Gold Standard for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

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

This document contains the following Sections

Key Project Information

KEY PROJECT INFORMATION

Programme of Activity Information –

GS ID of Programme	GS12219
Title of Programme	Global Household Water Treatment Technology dissemination project
Version of POA-DD applicable to this monitoring report	02
Name and GS ID of fully Validated CPA/VPAs (i.e. non-compliance check)	GS12219 VPA-1 Water filter project in Dindori, Madhya Pradesh, India

Key Project Information

GS ID (s) of Project (s)	GS12220
Title of the project (s) covered by monitoring report	GS12219 VPA-1 Water filter project in Dindori, Madhya Pradesh, India
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	02
Version number of the monitoring report	02
Completion date of the monitoring report	02/07/2024
Date of project design certification	To be update after registration
Date of Last Annual Report	NA
Monitoring period number	01
Duration of this monitoring period	11/05/2023 to 31/01/2024 (both days included)
Project Representative	EKI Energy Services Limited
Host Country	India
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A

Methodology (ies) applied and version number	METHODOLOGY FOR EMISSION REDUCTIONS FROM SAFE DRINKING WATER SUPPLY, Version: 1.0[1]
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
13 - Climate Action (mandatory)	Emission Reductions Indicator: 13.2.2 Amount of CO_2e emissions reduced by the project per year	3,431	GS-VERs
1 – No Poverty	Contribute to providing access to basic services i.e. clean drinking water solutions (Household Water Treatment units- Econeer) considered as basic service to the poor and vulnerable communities of India. Indicator 1.4.1: Proportion of population living in households with access to basic services Project specific Indicator: Total number of premises with at least one water filter distributed / installed under the project.	2,010	No of water filter
3 - Good Health and Well-being	Improvement in Indoor Air Quality & reduction in	100	Percent

[1] https://globalgoals.goldstandard.org/429-ee-sws-emission-reductions-from-safe-drinking-water-supply/

	incidences of waterborne diseases such as skin rashes, diarrhea, foot sores, parasites, eye problems and other waterborne diseases Indicator 3.9.1: Mortality rate attributed to household and ambient air pollution Project-specific Indicator: % users reporting reduction in incidences of waterborne diseases such as skin rashes, diarrhea, foot sores, parasites, eye problems and other waterborne diseases.		
4 - Quality education	Increase soft skills, technical skills and awareness to safe drinking water. Indicator 4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex. Project-specific indicator: number of employees who have undergone skill development training	2 training	Number of soft skill program in a year.
5 - Gender equality	Reduced unpaid care and domestic work for women Indicator 5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age, and location Indicator: % users reporting Project-specific Indicator: % Users reporting a time-saving in fuel collection after shifting to Econeer water filter.	100%	%

6 – Clean Water and Sanitation	Access to improved source of water. Indicator 6.1.1: Proportion of population have access to improved source of water Project Specific Indicator: No of people who have access the water filter.	9,668	No of person
7 - Affordable and Clean Energy	Contribute to increasing access to clean water purification technology with installations in user households. Indicator- 7.1.2 Proportion of population with primary reliance on clean fuels and technology. Project specific Indicator: Number of unique households that were provided access to clean water purification technology i.e. Econeer water filter.	2,010	No of water filter
8 - Decent Work and Economic Growth	Increased employment opportunities Indicator: 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities Project specific Indicator: Total no of jobs created (in distribution, Monitoring & Evaluation).	23	No of jobs
12 - Responsible Consumption and Production	By reducing reliance on wood fuel for boiling, this project helps conserve surrounding forests. Less firewood extraction translates to more sustainable consumption and	1,894.612	tonnes of non-renewable biomass

	production of woody biomass. Indicator 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP Project-specific Indicator: Quantity of wood fuel burned avoided		
15 - Life on Land	The project addresses deforestation by encouraging the use of alternative boiling methods, thereby reducing dependence on non-renewable wood fuel. This approach decreases the demand for wood, helps conserve forests, and boosts the proportion of renewable energy utilized in the region. Indicator 15.2.1: Progress towards sustainable forest management. Project-specific Indicator: Reduction in consumption of non-renewable biomass.	1,894.612	tonnes of non-renewable biomass

Table 2 – Product Vintages

		Amount Achieved
Start Dates	**End Dates**	**SDG 13**
11/05/2023	31/12/2023	2,983 VERs
01/01/2024	31/01/2024	448 VERs

		Amount Achieved
Start Dates	**End Dates**	**SDG 1**
11/05/2023	31/12/2023	2,010 water filter
01/01/2024	31/01/2024	2,010 water filter

		Amount Achieved
Start Dates	**End Dates**	**SDG 3**
11/05/2023	31/12/2023	100 percent
01/01/2024	31/01/2024	100 percent

		Amount Achieved
Start Dates	**End Dates**	**SDG 4**
11/05/2023	31/12/2023	2 training
01/01/2024	31/01/2024	0 training

		Amount Achieved
Start Dates	**End Dates**	**SDG 5**
11/05/2023	31/12/2023	100 percent
01/01/2024	31/01/2024	100 percent

		Amount Achieved
Start Dates	**End Dates**	**SDG 6**
11/05/2023	31/12/2023	9,668 persons
01/01/2024	31/01/2024	9,668 persons

	Amount Achieved

Start Dates	End Dates	SDG 7
11/05/2023	31/12/2023	2,010 Filter
01/01/2024	31/01/2024	2,010 Filter

		Amount Achieved
Start Dates	End Dates	SDG 8
11/05/2023	31/12/2023	23 jobs
01/01/2024	31/01/2024	23 jobs

		Amount Achieved
Start Dates	End Dates	SDG 12
11/05/2023	31/12/2023	1,647.266 tonnes of non-renewable biomass
01/01/2024	31/01/2024	247.346 tonnes of non-renewable biomass

		Amount Achieved
Start Dates	End Dates	SDG 15
11/05/2023	31/12/2023	1,647.266 tonnes of non-renewable biomass
01/01/2024	31/01/2024	247.346 tonnes of non-renewable biomass

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The real case VPA is providing household water filtration units for marginalized households in India living in very remote areas in and around Dindori and Anuppur districts of Madhya Pradesh, India. The VPA is a part of programme of activity, which contribute to the reduction of greenhouse gases and socio-economic progress for communities who are relying on unsafe drinking water sources and thus the objective of the project is to disseminate household water treatment units for the marginalized people in Dindori and Anuppur district of Madhya Pradesh, India.

The real case VPA under the GS-POA is providing safe water treatment solutions (HWT) for marginalized households at free of cost and replace the usage of equivalent amount of fuel wood being required to boil water in traditional threes stone fire or any other wood stoves which are inefficient and smoke-intensive which would have been used to make it safe for drinking purposes. The project is disseminating safe drinking water technologies (HWT units i.e. Econeer) for households.

Pre-project Scenario for drinking water

Econeer water purifier for safe drinking water

The objective of the project consists of reducing greenhouse gas emissions and providing better living conditions at households, especially improving the health of women and children by reducing indoor air pollution.

The carbon certification work and communication with implementing partners has been managed by CME i.e. EKI Energy Services Limited (EKIESL). The selection of end beneficiaries, collection of baseline and project information for monitoring and verifications has been jointly managed by EKIESL and implementing partners. The carbon revenue generated by the VPA will be used to cover the cost of water filter,

which has been distributed at free of cost as well as cost for developing the technology and implementation and monitoring cost at PoA and real case VPA level.
The Managing Entity distributed 2,010 water filter in Dindori and Anuppur District of Madhya Pradesh in India.

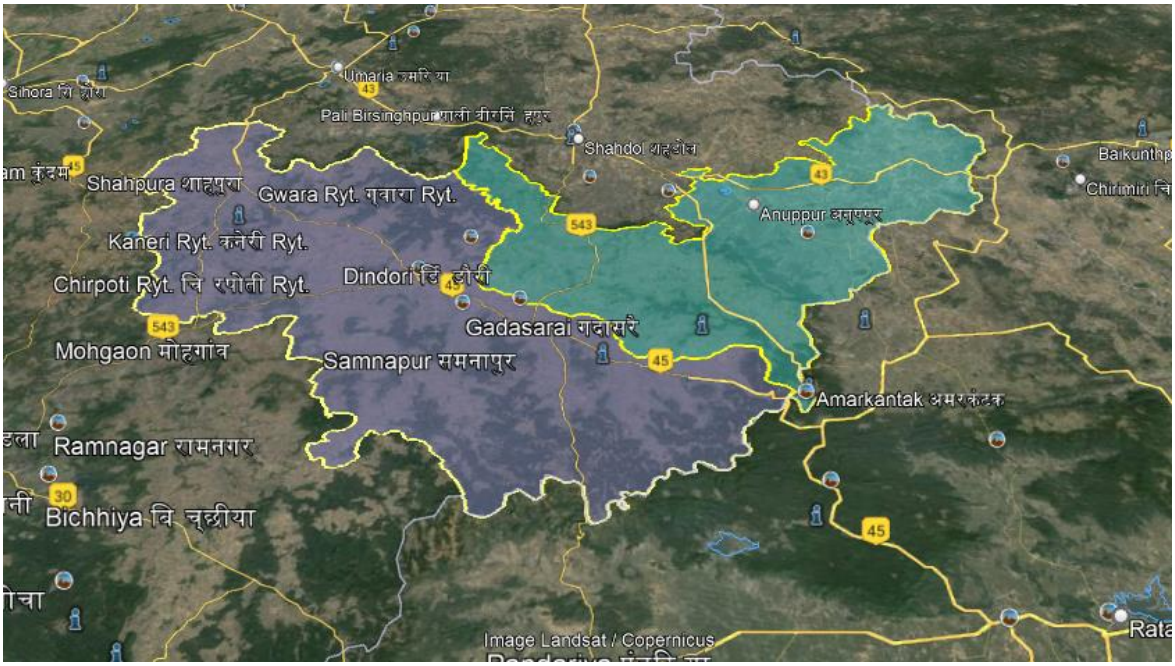
The estimated emission reduction over 5 years of crediting period is expected to be 29,420 tCO_2e and 5,884 tCO_2e per year respectively, from the present real case VPA.
The Project replaced anthropogenic emissions of greenhouse gases (GHG's) 3,431 tCO_2e during its current monitoring period i.e., from 11/05/2023 to 31/01/2024.

A.2. Location of project

The geographical boundary for projects located in India.
For the first VPA (real case VPA), the geographical area is in the Dindori and Anuppur District of Madhya Pradesh in India. The extreme geographic coordinates of Dindori and Anuppur district of Madhya Pradesh, India as follows:

Latitude - 23°11'52.89"N to 23°18'40.02"N
Longitude - 81°24'13.69"E to 82° 1'24.23"E

The geographical Map of the project location and has mentioned below:



A.3. Reference of applied methodology

The following methodologies and tools are applicable:

a) GS Methodology "Emission reduction from safe drinking water supply[2]", version 1.0

[2] https://globalgoals.goldstandard.org/429-ee-sws-emission-reductions-from-safe-drinking-water-supply/

b) CDM Methodological Tool 30 "Calculation of the fraction of non-renewable biomass", EB 115, annex 22, Version 04.0[3]

Gold Standard Activity Requirements "Community Services Activity Requirements", Version 1.2, Publication Date: October 2019[4]

Gold Standard "GHG EMISSIONS REDUCTION & SEQUESTRATION PRODUCT REQUIREMENTS" Guideline version 2.3[5] Publication Date: 29/04/2024

A.4. Crediting period of project

Renewable crediting periods of 05 years 00 months have been opted for the voluntary (VPA). This is the first crediting period of the voluntary project activity (VPA).

Start date	11/05/2023
Crediting Period	11/05/2023-10/05/2028
Duration	5
Type	Renewable

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The Household Water Filters which EKI Energy Services Limited (EKIESL) is deploying has been created and engineered by GHG Emission Reduction Technologies Private Limited. The filters use hollow-fiber membrane technology that has been utilized for years in high-precision ultra-filtration in industrial, food, water, and medicinal applications. The polymeric material is used to make hollow micro-tubes that have a straight exterior and an inside that is hollow. The tubes have minuscule pores on their walls that are no bigger than 0.1 microns in diameter. On the outside of the tubes, water enters the filtration elements. Bacteria cannot get through the micropores since they are bigger than 0.1 micron. Water alone can pass through the openings. On the outside of the tubes, pathogens like bacteria, algae, cysts, parasites, and detritus are left. Once the water passes through the filter components, the pure water is collected. The pollutants that build up on the filter components can be rapidly and easily removed by backflushing the filters.
The entire filtration procedure is mechanical. There are no biological or chemical processes at play.

[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf
[4] https://globalgoals.goldstandard.org/201-ar-community-services-activity-requirements/
[5] https://globalgoals.goldstandard.org/501-pr-ghg-emissions-reductions-sequestration/

The VPA implements HWT technologies which are based on replacing inefficient devices or water boiling methods using traditional non-renewable woody biomass for boiling unsafe water or consuming untreated unsafe water in the baseline scenario.

The details of the project implementation are mentioned below in the table:

Sr. No.	Activity	Date
1.	Baseline survey	28/02/2023 -04/03/2023
2.	Stakeholder meeting date	10/05/2023
3.	Start date of the VPA (real case VPA)	11/05/2023
4.	Project/Monitoring survey	22/11/2023 -19/12/2023
5.	Start date of first crediting period	11/05/2023
6.	End date of first crediting period	10/05/2028

Specifications of Econeer Filter

Cartridge Name	Gravity Filter by Econeer	
Types of filter	Hollow Fibre	
Length of Cartridge (mm)	80	
Diameter (mm)	65	
Active Surface area (m^2)	0.45216 m^2	
Flowrate	Operating Pressure	0.1 -0.3 Mpa
	Under Gravity (10 litres top container, 10 litres bottom container) (at 25 °C)	6 to 8 Lit/hr (depends upon quality and temperature of water.
Flow Direction	Outside – in	
Working temp	5 to 35 degree Celsius	
Claims: -	• Bacteria - 6 Log , Virus – 2 log ,Turbidity:- Nill • Life of filter: 10,000 litres (depends upon the intake quality of the water). • Membrane module to be washed weekly or fortnightly.	

- Technology Details: -
  The HWT units ultrafiltration process as it is the most efficient process in terms of productivity because of its high-water permeability particularly in the treatment of impure turbid water containing suspended particles, pathogens and other harmful microorganisms. Water purification process in which water is forced through a Semipermeable membrane with a pore size upto 0.1 micron.
- Storage Container:-
  i. Comes with the high-grade SS container where there is no chance of regrowth of bacteria, as takes place in plastic container (present in market).
  ii. Lower part of system is the storage container which can hold up to 10 litres of Pure, Clean water for use.
  iii. A tap is attached in the lower part of system.

- Cartridge/ membrane:-

i. **Pore size:** The pore size of the membrane determines the size of particles that can be removed. Water filter membranes can have pore sizes ranging from less than 0.1 microns to several microns. The pore size should be selected based on the specific contaminants that need to be removed.

ii. Material: UF Membrane is based on polymer (polysulfone, polypropylene, cellulose acetate, polylactic acid) which is high quality hollow fibre membrane.

iii. Flow rate: Its filtration rate is 6 to 8 Lit/hr (depends uopn quality and temperature of water.

iv. Cartridge life**:** Its life is up to 2 years or 10,000 litres which one is earlier.

Fig: Examples of the Water Purifier units being used in the project

The water purifier distributed in this project have 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.

B.1.1 Forward Action Requests

FAR1:Invitation information for category E stakeholders is missing in section B of the LSC report. Kindly check and verify.

Reply: All the stakeholder category including category E were invited during the SFR round as per GS requirement and the same has been included in the stakeholder report. The email evidence has been submitted to VVB for verify.

B.2. Post-Design Certification changes

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

There has not been any temporary deviation. Hence not applicable.

B.2.2. Corrections

There is no correction in the project hence it is Not Applicable.

B.2.3. Changes to start date of crediting period

There is no change in the start date of the crediting period hence it is Not Applicable.

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

There is no change in design certified monitoring plan, applied methodology or applied standardized baseline hence it is Not Applicable.

B.2.5. Changes to project design of approved project

There is no change in the project design of approved projects hence it’s not applicable.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

Each of the water filters have carry a unique number/QR code (serial number). The numbers are documented in the household database together with key information about the households as well as the beneficiaries.

The project proponent assess all monitoring data and produces a monitoring report to verify the corresponding to the preceding monitoring period. This report will present the data relating to the emission reductions generated by those water filters during the monitoring period. The purpose of the monitoring plan is to ensure successful monitoring of the emission reductions of the proposed project during its crediting period. The overall monitoring has been managed by the project implementer EKI Energy Services Ltd (EKIESL).

Activities and performance related to emissions reduction are monitored by EKIESL (CME). The CME proposed the following roles and responsibilities for data monitoring, collection, data archiving, and calibration of equipment for thisVPA. The team comprises follows the below participators.

The monitoring activities involve data collection during distribution as well as usage information post-distribution. The data collected during distribution also involves information about the water filters, the end user, and the location to enable one to uniquely identify each HWT unit and avoid double counting.

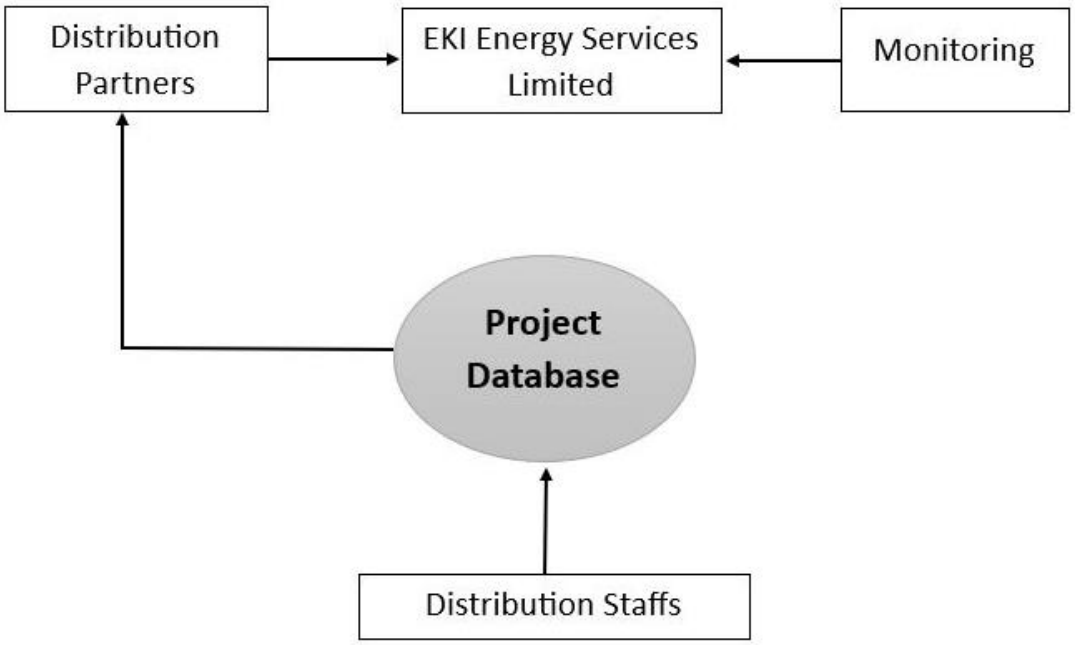
Repair and Maintenance –

The team members or distribution partners of EKIESL visit the site on regular basis as well as remain in touch of the end users, to ensure that the project water filters are working in good condition. In case any water filter is found not in proper working condition, the survey team will update the maintenance department and the filter will be repaired/replaced on an immediate basis. In case a user faces any difficulty with the filter, he/she will inform the distribution agents or the EKIESL staff and immediate action will be taken to rectify the issue to ensure the uninterrupted functioning of the Water filters. Also, the emergency contact number is mentioned in the provided user manual and card by which they can communicate with the centralized customer service unit being managed by the PP.

- After the distribution of the water Filters, the monitoring team selects the samples from the distribution has been recorded on a random basis and visits the premises where these water filters are located to monitor key parameters pertinent to ER Calculation. The individuals carrying out the monitoring activities shall follow the instructions provided during training.
- Data collected and monitored has been stored electronically in a secure and retrievable manner for at least two years after the end of the project crediting period.
- Due to the non-industrial nature of the project, emergency procedures are not applicable to the project.

Management System

The structure of the monitoring plan is as follows:



Organizational Structure of the monitoring group:

The responsibilities of each person involved are elaborated as follows:

Group members and their responsibilities

Entity	Responsibility
EKI Energy Services Limited	• Consultant, prepare sampling plan, • Verify the monitoring work done to ensure accuracy before submission, spot check data • Prepare the monitoring report • Contacting DOE • Manage carbon offsets.
Distribution Agency	• Implement project • Manages the Project Database, in which the results of monitoring shall be summarized. • Collecting data to be monitored accurately, or training Field Measurement Personnel to do so. • Sharing monitoring data. • Maintains proper and continuous records of project activities and disseminated technologies, including product identification • Oversees maintenance of installed systems
Distribution Staff	• Insert distribution records to database.
Monitoring Team	• Conduct on the ground monitoring of end users

Data recording and archiving procedures

- The monitored data has been recorded and electronic archived annually.

- All the data shall be kept for 2 years after end of the crediting period.
- Monitored data shall be sent to the project participant for cross-checking and inserting to database.
- EKI Energy Services Limited shall access the database and spot check data every quarter.

QA/QC procedures

- The total units in Project Database is being cross-checked with the user agreements signed by the users.

Training

Fig: Beneficiary awareness training program

The fields execution team works in close collaboration with the project participant to develop a training manual that clearly lays out rules and procedures for all activities related to data recording, archiving and preparation of monitoring reports. Also, CME conducted beneficiary training frequently to provide the proper awareness and guidance

Avoiding Double Counting

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 avoide double counting, the following measures will be taken:

(i) In order to cover more households with high-quality water purifiers, it is restricted in the project that each household can distribute one set of water purifier. After the project put into operation, the project owner 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. 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 No Double Counting by the CME was signed for the voluntary project activity (VPA).

SECTION D. DATA AND PARAMETERS

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

The ex-ante parameters for the voluntary project activity (VPA):

a. Related to water quality

Data/parameter	SDWS 2: Project technology description
Unit	NA
Description	• Vendor: GHG Reduction Technologies Pvt. Ltd. • Product name: Econeer • Technology type: Hollow Fibre • Performance target classification as per the WHO International Scheme to Evaluate Household Water Treatment Technologies or proof of compliance with an applicable national standard or guideline for drinking water treatment technologies: filters have been tested for filtration efficacy for the parameters E. coli, -*Staphlococcus Aureas* and Salmonella and have been found to remove the bacteria by up to 99.9%.
Source of data	• Manufacturer specifications: • Third-party certification (NABL certified Lab).
Value(s) applied	NA
Choice of data or Measurement methods and procedures	The data applied is based on the manufacturer specifications for the filter technology used for the voluntary project activity (VPA) and third-party certification from the national standard for the host country.
Purpose of data	Confirmation on technology specifications and performance level
Additional comment	NA

Data/parameter	SDWS 4: Regulatory framework for safe water supply
Unit	NA
Description	The VPA contributes to: • **National Water Policy (2012)[6]:** The policy states in paragraph 1.2 (v) that access to safe water for drinking still continues to be a problem and 1.3 (vi) that safe water for drinking and sanitation should be considered as pre-emptive needs followed by other needs. In addition, the importance of community sensitization and utilization of water as per local availability of waters before providing water through long distance transfer is highlighted (paragraph 3.6.). • **Jal Jeevan Mission JJM (2019-2024)[7]:** The vision of the JJM is that every household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities. JJM further stresses the importance of awareness raising and involvement of stakeholders (paragraph 3.3 viii.) and highlights the contribution of technological interventions for removal of contaminants where water quality is an issue (paragraph 3.4 ii.). The VPA contributes to three core aspects mentioned in the National Water Policy (2012) and the Jal Jeevan Mission (2019-2024): i. Supply of rural communities with safe drinking water (point-of-use treatment)

[6] Government of India. Ministry of Water Resources. (2012) National Water Policy. Source: National Water Policy | Department of Water Resources, RD & GR | GoI (jalshakti-dowr.gov.in)
[7] Government of India. Ministry of Jalshakti. Department of Drinking Water & Sanitation. (2019-2014) Jal Jeevan Mission. Source: https://jalshakti-ddws.gov.in/sites/default/files/JJM_Operational_Guidelines.pdf

	ii. Awareness raising on WASH aspects iii. Stakeholder participation in project activities
Source of data	National, sub-national and local authorities
Value(s) applied	The water quality of the treated water with Project Water Filter i water quality of the treated water with Project Water Filter is in line with the national drinking water standard of India: 0 CFU E.Coli/100ml (IS 10500: 2012)[8].
Choice of data or Measurement methods and procedures	Overview based on national policies and guidelines in the water sector in India.
Purpose of data	Confirmation that the project does not undermine or conflict with any national, sub-national and local regulations or guidelines for safe drinking water supply, operation and maintenance, including any tariff requirements.
Additional comment	-

Data/parameter	SWDS 5: Water sources in the project boundary
Unit	NA
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	Households baseline survey
Value(s) applied	Unprotected well, Unprotected Spring, surface water and handpump As per baseline study conducted from 28/02/2023 to 04/03/2023 of 276 households below data have been found that shows the percentage of improved /unimproved water usage.

[8] https://cpcb.nic.in/wqm/BIS_Drinking_Water_Specification.pdf

	<table><tr><td>Source</td><td>Values</td><td>Percentage</td><td>Improved/ unimproved</td></tr><tr><td>Unprotected well/ Unprotected Spring/ Surface water</td><td>260</td><td>94.20%</td><td>Unimproved</td></tr><tr><td>Handpump</td><td>16</td><td>5.80%</td><td>Improved</td></tr></table>
Choice of data or Measurement methods and procedures	Multiple options will be included in an open-ended questionnaire to assess the water sources within the project boundary in line with the methodology guidelines. Data will then be analyzed in excel spreadsheet to determine the percentage rates.
Purpose of data	Analysis of the baseline water sources
Additional comment	This has been undertaken at the start of the crediting period and shall be updated in case project boundary is getting revised/expanded to new areas through a project design change approval.

b. Related to emission reductions

SDG 13

Data/parameter	SDWS 6: Stove technologies used in the project boundary
Unit	NA
Description	The stove type/technology used in premises in the geographical area of the project is mainly, Three-stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system
Source of data	Baseline survey
Value(s) applied	The PP will conduct baseline surveys to assess the different stove technologies used for cooking and boiling water by households within the geographical area of the VPA. The following categories of stove types are considered for ex ante estimation: • 100% Three-stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system • 0% other conventional systems using woody biomass

	• 0% improved cookstoves (≥ 20% thermal efficiency) • 0% fossil fuel combusting systems
Choice of data or Measurement methods and procedures	Baseline survey for classification of baseline stove types
Purpose of data	Assessment of baseline scenario
Additional comment	If the VPA will be implemented in different geographical locations, then the proportion of different stove types will be defined for each location, where relevant.

SDG 13

Data/parameter	SDWS 7: Expected technical life of project technology
Unit	Treatment volume or operational hours or time
Description	The expected technical life of the individual project technology. The details include both technology/device life and filter life as it is replaceable.
Source of data	Manufacturer specifications:
Value(s) applied	Technology/device life: 15 years[9] Membrane life: 10,000 litres
Choice of data or Measurement methods and procedures	Manufacturer specifications
Purpose of data	Assessment of technical life against crediting period and (total crediting period ≥ expected technical life) inclusion of appropriate replacement mechanism as part of the project design.

[9] As specified by the manufacturer, the product life is 15 years but the product's life may exceed 15 years if maintained properly.

Additional comment	NA

SDG 3/ SDG 12/ SDG 13/ SDG 15

Data/parameter	SDWS 8: x_f
Unit	Percentage of fuel f use in target population
Description	The proportion of each different cooking fuel f used in the project boundary by end-users: - % among the target population if single fuel is used for water boiling. If the project covers different types of end-user's premises (e.g. households, schools), then the fuels used in the geographical area of the project by the same types of end-users will be determined for each end-user premises type. Will undertake assessment at the start of each crediting period.
Source of data	Baseline survey / Official Government publication or statistics
Value(s) applied	94.80[10]

[10] As per India's latest Census report 2011 of page 348 , percentage share of households by use of firewood for cooking 94.80% which is the latest available source of data to the CME. Also, in baseline survey it was found that 100% of the targeted beneficiaries use fuelwood as the main source of fuel being used for cooking purpose. As conservative approaches CME choose the 94.80%.
https://mp.census.gov.in/hindi/pdf/census2011/HLO%20report.pdf#page=369

Choice of data or Measurement methods and procedures	Baseline survey
Purpose of data	To demonstrate contribution to SDG 3, SDG 12, SDG 13, SDG 15
Additional comment	NA

SDG 13

Data/parameter	SDWS 9: $EF_{b,f,CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor from use of fuels in baseline scenerio
Source of data	IPCC defaults
Value(s) applied	Wood: 112 tCO_2/TJ
Choice of data or Measurement methods and procedures	Default defined in "Methodology for Emission Reductions from Safe Drinking Water Supply" v1.0.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	NA

SDG 13

Data/parameter	SDWS 10: $EF_{b,f,nonCO2}$
Unit	tCO_2/TJ
Description	Non-CO_2 emission factor from use of fuels, in case the baseline fuel is biomass or charcoal
Source of data	IPCC defaults

Value(s) applied	AR5 GWP Wood: 9.46 tCO_2e/TJ
Choice of data or Measurement methods and procedures	Default defined in "Methodology for Emission Reductions from Safe Drinking Water Supply" v1.0.
Purpose of data	To demonstrate contribution to SDG13.
Additional comment	NA

SDG 13

Data/parameter	SDWS 11: η_{wb}
Unit	Percentage
Description	Efficiency of the baseline water boiling devices.
Source of data	As per methodology Emission Reductions from Safe drinking water supply version 1.0, the following default values of of Three-stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system, that is without either a grate or a chimney: default efficiency 10%.
Value(s) applied	10%
Choice of data or Measurement methods and procedures	Default defined in "Methodology for Emission Reductions from Safe Drinking Water Supply" v1.0.
Purpose of data	To demonstrate contribution to SDG13
Additional comment	NA

SDG1/SDG6/SDG13

Data/parameter	SDWS 12: C_b
Unit	Percentage
Description	Proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling.

Source of data	Calculation of baseline scenario
Value(s) applied	0%
Choice of data or Measurement methods and procedures	Baseline survey
Purpose of data	Assessment of baseline scenario, Contribution to SDG 1, SDG 6 and SDG 13
Additional comment	NA

SDG 13

Data/parameter	SDWS 13: q_{i}
Unit	Liters per hour
Description	Capacity of the household water treatment technology
Source of data	Manufacturer specifications
Value(s) applied	6
Choice of data or Measurement methods and procedures	Based on manufacturer specifications.
Purpose of data	• Assessment of water treatment technology capacity against default value of liters per person per day for premise type. • To demonstrate contribution to SDG13
Additional comment	NA

SDG13

Data/parameter	SDWS 21: $f_{NRB,f,y}$
Unit	Percentage
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 TOOL30[11], Calculation of the fraction of non-renewable biomass
Value(s) applied	89.2
Choice of data or Measurement methods and procedures	Determined ex-ante CDM TOOL30, Calculation of the fraction of non-renewable biomass and fixed for a given crediting period as per "Methodology for Emission Reductions from Safe Drinking Water Supply" v1.0
Purpose of data	Assessment of emission factor in the baseline scenario and contribution to SDG 13
Additional comment	NA

SDG 13

Data / Parameter	SDWS 24: QPW_p
Unit	L/person/day
Description	Volume of drinking water per person per day for premises type p
Source of data	Default value
Value(s) applied	4
Measurement methods and procedures	This had been confirmed from the monitoring survey performed by the CME
Monitoring frequency	Every two years
QA/QC procedures	NA
Purpose of data	To calculate the contribution to SDG13
Additional comment	NA

SDG 13

[11] Default values endorsed by designated national authorities and approved by the CDM can be applied, if default value is valid at the time of project submission for design review.
http://cdm.unfccc.int/methodologies/standard_base/index.html

Data / Parameter	SDWS 30: $t_{p,y}$
Unit	Hours per day
Description	Usage time of the project technology by premises type p in year y
Source of data	Default value of applied methodology[12]
Value(s) applied	5
Measurement methods and procedures	Default value of applied methodology
Monitoring frequency	Annual
QA/QC procedures	NA
Purpose of data	Contribution to SDG13
Additional comment	NA

D.2 Data and parameters monitored

Data / Parameter	SDWS 18: $M_{q,y}$
Unit	Fraction
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. In case a national standard is not available, the water quality shall comply with WHO Guideline values for verification of microbial quality i.e., all water directly intended for drinking must not have detectable E.Coli in any 100 ml sample i.e., less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml.
Source of data	Testing of the water that exits the treatment technology.

[12] https://globalgoals.goldstandard.org/standards/429_V1.0_EE_SWS_Emission-reductions-from-Safe-Drinking-Water-Supply.pdf

Value(s) applied	The quality of all the filtered water samples meets the Indian standards of "IS10500:2015", so the modifier for the water quality used to calculate emission reductions is: For the monitoring period from 11/05/2023 to 31/01/2024 the value of Mq,y =100%
Measurement methods and procedures	The water quality testing has been conducted from 22/11/2023 to 19/12/2023 during current monitoring period i.e., from 11/05/2023 to 31/01/2024.The specific process has been described in section C of this MR. • The national drinking water standard of India (0 CFU E.Coli/100ml) will be used as a reference (IS 10500: 2012[13]). • The water quality test applies the bacterial quality standard <1 cfu E.coli/100ml, and the sampling determines the proportion of pass and fail results. • The sampling results shall satisfy at minimum the 90/10 rule, i.e. the endpoints of the 90% confidence interval lie within +/- 10% of the estimated proportion in relative units. For example, the interval around a proportion of 85% tests passed, would have to lie between 76.5% and 93.5%. A minimum sample size of 30 must be selected. The water sample is taken at water outlet of the project water purifiers from the 129 samples and project owner Entrust a third-party testing agency-a microbiology laboratory affiliated with the "National Accreditation Board for Testing and Calibration Laboratories" (NABL) to test the water quality. From the laboratory test report, the monitoring parameters and monitoring methods are shown in the following table:

SL No	Parameters	Test Method No.
1.	Aerobic Microbial Count	IS 5402:2012 RA 2018
2.	Total Coliform count	IS 5401 (Part 1):2012 RA 2022

[13] Bureau of Indian Standards (2012) Indian Standard. Drinking Water – Specification. IS 10500 : 2012. Source: https://law.resource.org/pub/in/bis/S06/is.10500.2012.pdf

	3.	E. Coli	IS 15185:2016 RA 2021
Monitoring frequency	Annual sampling, and the first round of testing will be conducted at least after six months from the start date.		
QA/QC procedures	Laboratories used for water quality testing must be approved by local health authorities and/or have quality accreditation.		
Purpose of data	Contribution to SDG6 and SDG13.		
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.		

SDG 1,3,4,5,6,7,8,12 and 13

Data / Parameter	SDWS 19: SDG 1
Unit	No of water filter
Description	Number of Econeer water filter distributed/operational under the project as an indicator of providing access to basic services in the households. Contribute to providing access to basic services (clean cooking technology considered as basic service under access to modern energy) to the poor and vulnerable communities of India.
Source of data	Econeer water filter distribution/sales record
Value(s) applied	2010
Measurement methods and procedures	The data can be obtained from the Econeer water filter sales/distribution record.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 1

Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 3
Unit	Percent
Description	Percent of Household reporting reduction in smoke/PM emissions after they start using the water filter in project scenario.
Source of data	Monitoring Surveys data to record % users reporting a reduction in incidences of waterborne diseases such as skin rashes, diarrhea, foot sores, parasites, eye problems and other waterborne diseases.
Value(s) applied	100
Measurement methods and procedures	The value has been established based on Sampling project survey across a randomly selected number of beneficiaries conducted as per details mentioned in Section D.4 of the MR. The result has been applied to all the beneficiaries of the VPA.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 3
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 4
Unit	training/annum
Description	Contribute to increasing vocational and relevant skills of local individuals by providing non-formal education and training on issues related to climate change, with specific skill building in operations and surveying activities related to water filter distribution and its monitoring under GS.
Source of data	Number of awareness programs/training in a year.
Value(s) applied	2

Measurement methods and procedures	Number of Awareness program/training for using project scenario
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 4
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 5
Unit	Percentage
Description	% Households reporting time saving due to reduction in time saving to collect fuel wood/ water boiling time
Source of data	Monitoring survey data for the % users reporting time-saving due to reduction in collection of fuel wood/ boiling water time in the project
Value(s) applied	100%
Measurement methods and procedures	The measurement of the parameter is based on qualitative information collected during Monitoring surveys. The end users are being asked whether they spent less time for collection of wood fuel for the boiled water.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 5
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 6
Unit	No of person
Description	Monitor the number of Water Filter distributed /installed /operational under the VPA as an indicator of providing basic service access to number of persons.

	Further the project developer has included below parameters to ensure the compliance towards SDG 6 i.e. (i) Level of service- The water filter being distributed in the VPA are of safely managed household units as pure drinking water is available whenever needed and free from any contamination. (ii) Project contributions: The water being discharged from distributed water filters is easily accessible, available 24 hours in a day and on quality also it is free from any kind of contaminations.
Source of data	Monitoring survey report
Value(s) applied	9,668
Measurement methods and procedures	The measurement of the parameter is be based on quantitative information collected during Monitoring surveys. The total no of population has access to improved source of water= Total no of water filter work x Average no of members in household. The total no of population has access to improved source of water= Total no of water filter work x Average no of members in household.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 6
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 7
Unit	No of water filter
Description	Number of Econeer water filter operational under the project as an indicator of providing access to basic services in the households. Contribute to providing access to basic services (clean water purification technology considered as basic service under access to modern energy) to the poor and vulnerable communities of India.
Source of data	Monitoring survey report

Value(s) applied	2,010
Measurement methods and procedures	The measurement of the parameter will be based on quantitative information collected during Monitoring surveys.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 7
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 8
Unit	No of person
Description	Total no job created
Source of data	Recording the number of employees (male/female) in the project under administrative, distribution, and management positions
Value(s) applied	23
Measurement methods and procedures	NA
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Monitoring of SDG 8
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 12
Unit	Tonnes
Description	Tonnes of non-renewable biomass saved
Source of data	Calculated using the below formula $[Qy*(360.83/nwb)/15.6*10^{6}]*f_{NRB,f,y}$
Value(s) applied	1,894.612
Measurement methods and procedures	NA
Monitoring frequency	NA
QA/QC procedures	-

Purpose of data	Monitoring of SDG 12
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 19: SDG 15
Unit	Tonnes
Description	Tonnes of non-renewable biomass saved
Source of data	Calculated using the below formula $[Qy*(360.83/nwb)/15.6*10^6]*f_{NRB,f,y}$
Value(s) applied	1,894.612
Measurement methods and procedures	NA
Monitoring frequency	NA
QA/QC procedures	-
Purpose of data	Monitoring of SDG 15
Additional comment	The data will be kept for two years after the crediting period or from last issuance.

Data / Parameter	SDWS 20: Water hygiene education campaigns
Unit	NA
Description	Hygiene campaigns carried out among project safe water end users.
Source of data	Report of annual hygiene campaigns results
Value(s) applied	In 2023, two water hygiene education and hygiene campaigns have been conducted on 20/11/2023 at Village: Bhaluchuwa and on 21/11/2023 at Village: Parsel Kalan during this current monitoring period 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.
Measurement methods and procedures	The impacts of the hygiene campaign shall be assessed using the WHO/UNICEF Joint Monitoring Programme Core questions for drinking water and hygiene to determine the fraction of the households where Safe water and Hygiene practices are found to fulfill "safely managed" or "basic" requirements. In-person or telephone or by

	messaging (e.g. text, app) based survey shall be conduct covering all the JMP core questions for drinking water and core questions for hygiene.
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	NA
Additional comment	NA

b. Related to emission reductions
SDG 13

Data / Parameter	SDWS 22: $X_{cleanboil,y}$
Unit	Percentage
Description	Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y. Percentage includes proportion of end-users that switched back to boiling water and proportion of end users that boil water after treatment with the project technology.
Source of data	Project Survey
Value(s) applied	0
Measurement methods and procedures	This had been confirmed from the monitoring survey performed by the CME.
Monitoring frequency	Annually
QA/QC procedures	NA
Purpose of data	Contribution to SDG13
Additional comment	NA

SDG 13

Data / Parameter	SDWS 25: $HN_{p,y}$

Unit	Number
Description	Number of individuals per premises type p in the project boundary in year y
Source of data	Project survey (Monitoring survey)
Value(s) applied	4.81
Measurement methods and procedures	Project survey has been done following the section 4.2 General requirements for sampling of the methodology "Emission reductions from Safe Drinking Water Supply", v.1.0
Monitoring frequency	Annual
QA/QC procedures	The value applied will be cross-checked against at least one other source on the list. For cross-check purposes, sources applied will be up to 5 years old. Further, cross-check with older sources will be used provided they provide conservative results. As per the India's latest census report 2011[14] at page 70, mentioned the percentage share of households having Five members and above for Dindori is 41.4% which is most in the Madhya Pradesh. In monitoring survey CME found 4.81 person per household which is more conservative.
Purpose of data	To calculate the contribution to SDG13
Additional comment	NA

SDG1, SDG5, SDG6, SDG13

Data / Parameter	SDWS 28: $N_{p,y}$
Unit	Number
Description	Accumulated number of premises type p with at least one individual project technology in year y

[14] https://mp.census.gov.in/hindi/pdf/census2011/HLO%20report.pdf#page=91

Source of data	Distribution records
Value(s) applied	2,010
Measurement methods and procedures	Distribution records with unique identifier of project technology and household.
Monitoring frequency	Annually
QA/QC procedures	Distribution records includes: i. Date of sale/distribution ii. Geographic area of sale iii. Model/type of project technology sold iv. Quantity of project technologies sold Name and telephone number, and address (if available) or other traceable indicator of premises identity and location for all end users.
Purpose of data	Contribution to SDG1, SDG 5, SDS 6, SDG13
Additional comment	NA

SDG13

Data / Parameter	SDWS 29: $U_{p,y}$
Unit	Percentage
Description	Usage rate of the project technology by premises type p during year y
Source of data	Usage Survey
Value(s) applied	100
Measurement methods and procedures	The premises with a project technology are being surveyed to determine the usage rate of the project technology during the year following the usage survey guidelines provided in Annex -1 of the methodology "Emission reductions from Safe Drinking Water Supply", v.1.0. The monitoring survey has been conducted from 22/11/2023 to 19/12/2023 and found the usage rate is 100% as per usage survey guidelines provided in Annex -1 of the methodology during current monitoring period i.e., from 11/05/2023 to 31/01/2024.

Monitoring frequency	Annually
QA/QC procedures	NA
Purpose of data	Contribution to SDG13
Additional comment	NA

SDG12 , SDG13, SDG15

Data / Parameter	SDWS 31: $DP_{p,y}$
Unit	Days
Description	Average days the project technology is present for end-users in the premises p in year y
Source of data	Sales or distribution records.
Value(s) applied	365
Measurement methods and procedures	Based on the sales or distribution records of "Date of sale/distribution" and ex-ante parameter "Expected technical life of project technology," for each project device how many days of the 365 days of the year it was in the premises and within its technical life has been determined. Then the average for all the project technology has been be calculate by premises type p to obtain this parameter.
Monitoring frequency	Annually
QA/QC procedures	NA
Purpose of data	Contribution to SDG12 , SDG13, SDG15
Additional comment	NA

SDG12 , SDG13, SDG15

Data / Parameter	SDWS 32: $DN_{p,y}$
Unit	Number
Description	Average number of individual project technologies in each project premises type p in year y
Source of data	Sales or distribution records.

Value(s) applied	1
Measurement methods and procedures	Based on the sales or distribution records of "Quantity of project technologies sold" and identifying information of buyer/recipient, calculate the average number of project devices per premises.
Monitoring frequency	NA
QA/QC procedures	NA
Purpose of data	Contribution to SDG12 , SDG13, SDG15
Additional comment	NA

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
NA	NA	NA

D.4. Implementation of sampling plan

The VPA has been followed the guidelines for sampling and surveying outlined in the methodology. The latest version of CDM tools and/or guidelines referenced in the methodology shall be used: CDM Guidelines "Guidelines for sampling and surveys for CDM project activities and programmes of activities", Version 04.0[15].

Surveys:

The surveys need to be conducted using representative and random sampling in accordance with the GS minimum sample size guidelines:

Group size	Minimum sample size
<300	30 or population size, whichever is smaller
300 to 1,000	10% of group size
>1000	100

[15] https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20151023152925068/Meth_GC48_%28ver04.0%29.pdf

Minimum 90% confidence interval and a 10% margin of error requirement shall be achieved for the sampled parameters.

Total number of samples considered under the Monitoring survey is 129, which fulfils this minimum required sample size of 100 as per the table above. The sample selection is done by simple random sampling technique. Samples drawn by using the random number generator[16]. Local authorities were consulted throughout the process to obtain their consent and support the sampling methods.

Usage Survey – HWT Technologies:

- The Usage Survey guidelines for Household Water Treatment Technologies in Annex 1 of the methodology "Methodology for Emission Reductions from Safe Drinking Water Supply" v1.0[17] is being followed.

Water Quality Tests:

- The Water Quality Monitoring Guidelines for the VPA is being followed. The water quality testing is performed based on parameter SDWS18 requirements.
- The sample size is following 90/10 precision rule and a minimum sample size of 100 is being selected.
- The water sample is taken where the water exits the treatment technology.
- Annual sampling; first round of testing shall be conducted at least after six months from the start date.

The water quality test has been conducted between 22/11/2023 to 19/12/2023 and tested by the NABL accredited lab and has found 100% sample pass the microbial requirements.

SECTION E. CALCULATION OF SDG IMPACTS

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

SDG13

The detailed ex-ante calculations of estimated SDG Impacts are provided in a separate excel calculation sheet for the monitoring current period i.e., 11/05/2023 to 31/01/2024

[16] https://stattrek.com/statistics/random-number-generator
[17] https://globalgoals.goldstandard.org/standards/429_V1.0_EE_SWS_Emission-reductions-from-Safe-Drinking-Water-Supply.pdf
https://globalgoals.goldstandard.org/standards/429_V1.0_EE_SWS_Emission-reductions-from-Safe-Drinking-Water-Supply.pdf

SDG13

GHG Emission Reduction Calculation:

According to the applied methodology "Methodology for Emission reductions from safe drinking water supply", version 1.0[18] equation 3, the baseline emission calculated as follows:

$$BEy = EFb \times (1 - Cb - Xcleanboil,) \times Qy \times Mq, y$$

As per the equation 6 of the applied methodology, the quantity of safe drinking water provided by the project Qy is determined as follows:

For HWT technology:

$QPW_{hh,p,y}$ = min (($qi \times tp,y \times DNp,y$), ($QPWp \times HNp,y$))

= min ((6 x 5 x 1), (4 x 4.81)) = min (30, 19.24) = 19.24 L/day

Value applied

Parameter	Description	Value	Unit
q_i	Capacity of the HWT or IWT individual project technology (L/h)	6	L/h
$t_{p,y}$	Usage time of the project technology by premises type p in year y (h/day)	5	h/day
$DN_{p,y}$	Average number of individual project technologies in each project premises type p in year y	1	Number of filter/ premises
$HN_{p,y}$	Number of individuals per premises type p (e.g. household, school) in year y	4.81	Number of person/ premises
QPW_p	Volume of drinking water per person per day for premises type p (L). Apply the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day.	4	L/day

As per equation 2 of the applied methodology, the specific energy required to boil water using the baseline technology ($SE_{w,b,y}$) is determined as follows:

$SE_{w,b,y}$= 360.83/ηwb

= 360.83/10%

[18] https://globalgoals.goldstandard.org/standards/429_V1.0_EE_SWS_Emission-reductions-from-Safe-Drinking-Water-Supply.pdf

= 3608.3 kJ/L

Value applied

Parameter	Description	Value	Unit
$\eta_{wb\text{-}}$TSF	Efficiency of the stoves for baseline water boiling (%). Weighted average of baseline stove types.	10	%

As per applied methodology equation 1, the baseline emission factor shall be calculated as follows:

$$EF_b = SE_{w,b,y} \times \sum_f x_f \times \left(EF_{b,f,co2} \times f_{NRB,f,y} + EF_{b,f,nonco2}\right) \div 10^9$$

$$= 3608.3 \text{ x } (94.80\% \text{ x } (112 \text{ x } 89.2\% + 9.46)) \div 10^9$$

$$= 3608.3 \text{ x } (94.80\% \text{ x } (99.904 + 9.46) \div 10^9$$

$$= 3608.3 \text{ x } (94.80\% \text{ x } 109.364) \div 10^9$$

$$= 37.40 \text{ x } 10^{-5} \text{ tCO}_2\text{e/L}$$

Value applied:

Parameter	Description	Value	Unit
$SE_{w,b,y}$	Specific energy required to boil water	3608.3	kJ/L
x_f	Proportion of fuel *f* used in the baseline (fraction determined based on an energy basis)	94.80	%
$EF_{b,f,CO2}$	CO_2 emission factor from use of fuel *f*	112	tCO_2/TJ
$EF_{b,f,nonCO2}$	Non-CO_2 emission factor arising from use of fuel *f*, when the baseline fuel *f* is biomass or charcoal. This parameter is omitted when *f* is a fossil fuel.	9.46	tCO_2/TJ
$f_{NRB,f,y}$	Fractional non-renewability status of woody biomass fuel during year *y* (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when *f* is a fossil fuel.	89.2	%

For HWT technology:

As per equation 6 of the applied methodology, Quantity of safe drinking water provided by the project Qy is determined as follows:

$$Q_y = \sum_p N_{p,y} \times U_{p.y} \times QPW_{hh,p,y} \times DP_{p,y}$$

Where,

Parameter	Description
$N_{p,y}$	Number of premises type *p* with at least one project technology in year *y*
$U_{p,y}$	Usage rate of the project technology by premises type *p* during year *y*
$QPW_{hh,p,y}$	Volume of drinking water per premises *p* per day in year *y*
$DP_{p,y}$	Days the project technology is present for end-users in the premises *p* in year *y*

Quantity of safe drinking water provided by the project Qy is during the monitoring period determined as follows:

Date		Distribution record	Commulitative distribution record	Np,y (number)	Usage rate (Up,y)	Working days (DPp,y)	Quantity of water (Qy) in Litre
From	To						
11/05/23	31/05/23	58	58	58	100%	21	23434.32
01/06/23	30/06/23	1446	1504	1504		30	868108.8
01/07/23	31/07/23	467	1971	1971		31	1175583.24
01/08/23	31/08/23	39	2010	2010		31	1198844.4
01/09/23	30/09/23	0	2010	2010		30	1160172
01/10/23	31/10/23	0	2010	2010		31	1198844.4
01/11/23	30/11/23	0	2010	2010		30	1160172
01/12/23	31/12/23	0	2010	2010		31	1198844.4

01/01/24	31/01/24	0	2010	2010		31	1198844.4

Hence, Total Quantity of water in Litre during current monitoring period (Q_y) from 11/05/2023 to 31/01/2024

Q_y =9182847.96 Litres

Q_y =91.82 x 10^5 Litres

As per equation 3 of the applied methodology, the baseline emission calculated as follows:

$BE_y = EF_b \times (1 - C_b - X_{cleanboil,}) \times Q_y \times M_{q,}$
= 37.40 x 10^{-5} x (1–0%-0%) x 91.82 x 10^5 x 1
= 3431 tCO_2e (rounded down value)

Value applied:

Parameter	Description	Value	Unit
EF_b	Emission factor for the use of fuel to obtain safe water in the baseline	37.40 x 10^{-5}	tCO_2e/L
C_b	Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling	0	%
$X_{cleanboil,y}$	Proportion of project end-users that boil safe water in the project year *y*	0	%
Q_y	Quantity of safe drinking water provided by the project in year *y*	91.82 x 10^5	L
$M_{q,y}$	Modifier for the water quality in year *y*	1	(fraction)

As the section B.6.2 in VPA-DD, the Econeer water purifiers introduced by the project require no energy input or consumables, which offered an affordable, long-term and zero emission solution for households that generally consume unsafe drinking water. Also, no fossil fuel or electricity is being used in the voluntary project activity (VPA).
Thus, the project emissions,
PE_y = 0 tCO_2e.

As the VPA not uses electricity or fossil fuel for operation and uses a zero-emission technology i.e., gravitational water filtering through hollow fiber filters. Thus, there are no any project emissions.

As per para 3.8.1 of the applied methodology non-renewable woody biomass is not using in the project scenario. Thus, Leakage emission will be 0.

Hence,
LE_y =0 tCO_2e

As per para 3.9.1 eq 11 of the applied methodology, the emission reductions are calculated as follows:

$ERy = BEy - PEy - LEy$

=3,431 tCO_2e -0 tCO_2e -0 tCO_2e

=3,431 tCO_2e

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

SDG 1: No Poverty

From 11/05/2023 to 31/01/2024 the total number of premises with at least one water filter distributed / installed under the project is 2,010. Further this is helping the villagers to eradicate poverty as they get more time for other employment generation activities.

SDG 3: Good Health and Well Being

The percentage of reduction in smoke/PM after they start using the water filter is 100%.

SDG 4: Quality Education

Number of Awareness program/training for using project scenario= 2 training

SDG 5: Gender Equality

Percentage household reporting time saving due to reduction in collection of fuel wood consumption/ water boiling time in project scenario = 100%

SDG 6 Clean Water and Sanitation

No of person have access to improved source of water

= $N_{p,y}$*$HN_{p,y}$

=2,010 x 4.81 person

=9,668 person

SDG 7 Affordable and Clean Energy

Number of unique households that were provided access to clean water purification technology i.e. Econeer water filter is 2,010.

SDG 8 Decent Work and Economic Growth Project Impact

From 11/05/2023 to 31/01/2024, 23 jobs for local people created, the percentage of employees with salaries paid at par with the average wage of India.

SDG 12 Responsible Consumption and Production

From 11/05/2023 to 31/01/2024, the Reduction in consumption of non-renewable biomass

$R_{nrb,y} = [Qy*(360.83/nwb)/15.6*10^6] * f_{NRB,f,y}$

= 1,894.612 Tonnes of non-renewable biomass

SDG 13 Climate Action Project Impact

In the current monitoring period i.e., from 11/05/2023 to 31/01/2024, the emission reduction from the voluntary project activity (VPA) is 3,431 tCO_2e.

SDG 15 Life on Land

From 11/05/2023 to 31/01/2024, the Reduction in consumption of non-renewable biomass:

$R_{nrb,y} = [Qy*(360.83/nwb)/15.6*10^6] * f_{NRB,f,y}$
=1,894.612 Tonnes of non-renewable biomass

E.3. Calculation of leakage

Where relevant, leakage relating to the non-renewable woody biomass shall be assessed as follows. Other types of leakage are excluded for simplification. Leakage emissions, LEy, shall be calculated as follows:

The CME has evaluated, ex-ante, the following potential sources of leakage and provide an evidence-based description and preliminary quantification of each potential source and its relevance for the project as per para 3.8.2 of the GS methodology Emission Reductions from Safe Drinking water solutions:

a. A survey was conducted to verify if the use of non-renewable biomass has increased among the members of the population who do not participate in the project, and were previously using lower emitting energy sources. The survey showed that the NRB consumption has not increased in the non-participating members of the population and they have plenty of forest wood available in the region.

b. The purpose of the project is reducing the use of NRB otherwise used in conventional three stone fired traditional cookstoves for boiling water and instead use Household gravity-based water purifier i.e. Econeer which does not require any NRB or any other fuel for its operations. So, the project would actually help in increasing the NRB fraction in that area. Therefore, the condition that the project involves reducing the NRB fraction within an area where other GHG mitigation project activities account for NRB fraction in their baseline scenario is not applicable, hence no leakage emissions are to be applicable for the project activity.

c. The project population and the project boundary are in the area where the annual average temperature is above 20°C. Hence there is no requirement to compensate for loss of the space heating effect of water boiling by adopting some other form of space heating or by retaining some baseline wood fuel-burning practices.

Thus, the leakage emissions can be considered as nil and can be ignored for the project activity.
Hence,

LE_y =0 tCO_2e

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Emission Reductions	3,431 tCO_2e	0 tCO_2e	3,431 tCO_2e
1	Increased access to basic services (water treatment)	0	2,010 No of water filter	2,010 No of water filter
3	Improvement in Indoor Air Quality & reduction in incidences of waterborne diseases such as skin rashes, diarrhea, foot sores, parasites, eye problems and other waterborne diseases	0	100%	100%
4	Increase soft skills, technical skills and awareness to safe drinking water.	0	2 Number of soft skill program in a year.	2 Number of soft skill program in a year.
5	Reduced unpaid care and domestic work for women	0	100%	100%
6	Access to improved source of water.	0	9,668 No of person	9,668 No of person
7	Contribute to increasing access to clean water purification technology with installations in user households.	0	2,010 No of Filters	2,010 No of Filters
8	Increased employment opportunities	0	23 employment opportunity created	23 employment opportunity created
12	Responsible Consumption and Production	0	1,894.612 tonnes of non-renewable biomass	1,894.612 tonnes of non-renewable biomass
15	Life on Land	0	1,894.612 tonnes of non-renewable biomass	1,894.612 tonnes of non-renewable biomass

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[19] achieved during this monitoring period
13	4,288 tCO_2e	3,431 tCO_2e
1	2,010 No of water filter	2,010 No of water filter
3	100%	100%
4	1 training/annum	2 Number of soft skill program in a year.
5	100%	100%
6	9,668 No of person	9,668 No of person
7	2,010 No of Filters	2,010 No of Filters
8	4 No of jobs	23 No of jobs
12	2,122.40 tonnes of non-renewable biomass	1,894.612 tonnes of non-renewable biomass
15	2,122.40 tonnes of non-renewable biomass	1,894.612 tonnes of non-renewable biomass

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

The Emission reduction as per the VPA PDD is 5,884 tCO_2e. Total days in the Monitoring Period is 266 days. So, the estimation during current monitoring period is 5,884/365 * 266 = 4,288 tCO_2e. However, the actual emission reductions received is 3,431 tCO_2e for current monitoring period which is 20% less than the estimated value for the monitoring period under consideration.

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

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

This is community-based project and not an afforestation and reafforestation (A/R) project. Hence, this section is not applicable.

SECTION F. SAFEGUARDS REPORTING

As per the safeguarding Principle Assessment in Appendix-1 of the VPA-DD, there are no safeguarding principles which are to be included in the monitoring plan or hold any relevance to the voluntary project activity (VPA). Also, there are no any impact (positive/negative/slightly) for any mitigation measures, being applicable to any of the safeguarding principles. Hence, this section is not relevant.

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.

Grievance/Feedback books: The general project description as well as feedback books are available at the local office of the distribution's partners. Feedback from stakeholders during office visits are being documented in the feedback/grievance books.

Continuous feedback: CME also contacts the end users on a regular basis to ensure the proper functioning of water filter, takes feedback to address grievances, and adds more users by spreading awareness. EKI Energy Services team or the distribution team appointed by CME visits the site selection random location for this purpose and mainly records the information related to regular usage of Econeer water filter, the physical condition of filter and its parts and benefits observed by the usage of filter.

Also at ground level, each water filter units have the centralized customer support number is mentioned as well as the distribution agent with whom the beneficiary can communicate at any time and raise their issues or feedback which if found adequate are being resolved adequately.

Also, no major grievances or inputs were recorded for the current monitoring period and the end users are happy and healthy by using this water filtration units.

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

There were no stakeholder concerns or mitigation measures that arisen with the project, which would have required monitoring. Throughout the project's development and implementation phases, all stakeholder interactions were positive, and no issues necessitated mitigation. Consequently, this section is not applicable and does not contain any relevant information or actions.

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

Not Applicable as there are no contest or disputes that arisen with the project during this 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