



GROUPED PROJECTS FOR MEKONG RIVER DELTA WATER PURIFIER

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Joint Stock Company
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Prepared by	Sustainability Investment Promotion and Development Joint Stock Company (SIPCO)

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The intention of the grouped project activity (“hereafter “proposed project activity”) involves the installation of low greenhouse gas emitting safe drinking water purifier (SDWP) to provide clean drinking water to the households (hereafter “users”) in MeKong River Delta of Viet Nam. For this reason, this proposed project activity aims at reducing the wood fuel consumption of traditional stove users by distributing water purifiers to households.

The grouped project activity reduces the use and demand for fossil fuels and non-renewable biomass that would have been used to boil water as a means to purify water in the absence of this project activity. This directly leads to reduced greenhouse gas emissions. Furthermore, it can be helpful to user’s health.

The project activity targets households in rural communities with no previous water purifiers access. The geographical boundary is in Viet Nam. Water purifiers are distributed free of cost to users. Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) financed the implementation of the project in full. The households also commit in beneficiary agreement that “By receiving the water purifier, we commit not to receive any another similar water purifier from other project”. This to prevent overlapping and duplication in the database of project activity.

The water purifiers (model Ecozen -25) covered under the project has been manufactured by Viet Charcoal Production Company Limited. The equipment lifetime is 10 years. The credits shall be claimed only till the end of the operational life of the project devices.

Currently, there are 35 project instances under the grouped project¹. The first water purifier was distributed on 10 November 2021. The first monitoring period is from 10 November 2021 to 31 March 2022; the second monitoring period is from 01 April 2022 to 31 October 2022. The third monitoring period is from 01 November 2022 to 30 June 2023. The fourth monitoring period is from 01 July 2023 to 31 December 2023. The fifth monitoring period is from 01 January 2024 to 30 June 2024. Till the end of 5th monitoring period, a total of 900,000 water purifiers was reported installed under the project. Detail below:

Table 1: Distribution schedule

Month of installation	Number of Water Purifiers
11/2021	33,550

¹ The detail of the 35 project instances are mentioned in the section 3.1

12/2021	60,634
01/2022	67,350
02/2022	52,236
03/2022	27,730
04/2022	9,841
05/2022	72,476
06/2022	70,968
07/2022	68,605
08/2022	96,610
09/2022	40,000
10/2023	30,368
11/2023	62,923
12/2023	27,009
01/2024	73,276
02/2024	70,624
03/2024	35,800
Total	900,000

However, there are some villages where were accessed to public water system. Detail below

- In the third monitoring period, there were 200 households in Binh Hoa hamlet, My Khanh commune, Long Xuyen city, An Giang Province and 282 households in No Men hamlet, Tan Hiep commune, Tra Cu district, Tra Vinh province who have accessed to public water system².
- In the fourth monitoring period, there were 223 households in Bo Bau Village, My Chanh commune, Ba Tri District, Ben Tre province and 300 households in Village 2, ward 5, Tra Vinh City, Tra Vinh Province who have accessed to public water system³

² Confirmation of People Committee of My Khanh Commune and Women Union of Tan Hiep commune

³ Confirmation of Women Union in My Chanh Commune and Ward 5, Tra Vinh City.

A total of 1005 households will be discarded from the fifth monitoring list of the project activity. So, the total number of 5th monitoring period is 898,995 water purifiers.

The total GHG emission reductions generated in the fifth monitoring from 01 January 2024 to 30 June 2024 is 892,376 tCO₂e GHG emission reductions.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	25 July 2022 (The date of approval for validation)	VCS	Carbon Check (India) Private Ltd	-
1 st Verification	10 November 2021 – 31 March 2022	VCS	Carbon Check (India) Private Ltd	0.39
2 nd Verification	01 April 2022 – 31 October 2022	VCS	EPIC Sustainability Services Pvt. Ltd	0.59
3 rd Verification	01 November 2022 – 30 June 2023	VCS	EPIC Sustainability Services Pvt. Ltd	0.66
4 th Verification	01 July 2023 – 31 December 2023	VCS	Ecolance Pvt. Ltd	0.5
5 th Verification	01 January 2024 – 30 June 2024	VCS	Ecolance Pvt. Ltd	0.5

1.3 Sectoral Scope and Project Type

Sectoral scope ⁴	03 – Energy Demand
Project activity type	Type III – Other projects activities not included in Type I or Type II that result in GHG emission reductions not exceeding 60,000 tCO ₂ e per year in any year of the crediting period”.

⁴ Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

1.4 Project Proponent

Organization name	Sustainability Investment Promotion and Development Joint Stock Company. (SIPCO)
Contact person	Mr. Hoang Anh Dung
Title	Chairman
Address	5th Floor, Sunrise Building, No.25B3, 57 Lang Ha Street, Ba Dinh District, Hanoi, Viet Nam
Telephone	+84 243 519 0955
Email	dung.hoang@carbonvietnam.com

1.5 Other Entities Involved in the Project

Organization name	Vitol (China) Energy Co Ltd
Role in the Project	VCU Buyer
Contact person	Tracy Zhao
Title	Originator Carbon Trading, North & South Asia
Address	Unit 2308, 23/F, Raffles City Changning Office Tower 2, No. 1189 Changning Road, Changning District, Shanghai, China
Telephone	+86 13611774287
Email	zlt@vitol.com

1.6 Project Start Date

Project start date	10-November-2021
Justification	The project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or removals. The project start date is 10 November 2021 which is the distribution date of the first water purifier.

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable
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	☒ Ten years, fixed ☐ Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)
Start and end date of first or fixed crediting period	10 November 2021 to 09 November 2031

1.8 Project Location

The grouped project will be hosted by Viet Nam. The grouped project covers the 12 Provinces and one City of Mekong River Delta in Viet Nam. The details of coordinates are being submitted separately as KML file.



Figure: Mekong River Delta Map

Detail geographic information of the project activity instance is below:

Project activity instance	Province	coordinates
PA 001	An Giang	10.5724°N, 104.8451°E
PA 002		https://www.google.com/maps/place/An+Giang,+Vi%E1%BB%87t+Nam/@10.5724342,104.8450979,10z/data=!3m1!4b1!4m6!3m5!1s0x310a198a4ee22a8d:0xdc1cb02c52c088ba!8m2!3d10.5215836!4d105.1258955!16zL20vMDNxNXo5?hl=vi-VN&entry=ttu
PA 003		
PA 010		
PA 021		
PA 022		
PA 004	Can Tho	10.0342°N, 105.7369°E https://www.google.com/maps/place/C%E1%BA%A7n+Th%C6%A1,+Ninh+Ki%E1%BB%81u,+C%E1%BA%A7n+Th%C6%A1,+Vi%E1%BB%87t+Nam/@10.0341863,105.7369279,14z/data=!3m1!4b1!4m6!3m5!1s0x31a0629f6de3edb7:0x527f09dbfb20b659!8m2!3d10.0451618!4d105.7468535!16zL20vMDNmY20z?hl=vi-VN&entry=ttu
PA 005	Ben Tre	10.0654°N, 106.2562°E
PA 006		https://www.google.com/maps/place/B%E1%BA%BFn+Tre,+Vi%E1%BB%87t+Nam/@10.0653852,106.2562252,11z/data=!3m1!4b1!4m6!3m5!1s0x310aa85c0cbca79f:0xaa3c54e567317543!8m2!3d10.1081553!4d106.4405872!16zL20vMDNxdDYz?hl=vi-VN&entry=ttu
PA 007		
PA 008		
PA 009		
PA 011	Dong Thap	10.5549°N, 106.2341°E
PA 012		https://www.google.com/maps/place/%C4%90%E1%BB%93ng+Th%C3%A1p,+Vi%E1%BB%87t+Nam/@10.5549457,105.2341566,10z/data=!3m1!4b1!4m6!3m5!1s0x310a65b3d50c121f:0xdca0c95ead346e40!8m2!3d10.4937989!4d105.6881788!16zL20vMDdtMTE3?hl=vi-VN&entry=ttu
PA 013		
PA 014		
PA 015		
PA 016	Tra Vinh	9.8055°N, 106.1008°E
PA 017		

PA 018		https://www.google.com/maps/place/Tr%C3%A0+Vinh,+Vi%E1%BB%87t+Nam/@9.8055743,106.1008372,11z/data=!3m1!4m6!3m5!1s0x31a0174e1a0ced8f:0xb74b6e18ec398a13!8m2!3d9.812741!4d106.2992912!16zL20vMDU2dHZ2?hl=vi-VN&entry=ttu
PA 019		
PA 020		
PA 023	Soc Trang	9.5905°N, 105.5960°E
PA 024		https://www.google.com/maps/place/S%C3%B3c+Tr%C4%83ng,+Vi%E1%BB%87t+Nam/@9.5905087,105.595976,10z/data=!3m1!4b1!4m6!3m5!1s0x31a05209a25f8e21:0xd673966a4a960a4e!8m2!3d9.6003688!4d105.9599539!16zL20vMDVoeHN4?hl=vi-VN&entry=ttu
PA 025		
PA 026	Bac Lieu	9.3260°N, 105.3808°E
PA 027		https://www.google.com/maps/place/B%E1%BA%A1c+Li%C3%AAu,+Vi%E1%BB%87t+Nam/@9.3259914,105.3807871,11z/data=!3m1!4b1!4m6!3m5!1s0x3198a91bc7eabd0d:0xef34f810e0c7c64f!8m2!3d9.2515555!4d105.5136472!16zL20vMDNxajB2?hl=vi-VN&entry=ttu
PA 028		
PA 029	Hau Giang	9.7885°N, 105.4469°E
PA 030		https://www.google.com/maps/place/H%E1%BA%ADu+Giang,+Vi%E1%BB%87t+Nam/@9.7885285,105.4469497,11z/data=!3m1!4b1!4m6!3m5!1s0x31a0f291eda269b3:0x79a372e92efed9e5!8m2!3d9.757898!4d105.6412527!16zL20vMDR4MXY1?hl=vi-VN&entry=ttu
PA 031		
PA 032	Vinh Long	10.1072°N, 105.8210°E
PA 033		https://www.google.com/maps/place/V%C4%A9nh+Long,+Vi%E1%BB%87t+Nam/@10.1072034,105.8210357,11z/data=!3m1!4b1!4m6!3m5!1s0x310a9bbc21448e13:0x52c66a3e695c75a5!8m2!3d10.0861281!4d1

		06.0169971!16zL20vMDZyem1z?hl=vi-VN&entry=ttu
PA 034	Kien Giang	9.6899°N, 104.1683°E
PA 035		https://www.google.com/maps/place/Ki%C3%AAn+Giang,+Vi%E1%BB%87t+Nam/@9.896899,104.1683892,10z/data=!3m1!4b1!4m6!3m5!1s0x3109da1c921a75cd:0x87e74126335ff37a!8m2!3d9.8249587!4d105.1258955!16zL20vMDJfcGZn?hl=vi-VN&entry=ttu

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	AMS III.AV	Low greenhouse gas- emitting safe drinking water production systems	08
Methodology	AMS-I.E	Switch from non-renewable biomass for thermal applications by the user	12.0
CDM Sampling Standard	N/A	Sampling and surveys for CDM project activities and programme of activities	09.0
CDM Sampling Guideline	N/A	Sampling and surveys of CDM project activities and programmes of activities	04.0
Tool	01	Tool for the demonstration and assessment of additionality	07.0
Tool	21	Demonstration of additionality of small-scale project activities	13.1
Tool	30	Calculation of the fraction of non-renewable biomass	03.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

☐ Yes ☒ No

1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☒ Yes ☐ No

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☒ Yes ☐ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, “Carbon credits may be issued through the Verified Carbon Standard project ID 2581 for the greenhouse gas emission reductions and removals associated with Ecozen-25 water purifiers, manufactured by Viet Charcoal Production Company Limited in Di Su commune, My Hao District, Hung Yen Province, Vietnam, distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO)”.

☒ Yes ☐ No

Detail in Appendix 2 in this report.

1.12 Sustainable Development Contributions

The project activity helps in achieving following co-benefits, which will contribute in sustainable development in host country.

- **Environmental sustainability**

The project helps significantly reduce greenhouse gas emissions over its lifetime.

The project helps reduce the use of non-renewable biomass from forests, assisting the maintenance of existing forest stock, protecting natural forest eco-systems and wildlife habitats.

The protection of standing forests will ensure the maintenance of watersheds that regulate water table levels and prevent flash flooding.

- **Social benefits**

Purchasing or collecting firewood or fossil fuels to boil the water constitutes a significant expense for the very poorest households and communities. The project provides free equipment, people can drink water directly without boiling thus saving firewood and boiling water time for families. That time could be spent to increase productivity and income, and more generally give a sense of hope and opportunity.

Micro-entrepreneurs: low greenhouse gas emitting water purification technologies offer scope for micro-entrepreneurs (Distributors/Installers), thereby creating jobs and supporting families.

There is a direct incentive to ensure that the projects (instance) have a successful long term operation as this will ensure continued SDWP.

Polluted indoor air due to open and uncontrolled combustion is a huge health concern. Low greenhouse gas emitting water disinfection technologies tackle this problem by reducing the combustion of wood/fossil fuels.

The project alleviates the work burden of women and children as they have to spend less time to collect firewood for boiling water.

- ***Economic benefits***

The project activity helps develop a section of Viet Nam rural economy through the installation and maintenance of SDWPs⁵, as well as work related to monitoring of the carbon registration activity.

The proposed project delivers a long term, secure and simple contribution to sustainable development in Viet Nam that would not exist without carbon finance.

The project aligns with and contribute to sustainable development objectives outlined in Table 1 below.

⁵ SIPCO is an entity undertake the maintenance by hiring the manufacturer and the maintenance done for free to households in lifetime of filter core.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
Sequential row number	SDG Target number	Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator	Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)	Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.	Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.
1)	1.4	1.4. Project specific indicator: Increase of population living in households with access to basic services. Net benefit = Number of project water purifiers * Usage rate	Implemented activities to increase	Provide 882,364 families with greater access to basic services in the form of clean water technology	The project will allow 900,000 households access to clean water technology over the lifetime of the project.

2)	3.9	3.9: Project specific indicator: Number of individuals experiencing health benefits due to reduced exposure to indoor air pollution	Implemented activities to decrease	100% of households interviewed answered that they drink water directly from project water purifiers without boiling water. Therefore, the project activity help reduce Household Air Pollution (HAP) of 100% due to boil water by using 882,364 water purifiers in these households in this monitoring period.	The project is expected to reduce 100% of HAP due to boil water for 900,000 households over the lifetime of the project
3)	5.4	5.4.: Project specific indicator: Decrease of time spent on unpaid domestic and care work, by sex, age and location. Base on baseline survey was carried out on Oct 2021 by SIPCO, the average time for boiling and collecting wood fuel for drinking water of each household is 2.037 hours/household/day.	Implemented activities to decrease	Under the project scenario, the household drink water directly, without boiling water. Therefore. they would be able to save 2.037 hours daily, equivalent by 100% time for boiling and collecting wood fuel. The women would also have time to engage in other employment opportunities.	The project activity has contributed to time savings of 2.037 hours daily for 900,000 households over the lifetime of the project
4)	13.0	13.2.2. Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	Reduce the total fuelwood usage in the project area to generate approximately 892,376 tCO ₂ e of emission reductions	The project is has achieved GHG emission reduction of 2,986,061 tCO ₂ e until end of this monitoring period.

5)	6.1	6.1.. Project specific indicator: Increase of the population who have easy access to a safe water supply	Implemented activities to increase	With the distribution of 882,364 Safe Drinking Water Purifiers (SDWPs), the project will lower exposure to unsafe water for 882,364 households	The project will allow 900,000 households to gain access to clean water until the end of this monitoring period.						
6)	8.3	8.3: Project specific Indicator: Increase the employment in total employment, by sector and sex Net benefit = $ES_{\text{project}} - ES_{\text{baseline}}$ <table><tr><th>Parameter</th><th>Description</th></tr><tr><td>ES_{project}</td><td>Gainfully employed staff in project scenario.</td></tr><tr><td>ES_{baseline}</td><td>Gainfully employed staff in baseline. A value of 0 shall be considered as in absence of project activity no employment opportunities would have been created.</td></tr></table>	Parameter	Description	ES_{project}	Gainfully employed staff in project scenario.	ES_{baseline}	Gainfully employed staff in baseline. A value of 0 shall be considered as in absence of project activity no employment opportunities would have been created.	Implemented activities to increase	The project generate about 25 employments opportunities for manufacturer, distribution and maintenance of SPWPs.	The project have generated 40 employment opportunities until the end of monitoring period
Parameter	Description										
ES_{project}	Gainfully employed staff in project scenario.										
ES_{baseline}	Gainfully employed staff in baseline. A value of 0 shall be considered as in absence of project activity no employment opportunities would have been created.										

7)	15.1	15.1.1. Forest area as a proportion of total land area. .	Implemented activities to increase	Contribute an estimated reduction in removal of woody biomass to the tune of more than 1.683 tons per SDWP per year, from forests surrounding the communities thereby leading to an increase in above ground biomass in these forests.	Benefit to 900,000 households are using WPs to drink water directly instead of boiling water for drinking, the project help reduction of 2,339,713 tons firewood until end of this monitoring period.
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1.13 Commercially Sensitive Information

The project activity involves distribution of water purifier to individual household. There is no commercially sensitive information so this section is not applicable.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification

The stakeholders have been identified as individuals or groups that are potentially affected by the project and within each of the following categories: government, international government agencies, non-governmental organizations, religious aid agencies, academic, current, and potential future implementing partners, stove manufactures, carbon sector organizations, partner donors, the media, individuals, and their families.

Stakeholders can be defined by three steps approach as following:

Step 1: The first step is to identify the expected and unforeseen consequences of the project's activities. Once the outcomes are determined, the potential stakeholders affected by these impacts are identified.:

Step 2: Following the holistic perspective on the overall benefits and co-benefits of the project, stakeholder group identification is carried out as each stage of project implementation. The examination for stakeholder identification per different stages are as follows:

- Project Initiation: stakeholders will include self-help groups such as Women Union or Red Cross who can assist the project initiator in understanding the project

	benefits and potential impediments, making ingress within the community... • Project Development: At this step, stakeholders include government representatives, community development organisations, investors, NGOs working in defined groups, etc • Project Implementation: End-users, implementing partners, WP manufacturers, training personnel. The PPs has signed contract with Provincial's women Union, this is an agency with all levels from central to local (village, hamlet), they are close the households and can know exactly these households who are using the traditional cookstove for boiling water and they can select the correct beneficiaries. • Project monitoring (validation and verification): surveyors, database developers, end-users involved in project monitoring. All most of project stakeholders affected by project activity will be identified in the step 2 by SIPCO. Step 3: Select representatives from each stakeholder identified in step 2 as the final step of the identification process. The final list of stakeholder includes end users, representative of Women Union, Red Cross, government authorities, local NGOs and business, local vendor, WP manufacturers. The full list of identified stakeholders has been provided to the VVB as a supportive document.
Legal or customary tenure/access rights	The project activity involves distribution of WPs to households and it will not involve any legal or customary tenure/access rights to territories and resources. So, this section is not applicable.
Stakeholder diversity and changes over time	Each stakeholder is defined as a group composed of individual stakeholders who derive similar income, livelihood, well -being and/or cultural values from the project and whose values are different from those of other groups. There are many stakeholders identified at period of project activity, from starting, development, implementation

	and monitoring. There is insignificant change in stakeholders' diversity and therefore have no real impact on their opinion during the monitoring period. - WP user: there has been an unquantifiable improvement in their health, livelihood, wellbeing, and income as per exchange during onsite survey. - Women Union: No change in structure & functionality or any organization values. - Local vender: Various local businesses supply wood in the project area. Project activity helps save wood in boiling water so influence consumption of these products and could thus negatively affect vendor livelihoods. - Manufacturer: More jobs for their employee in manufacturing, transportation and maintenance WPs. - Other governmental authority and NGOs: No change was observed in structure & functionality.
Expected changes in well-being	- The project activity is contributing to the reduction in GHG emission due to reduction in use of non-renewable biomass and it can ensure natural recovery of forests and/or reforestation. - Community health issues such as chronic lung diseases, acute respiratory infections, cataracts, blindness, and adverse effects on pregnancy are decreasing due to improvement of indoor air quality. The project activity also helps to prevent illness related to digestive system such as diarrhea, cholera, dysentery, typhoid fever from drinking contaminated water - The introduction of locally manufactured technology with improving water quality helps in technological self-reliance in the area
Location of stakeholders	All the stakeholders are operating and living in the area of project activity which is in the geographical boundary of MeKong River Delta, in Viet Nam country.
Location of resources	Have no change in location of resource during the monitoring period. - WP user: they still freely access to local forest around their household to collect wood fuel.

	- Local vender: They still can supply wood in the project area. - Women Union, Red Cross and local NGOs and government: They have no change in structure & functionality, they are still operating in Vietnam and access the same resources
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2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	The PP is maintaining ongoing communication with stakeholders through different measures. 1) During the monitoring survey, project has taken the chance to update information to different stakeholders, and collected comments through interviews, surveys, direct observations, group discussions. The PP also conducts and reports the monitoring result from the random sampling of to all stakeholders on annually basis. 2) Staff of SIPCO and Women Union of the villages communicates & collects end-users' comments through regular visits and phone call to household at least 1 time per year. 3) Through monitoring survey trip, the field team managers also actively organize and conducts group discussions with different stakeholders The data from these interactions is compiled into annual reports and updated to the Women Union & local governmental authority. Through the ongoing communication process, all the implementation information, such as the results of monitoring, the risks, costs and benefits the project and the plan of site visit from verification body has been updated timely to the stakeholders. In addition, the PP also updates workers on relevant law and applicable regulation (if any) and conduct additional educational services as requested by the beneficiary.
Date(s) of stakeholder consultation	• 18 April 2021, the date of initial stakeholder consultation meeting for grouped project.

	10 to 17 June 2024, the date to conduct ongoing consultation & conduct sampling survey at the same time 20 July 2024, the date record for ongoing communication of stakeholders.
Communication of monitored results	The monitored results have been shared with Woman Union & relevant stakeholders through annual reports include the information of 1) The list of households has been selected for survey 2) The summarize of the result of SIPCO's representative sample conduct survey.
Consultation records	All formal consultation is logged in the consultation forms. Forms are saved for record of correspondence
Stakeholder input	During this ongoing communication, there was no comment received from stakeholder for the water purifiers quality and design for the current monitoring period. Also in this current monitoring period, PPs have some comments and response as below: Comment 1: Water from the water filter is sweet, delicious, and healthy. We thank the company very much. Do the water purifiers sell in the market? Response by PPs: Serving the households is our desire, our water purifiers are manufactured for the purpose of free distribution for households in our projects, not for sale on the market. Comment 2: My family's water filter has been used for nearly 2 years, and we would like to request the company to schedule a new filter replacement for us. Response by PPs: - Our local partner (Women Union and Red Cross) will make a list of households who used water purifiers for nearly 02 years and send the list to SIPCO.

- SIPCO will offer new water filters to the Commune People's Committee and representative of Commune Women's Union will distribute new water filters for the households.

2.1.3 Free, Prior, and Informed Consent

Consent	The project activities take place with the approval of Commune People's Committee in a series of consultation meetings as documented. In addition, WPs is a completely voluntary activity and households in participating villages are free to choose whether they take part or not. Free, prior, and informed consent takes place before installation.
Outcome of FPIC	The project activity involves distribution of water purifiers to individual households and it has not encroached on land, relocated people. All of the information is transparency.

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome				
There is no the grievance raised during this monitoring period.	The grievance register is being maintained by the distributors for submission of input/ grievance (if any) related to the project activity. The queries by stakeholders are noted and documented in the grievance register. In addition, the contact details of the project proponent and local representative/ partner of the project proponent are also provided to the stakeholder's for sharing suggestions/ queries either through call/messaging/ e-mailing. The grievance register is kept at SIPCO and 10 local partner offices where any stakeholder can come and register his/her feedback. Total 11 grievance register is kept at address as following:				
	No	Adress	Phone number	Contact person	Email
	1	SIPCO's office: 5th Floor, Sunrise Building, No.25B3, 57 Lang Ha Street, Ba Dinh District, Hanoi, Viet Nam	+84 243 519 0955	Mr. Pham Ngoc Nhan	info@carbonvietnam.com

2	An Giang WU's office: No.6 Le Loi Street, My Binh Ward, Long Xuyen City, An Giang Province	+84 2963.955.605	Ms. Som Bath Phi NiRa	banbientaphoihpangiang@gmail.com
3	Ben Tre WU's office: No.58, 3/2 Street, An Hoi Ward, Ben Tre City, Ben Tre	+84 275.3822168	Ms. Le Thi Hoang Oanh	phunubentre@yahoo.com.vn
4	Tra Vinh WU's office: No.43 Le Loi, Ward 1, Tra Vinh City, Tra Vinh	+84 2943.854.846	Ms. Nguyen Thi Ut Nhat	webhoipntv@gmail.com
5	Dong Thap WU's office: No.31, 30/4 Street, Ward 1, Cao Lanh City, Dong Thap Province	+84 277.3851.809	Ms. Vo Thi Thu Thao	hlhpn@dongthap.gov.vn
6	Can Tho's office: No.79 Tran Van Hoai, Xuan Khanh Ward, Ninh Kieu District, Can Tho City	+84 292 3830824	Mr. Nguyen Phuong Tung	tuyengiaotdct@gmail.com
7	Soc Trang Red Cross's office: No.35 Nguyen Van Them Street, Ward 3, Soc Trang City, Soc Trang	+84 2993 822 866	Ms. Vo Thi Be	soctrangrc@gmail.com.
8	Kien Giang Red Cross's office: No.77 Hoang Dieu Street, Vinh Thanh Van Ward, Rach Gia City, Kien Giang	+84 2973 862 127	Ms. Le Thi Hanh	hctd@kiengiang.gov.vn
9	Bac Lieu Red Cross's office: No.13, Hai Ba Trung Street, Ward 3, Bac Lieu City, Bac Lieu	+840 918.973.059	Ms. Mac Thi Hang	banbientapctdbl@gmail.com
10	Hau Giang Red Cross's office: Nguyen An Ninh Street, Ward 4, Vi Thanh City, Hau Giang Province	+84 293.3878.867	Mr. Nguyen Minh Thien	Haugiang.rc@yahoo.com

11	Vinh Long Red Cross's office: 125 Nguyen Hue Street, Ward 2, Vinh Long City, Vinh Long	+84 2703 823 108	Mr. Tang Vinh Dong	ctdvinhlong@gmail.com
If any grievance is received, then the field staff is responsible to address the grievance within 15 days of record. If there is a major grievance which is recorded, then the technical team is responsible to handle the grievance and report to the management.				

The grievance mechanism process could be illustrated as below:



- **Receive Grievance**

The grievance could be received by all means, such as in person/over the phone, via email/website.

- **Record**

All formal grievances are logged in the External Grievance Register and Grievance Lodgment Forms will be saved for record of correspondence.

- **Screen**

The stakeholder contact officer is responsible for assigning a grievance owner to liaise with the external stakeholders and work on a resolution. Grievances are screened depending the level of severity in order to determine who the grievance owner will be and how the grievance is approached.

- **Acknowledge**

A grievance is acknowledged, the grievance owner, within two working days of a grievance being submitted. Communication is made either verbally or in written form.

The acknowledgement of a grievance should include a summary of the grievance, method that is taken to resolve the grievance and an estimated timeframe in which the grievance is resolved. If required, the acknowledgement provides an opportunity to ask for any additional information or to clarify any issues.

- **Investigate**

The grievance owner is responsible for investigating the grievance. The investigation may require the grievance owner to make site visits, consult employees, contact external stakeholders and complete other activities. Records of meetings, discussions and activities all need to be recorded during the investigation. Information gathered during the investigation will be analyzed and assist in determining how the grievance is handled and what steps need to be taken in order to resolve the grievance.

- **Act**

Following the investigation, the grievance owner uses the findings to create an action plan outlining steps to be taken in order to resolve the grievance. The grievance owner is responsible for assigning actions, monitoring actions undertaken and making sure deadlines are adhered to. Once all actions have been completed and the grievance owner feels the grievance has been resolved, they then formally advise the external stakeholder via their preferred method of contact.

- **Follow up and close out**

The grievance owner make contact with the external stakeholder/s three weeks after the grievance is resolved. When contacting the external stakeholder, the grievance owner will verify that the outcome was satisfied and also gather any feedback on the grievance process.

Minutes of the meeting is recorded and saved.

If required, the grievance owner may need to follow up with the external stakeholder on numerous occasions to confirm all parties are satisfied.

The procedure is accessible to stakeholders for ongoing consultation, but there is no any grievance received in this monitoring period.

2.1.5 Public Comments

Summary of comments received	Actions taken
There were no negative or adverse comments received from stakeholders in this monitoring period	Not applicable

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

SIPCO has many years of experiences in implementing similar project activities and engaging communities. We have policies in place to inform management and employees about the avoidance of corruption, code of conduct, and business ethics. These policies are applied by all project staff, including company management to ensure that the organization is run in accordance with all legal requirements and is held to the highest standards of operation.

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	The project activity involves distribution of water purifier to individual household. There is no trade-off or any negative impact to their livelihood, land, food, etc. therefore, no any risk identified to stakeholder participation
Risks to stakeholder participation	No risk identified	Project activities create jobs for local people, help them from unemployed to employed. All of working condition such as working hour, clothes, environment... as per Viet Nam's Labor Law. therefore, no any risk identified to working condition
Working conditions	No risk identified	The project activity help reduce the proportion of time rural women spend on unpaid domestic work related to collection of firewood, Therefore, no any risk identified relate to safety of women and girls.
Safety of women and girls	No risk identified	The project alleviates the work burden of children and minority and marginalized grouped as they have to spend less time to collect firewood for cooking. Therefore, no any risk identified relate to safety

		of minority and marginalized grouped
Safety of minority and marginalized groups, including children	No risk identified	The project activity involves distribution of water purifiers to individual household. The project activity reduce air pollutants from wood smoke and improve the air quality indoor.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	The project activity involves distribution of water purifiers to individual household. There is no trade-off or any negative impact to their livelihood, land, food, etc. therefore, no any risk identified to stakeholder participation

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified ⁶	Mitigation or preventative measure(s) taken
Discrimination	No risk identified	The project participants do not discriminate based on gender and ensure that an equal number of women and members of other underrepresented groups have the opportunity to apply
Sexual harassment	No risk identified	As part of our commitment to having a diverse and inclusive workplace, we have zero tolerance for harassment and bullying.
Gender equity in labor and work	No risk identified	The project also encourages women in the local communities to take up employment as per their skills, and provide training to all

⁶ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

		staff regardless of gender. The company as per its human resource policy ensures fair opportunity and equal pay for equal work done to both men and women. Furthermore, the project activity provides more opportunities to women through self-help groups, thus helping in overall women empowerment
Forced labor	No risk identified	SIPCO does not tolerate child labor or forced, involuntary or trafficked labor in any form. Victimization at work, such as recurring negative actions directed against individual employees, is not permitted. All employees shall treat one another with respect, dignity and common courtesy.
Child labor	No risk identified	
Human trafficking	No risk identified	

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The contractor, synonymous with implementing partner, enters into an independent contractor agreement with SIPCO. The agreement contains details of SIPCO's and the contractor's compliance according to Viet Nam labor laws. Specific information is provided on anti-terrorism and anti-corruption efforts, including a code of conduct. Per the Core Labour Conventions of the International Labour Organization (ILO), SIPCO respects, and works in tandem with the elimination of all forms of forced or compulsory labour, the effective abolition of child labour, minimum age convention, the right to organize, and the elimination of discrimination in respect of paid positions and occupation.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	The project activity involves distribution of water purifiers to individual households and it is not involving any indigenous peoples and cultural heritage.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The project activity involves distribution of water purifiers to individual households and it is not involving any property right removal/relocation of property rights holders.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	The project activity dose not impacts property right impacts property rights so this section is not applicable
Benefit sharing during the monitoring period	The project activity dose not impacts property right impacts property rights so this section is not applicable

2.4 Ecosystem Health

Risk identified		Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	The implementation of the grouped project does not impose any severe impacts on the ecological system in the surrounding areas. This project activity helps in reducing the consumption of fuel wood by efficient fuel combustion thereby reducing deforestation and reducing indoor air pollution. The use of clean water technology
Soil degradation and soil erosion	No risk identified	
Water consumption and stress	No risk identified	

		reduce adverse environmental and social impacts associated with the use of non-renewable biomass. The reduced consumption of the stated baseline fuel has sustainable benefit for all household's traditional cook stoves users included in the project activity. The implementation of the project reduce workloads involved in fuel collection, and by reducing indoor air pollution, reduce the risk of respiratory diseases, especially for women and children. Water purifiers also contribute to environment protection by reducing biomass consumption and hence greenhouse gas emissions, mainly CO₂, when the combusted biomass originates from non-renewable stocks. Therefore, it has no impact to ecosystem health, so this section is not applicable.
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2.4.1 Rare, Threatened, and Endangered species

Species or habitat	It is not applicable since there is no ecosystem impact were identified during validation
Areas needed for habitat connectivity	

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No risk identified	The project activity involves distribution of water purifier to individual households and it is not impact to habitat in ecosystem
Areas for habitat connectivity	No risk identified	

2.4.2 Introduction of species

It is not applicable since project not introduce any species

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	It is not applicable since project do not involve any ecosystem conversion.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity aims to distribute WPs in 12 provinces and 01 city of MeKong River Delta in Viet Nam and until this monitoring period, all 900,000 WPs under project activity were distributed. All WPs were transported and gathered in local district's temporary warehouses one week before the start distribution date. From 10 – November - 2021, SIPCO in conjunction with the local partners (Women Union and Red Cross) organized mass distributions in all villages within the district. Women Union and Red Cross have affiliates in every village in all over provinces in MeKong River Delta of Viet Nam, they can quickly identify the households who are using traditional cookstove to boil drinking water and they can select the households that meet the project criteria. The representative of households whose names were on the demand registration list which have been predetermined to be eligible to participate in the project were invited to the distribution's points to attend the communication session and receive WP. Until end of this monitoring period, total of 900,000 WPs under this grouped project were distributed during more than 02 years from 10– November – 2021 to 12 –March– 2024, detail in following:

Table 02: Timeline of project activities (PAs)

Project activity	Steps	Timeline
PA 1	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	10/11/2021
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed by 10/11 to 27/11/2021.

PA 2	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	30/11/2021
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 30/11 to 16/12/2021
PA 3	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	08/01/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 08/01 to 29/07/2022 200 WPs in Binh Hoa hamlet, My Khanh commune, Long Xuyen city, An Giang Province were removed from 01/07/2023
PA 4	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	19/04/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 19/04 to 25/06/2022
PA 5	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	12/05/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 12/05 to 17/05/2022
PA 6	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	11/12/2021
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 11/12/2021 to 08/01/2022 223 households in Bu Bau Village, My Chanh Commune, Ba Tri Dist, Ben

		Tre Province were removed from 01/01/2024
PA 7	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	10/01/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 10/01 to 20/02/2022
PA 8	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	01/03/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 01/03 to 09/08/2022
PA9	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	25/03/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 25/03 to 10/06/2022
PA10	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	06/09/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 06/09 to 20/09/2022
PA11	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	15/06/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 15/06 to 15/07/2022
PA12	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	15/07/2022

	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 15/07 to 27/07/2022
PA13	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	27/07/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 27/07 to 03/08/2022
PA14	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	03/08/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 03/08 to 12/08/2022
PA15	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	12/08/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 12/08 to 19/08/2022.
PA16	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	22/12/2021
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 22/12/2021 to 05/01/2022 300 households in Village 2, Ward 5, Tra Vinh City, Tra Vinh province were removed from 01/01/2024
PA17	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	06/01/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 06/01 to 21/01/2022

PA18	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	22/01/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 22/01 to 01/03/2022
PA19	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	05/03/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 05/03 to 11/06/2022
PA20	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	20/05/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 20/05 to 09/06/2022 282 WPs in No Men hamlet, Tan Hiep commune, Tra Cu district, Tra Vinh province were removed from 01/07/2023.
PA21	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	29/07/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	28,000 WPs were distributed from 29/07 to 10/08/2022
PA22	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	12/09/2022
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	12,000 WPs were distributed from 12/09 to 15/09/2022

PA 023	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	20/10/2023
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	21,000 WPs were distributed from 20/10 to 24/10/2023 4,000 WPs were distributed on 01/01/2023
PA 024	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	02/11/2023
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	11,691 WPs were distributed from 02/11 to 03/11/2023 4,809 WPs were distributed on 06/12/2023 8,500 WPs were distributed from 11/01 to 12/01/2024
PA 025	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	12/01/2024
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	11,000 WPs were distributed from 12/01 to 16/01/2024 14,000 WPs were distributed from 15/02 to 17/02/2024
PA 026	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	25/10/2023
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	9,368 WPs were distributed by from 25/10 to 26/10/2023 13,632 WPs were distributed from 06/11 to 13/11/2023
PA 027	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	14/11/2023

	Implementation status as on 30/06/2024 (number of SDWPs distributed)	7,500 WPs were distributed from 14/11 to 15/11/2023. 15,500 WPs were distributed from 17/01 to 22/01/2024
PA 028	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	22/01/2024
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	9,300 WPs were distributed from 22/01 to 24/01/2024. 10,700 WPs were distributed from 06/02 to 07/02/2024
PA 029	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	09/11/2023
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	11,100 WPs were distributed from 09/11 to 10/11/2023 11,900 WPs were distributed from 01/12 to 07/12/2023
PA 030	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	07/12/2023
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	10,300 WPs were distributed from 07/12 to 09/12/2023 12,700 WPs were distributed from 19/02 to 21/02/2024
PA 031	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	21/02/2024
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	7,700 WPs were distributed from 21/02 to 22/02/2024 12,300 WPs were distributed from 06/03 to 08/03/2024
	Start date of fifth monitoring period	01/01/2024

PA 032	Project start date (the first equipment distributed)	20/11/2023
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	15,000 WPs were distributed from 20/11 to 25/11/2023 11,000 WPs were distributed from 02/01 to 04/01/2024 2,000 WPs were distributed on 01/02/2024
PA 033	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	01/02/2024
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	18,500 WPs were distributed from 01/02 to 08/02/2024 8,500 WPs were distributed from 01/03 to 02/03/2024
PA 034	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	05/01/2024
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	15,976 WPs were distributed from 05/01 to 10/01/2024 7,024 WPs were distributed from 23/02 to 26/02/2024
PA 035	Start date of fifth monitoring period	01/01/2024
	Project start date (the first equipment distributed)	04/03/2024
	Implementation status as on 30/06/2024 (number of SDWPs distributed)	15,000 WPs were distributed from 04/03 to 12/03/2024

3.2 Deviations

3.2.1 Methodology Deviations

Not applicable. No methodology deviations were applied.

3.2.2 Project Description Deviations

1. Parameter m

There had a change in the sample size calculation for parameter m “fraction of functional appliances that are meeting the SDWP Standard” in section 5.3 of registered PD, that were presented in 1st monitoring report and approval on 10 January 2023 as following:

As per Guideline “Sampling and surveys for CDM project activities and programmes of activities”, for the use of a single sampling plan covering a group of PAs, provided the homogeneity of population can be demonstrated, or differences are taken into account in the sample size calculation, a 95/10 confidence/precision is applied for annual sampling. For fraction of functional appliances that are providing the SDWP (m), this is proportion value so the equation that will be used is:

$$n \geq \frac{1.96^2 N \times p (1-p)}{(N -1) \times 0.1^2 \times p^2 + 1.96^2 \times p (1- p)}$$

Where:

- n : Sample size
- N=N_y : Population who consumes the purified water serviced by the project activity in year y
- p : Our expected proportion of the installed water purification systems will be in use and operating at the specified efficiency)
- 1.96 : Represents the 95 % confidence required
- 0.1 : Represents the 10 % relative precision

Substituting the values in above equation gives the value of N = [Number of users to be sampled] (rounded up).

At validation, the Implementer will distribute 28,000 SDWPs and will provide clean drinking water to 28,000 households in An Giang Provinces. So, the population size, N is taken as 28,000 persons.

It is expected at least 90% of households will be use drinking water from SDWPs, hence the expected proportion p for N_{y,i,j} is taken as 0.9.

Based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated as:

$$n \geq \frac{1.96^2 \times 28,000 \times 0.9 (1-0.9)}{(28,000 -1) \times 0.1^2 \times 0.9^2 + 1.96^2 \times 0.9 (1- 0.9)}$$

Which comes out to be

$$n \geq 42.62$$

n= 43

Therefore, in this case a sample size of 43 is to be sampled for all of grouped project.

In case the resulting sample size to achieve the desired confidence/precision levels is smaller than 30, a minimum sample size of 30 shall be chosen when the parameter of interest is a proportion. The sample size is 43.

2. During third (3rd) monitoring period, the project proponent has chosen to revise the wording from the statement “a sample size of 43 is to be sampled from each primary sampling unit to a sample size of 43 is to be sampled for all of grouped project. The deviation has been approved in 3rd monitoring report on 25/01/2024 by VERRA.

3. Because the population under the project activity is not homogeneous but instead consists of several sub-populations which are known to vary (across model and age) so take a stratified random sampling from each of these sub-populations separately is better to simple random sample. Stratification helps to ensure that estimates of a population characteristic are accurate, especially if there are differences amongst the strata. Therefore, during this monitoring period, the project proponent has changed the sampling method from simple random sampling as per the approved PD dated 20 July 2022 to stratified random sampling across age and model. This sampling method is complied with the Guideline: Sampling and surveys for CDM project activities and programmes of activities Version 04.0.

The deviation does not impact the applicability of the methodology, additionality, or the appropriateness of the baseline scenario, the project remains in conformance with the applied methodology.

3.3 Grouped Projects

New project activity instances included under this grouped project ensure that it meets the eligibility criteria below.

No.	Eligibility criterion - Category	How the new project activity instances to comply	Supporting evidence for inclusion
1	Meet the applicability conditions set out in the methodology applied to the project.	The new project activity instance will meet all applicability conditions of AMS – III.A.V: “Low greenhouse gas emitting safe drinking water production systems”, version 08.0.	The new project activities including PA25, PA28, PA31, PA33, PA34, PA35 meet all applicability conditions listed in section 3.2 of the final PD.
2	Use the technologies or measures specified in the project description	The water purification technologies include a low greenhouse gas emitting technology	At the monitoring time and for new project activities including PA25, PA28, PA31, PA33, PA34, PA35 no other project device type will be used, other than low greenhouse gas emitting technology.

3	Apply the technologies or measures in the same manner as specified in the project description	Technologies that use fossil fuels are not eligible. Technologies shall meet minimum criteria for specific instance type, as outline below: Technologies shall be deployed Natural Osmosis systems with the components illustrated in section 1.11 of this PD Technologies for community water consumption, with project emissions Flow rate: 2 – 3l/hr Other key features of the design of the systems. Type of service, as well as performance specification based on, inter alia testing/certification: Each unit must achieve water quality for microbes defined in QCVN 6-1:2010/BYT for drinking water Lifespan is 10 years	The new project activities including PA25, PA28, PA31, PA33, PA34, PA35 only apply the low greenhouse gas emitting technology in section 1.1
4	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	The grouped project will only perform distribution water purifiers within the MeKong River Delta of Viet Nam.	The new project activities have been implemented in the households of Soc Trang, Bac Lieu, Hau Giang, Vinh Long and Kien Giang Provinces within MeKong River Delta, detail below • Soc Trang: PA25, • Bac Lieu: PA28 • Hau Giang: PA31 • Vinh Long: PA 33 • Kien Giang: PA34, PA35
	Have characteristics with respect to additionality that are consistent with the initial	The additionality of the project activity is demonstrated by simple cost analysis that is in line with paragraph 10 (a) of Tool21 “Demonstration of additionality of	The new project activities eligible when the PP have provided the confirmation that the SDWPs are distributed for free to the Users. Simple cost analysis has been provided for each project activity.

5	instances for the specified project activity and geographic area.	small-scale project activities" (version 13.1) and paragraph 33 and 34 of TOOL01 "Tool for the demonstration and assessment of additionality". Version 07.0. To demonstrate additionality by Simple cost analysis, each project instance shall confirm and demonstrate that the SDWPs are distributed for free to the Users.	
6	Conditions that avoid double counting of emission reductions.	The new project activity instances will: Apply a unique system (i.e. conformity letter) for SDWP in each project instance, assigning a unique ID to each SDWP and allowing to clearly identify each SDWP and to which project instance it belongs. Each SDWP installed will include project instance assignment and will have corresponding end user details (i.e. name, address). This data will be recorded as part of the beneficiary agreement and Project database. The CME has an agreement in place with residents who use drinking water from SDWPs in the project instance in which the owner transfers the rights to the emissions reductions exclusively to the CME as part of the Carbon Rights Waiver within the Beneficiary agreement.	Each Users have been provided a safe drinking water purifier (SDWP) with a unique identification number put on each SDWP, the label is as following below: PA25: CPA025-MRD-00001 to CPA025-MRD-25000 PA28: CPA028-MRD-00001 to CPA028-MRD-20000 PA31: CPA031-MRD-00001 to CPA031-MRD-20000 PA33: CPA033-MRD-00001 to CPA033-MRD-27000. PA34: CPA034-MRD-00001 to CPA034-MRD-23000 PA35: CPA035-MRD-00001 to CPA035-MRD-15000
7	Capacity Limit	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity	The new project activities satisfy the criteria. The emission reduction of each Project activity is smaller than 60,000 tCO ₂ /year, equivalent 29,918 tCO ₂ /in this monitoring period. Detail below:

		instances shall exceed the capacity limit, determined as follows: 1) Each project activity instance that exceeds one percent of the capacity limit shall be identified. 2) Such instances shall be divided into clusters, whereby each cluster is comprised any system of such instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit.	PA25: 27,286 PA28: 20,550 PA31: 22,084 PA33: 27,046 PA34: 22,676 PA35: 14,789 The emission reduction of each safe drinking water purifier (project activity instance) is about 1-2 tCO₂/year that lower than 1% of the capacity limit (600 tCO₂/year). Therefore, no project activity instance is identified and divided into cluster.
8	Target group	Each project instance will target end users which includes households who use traditional cookstove to boil water.	The new project activities satisfy the criteria. Each households in project activities must sign a beneficiary agreement to commit that they are using traditional cookstove to boil water.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	QPWpp
Data unit	Litres
Description	Average volume of drinking water per person per day

Source of data	Calculated based on survey Records.	
Value applied	PA	QPW _{pp}
	PA 1	5.1
	PA 2	5.1
	PA 3	5.1
	PA 4	4.82
	PA 5	5.02
	PA 6	5.02
	PA 7	5.02
	PA 8	5.02
	PA 9	5.02
	PA 10	5.1
	PA 11	5.008
	PA 12	5.008
	PA 13	5.008
	PA 14	5.008
	PA 15	5.008
	PA 16	4.98
	PA 17	4.98
	PA 18	4.98
	PA 19	4.98
	PA 20	4.98
	PA 21	5.1
	PA 22	5.1
	PA 23	4.95
	PA 24	4.95
	PA 25	4.95
	PA 26	4.88
	PA 27	4.88
	PA 28	4.88
	PA 29	5.03
	PA 30	5.03
	PA 31	5.03
	PA 32	4.78

		PA 33	4.78	
		PA 34	4.82	
		PA 35	4.82	
Justification of choice of data or description of measurement methods and procedures applied	Survey			
Purpose of Data	Calculation of baseline emissions			
Comments	-			

Data / Parameter	LS
Data unit	Years
Description	Life span of water treatment technologies
Source of data	Manufacturer's specifications
Value applied	10
Justification of choice of data or description of measurement methods and procedures applied	Manufacture specifications
Purpose of Data	-
Comments	Life span of water treatment technologies shall be 10 years.

Data / Parameter	n_{wb}
Data unit	%
Description	Efficiency of water boiling system being replaced
Source of data	Efficiency of the water boiling systems being replaced. Use one of the options below: (a) The efficiency of the water boiling system shall be established using representative sampling methods or based on referenced literature values (fraction), use weighted average values if more than one type of systems is encountered; (b) 0.10 default value may be optionally used if the replaced system or the system that would have been used is a three stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system that is without a grate as well as a chimney; for the rest of the systems using woody biomass 0.2 default value may be

	optionally used; (c) 0.5 default value may be used if the replaced system or the system that would have been used is a fossil fuel combusting system.
Value applied	10%
Justification of choice of data or description of measurement methods and procedures applied	This shall be determined based on option (b) detailed under the row above "Source of data" because only households who using three stone fire are taken into account for supplying safe drinking water.
Purpose of Data	Calculation of baseline emissions
Comments	The project proponents will distribute the SDWPs for the households who have used the traditional cookstove to boil water

Data / Parameter	$BL_{fuel,i}$	
Data unit	Fraction	
Description	Proportions of baseline fuel type I (NRB and or fossil fuels)	
Source of data	Survey	
Value applied	PA	$BL_{fuel,i}$
	PA 1	0.9198
	PA 2	0.9198
	PA 3	0.9198
	PA 4	0.9152
	PA 5	0.9667
	PA 6	0.9667
	PA 7	0.9667
	PA 8	0.9667
	PA 9	0.9667
	PA 10	0.9198
	PA 11	0.9542
	PA 12	0.9542
	PA 13	0.9542
	PA 14	0.9542
	PA 15	0.9542
	PA 16	0.9438
	PA 17	0.9438

	PA 18	0.9438
	PA 19	0.9438
	PA 20	0.9438
	PA 21	0.9198
	PA 22	0.9198
	PA 23	0.9582
	PA 24	0.9582
	PA 25	0.9582
	PA 26	0.9456
	PA 27	0.9456
	PA 28	0.9456
	PA 29	0.9623
	PA 30	0.9623
	PA 31	0.9623
	PA 32	0.9247
	PA 33	0.9247
	PA 34	0.9459
	PA 35	0.9459
Justification of choice of data or description of measurement methods and procedures applied	The baseline survey data show that the major source of fuel is fire wood	
Purpose of Data	Calculation of baseline emissions	
Comments	The baseline scenario established through the survey shows that proportion of the people used traditional stoves using woody biomass to boil water in the absence of the project activity.	

Data / Parameter	<i>f_i</i>
Data unit	Fraction
Description	Factor to determine amount of non-renewable fuels
Source of data	Survey Methodology AMS – III.AV (Version 08.0),
Value applied	0.9403
Justification of choice of data or description of	For the wood fuel, the value established from sub national survey report conducted for region in which specific instance(s) implemented and will be fixed ex-ante. The value will be established using as per the methodological Tool30 “Calculation

measurement methods and procedures applied	of fraction of non-renewable biomass" version 03.0. As per "TOOL30: Calculation of the fraction of non-renewable biomass". The analysis was independently completed by C4 Ecosolutions (Pty) Ltd. For fossil fuel, the default value is 1.0
Purpose of Data	Calculation of baseline emissions
Comments	This value is different from that in PD and it is stated as deviation by mention the section.

Data / Parameter	EF _{projected fossil fuel}
Data unit	tCO ₂ /TJ
Description	Emission factor for the substitution of non – renewable woody biomass.
Source of data	AMS – III.AV, Version 08.0 IPCC, chapter 2, table 2.2
Value applied	85.7
Justification of choice of data or description of measurement methods and procedures applied	As per AMS-III.AV, Version 08.0 and IPCC, Chapter 2, table 2.2
Purpose of Data	Calculation of baseline emissions
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	X _{boil}	
Data unit	%	
Description	Fraction of the population serviced by the project activity for which the common practice of water purification is or would have been water boiling.	
Source of data	Survey	
Value applied	PA	X _{boil}
	PA 1	0.9818
	PA 2	0.9818
	PA 3	0.9818
	PA 4	1
	PA 5	0.9958
	PA 6	0.9958

	PA 7	0.9958
	PA 8	0.9958
	PA 9	0.9958
	PA 10	0.9818
	PA 11	1
	PA 12	1
	PA 13	1
	PA 14	1
	PA 15	1
	PA 16	1
	PA 17	1
	PA 18	1
	PA 19	1
	PA 20	1
	PA 21	0.9818
	PA 22	0.9818
	PA 23	1
	PA 24	1
	PA 25	1
	PA 26	0.9979
	PA 27	0.9979
	PA 28	0.9979
	PA 29	1
	PA 30	1
	PA 31	1
	PA 32	1
	PA 33	1
	PA 34	0.9958
	PA 35	0.9958
Justification of choice of data or description of measurement methods and procedures applied	Survey	
Purpose of Data	The data is used for baseline emission calculations.	
Comments		

Data / Parameter	P_h	
Data unit	Fraction	
Description	Averaged number of person per household	
Source of data	Survey	
Value applied	PA	P_h
	PA 1	4.5
	PA 2	4.5
	PA 3	4.5
	PA 4	4.52
	PA 5	4.58
	PA 6	4.58
	PA 7	4.58
	PA 8	4.58
	PA 9	4.58
	PA 10	4.5
	PA 11	4.48
	PA 12	4.48
	PA 13	4.48
	PA 14	4.48
	PA 15	4.48
	PA 16	4.43
	PA 17	4.43
	PA 18	4.43
	PA 19	4.43
	PA 20	4.43
	PA 21	4.5
	PA 22	4.5
	PA 23	4.62
	PA 24	4.62
	PA 25	4.62
	PA 26	4.48
	PA 27	4.48
	PA 28	4.48

	PA 29	4.58
	PA 30	4.58
	PA 31	4.58
	PA 32	4.55
	PA 33	4.55
	PA 34	4.36
	PA 35	4.36
Justification of choice of data or description of measurement methods and procedures applied	Survey	
Purpose of Data	The data is used for baseline emission calculations.	
Comments	This para is used to calculate parameter P_y	

4.2 Data and Parameters Monitored

Data / Parameter	P_y					
Data unit	Number					
Description	Population who consumes the purified water serviced by the project activity in year y					
Source of data	Survey records					
Description of measurement methods and procedures to be applied	Water purifier distribution database and Monitoring survey records					
Frequency of monitoring/recording	Annual					
Value monitored	PA	$N_{distributed}$	Proportion of operation	N_y	P_h	$P_y = N_y \times P_h$
	1	28,000	0.9815	27,482	4.5	123,669
	2	28,000	0.9815	27,482	4.5	123,669
	3	27,800	0.9815	27,286	4.5	122,787
	4	28,000	0.9815	27,482	4.52	124,219
	5	28,000	0.9815	27,482	4.58	125,868
	6	27,777	0.9815	27,263	4.58	124,865

	7	28,000	0.9815	27,482	4.58	125,868
	8	28,000	0.9815	27,482	4.58	125,868
	9	28,000	0.9815	27,482	4.58	125,868
	10	28,000	0.9815	27,482	4.5	123,669
	11	28,000	0.9815	27,482	4.48	123,119
	12	28,000	0.9815	27,482	4.48	123,119
	13	28,000	0.9815	27,482	4.48	123,119
	14	28,000	0.9815	27,482	4.48	123,119
	15	28,000	0.9815	27,482	4.48	123,119
	16	27,700	0.9815	27,188	4.43	120,443
	17	28,000	0.9815	27,482	4.43	121,745
	18	28,000	0.9815	27,482	4.43	121,745
	19	28,000	0.9815	27,482	4.43	121,745
	20	27,718	0.9815	27,205	4.43	120,518
	21	28,000	0.9815	27,482	4.5	123,669
	22	12,000	0.9815	11,778	4.5	53,001
	23	25,000	0.9815	24,538	4.62	113,366
	24	25,000	0.9815	24,538	4.62	113,366
	25	25,000	0.9815	24,538	4.62	113,366
	26	23,000	0.9815	22,574	4.48	101,132
	27	23,000	0.9815	22,574	4.48	101,132
	28	20,000	0.9815	19,630	4.48	87,942
	29	23,000	0.9815	22,574	4.58	103,389
	30	23,000	0.9815	22,574	4.58	103,389
	31	20,000	0.9815	19,630	4.58	89,905
	32	28,000	0.9815	27,482	4.55	125,043
	33	27,000	0.9815	26,501	4.55	120,580
	34	23,000	0.9815	22,574	4.36	98,423
	35	15,000	0.9815	14,723	4.36	64,192

	Total	898,995		882,364		3,980,036
Monitoring equipment	-					
QA/QC procedures to be applied	A 95 /10 confidence / margin of error is applied for the sampling parameter as per para 22 of Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 08.0					
Purpose of the data	Calculation the baseline emission					
Calculation method	Calculated by the quantity of water purifiers are distributed x The average of number of person in a household. CME maintains the database of all water purifiers installed. The number of operating water purifiers have been determined on a sampling basis. The population in the database was categorized on the basis random sampling was applied to identify the sample. The identified samples were monitored for operational status of water purifiers. The results from monitoring were used to calculate N_y as follows: $N_y = (n_{\text{operational}}/n_{\text{total}}) * N_{\text{distributed}}$ Where: N_y = Number of SDWPs in operation $n_{\text{operational}}$: Number of samples in operation n_{total}: Total of samples $N_{\text{distributed}}$ = Number of distributed water purifiers Proportion of operational water purifiers: 98.15% $N_y = 98.15\% * 898,995 = 882,364$					
Comments						

Data unit	litres
Description	Quantity of purified water in year y
Source of data	Calculated
Description of measurement methods and procedures to be applied	This parameter can be calculated based on equation: $QPW_y = P_y \times QPW_{pp} \times \text{Number of operating days (182 days for this monitoring period)}$. P_y: Population who consumes the purified water serviced by the project activity

	QPW _{pp} : Average volume of drinking water per person per day				
Frequency of monitoring/recording	Annual				
Value monitored	PA	P _y	QPW _{pp}	Operating days	QPW _y
	1	123,669	5.1	182	114,789,566
	2	123,669	5.1	182	114,789,566
	3	122,787	5.1	182	113,970,893
	4	124,219	4.82	182	108,969,560
	5	125,868	5.02	182	114,997,638
	6	124,865	5.02	182	114,081,238
	7	125,868	5.02	182	114,997,638
	8	125,868	5.02	182	114,997,638
	9	125,868	5.02	182	114,997,638
	10	123,669	5.1	182	114,789,566
	11	123,119	5.008	182	112,217,879
	12	123,119	5.008	182	112,217,879
	13	123,119	5.008	182	112,217,879
	14	123,119	5.008	182	112,217,879
	15	123,119	5.008	182	112,217,879
	16	120,443	4.98	182	109,164,572
	17	121,745	4.98	182	110,345,034
	18	121,745	4.98	182	110,345,034
	19	121,745	4.98	182	110,345,034
	20	120,518	4.98	182	109,232,830
	21	123,669	5.1	182	114,789,566
	22	53,001	5.1	182	49,195,528
	23	113,366	4.95	182	102,131,033
	24	113,366	4.95	182	99,841,480

	25	113,366	4.95	182	83,096,706
	26	101,132	4.88	182	89,820,971
	27	101,132	4.88	182	82,503,932
	28	87,942	4.88	182	64,592,723
	29	103,389	5.03	182	94,648,421
	30	103,389	5.03	182	79,716,039
	31	89,905	5.03	182	54,165,304
	32	125,043	4.78	182	107,672,427
	33	120,580	4.78	182	78,247,552
	34	98,423	4.82	182	77,398,384
	35	64,192	4.82	182	35,223,158
	Total				3,464,946,064
Monitoring equipment	-				
QA/QC procedures to be applied	N/A				
Purpose of the data	Calculation of baseline emissions				
Calculation method					
Comments					

Data / Parameter	m
Data unit	fraction
Description	Fraction of functional appliances that are providing the SDWP
Source of data	Microbiological testing certificate of Can Tho Technical Center of Standards Metrology and Quality and Viet Tin Analysis Testing Company Limited.
Description of measurement methods and procedures to be applied	For determination of function appliances that providing the SDW, an across PA sampling based on the WP model and its vintage with the applied 95/10 confidence precision level. Total of 43 samples were microbiological testing at Laboratory by third Party and all samples meet requirement following: (i) Using filtration ceramic with Natural Osmosis systems to create safe drinking water.

	(ii) All SDWPs are operating in good condition. The use of appliances was monitored through self – report measures (survey questionnaires). We surveyed random samples all of physical signs that are observable (e.g. wetness of the unit, water in storage receptacle, functionality of parts). (iii) All samples meet microbiological parameters required by QCVN 6-1:2010/BYT for drinking water
Frequency of monitoring/recording	Annually
Value monitored	1 (all samples meet requirement, refer to ER sheet for detail)
Monitoring equipment	
QA/QC procedures to be applied	Microbiological safe drinking water is confirmed by third parties' institution annually. There are the third parties that conducted the test during monitoring period. The Center's laboratories have been recognized by VILAS in accordance with international standards ISO/IEC 17025.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Emission reductions cannot be claimed if over 10% of appliances in the project activity fail to meet the final water quality requirements mentioned above.

Data / Parameter	Check for SDWP public distribution network
Data unit	
Description	Annual check if there is a public distribution network supplying SDWP is installed
Source of data	Confirmation from local authorities and survey questionnaires
Description of measurement methods and procedures to be applied	1. Before distribution at new area, the provincial Women Union will send an official letter confirming that the WP distribution locations are places that do not have access to clean water. This confirmation has been provided to VVB for checking in supporting documents. 2. The random survey by questionnaires for end user were used to check if there is a public distribution network supplying SDW is installed. If the household accessed to safe drinking water, the emission reduction will be discarded (according to proportion).

	Monitoring shall include annual check if there is public distribution network supplying SDW
Frequency of monitoring/recording	Annually
Value monitored	1. (No public distribution network supplying SDWP is installed at project area)
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	If SDWP is made available through a public distribution network during the crediting period, the emission reductions pertaining to the households/buildings supplied by the public system cannot be claimed from that point onwards. This condition should be checked annually during the crediting period.

Data / Parameter	Quality of safe drinking water
Data unit	
Description	The quality of the safe drinking water
Source of data	Project activity site
Description of measurement methods and procedures to be applied	Although as per registered VCS PD, the frequency for this parameter monitoring is one every two years, the quality of safe drinking water is confirmed by Third party annually for better monitor of the water quality. 10 samples for grouped project were sampled and tested. All treated water samples are confirmed to meet requirement of Viet Nam Drinking water Standard.
Frequency of monitoring/recording	Once every two years
Value monitored	1.0 (all samples meet requirement, refer to ER sheet for detail)
Monitoring equipment	-
QA/QC procedures to be applied	
Purpose of the data	Calculation of baseline emission

Calculation method	
Comments	Emission reductions cannot be claimed if project activity fails to meet SDWP standards

4.3 Monitoring Plan

The monitoring procedures and sampling plan for the grouped project is in-line with the procedures outlined of the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities (Version 09.0), which refers to the Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities (Version 04).

Due to the large number of SDWP distributed as part of the PAs included in the grouped project, it is not economically feasible to monitor each individual SDWP unit distributed. Therefore, representative sampling was undertaken as part of a grouped project - wide Sampling Plan (by grouping and sampling across PAs) that is designed in line with the requirements of the “Sampling and surveys for CDM project activities and programme of activities”, version 04

For new baseline survey

SIPCO coordinated with the Red Cross of Kien Giang Province to conduct baseline survey for new area (project area). From the list of households selected by the Kien Giang’s Red Cross, the PP calculates the sample size by establishing a 10% of error and confidence level up to 95% to determine the number of sample size.

To estimate the sample size for parameters $N_{y,i,j}$ the following equation is used

$$n \geq \frac{1.96^2 N \times p (1-p)}{(N - 1) \times 0.1^2 \times p^2 + 1.96^2 \times p (1 - p)}$$

Where,

- n : Sample size
- N : Population size (Total number of households/ICS)
- p : Expected proportion
- 1.96 : Represents the 95% confidence required
- 0.1 : Represents the 10% relative precision

PPs will carry out surveys for households who were selected by Kien Giang’s Red Cross to distribute WPs. These are households who have not assessed safe drinking water and are using traditional cookstoves to boil water. Total of 38,000 households will be selected. Hence,

population size, N, is taken as 38,000 households. It is expected is 0.5, hence the expected proportion p for $N_{y,i,j}$ is taken as 0.5.

$$n \geq \frac{1.96^2 \times 38,000 \times 0.5(1 - 0.5)}{(38,000 - 1) \times 0.1^2 \times 0.5^2 + 1.96^2 \times 0.5(1 - 0.5)}$$

Which comes out to be $n=381$. Therefore, the required sample size is at least 381 households. We expect the response rate from the sampled households to be 80%. Thus, we would decide to sample $381/0.8 = 477$ samples.

Applying the random sampling technique, the household numbers are randomly chosen from the required sample size as calculated by the PPs. To ensure the survey result is representative of the entire population, the dissimilarity (such as village, individuals...) is chosen randomly such that each element (or unit) of the population has the same probability of being selected. The survey method that has been used is face to face interview by questionnaires. The details of the calculation and selected samples are provided in the baseline surveys.

For monitoring survey

(a) Objective and reliability requirements

As per para 11 of the standard "Sampling and surveys for CDM project activities and programmes of activities", version 09, Where there is no specific guidance in the applied methodology, the project participants or the coordinating/managing entity shall use 90/10 confidence/precision as the criteria for the reliability of sampling efforts for small-scale CDM project activities and 95/10 for large-scale CDM project activities. Where two or more project activities, CPAs or PoAs are grouped for undertaking a common survey it shall be ensured that a confidence/precision of 95/10 is achieved for each of the project activity, CPA or PoA that is included in the group for the survey. For proposed project activity, CME has considered 95/10 confidence/precision sampling to consider 35 PAs under one sampling frame. Following are the parameters considered for monitoring via sampling survey.

Sampled parameters.

Parameter	Description of parameter	Monitoring frequency
P_y	Population who consumes the purified water serviced by the project activity in year y	At least annually
Check for SDWP public distribution network	Annual check if there is a public distribution network supplying SDW is installed	At least annually

m	Fraction of functional appliances that are meeting the SDWP Standard	At least annually
Quality of safe drinking water	The quality of the safe drinking water	At least every two year

(b) Target population

The target population (Users – including households) will be the total population served under the specific instance project activity or group of instance.

(c) Sampling method

As per registered monitoring plan, the sampling method for monitored parameters P_y , m and water quality is “Stratified Random Sampling” and samples will be randomly selected from the primary sampling units.

To ensure a random selection of SDWP, random pickup shall be applied. Each SDWP in the target population is uniquely identifiable by its unique ID number. Applying the random sampling, the SDWP numbers are randomly chosen from the defined population up to the required sample size as calculated by the CME. The details of the selected samples are provided in the sample survey sheet along with the database.

To determine the parameters, sampling survey has been involved the following approaches (outcome in brackets):

P_y : Visual inspection of the premises to see if SDWP is operational and in use. Interview with end user if required to verify that SDWP is still in use (Yes/No).

m, water quality: These is monitoring parameter and testing has also been performed by third party.

Using the formulas as given in the section “Sample Size” below, the CME has randomly sampled the required number of SDWPs from the primary sampling units.

(d) Sample size

In line with the registered sampling plan, for the estimation of the proportion or mean value of the parameters investigated, the minimum sample size for each sample frame has been calculated based on 95/10 confidence/precision which will suffice for biennial sampling.

The procedure to determine the sample of households will ensure that they adequately represent the broader project population, minimizing sampling error. Using, a 95 per cent confidence level, and a 10 per cent margin of error, random samples will be selected from each Primary Sampling Unit.

The parameters: The number of SDWPs still in operation and fraction for SDWP public distribution network during the monitoring period as determined by the monitoring survey, It can be sampled in a survey with a random sample of households using the above described confidence/precision levels depending on annual or biennial monitoring frequency.

The expected values of parameter and expected variance (or standard deviation) have been determined based on project developer's knowledge and experience as per para 13(b) and 13(c) of the Sampling and surveys for CDM project activities and programmes of activities, Version 09.0

Parameter P_y and the fraction of SDWP public distribution network

To estimate the sample size for parameters P_y and check for SDWP public distribution network, the equation that will be used is:

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.96^2 p(1-p)}$$

Where:

- n : Sample size
- $N=N_y$: Population who consumes the purified water serviced by the project activity in year y
- p : Our expected proportion of the installed water purification systems will be in use and operating at the specified efficiency)
- 1.96 : Represents the 95 % confidence required
- 0.1 : Represents the 10 % relative precision

Based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated for total population size, the result below:

Monitoring parameter(s)	Water purifier Operating Fraction for determination of P_y			
Sampling frame(s)	Given stove model and age population			
Sampling approach	Stratified random sampling across water purifier model and age			
Sampling Population (Batch)	Water Purifier population	Expected operational proportion	Calculated Sample Size (n)	Actual Monitored sample size
Ecozen 25 (age =1)	300,000	0.90	14	18
Ecozen 25 (age = 2)	198,935	0.90	10	13

Ecozen 25 (age =3)	400,060	0.90	19	23
Estimated Operation (p)			0.90	
Voperation= p(1-p)/p2			0.111	
Sample Size required (SOF)			43	

Additionally, as per registered sampling plan, it's recommended that the PP may choose to use the same samples to monitor more than one parameter, where parameters have same units. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs. At the same time this approach ensures the random selection of samples for every parameter. Also, oversampling is strongly encouraged, not only to compensate for any attrition, outliers or nonresponse associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved and additional sampling efforts would be required. We expect the response rate from the sampled households to be 80%. Thus, we would decide to sample $43/0.8 = 54$ samples. A total of 54 samples were selected.

Parameter the fraction of SDWP public distribution network

In 4th monitoring period, this value is 0.9630 so based on result from previous monitoring period, PP used an expected value of 0.9630 for this 5th monitoring period. To estimate the sample size for parameters the fraction of SDWP public distribution network, the following equation is used:

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.96^2 p(1-p)}$$

Where:

- n : Sample size
- N=Ny : Population who consumes the purified water serviced by the project activity in year y
- p : Our expected proportion of the installed water purification systems will be in use and operating at the specified efficiency)
- 1.96 : Represents the 95 % confidence required
- 0.1 : Represents the 10 % relative precision

Based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated for total population size, the result below:

Monitoring parameter(s)	Water supply public system Fraction			
	Given stove model and age population			
	Stratified random sampling across water purifier model and age			
Sampling Population (Batch)	Water Purifier population	Expected operational proportion	Calculated Sample Size (n)	Actual Monitored sample size
Ecozen 25 (age=1)	300,000	0.9630	5	18
Ecozen 25 (age = 2)	198,935	0.9630	3	13
Ecozen 25 (age =3)	400,060	0.9630	7	23
Sample size determination				
Estimated Operation (p)			0.96	
Voperation= p(1-p)/p2			0.038	
Sample Size required (SOF)			15	

Since parameters P_y , check for SDWP public distribution network share the same sampling units, CME may choose to have one common survey for these two para meters and total of 54 samples for parameter P_y were taken for para SDWP public distribution network.

Parameter m

For Fraction of functional appliances that are meeting the SDWP Standard (m), this is proportion value so the equation that will be used is:

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.96^2 p(1-p)}$$

Where:

- n : Sample size
- N= N_y : Population who consumes the purified water serviced by the project activity in year y
- p : Our expected proportion of the installed water purification systems will be in use and operating at the specified efficiency)
- 1.96 : Represents the 95 % confidence required
- 0.1 : Represents the 10 % relative precision

Based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated for total population size, the result below:

Monitoring parameter(s)	Parameter m		
Sampling frame(s)	Given stove model and age population		
Sampling approach	Stratified random sampling across water purifier model and age		
Sampling Population (Batch)	Water Purifier population	Expected operational proportion)	Calculated Sample Size (n)
Ecozen (age = 1)	300,000	0.90	14
Ecozen (age = 2)	198,935	0.90	10
Ecozen (age = 3)	400,060	0.90	19
Sample size determination			
Estimated Operation (p)			0.900
Voperation= p(1-p)/p2			0.111
Sample Size required (SOF)			43

Since parameters P_y , check for SDWP public distribution network and m share the same sampling units, CME may choose to have one common survey for these two parameters. Other hand, to save cost for testing parameter m, we will choose 43 samples available for parameter m from 54 samples of parameter P_y . Therefore, total sample size for parameter m is 43 samples.

Quality of safe drinking water

Water quality monitoring will be undertaken annually or biennially on a sampling basis. This will comply with relevant national standards. To ensure compliance of the water quality with: (i) at a minimum the “interim” performance target as per “Evaluating household water treatment options: Health based targets and microbiological performance specifications” (WHO, 2011); or (ii) an applicable national standard or guideline, the water quality shall be monitored on sample basis for contamination with Escherichia coli (E. coli). A test for E. coli colony forming units (CFU) in 100 ml of water or an equivalent quantitative test for E. coli CFU shall be used. The fraction of water quality measurements providing water of insufficient quality shall be excluded from the calculation of emission reductions.

For water quality, the equation that will be used is:

$$n \geq \frac{1.96^2 NV}{(N-1) \times 0.1^2 + 1.96^2 \times V}$$

$$V = \left(\frac{SD}{mean} \right)^2$$

Where:

n : Sample size

N=Ny : Number of SDWPs in the target population.

1.96 : Represents the 95% confidence required

0.1 : Represents the 10% relative precision

Mean : Our expected mean

SD : Our expected standard deviation

$$n \geq \frac{1.96^2 \times 364,000 \times (0.09/0.9)^2}{(364,000 - 1) \times 0.1^2 + 1.96^2 \times (0.09/0.9)}$$

Using above values, the sample size comes out to be 3.84, its rounded off to be 4

As the calculated sample size (for parameter of interest is a numeric mean value) is less than 30 samples, the Student's t-distribution will be used to calculate the sample size (in accordance with paragraph 13 of standard: sampling and survey for CDM project activities and programmes of activities (version 09.0)).

As the sample size calculated above is less than 30, the Student's t-distribution has been used to calculate the sample size (in accordance with paragraph 13 of standard: sampling and survey for CDM project activities and programmes of activities (version 09.0)).

Monitoring Parameter	Water Quality					
Sampling approach	Stratified random sampling based on water purifier year of distribution					
Water purifier	Year of operation	Population Size	Expected Mean	Expected Standard Deviation	Calculated Sample Size	Actual Monitored sample size
Ecozen 25	1	300,000	0.9	0.09	2	3
Ecozen 25	2	198,935	0.9	0.09	2	3
Ecozen 25	3	400,060	0.9	0.09	3	4
Sample size determination						
Mean					0.9000	
Standard Deviation (SD)					0.0900	
$V_{\text{mean}} = (SD/\text{mean})^2$					0.01000	
Minimum Sample Size required					4	
tDistribution sample size adjustment				Iteration 1	11	
				Iteration 2	5	
				Iteration 3	8	

	Iteration 4	6
	Iteration 5	7
	Iteration 6	6

The adjusted sample size obtained after applying Student's t-distribution is 7. Thus, we would decide to 7 samples to test water quality. We expect the response rate from the sampled households to be 70%. Thus, we would decide to sample $7/0.7 = 10$ samples. Therefore, a total of 10 samples were selected.

So the number of sample for parameters below

Parameter	Number of sampling
P_y	54
Check for SDWP public distribution network	54
m	43
Water quality	10

(e) Analysis of data collected and confidence/precision achieved

Analysis of the data monitored through sampling revealed the following results

Parameters P_y

RESULT FOR parameter P_y				
Sampling Population	Age	Sampling frame size	Monitored Sample Size	Monitored Operation
Ecozen- 25	1	300,000	18	0.9815
Ecozen- 25	2	198,935	13	
Ecozen- 25	3	400,060	23	
Reliability Check				
Samples Monitored				54
Utilization Measured				0.98
Standard Error of Utilization				1.91%
Relative precision (Margin of error)				1.91%

Result	Ok, reliability level met
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Parameter check of SDWP public distribution network

Result for water supply public system				
Sampling Population	Age	Sampling frame size	Monitored Sample Size	Monitored Operation
Ecozen- 25	1	300,000	18	1.0
Ecozen- 25	2	198,935	13	
Ecozen- 25	3	400,060	23	
Reliability Check				
Samples Monitored			54	
Utilization Measured			1.0000	
Standard Error of Utilization			0.00%	
Relative precision (Margin of error)			0.00%	
Result			Ok, reliability level met	
Lower Bound confidence value			Not applicable	

Parameters m

RESULT FOR PARAMETER m			
Sampling Population	Sampling frame size	Monitored Sample Size	Monitored microbiological quality fraction (m)
Ecozen- 25 (age 1)	300,000	14	1.00
Ecozen- 25 (age 2)	198,935	10	
Ecozen- 25 (age 3)	400,060	19	
Reliability Check			
Samples Monitored			43
Utilization Measured			1.00
Standard Error of Utilization			0.00%
Relative precision (Margin of error)			0.00%
Result			Ok, reliability level met
Lower Bound confidence value			Not applicable

Parameter water quality

RESULT FOR PARAMETER WATER QUALITY			
Sampling Population	Sampling frame size	Monitored Sample Size	Monitored water quality (Mean value)
Ecozen- 25 (1 year)	300,000	3	1.00
Ecozen- 25 (2 years)	198,935	3	
Ecozen- 25 (3 years)	400,060	4	
Reliability Check			
Samples Monitored			10
Utilization Measured			1.00
Standard Error of Utilization			0.00%
Relative precision (Margin of error)			0.00%
Result			Ok, reliability level met
Lower Bound confidence value			Not applicable

For detailed calculations refer ER calculator sheet.

(f) Implementation plan

Survey Implementation Schedule:

The survey for collecting the details of monitoring parameters will be conducted at least annually and will be scheduled during the last month of the monitoring period. For this monitoring period, the survey for collecting the details of monitoring parameters were conducted from 10 to 17 June 2024 in last month of this crediting monitoring period.

The overall monitoring and the implementation of the sampling will be co-ordinated by the project proponent and the management staff. They ensure successful monitoring of the emission reductions of the proposed project during its crediting period. Furthermore, the survey of the representative sample for the parameters will be carried out by the distributor together with the project proponent.

The survey method has been used by project proponent include:

- (a) Hard-copy questionnaires
- (b) Face to face interview

The monitoring survey included several questions to support the information on the key monitoring parameters. These included visual inspections to confirm water purifier use comments by surveyors, check of randomly selected households against actual household

information. These strategies aimed at minimizing surveyor or non-response biases. The questionnaire was piloted in the field prior to implementation.

All sampling efforts were conducted by qualified personnel who have professional qualifications from College or above and undergone training as part of the grouped project. A total of 12 received training for the ongoing monitoring and sampling activities on 16 May 2024. They also have at least one year of experience in similar sampling in other projects. Any samplers will be required to speak the native language(s) such as ethnic minority languages with support of local Women Union and Red Cross in which water purification systems have been implemented, allowing for full understanding of any responses given by users, and any questions therein.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline emissions shall be calculated as follows:

$$BE_y = QPW_y \times m \times X_{boil} \times SEC \times \sum_i (BL_{fuel,i} \times f_i \times EF_{projected\ fossilfuel,i} \times 10^{-9})$$

Where:

BE _y	: Baseline emissions during the year y in (tCO ₂ e)
QPW _y	: Total quantity of purified water by the project in year y (litres). Detail in ER sheet.
m	: Fraction of functional appliances that are meeting the SDWP standards (%). Only project appliances that (i) use technologies that meet the technology standards as per paragraph 4(b) and (ii) are operating or replaced by an equivalent in service appliance and (iii) deliver microbiologically safe drinking water, are counted for emission reductions.
X _{boil}	: Fraction of the population served by the project activity for which the common practice of water purification is or would have been water boiling. This shall be determined ex-ante through surveys.
SEC	: Specific energy consumption required to boil one litre of water(kJ/L) to be calculated according to paragraphs below

- $BL_{fuel,i}$: Proportions of baseline fuel type i (NRB and/or fossil fuels) used in the absence of the project activity (fraction)
- f_i : Fraction of non-renewable fuel type i used in the absence of the project activity in year y . For biomass it is the fraction of woody biomass that can be established as non-renewable biomass (f_{NRB}). If the baseline fossil fuel, the value to be applied is 1
- $EF_{projected\ fossil\ fuel,i}$: Emission factor of the fossil fuel substituted (tCO_2/TJ).

The grouped project distributed 900, 000 water purifiers for households in 10 provinces in MeKong River Delta in Viet Nam. According to the results of a random survey of households in each project activity, the result the parameter QPW_{pp} , X_{boil} , $BL_{fuel,i}$ and P_h for each project activity instance as following:

Project activity	P_h	QPW_{pp}	X_{boil}	$BL_{fuel,i}$
PA 1	4.5	5.1	0.9818	0.9198
PA 2	4.5	5.1	0.9818	0.9198
PA 3	4.5	5.1	0.9818	0.9198
PA 4	4.52	4.82	1	0.9152
PA 5	4.58	5.02	0.9958	0.9667
PA 6	4.58	5.02	0.9958	0.9667
PA 7	4.58	5.02	0.9958	0.9667
PA 8	4.58	5.02	0.9958	0.9667
PA 9	4.58	5.02	0.9958	0.9667
PA 10	4.5	5.1	0.9818	0.9198
PA 11	4.48	5.008	1	0.9542
PA 12	4.48	5.008	1	0.9542
PA 13	4.48	5.008	1	0.9542
PA 14	4.48	5.008	1	0.9542
PA 15	4.48	5.008	1	0.9542
PA 16	4.43	4.98	1	0.9438

PA 17	4.43	4.98	1	0.9438
PA 18	4.43	4.98	1	0.9438
PA 19	4.43	4.98	1	0.9438
PA 20	4.43	4.98	1	0.9438
PA 21	4.5	5.1	0.9818	0.9198
PA 22	4.5	5.1	0.9818	0.9198
PA 23	4.62	4.95	1	0.9582
PA 24	4.62	4.95	1	0.9582
PA 25	4.62	4.95	1	0.9582
PA 26	4.48	4.88	0.9979	0.9456
PA 27	4.48	4.88	0.9979	0.9456
PA 28	4.48	4.88	0.9979	0.9456
PA 29	4.58	5.03	1	0.9623
PA 30	4.58	5.03	1	0.9623
PA 31	4.58	5.03	1	0.9623
PA 32	4.55	4.78	1	0.9247
PA 33	4.55	4.78	1	0.9247
PA 34	4.36	4.82	0.9958	0.9459
PA 35	4.36	4.82	0.9958	0.9459

These value is less than the maximum quality of drinking water person per day of 5.5l/person/day according to para 18 of AMS III AV, version 08.0. So, the quantity of purified water in year is

$$QPWy = Py \times \min(QPWpp; 5.5) \times 365 \times \text{Proportion active days in year}$$

Result for each PA depend on number of distributed water purifiers and proportion activity days in a year, detail below:

PA	Operation quantity	Start date of distribution water purifier	End date of distribution water purifier	Start date of WP crediting (considering the start date of monitoring period)	End date of WP crediting (considering the end date of monitoring period)	Equivalent Operational year in the monitoring period	QPW _y
PA 1	27,482	10-Nov-21	27-Nov-21	1-Jan-24	30-Jun-24	0.50	114,789,566
PA 2	27,482	30-Nov-21	16-Dec-21	1-Jan-24	30-Jun-24	0.50	114,789,566
PA 3	27,286	8-Jan-22	29-Jul-22	1-Jan-24	30-Jun-24	0.50	113,970,893
PA 4	27,482	19-Apr-22	25-Jun-22	1-Jan-24	30-Jun-24	0.50	108,969,560
PA 5	27,482	12-May-22	17-May-22	1-Jan-24	30-Jun-24	0.50	114,997,638
PA 6	27,263	11-Dec-21	8-Jan-22	1-Jan-24	30-Jun-24	0.50	114,081,238
PA 7	27,482	10-Jan-22	20-Feb-22	1-Jan-24	30-Jun-24	0.50	114,997,638
PA 8	27,482	1-Mar-22	9-Aug-22	1-Jan-24	30-Jun-24	0.50	114,997,638
PA 9	27,482	25-Mar-22	10-Jun-22	1-Jan-24	30-Jun-24	0.50	114,997,638
PA 10	27,482	6-Sep-22	20-Sep-22	1-Jan-24	30-Jun-24	0.50	114,789,566
PA 11	27,482	15-Jun-22	15-Jul-22	1-Jan-24	30-Jun-24	0.50	112,217,879
PA 12	27,482	15-Jul-22	27-Jul-22	1-Jan-24	30-Jun-24	0.50	112,217,879
PA 13	27,482	27-Jul-22	3-Aug-22	1-Jan-24	30-Jun-24	0.50	112,217,879
PA 14	27,482	3-Aug-22	12-Aug-22	1-Jan-24	30-Jun-24	0.50	112,217,879
PA 15	27,482	12-Aug-22	19-Aug-22	1-Jan-24	30-Jun-24	0.50	112,217,879
PA 16	27,188	22-Dec-21	5-Jan-22	1-Jan-24	30-Jun-24	0.50	109,164,572
PA 17	27,482	6-Jan-22	21-Jan-22	1-Jan-24	30-Jun-24	0.50	110,345,034
PA 18	27,482	22-Jan-22	1-Mar-22	1-Jan-24	30-Jun-24	0.50	110,345,034
PA 19	27,482	5-Mar-23	11-Jun-22	1-Jan-24	30-Jun-24	0.50	110,345,034
PA 20	27,205	20-May-22	9-Jun-22	1-Jan-24	30-Jun-24	0.50	109,232,830
PA 21	27,482	29-Jul-22	10-Aug-22	1-Jan-24	30-Jun-24	0.50	114,789,566
PA 22	11,778	12-Sep-22	15-Sep-22	1-Jan-24	30-Jun-24	0.50	49,195,528
PA 23	20,612	20-Oct-23	24-Oct-23	1-Jan-24	30-Jun-24	0.4986	85,790,401
PA 23	3,926	1-Nov-23	1-Nov-23	1-Jan-24	30-Jun-24	0.4986	16,340,632
PA 24	16,195	2-Nov-23	6-Dec-23	1-Jan-24	30-Jun-24	0.4986	67,406,149
PA 24	8,343	11-Jan-24	12-Jan-24	13-Jan-24	30-Jun-24	0.4658	32,435,331
PA 25	10,797	12-Jan-24	16-Jan-24	17-Jan-24	30-Jun-24	0.4548	40,988,154
PA 25	13,741	15-Feb-24	17-Feb-24	18-Feb-24	30-Jun-24	0.3671	42,108,552
PA 26	22,575	25-Oct-23	13-Nov-23	1-Jan-24	30-Jun-24	0.4986	89,820,971
PA 27	7,361	14-Nov-23	15-Nov-23	1-Jan-24	30-Jun-24	0.4986	29,289,101
PA 27	15,213	17-Jan-24	22-Jan-24	23-Jan-24	30-Jun-24	0.4384	53,214,831
PA 28	9,128	22-Jan-24	24-Jan-24	25-Jan-24	30-Jun-24	0.4329	31,530,478
PA 28	10,502	6-Feb-24	7-Feb-24	8-Feb-24	30-Jun-24	0.3945	33,062,245
PA 29	22,575	9-Nov-23	7-Dec-23	1-Jan-24	30-Jun-24	0.4986	94,648,421
PA 30	10,109	7-Dec-23	9-Dec-23	1-Jan-24	30-Jun-24	0.4986	42,385,084

PA 30	12,465	19-Feb-24	21-Feb-24	22-Feb-24	30-Jun-24	0.3562	37,330,955
PA 31	7,558	21-Feb-24	22-Feb-24	23-Feb-24	30-Jun-24	0.3534	22,461,050
PA 31	12,072	6-Mar-24	8-Mar-24	9-Mar-24	30-Jun-24	0.3123	31,704,254
PA 32	14,723	20-Nov-23	25-Nov-23	1-Jan-24	30-Jun-24	0.4986	58,274,358
PA 32	12,760	2-Jan-24	4-Jan-24	5-Jan-24	30-Jun-24	0.4877	49,398,069
PA 33	18,158	1-Feb-24	8-Feb-24	9-Feb-24	30-Jun-24	0.3918	56,473,323
PA 33	8,343	1-Mar-24	2-Mar-24	3-Mar-24	30-Jun-24	0.3288	21,774,229
PA 34	15,680	5-Jan-24	10-Jan-24	11-Jan-24	30-Jun-24	0.4712	58,656,183
PA 34	6,894	23-Feb-24	26-Feb-24	27-Feb-24	30-Jun-24	0.3425	18,742,201
PA 35	14,723	4-Mar-24	12-Mar-24	13-Mar-24	30-Jun-24	0.3014	35,223,158

The baseline emissions shall be calculated as follows:

$$BE_y = QPW_y \times m \times X_{boil} \times SEC \times \sum_i (BL_{fuel,i} \times f_i \times EF_{projected fossil fuel,i} \times 10^{-9})$$

Result as following:

PA	QPW _y	m	X _{Boil}	BL _{fuel,i}	SEC	f _i	EF _{fossil fuel,i}	BE _y
PA 1	114,789,566	1	0.9818	0.9198	3574.80	0.9403	85.7	29,861
PA 2	114,789,566	1	0.9818	0.9198	3574.80	0.9403	85.7	29,861
PA 3	113,970,893	1	0.9818	0.9198	3574.80	0.9403	85.7	29,648
PA 4	108,969,560	1	1	0.9152	3574.80	0.9403	85.7	28,728
PA 5	114,997,638	1	0.9958	0.9667	3574.80	0.9403	85.7	31,889
PA 6	114,081,238	1	0.9958	0.9667	3574.80	0.9403	85.7	31,635
PA 7	114,997,638	1	0.9958	0.9667	3574.80	0.9403	85.7	31,889
PA 8	114,997,638	1	0.9958	0.9667	3574.80	0.9403	85.7	31,889
PA 9	114,997,638	1	0.9958	0.9667	3574.80	0.9403	85.7	31,889
PA 10	114,789,566	1	0.9818	0.9198	3574.80	0.9403	85.7	29,861
PA 11	112,217,879	1	1	0.9542	3574.80	0.9403	85.7	30,846
PA 12	112,217,879	1	1	0.9542	3574.80	0.9403	85.7	30,846
PA 13	112,217,879	1	1	0.9542	3574.80	0.9403	85.7	30,846
PA 14	112,217,879	1	1	0.9542	3574.80	0.9403	85.7	30,846
PA 15	112,217,879	1	1	0.9542	3574.80	0.9403	85.7	30,846
PA 16	109,164,572	1	1	0.9438	3574.80	0.9403	85.7	29,679
PA 17	110,345,034	1	1	0.9438	3574.80	0.9403	85.7	30,000
PA 18	110,345,034	1	1	0.9438	3574.80	0.9403	85.7	30,000
PA 19	110,345,034	1	1	0.9438	3574.80	0.9403	85.7	30,000
PA 20	109,232,830	1	1	0.9438	3574.80	0.9403	85.7	29,698
PA 21	114,789,566	1	0.9818	0.9198	3574.80	0.9403	85.7	29,861
PA 22	49,195,528	1	0.9818	0.9198	3574.80	0.9403	85.7	12,797
PA 23	102,131,033	1	1	0.9582	3574.80	0.9403	85.7	28,190
PA 24	99,841,480	1	1	0.9582	3574.80	0.9403	85.7	27,559

PA 25	83,096,706	1	1	0.9582	3574.80	0.9403	85.7	22,936
PA 26	89,820,971	1	0.9979	0.9456	3574.80	0.9403	85.7	24,415
PA 27	82,503,932	1	0.9979	0.9456	3574.80	0.9403	85.7	22,426
PA 28	64,592,723	1	0.9979	0.9456	3574.80	0.9403	85.7	17,557
PA 29	94,648,421	1	1	0.9623	3574.80	0.9403	85.7	26,237
PA 30	79,716,039	1	1	0.9623	3574.80	0.9403	85.7	22,097
PA 31	54,165,304	1	1	0.9623	3574.80	0.9403	85.7	15,014
PA 32	107,672,427	1	1	0.9247	3574.80	0.9403	85.7	28,681
PA 33	78,247,552	1	1	0.9247	3574.80	0.9403	85.7	20,843
PA 34	77,398,384	1	0.9958	0.9459	3574.80	0.9403	85.7	20,616
PA 35	35,223,158	1	0.9958	0.9459	3574.80	0.9403	85.7	9,382

5.2 Project Emissions

The operation of WP does not involve consumption of fossil fuels and electricity, So, there is no project emissions considered.

5.3 Leakage Emissions

Where relevant leakage relating to the non-renewable woody biomass is assessed as per the relevant procedures of AMS-I. E version 12.0 explained below:

Leakage emissions related to the non – renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced. The following potential source of leakage shall be considered: the use/diversion of non-renewable woody biomass saved under the project activity by non-project end-users that previously used renewable energy source. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass used by the non-project end-users that is attributable to the project activity, then B_y is adjusted to account for the quantified leakage increase in the use of non-renewable woody biomass used by the non-project end-users that is attributable to the project activity, then B_y is adjusted to account for the quantified leakage. B_y will be multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. This is applied for the grouped project.

So $LE_y = BE_y \times (1-0.95)$.

Detail below:

PA	BE_y	LE_y
PA 1	29,861	1,494
PA 2	29,861	1,494

PA 3	29,648	1,483
PA 4	28,728	1,437
PA 5	31,889	1,595
PA 6	31,635	1,582
PA 7	31,889	1,595
PA 8	31,889	1,595
PA 9	31,889	1,595
PA 10	29,861	1,494
PA 11	30,846	1,543
PA 12	30,846	1,543
PA 13	30,846	1,543
PA 14	30,846	1,543
PA 15	30,846	1,543
PA 16	29,679	1,484
PA 17	30,000	1,500
PA 18	30,000	1,500
PA 19	30,000	1,500
PA 20	29,698	1,485
PA 21	29,861	1,494
PA 22	12,797	640
PA 23	28,190	1,410
PA 24	27,559	1,379
PA 25	22,936	1,148
PA 26	24,415	1,221
PA 27	22,426	1,123

PA 28	17,557	879
PA 29	26,237	1,312
PA 30	22,097	1,106
PA 31	15,014	752
PA 32	28,681	1,435
PA 33	20,843	1,043
PA 34	20,616	1,032
PA 35	9,382	470

5.4 GHG Emission Reductions and Carbon Dioxide Removals

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y : Emission reductions in year y (t CO₂e/yr)

BE_y : Baseline emissions in year y (t CO₂e/yr)

PE_y : Project emissions in year y (t CO₂e/yr)

LE_y : Leakage emissions in year y (t CO₂e/yr)

For detail emission reduction of each project activity below:

PA	BE _y	PE _y	LE _y	ER _y
PA 1	29,861	0	1,494	28,367
PA 2	29,861	0	1,494	28,367
PA 3	29,648	0	1,483	28,165
PA 4	28,728	0	1,437	27,291
PA 5	31,889	0	1,595	30,294
PA 6	31,635	0	1,582	30,053
PA 7	31,889	0	1,595	30,294
PA 8	31,889	0	1,595	30,294
PA 9	31,889	0	1,595	30,294
PA 10	29,861	0	1,494	28,367

PA 11	30,846	0	1,543	29,303
PA 12	30,846	0	1,543	29,303
PA 13	30,846	0	1,543	29,303
PA 14	30,846	0	1,543	29,303
PA 15	30,846	0	1,543	29,303
PA 16	29,679	0	1,484	28,195
PA 17	30,000	0	1,500	28,500
PA 18	30,000	0	1,500	28,500
PA 19	30,000	0	1,500	28,500
PA 20	29,698	0	1,485	28,213
PA 21	29,861	0	1,494	28,367
PA 22	12,797	0	640	12,157
PA 23	28,190	0	1,410	26,780
PA 24	27,559	0	1,379	26,180
PA 25	22,936	0	1,148	21,788
PA 26	24,415	0	1,221	23,194
PA 27	22,426	0	1,123	21,303
PA 28	17,557	0	879	16,678
PA 29	26,237	0	1,312	24,925
PA 30	22,097	0	1,106	20,991
PA 31	15,014	0	752	14,262
PA 32	28,681	0	1,435	27,246
PA 33	20,843	0	1,043	19,800
PA 34	20,616	0	1,032	19,584
PA 35	9,382	0	470	8,912
Total	939,368	0	46,992	892,376

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU's (tCO ₂ e)	Removal VCU's (tCO ₂ e)	Total VCUs (tCO ₂ e)
01 Jan 2024 to 30 Jun 2024	939,368	-	46,992	892,376	0	892,376
Total	939,368	-	46,992	892,376	0	892,376

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
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01 Jan 2024 to 30 Jun 2024	935,865	892,376	-4.87%	- The distribution of WPs is ongoing in this monitoring period.
Total	935,865	892,376	-4.87%	- The fraction of operational water purifiers is decrease - Some villages were assessed with the SDWP public network

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

The project involves distribution ICSs to individual households, there are no commercially sensitive information so this section is not applicable

APPENDIX 2: SUPPLY CHAIN

1. Public statement has been posted on SIPCO's website.

<https://intracocarbon.com/public-announcement-on-grouped-projects-for-mekong-river-delta-water-purifier-project-id-2581>

