDG Impact	Baseline impact	Project impact	Leakage emission	Net benefit
13	Emission Reductions	01/08/2023-31/12/2023: 159,052 tCO ₂ e	01/08/2023-31/12/2023: 0 tCO ₂ e	01/08/2023-31/12/2023: 7,956 tCO ₂ e	01/08/2023-31/12/2023: 151,096 tCO ₂ e

		01/01/2024-31/07/2024: 205,973 tCO ₂ e	01/01/2024-31/07/2024: 0 tCO ₂ e	01/01/2024-31/07/2024: 10,301 tCO ₂ e	01/01/2024-31/07/2024: 195,672 tCO ₂ e
		Total:365,025 tCO ₂ e	Total: 0 tCO ₂ e	Total: 18,257 tCO ₂ e	Total: 346,768 tCO ₂ e
6	Total number of person.days served with satisfactory level of safe water.	01/08/2023-31/12/2023:0	01/08/2023-31/12/2023: 239,709,770		01/08/2023-31/12/2023: 239,709,770
		01/01/2024-31/07/2024: 0	01/01/2024-31/07/2024: 310,431,257		01/01/2024-31/07/2024: 310,431,257
		4 th monitoring period: 0	4 th monitoring period:550,141,027		4 th monitoring period:550,141,027
7	The Number of water purifiers sold	01/08/2023-31/12/2023:0	01/08/2023-31/12/2023:0		01/08/2023-31/12/2023:0
		01/01/2024-31/07/2024: 0	01/01/2024-31/07/2024: 0		01/01/2024-31/07/2024: 0
		4 th monitoring period: 0	4 th monitoring period: 0		4 th monitoring period: 0
8	1) Number of males and females employed by the project.	01/08/2023-31/12/2023:0	01/08/2023-31/12/2023: 12 jobs created (including 6 females and 6 males).		01/08/2023-31/12/2023: 12 jobs created (including 6 females and 6 males).
		01/01/2024-31/07/2024: 0	01/01/2024-31/07/2024: 12 jobs created (including 6 females and 6 males).		01/01/2024-31/07/2024: 12 jobs created (including 6 females and 6 males).
		4 th monitoring period: 0	4 th monitoring period: 12 jobs created (including 6 females and 6 males).		4 th monitoring period: 12 jobs created (including 6 females and 6 males).
	2) Percentage of employees with salaries paid at par with the average wage of Kenya.	01/08/2023-31/12/2023:0	01/08/2023-31/12/2023:100%		01/08/2023-31/12/2023:100%
		01/01/2024-31/07/2024: 0	01/01/2024-31/07/2024: 100%		01/01/2024-31/07/2024: 100%
		4 th monitoring period: 0	4 th monitoring period: 100%		4 th monitoring period: 100%

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 ³⁹ achieved during this monitoring period
13	01/08/2023-31/12/2023: 192,144 ⁴⁰ tCO ₂ e	01/08/2023-31/12/2023: 151,096 tCO ₂ e

³⁹ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

⁴⁰ Yearly total estimated ERY in approved PDD is 459,638 tCO₂e, so the estimated ERY from 01/08/2023-31/12/2023 is 459,638 tCO₂e/366d*153 d=192,144 tCO₂e.

	01/01/2024-31/07/2024: 267,494 ⁴¹ tCO ₂ e	01/01/2024-31/07/2024: 195,672 tCO ₂ e
	Total: 459,638 tCO ₂ e	Total: 346,768 tCO ₂ e
6	01/08/2023-31/12/2023: Total number of person.days served with satisfactory level of safe water is 289,654,157 ⁴² .	01/08/2023-31/12/2023: Total number of person.days served with satisfactory level of safe water is 239,709,770.
	01/01/2024-31/07/2024: Total number of person.days served with satisfactory level of safe water is 403,244,022 ⁴³	01/01/2024-31/07/2024: Total number of person.days served with satisfactory level of safe water is 310,431,257.
	4 th monitoring period: Total number of person.days served with satisfactory level of safe water is 692,898,179	4 th monitoring period: Total number of person.days served with satisfactory level of safe water is 550,141,027.
7	01/08/2023-31/12/2023: The Number of water purifiers sold is: 7,865 ⁴⁴	01/08/2023-31/12/2023: The Number of water purifiers sold is:0
	01/01/2024-31/07/2024: The Number of water purifiers sold is:4,365 ⁴⁵	01/01/2024-31/07/2024: The Number of water purifiers sold is: 0
	4 th monitoring period: 12,230 water purifiers sold.	4 th monitoring period: 0 water purifiers sold
8	01/08/2023-31/12/2023: 12 jobs for local people created (6 females and 6 males). Percentage of employees with salaries paid at par with the average wage of Kenya:100%.	01/08/2023-31/12/2023: 12 jobs for local people created (6 females and 6 males). Percentage of employees with salaries paid at par with the average wage of Kenya:100%.
	01/01/2024-31/07/2024: 12 jobs for local people created (6 females and 6 males). Percentage of employees with salaries paid at par with the average wage of Kenya:100%.	01/01/2024-31/07/2024: 12 jobs for local people created (6 females and 6 males). Percentage of employees with salaries paid at par with the average wage of Kenya:100%.
	4 th monitoring period: 12 jobs for local people created (6 females and 6 males). Percentage of employees with salaries paid at par with the average wage of Kenya:100%.	4 th monitoring period: 12 jobs for local people created (6 females and 6 males). Percentage of employees with salaries paid at par with the average wage of Kenya:100%.

⁴¹ Yearly total estimated ERY in approved PDD is 459,638 tCO₂e, so the estimated ERY from 01/01/2024-31/07/2024 is 459,638 tCO₂e/366d*213 d=267,494 tCO₂e.

⁴² According to approved PDD, the Yearly total number of person.days served with satisfactory level of safe water is 692,898,179. So the number of person.days served with satisfactory level of safe water in 01/08/2023-31/12/2023 is 692,898,179/366*153=289,654,157.

⁴³ According to approved PDD, the yearly total number of person.days served with satisfactory level of safe water is 692,898,179. So the number of person.days served with satisfactory level of safe water in 01/01/2024-31/07/2024 is 692,898,179/366*213=403,244,022.

⁴⁴ According to approved PDD, the sales volume in 3rd year is 32,500. So, the sales volume in 01/08/2023-08/10/2023 is 32,500 sets/365days*69days=6,144 sets. The sales volume in 4th year is 7,500, so the sales volume in 09/10/2023-31/12/2023 is 7,500 sets/366days*84days=1,721 sets. So the estimated number of water purifier sold in 01/08/2023-31/12/2023 is 7,865sets.

⁴⁵ According to approved PDD, the sales volume in 4th year is 7,500 sets. So, the sales volume in 01/01/2024-31/07/2024 is 7,500 sets/366 days*213 days=4,365 sets.

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

>>

The estimated outcomes of SDG 7 are 12,230 water purified sold in approved PDD. The calculation of value estimated of SDG 7 is according to the business plan. The estimated outcomes of SDG 6 are 692,898,179 person.days served with satisfactory level of safe water is in approved PDD. The calculation of value estimated of SDG6 in approved PDD is obtained by using the following formula: Project outcome of SDG 6= $N_{p,y} \times HN_{p,y} \times DP_{p,y} \times U_{p,y} \times M_{q,y}$

Where,

Parameters	Description	Source/Value
$N_{p,y}$	Number of premises type p with at least one project technology in year y	Sales database
$HN_{p,y}$	Number of individuals per premises type p in year y	Project survey, for ex ante estimation, result of 3.9 from baseline survey shall be used.
$DP_{p,y}$	Days the project technology is present for end-users in the premises p in year y	To be monitored, for ex ante estimation, $D_{p,y}=365$
$U_{p,y}$	Usage rate of the project technology by premises type p during year y .	To be monitored, for ex ante estimation, $U_{p,y}=80\%$
$M_{q,y}$	Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of Kenya.	Water quality test, for ex ante estimation, $M_{q,y}=100\%$ based on the manufacturer's specifications of the project technologies

The estimated value of the outcomes of SDG 13 for this monitoring period is 459,638 tCO₂e in approved PDD and the calculation method is based on methodology" Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0)". The actual value of SDG13 in this monitoring periods is also calculated based on methodology" Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0)", The methods of calculation are the same. The mainly difference between the estimated value and actual values is mainly due to the changes of the number of water purifier sold ($N_{p,y}$), the Days the project technology is present($DP_{p,y}$), usage rate ($U_{p,y}$), Proportion of project households that boil safe water($X_{clean,boil,y}$), the Modifier for the water quality($M_{q,y}$), Volume of drinking water per person per day(QPW_p) and the Quantity of safe drinking water provided by the project (Q_y).

The estimated outcomes of SDG 8 are 12 jobs created (6 females and 6 males) and the Percentage of employees with salaries paid at par with the average wage of Kenya is 100% in approved PDD. It can be obtained from the employment records and labor contracts. The actual outcomes of SDG 8 are 12 jobs created (6 females and 6 males) and the Percentage of employees with salaries paid at par with the average wage of Kenya is 100%. It can also be obtained from employment records and labor contracts.

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

>>

The estimated value of the outcomes of SDG 6 for this monitoring period is 692,898,179 person.days served with satisfactory level of safe water and the actual value is 550,141,027 person.days served with satisfactory level of safe water, which is about 79.4% of the estimated value. That's because the number of water purifier sold ($N_{p,y}$), the Days the project technology is present ($DP_{p,y}$) and usage rate ($U_{p,y}$) will fluctuate according to the actual situation. The difference from the estimated value mainly due to the changes of the related three variables.

The outcomes of SDG7 are lower than the estimated value in approved PDD. The estimated outcomes of SDG 7 are 12,230 water purifiers sold in this monitoring period in PDD and the actual value is lower than the estimated value. That's because the sufficient water purifiers have been sold in the first monitoring period and influenced by international environment and regional market saturation and as per prediction on future water purifier market, the project owner adjusted the corresponding business plan. It decided to suspend the sales work in project area, and expand to other regions of Kenya as well as other countries of Africa, so, no water purifiers were sold during this monitoring period.

The estimated outcomes of SDG 8 are consistent with the actual value in this monitoring period, both are 12 jobs created (6 females and 6 males) and the Percentage of employees with salaries paid at par with the average wage of Kenya is 100%.

The estimated value of the outcomes of SDG 13 for this monitoring period is 459,638 tCO₂e, and the actual value is 346,768 tCO₂e, which is about 75.44% of the estimated value. That's because the number of water purifier sold ($N_{p,y}$), the Days the project technology is present ($DP_{p,y}$), the Volume of drinking water per person per day(QPW_p) and usage rate ($U_{p,y}$) will fluctuate according to the actual situation. The difference from the estimated value mainly due to the changes of the related four variables.

SECTION F. SAFEGUARDS REPORTING

>>

According to the Section D.1 and Appendix 1 in approved PDD, there are two Safeguarding principles to be monitored, i.e., principles 3 and principles 7.1.

For Safeguarding principles 3, the Mitigation Measures added to the Monitoring Plan are: The project is expected to have a positive effect on community health and safety. As a mitigation measure, the parameter of Water Hygiene education campaigns, Ongoing water quality indicated

as the fraction of the samples that pass the test of bacterial quality to a standard of <1cfu/100ml ($M_{q,y}$) will be monitored during the crediting period. so, the monitoring parameter are Water Hygiene education campaigns and the water quality. Please refer to Section C and Section D.2 in this monitoring report for the specific monitoring of water quality and Water Hygiene education campaigns.

The monitoring of those parameters was fully implemented in accordance with the monitoring plan in approved PDD and the monitoring activities was successful, so there is no need to update the mitigation measures.

For Safeguarding principles 3, the monitoring parameter is the water quality filtered by the water purifier and Water Hygiene education campaigns. From the Water Hygiene education campaigns questionnaires in 2023 and 2024, there is no deviation from the pre-set tolerances. From the water quality test report in 2023 and 2024, the fraction of the samples that pass the test of bacterial quality to a standard of <1cfu/100ml ($M_{q,y}$) is 100% and there is no deviation from the pre-set tolerances(100%).

For Safeguarding principles 7.1, the Mitigation Measures added to the Monitoring Plan are: Leakage emissions in project scenario were assessed and will be re-assessed every two years. So, the monitoring parameter are Leakage emissions.

The project start date is 09/10/2020 and the last leakage emission have been re-assessed on 18/04/2023-20/04/2023, the result shows that the leakage risks of the project activity are still very low and can be ignored. This monitoring period is from 01/08/2023-31/07/2024, which is within the two years of last leakage emission assessment, therefore, no leakage emission assessment is required in this monitoring period and the leakage emissions in this monitoring period are 5% of the total emission reduction.

The monitoring of those parameters was fully implemented in accordance with the monitoring plan in approved PDD and the monitoring activities was successful, so there is no need to update the mitigation measures.

In addition, in this monitoring periods, there is no Information on any assessment questions answered 'Potentially'.

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.

>>

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	The grievance expression book is kept by the chief officer Environment, Energy & Natural Resources of Makueni County, Trans Nzoia County, Kirinyaga County, Bungoma County and Nakuru County. All stakeholders are allowed to record their grievances or comments in the book. The project owner will assign specific person in each sub county to deal with related issues. When assessing the relevance and appropriateness of the stakeholders' comments, the project owner will apply a gender lens.
GS Contact (mandatory)	help@goldstandard.org
Other	Feedback can be made directly through visiting Climate Neutral Kenya Limited or through e-mail mosesatemba8810@gmail.com

No inputs/grievances received during this monitoring period through all the methods.

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

>>

This is the 4th monitoring period due to which there is no input/grievance to follow up action so there is no need to re-assessment the Safeguarding principles.

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

>>

No legal contest or dispute has been arisen with the project 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