



GROUPED PROJECTS FOR CAMBODIA IMPROVED COOKSTOVE

(SIPCO)

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

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The intention of the grouped project activity involves the installation of energy efficient Improved Cookstove (ICS) in the households of Kingdom of Cambodia for cooking meals and boiling water. For this reason, this proposed project activity aims at reducing the woodfuel consumption of traditional stove users by distributing ICS to households. By reducing the consumption of woodfuel, it can contribute to improving public health problems. Furthermore, this proposed project can contribute to Cambodia's climate change respond and sustainable development.

The project activity targets households with no previous ICS access. The geographical boundary is in Cambodia. ICSs 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 project activity promotes the dissemination of energy efficient ICS. This is in turn reduce deforestation and degradation of forests in Cambodia through participation of the people in adopting energy efficient stoves. This also contributes to improvement in quality of lives of the people from Cambodia through reduction of drudgery, time and money spent on fuel wood collection and through improvement of indoor air pollution. Globally, the project contributes by reducing emission of GHG into the atmosphere.

The scenario existing prior to the implementation of the project is the actual baseline scenario which is equal to the existing common practice by the households i.e. in absence of the project activity the equivalent amount of thermal energy generated using firewood in three stone open fires to meet the cooking energy demand.

Preventing double counting by multiple ICSs in beneficiary households:

Project proponent (PP) chose Women for Peace and Development (CWPD) as its distribution partner, an organization with a wide network from central to local levels, the ability to reach every household to investigate the baseline scenario and the ability to access advanced equipment in other carbon programs. To determine the initial list of beneficiaries for the project, the village and commune level of Cambodia conducted surveys as per the project criteria. One of the primary criteria for selecting beneficiaries is that these households must not receive similar products such as improved stoves and water filters from any another GHG program. The lists of households receiving improved stoves and water purifiers were clearly divided and separated to avoid duplication of beneficiaries. Afterward, the central-level CWPD consolidated the initial list and sent it to PP. PP then randomly selected samples, following 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), to conduct the baseline surveys. The final list of beneficiaries was created based on these results for distribution activities. The devices are distributed to households according to the final list, with each end-user signing an agreement to confirm receipt of the device. This

distribution process is overseen by the village/commune-level local authorities to prevent any duplication of households between projects.

PP signed distribution contract with Cambodian Women for Peace and Development (CWPD). CWPD is a local non-government organization (NGO). CWPD is dedicated to progress, moving forward to build a peaceful nation, to contribute to improving the quality of life of Cambodian women and their family, to alleviate poverty and enhance social integration of the disadvantages and the marginal. The structure of CWPD (vertical linkage from central to district to commune to village level), its broad membership base and ongoing meetings and activities facilitate project promotion and implementation.

The improved cookstove under this grouped project is the Ecozen stove which is manufactured by Viet Charcoal Production Company Limited. The thermal efficiency and lifespan of the Ecozen ICS is 38.44% and 10 years, respectively.

The Grouped project will distribute free 800,000 ICSs to households who use the traditional cookstove for cooking meals. All the project instances to be included in this grouped project will be from within Cambodia only.

The first ICS was distributed on 02-May-2022 in Takeo Province. During the first 4 monitoring period from 02-May-2022 to 31-Jan-2025, 470,000 ICSs were distributed from May-2022 to May-2024. Then, 14,892 ICSs were additionally distributed from February to March-2025. Until the end of this 5th monitoring period from 01-February-2025 to 31-October-2025, a total of 484,892 ICSs was distributed with 50 project activity instances under the grouped project¹. The detail is illustrated as the table below:

No	Month of installation	Number of ICSs
1.	May-22	32,000
2.	Jun-22	20,494
3.	Jul-22	17,636
4.	Aug-22	23,800
5.	Sept-22	16,071
6.	Oct-22	16,000
7.	Nov-22	40,000
8.	Dec-22	16,000
9.	Jan-23	3,000
10.	Feb-23	15,000
11.	Mar-23	11,437
12.	Apr-23	15,231
13.	May-23	16,000
14.	Jun-23	17,900

¹ The detail of the 50 project activity instances is mentioned in the section 3.1

15.	Jul-23	13,650
16.	Aug-23	13,588
17.	Sept-23	22,058
18.	Oct-23	17,038
19.	Nov-23	16,000
20.	Dec-23	7,097
21.	Jan-24	22,277
22.	Feb-24	24,240
23.	Mar-24	23,541
24.	Apr-24	25,544
25.	May-24	24,398
26.	Feb-25	6,970
27.	Mar-25	7,922
Total	25 months	484,892

However, after the 3rd and 4th monitoring period, two cookstoves with serial numbers CAM046-ICS-7631 and CAM014-ICS-7845 were reported as non-operational. Hence, in the 5th monitoring period, there are 484,890 ICSs in use. The total GHG emission reductions generated in the 5th monitoring from 01-February-2025 to 31-October-2025 is 358,552 tCO₂e.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	05-July-2023 is the approval date (Crediting period: 02-May-2022 to 01-May-2032)	VCS	Carbon Check (India) Private Limited	N/A
Verification	From 02-May-2022 to 31-March-2023	VCS	Carbon Check (India) Private Limited	0.915 year
	From 01-April-2023 to 31-December-2023	VCS	EcoLance Private Limited	0.753 year
	From 01-January-2024 to 30-June-2024	VCS	EcoLance Private Limited	0.5 year
	From 01-July-2024 to 31-January-2025	VCS	EcoLance Private Limited	0.589 year
	From 01-February-2025 to 31-October-2025	VCS	EcoLance Private Limited	0.666 year
Total	4	1	2	3.422 year

1.3 Sectoral Scope and Project Type

Sectoral scope ²	03 – Energy Demand
Project activity type	Type II – Energy efficiency improvement project

1.4 Project Proponent

Organization name	Sustainability Investment Promotion and Development Joint Stock Company
Contact person	Ms. Nguyen Thi Hong Hanh
Title	Director
Address	6 th Floor, Hop Long Building, No.1, 59 Lang Ha Street, Ba Dinh District, Hanoi, Viet Nam
Telephone	+84 243 519 0955
Email	info@carbonvietnam.com

1.5 Other Entities Involved in the Project

Not applicable.

1.6 Project Start Date

Project start date	02-May-2022
Justification	As per section 3.8 of the VCS Standard (v4.7), 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 activity is a non-AFOLU project and first improved cookstove under the project has been operating from 02-May-2022. Thus, the project start date is as 02-May-2022.

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☒ 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	02-May-2022 to 01-May-2032

² 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>

1.8 Project Location

The grouped project is hosted by Cambodia. The grouped project covers Cambodia bounded between: Latitudes: from 10.41 N to 14.80 N; Longitudes: from 102.29 E to 107.83 E.

The detail of coordination of Cambodia was be provided separately in KML file.

The first project activity instance was distributed in Takeo Province of Cambodia with the following geographic coordinates: latitude 10.9321 N; 104.7987 E



Figure 1: Map of Cambodia and 9 provinces distributed

Cambodia is divided into 25 provinces. To facilitate the management, implementation, monitoring and sampling stages of the project, the project proponent divides the project boundary into 4 zones.

No.	Zones	Provinces
1	North-Western	Banteay Meanchey, Oddar Meanchey, Preah Vihear, Siem Reap
2	Eastern	Kratie, Mondulkiri, Ratanakiri, Stung Treng
3	Mekong Lowlands	Kampong Cham, Kampong Chhnang, Kampong Thom, Kandal, Prey Veng, Svay Rieng, Phnom Penh, Takeo and. Tboung Khmum
4	Cardomom and Elephant Mountains	Battambang, Koh Kong, Pursat, Kampong Speu, Kampot, Kep, Pailin and Preah Sihanouk

50 project activity instances (PA) during this monitoring were implemented at 10 provinces within Cambodia with the longitude and latitude coordinates the below:

PAI	Province	Coordinate
PA 001, PA 002, PA 003, PA 005, PA 006, PA 043, PA 044	Takeo	104.7987 E, 10.9321 N https://www.google.com/maps-place-Tak%C3%A9o,+Campuchia-@10.9366166,104.4246985,10zdata=!3m1!4b1!4m6!3m5!1s0x31097ea70af3c445:0x73e3a94e2827c36a!8m2!3d10.9321519!4d104.798771!16zL20vMDJoMmRs?hl=vi-VN
PA 004	Kep	104.3559 E, 10.5360 N https://www.google.com/maps-place-Kep,+Campuchia-@10.49245,104.1812881,11z-data=!3m1!4b1!4m6!3m5!1s0x310836851a8b389f:0x1d6a42c22bd268ae!8m2!3d10.536089!4d104.3559158!16s%2Fm%2F0crfr1v?hl=vi-VN
PA 007, PA 008, PA 009, PA 010, PA 011	Svay Rieng	105.7993 E, 11.0878 N https://www.google.com/maps-place-Svay+Rieng,+Campuchia-@11.194139,105.2338395,9z-data=!3m1!4b1!4m6!3m5!1s0x310b07eb6e6a2b43:0xea23edfa b65bf0c8!8m2!3d11.142722!4d105.8290298!16zL20vMDJoMmQ1?hl=vi-VN
PA 012, PA 013, PA 014, PA 015, PA 016, PA 017, PA 018	Prey Veng	105.3280 E, 11.4851 N https://www.google.com/maps-place-Prey+Veng,+Campuchia-@11.3648215,105.456473,10zdata=!3m1!4b1!4m6!3m5!1s0x310b936cb013b065:0x3a05a414cdd1429b!8m2!3d11.3802442!4d105.5005483!16zL20vMDJoMmM5?hl=vi-VN
PA 019, PA 020, PA 021, PA 022, PA 023, PA 024	Tbong Khmum	105.6415 E, 11.9057 N https://www.google.com/maps/place/Tbong+Khmum,+Campuchia/@11.9496628,104.6205843,8z/data=!3m1!4b1!4m6!3m5!1s0x310c728a36aeb3ad:0x22401b5bf292b69f!8m2!3d11.8891023!4d105.876004!16s%2Fm%2F0_1n0kq?hl=vi-VN&entry=ttu
PA 025, PA 026, PA 027, PA 028, PA 029	Kampong Speu	104.52085 E, 11.45332 N https://www.google.com/maps-place-Kampong+Speu,+Campuchia-@11.5744359,102.9630898,8z-data=!3m1!4b1!4m6!3m5!1s0x310928256ebe44a9:0x468315122092d785!8m2!3d11.6155109!4d104.3791912!16zL20vMDJoMjQ1?hl=vi-VN
PA 030, PA 031, PA 032, PA 033, PA 034, PA 035	Kampong Thom	104.8887 E, 12.71111 N https://www.google.com/maps/place/Kampong+Thom,+Campuchia/@12.8185296,103.6459975,8z/data=!3m1!4b1!4m6!3m5!1s0x310de21fe3d2c3ab:0x64bcff54ced9347c!8m2!3d12.8221829!4d105.1258955!16zL20vMDJoMjRt?hl=vi-VN&entry=ttu

PA 036, PA 037, PA 038, PA 039, PA 040, PA 041, PA 042	Kampong Cham	105.4635 E, 11.9934 N https://www.google.com/maps/place/Kampong+Cham,+Campuchia/@11.9891361,105.3547631,12z/data=!3m1!4m6!3m5!1s0x310c6a648a9f6931:0x3f4e5cee1b275bb4!8m2!3d11.9924294!4d105.4645408!16zL20vMGJnbW1k?hl=vi-VN&entry=ttu
PA 045, PA 046, PA 047, PA 048, PA 049	Kampot	104.1640 E, 10.5942 N https://www.google.com/maps/place/Kampot,+Campuchia/@10.590923,104.085756,12z/data=!3m1!4m6!3m5!1s0x310836897d5fd26f:0x6f50ed443bd607ff!8m2!3d10.5942421!4d104.1640355!16zL20vMGMzb nRi?hl=vi-VN
PA 050	Kampong Chhnang	104.6667 E, 12.2500 N https://www.google.com/maps/place/Kampong+Chhnang,+Campuchia/@12.1198002,104.0381541,271439m/data=!3m1!1e3!4m6!3m5!1s0x310e93304cbcc8a9:0x581bb573e69ae0f6!8m2!3d12.1392352!4d104.5655273!16zL20vMDJoMiNy?entry=ttu&g_ep=EgoyMDI1MTEyMy4xIKXMDSoASAFQAw%3D%3D

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VM 0050	Energy efficiency and fuel-switch measures in cookstoves	1.0
Methodology	Tool 33	Default value for common parameters	02.0

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 Verified Carbon Standard project Verra 2925 for the greenhouse gas emission reductions or removals associated with Ecozen cookstove, manufactured by Viet Charcoal Production Company Limited in Di Su commune, My Hao District, Hung Yen province, Viet Nam, distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) whose emissions footprint is changed by the project activities."

☒ Yes ☐ No

See evidence in Appendix 2 in the document.

1.12 Sustainable Development Contributions

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

A) Environment well-being:

- The project activity contributes 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.
- The project activity leads to reduction in indoor air pollutants from wood smoke and avoid smoke related health disorders.
- The reduction in non-renewable biomass consumption for cooking and boiling water through efficient use leads to improved ecological balance.
- The project activity supports fire prevention in the household kitchen.

B) Socio and Economic Benefits:

- Implementation of the project activity results in employment opportunities for people involved with installation, maintenance and distribution of these household biomass based cookers.
- The project activity improves the status of living of people in households cooking since the community level implementation of units of these kinds can be carried out at considerably lower costs. There is less dependence on firewood and its expenses and time associated with firewood buying and collection.
- Business development component of the project activity has resulted in the enhancement of capacity development and technical knowhow for moderately educated people in the community through workshops, seminars and training programs.
- The project alleviates the work burden of women and children as they have to spend less time to collect firewood for cooking.
- Community health issues such as chronic lung diseases, acute respiratory infections, cataracts, blindness, and adverse effects on pregnancy are decreased due to improvement of indoor air quality.

C) Technological benefit

The introduction of locally manufactured technology with improved energy efficiency helps in technological self-reliance in the area.

Table 1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	1.4	Project specific indicator: Number of households received ICSs as an access to clean fuel and technology	Increase	During this monitoring period, the operation rate of project device is only 0.8833 so a total of 428,296 households ³ had an access to clean fuel and technology.	The project activity provides 484,892 energy efficient improved cookstove (ICS) for households who use the traditional cookstove for cooking meals. This contribute to providing access to basic services (clean cooking technology considered as basic service under access to modern energy) to 484,892 the poor and vulnerable households of Cambodia.
2)	3.9	Project specific indicator: Number of beneficiary who report they cooked with less smoke	Increase	Through a representative sample survey, the results showed that The operation rate of project device in the this monitoring is only 0.8833, hence 428,296 beneficiaries reported cooking with less smoke ³ .	The grouped project declines to reduction air population thereby in improved health conditions of 484,892 households, especially women and children. Hence contribute to improved health and well-being brought by reduced smoke generated during cooking.

³ During the period monitoring, PP conducted a physical survey for the representative sample which calculated the EB 86, "Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities", version 04.0. Among 54 representative samples, three sample was reported to stop using the project cookstove. The remaining samples is using the project cookstoves and all conditions of use are still good. Further information is available in section 4.2 of this document.

3)	4.3	Project specific indicator: Number of people receiving formal and/or non-formal education and training	Increase	In this monitoring period, a total of 3 received training on the topic climate change, monitoring and surveying methods.	There are 43 people received benefit from the training on the topic climate change, monitoring and surveying methods during the period from 02-May-2022 to 31-October-2025.
4)	5.4	Project specific indicator: Number of end-users reporting reduction in their time spent on unpaid domestic and care work, by sex, age, and location.	Increase	Through a representative sample survey, the results showed that the operation rate of project device in the this monitoring is only 0.8833, hence 428,296 end-users reported saving time spent for collecting fire wood and cooking meals ³ .	By using project ICS helps time savings from cutting, gathering and carrying firewood from far trees to 484,892 households throughout the project lifetime, the initiative lessens the drudgery experienced by women and children. If these responsibilities are carried out without assistance, they constitute a significant contributor to gender inequity.
5)	7.1	Project specific indicator: Increase of population with primary reliance on clean fuels and technology in the project area	Increase	The operation rate of project device in the this monitoring is only 0.8833, hence, increase access to clean cooking technology with ICS installations for 428,296 households with 1,970,161 populations ⁴ under the project activity	The 484,892 ICSs are energy efficiency cooking technology distributed to 484,892 households with 2,230,503 population ⁴ using the traditional cookstove for cooking daily. The grouped project will increase of citizen with primary reliance on clean fuels and technology in project area.

⁴ As per the baseline survey of PP, the population size is estimated at 4.6 people/household

6)	8.3	Project specific indicator: Number of employment by sector and sex	Increase	The project generated 10 employments for distribution of ICSs and post-installation operation & Maintenance of ICSs, spot checks and periodic surveys.	The project activity created 31 employment opportunities for distribution and maintenance and monitoring survey.
7)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Increase	Contribute to GHG emission reduction of 358,552 tCO ₂ e into the atmosphere in this third monitoring period.	The grouped project activity has reduced 3,521,343 tCO ₂ during the period from 02-May-2022 to 31-October-2025.
8)	15.2	Project specific indicator Amount of non-renewable biomass saved	Increase	During this monitoring period, the project activity saved 207,146 tonnes of non-renewable biomass ⁵	The grouped project contributes an estimated reduction in the removal of about 2,535,392 tonnes of non-renewable biomass from forests surrounding the communities during the period from 02-May-2022 to 31-October-2025.

⁵ The quantity of wood saved is calculated by multiplying the number of cookstove used, by the fNRB and the quantity of woody biomass saved per cookstove during the calendar year. Calculation details in ER calculation spreadsheet.

1.13 Commercially Sensitive Information

Not applicable. The grouped projects do not have any commercially sensitive information.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Below stakeholders were identified since validation, there are no changes at this verification time.

Stakeholder Identification

The process of identifying stakeholders involves categorizing individuals or groups who are expected to have a direct or indirect impact on the project or those who have an interest in it.

SIPCO identifies the relevant stakeholders via 3 steps who are associated throughout the grouped project lifetime. The steps are illustrated like as:

Step 1: The first step is to determine the expected and unexpected outcomes of the grouped project's activities. Then the results are established, the potential stakeholders affected by these impacts are identified.

Step 2: Stakeholder group identification is carried out at each step of project implementation, using a holistic approach to the project's total benefits and co-benefits. The assessment for stakeholder identification at the different stages is as follows:

- Project ideation: Stakeholders could include academic institutions, self-help organizations, and local officials who can assist the project promoter in gaining traction in the community.
- Project development: government authorities, NGOs, community development, investors would be stakeholders at this stage.

	• Project implementation: end-user, distribution partners, ICS manufactures, would be the stakeholders during implementation stage. Distribution partner of the grouped project is Cambodian Women for Peace and Development (CWPD) which has signed contract with SIPCO for distributing ICS to households. CWPD have system from central to village, they can know exactly these households who are using the traditional cookstove and they can select the correct end-users. • Project validation and verification: surveyors, distribution partners, end-users... could be some of the main stakeholders during this stage. Almost of project stakeholders affected by the project activity identified in the step 2. Step 3: Make the stakeholder category and determine direct/indirect effects based on each stakeholders identified in step 2 as the final step of the identification process. The final list of stakeholder includes ICS end-users, distribution partner (CWPD), government authorities, local NGOs and ICS manufactures. The full list of stakeholders has been provided to VVB as supporting document.
Legal or customary tenure/access rights	Not applicable. The grouped project only involves distribution ICS to household and it does not involve territories and resources.
Stakeholder diversity and changes over time	Most of stakeholders are 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 this monitoring period. 1. ICS end-users: No change was observed in structure & functionality. 2. CWPD: No change in structure and functionality or any organization values.

	3. Government authorities: No change was observed in structure & functionality. 4. Local NGOs: No change was observed in structure & functionality. 5. Manufacturer: More jobs for their employee in manufacturing, transportation and maintenance ICSs
Expected changes in well-being	- Reduce deforestation and forest degradation in Cambodia through involvement of stakeholders in discontinuing the use of firewood for cooking meals - Community health issues such as chronic lung diseases, acute respiratory infections, cataracts, blindness, and adverse effects on pregnancy will be decreased due to improvement of indoor air quality. - Reduce in indoor air pollutants from wood smoke and avoid smoke related health disorders The project activity will support fire prevention in the household kitchen
Location of stakeholders	Except for the ICS manufacture in Viet Nam, the remaining stakeholders are in Cambodia
Location of resources	Cambodia

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	The PP is maintaining ongoing communication with stakeholders through different measures: 1) The stakeholders are informed about the grievance register which is maintained at the local office locations of the PP. CWPDS at hamlet and commune level also serve as medium to escalate grievances received from the project beneficiaries in their respective zones to PP. Further, SIPCO contact number in Cambodia are listed in section 2.1.4 is always maintained to ensure receiving calls from stakeholders at any time. 2) Every month, CWPDS at hamlet and commune level periodically conducts random inspections of households receiving stoves to check their usage status. CWPDS selects households ensures that every quarter all households in the
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	village that have been provided project devices are visited. Further, a meeting between CWPDP and end users will also be held at the village level every six months to listen to feedback from end users and carry out stove usage promotion activities, promoting the benefits of stove usage for users and the environment. 3) 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. Sampling is conducted using stratified random sampling techniques, and detailed calculations are provided within the monitoring plan as per CDM guidelines “Sampling and surveys for CDM project activities and programmes of activities”. Staff of SIPCO communicates & collects end-users’ comments through visits to household at least 1 time per year. 4) 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 CWPDP & 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. In case an any grievance or feedback, end-user can contact to PP via phone/email, or CWPDP through the contract information provided in section 2.1.4 of this document. For the grievance redressal process, please refer to section 2.1.4 for more detailed.
Date(s) of stakeholder consultation	On 10-April-2023 SIPCO sent CWPDP the report for the first period covering 02-May-2022 through 31-March-2023.

	On 28-January-2024, SIPCO sent CWPDP the report for the second monitoring period covering 01-April-2023 through 31-December-2023. On 19-July-2024, SIPCO sent CWPDP the report for the third monitoring period covering 01-January-2024 through 30-June-2024. On 26-February-2025, SIPCO sent CWPDP the report for the fourth monitoring period covering 01-July-2024 to 31-January-2025. On 28-November-2025, SIPCO sent CWPDP the report for this monitoring period covering 01-February-2025 to 31-October-2025.
Communication of monitored results	The monitored results have been shared with Woman Union & relevant stakeholders through annual reports include: 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 consultations are logged in the consultation forms. Forms are saved for record of correspondence
Stakeholder input	During this ongoing communication, all households participating in the survey were satisfied with the project's device and their lives have greatly improved since receiving ICSs. There are no negative comments about the grouped projects and its devices.

2.1.3 Free, Prior, and Informed Consent

Consent	It is entirely up to individual homes in the participating villages to decide whether or not they choose to take part in the adoption of ICS; this is a purely optional activity.
Outcome of FPIC	Until the 5th monitoring period, SIPCO distributed free of cost 484,892 ICSs to households under 50 instances which were included to the grouped project in the 5th monitoring period.

	Before the installation takes place, free, prior, and informed permission is obtained from households involved. Through the communication channels of CWPDP at the village and commune levels, households who are using traditional stoves for daily cooking register their demand to receive free cookstove from the project. This process is conducted voluntarily, with no force from CWPDP/SIPCO towards the people. After CWPDP and SIPCO check whether the households meet the project criteria, a list of end-users is compiled. Before receiving the product, the end-users are clearly informed about the beneficiary agreement and given the option to agree to the terms in the beneficiary agreement and accept the cookstove for free. This decision is entirely voluntary, with no force involved. If they agree, the end-users will provide their household information on the agreement, sign it, and receive the project cookstove for use. The grouped project activity involves distribution of ICSs to households and it does not involve any land, relocated people, and physical or economic displacement.
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2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome										
In this monitoring period, the grouped project has not received any grievances.	The grievance register is being maintained by the project’s distribution partner (CWPD) for submission of input/grievance (if any) related to the project activity. The queries by stakeholders are noted and documented in the grievance register. Also, 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 telegram (the communication application is commonly used in Cambodia)/call/message/email. The information of SIPCO, CWPD at center level and local representative of CWPD where can come and register the feedback as following: <table><tr><th>No</th><th>Address</th><th>Phone number for call/message and telegram</th><th>Contact person</th><th>Email</th></tr><tr><td>1</td><td>SIPCO’s office: 6th Floor, Hop Long Building,</td><td>+84243 5190955</td><td>Mr. Pham Ngoc Nhan</td><td>info@carb-onvietnam.com</td></tr></table>	No	Address	Phone number for call/message and telegram	Contact person	Email	1	SIPCO’s office: 6 th Floor, Hop Long Building,	+84243 5190955	Mr. Pham Ngoc Nhan	info@carb-onvietnam.com
No	Address	Phone number for call/message and telegram	Contact person	Email							
1	SIPCO’s office: 6 th Floor, Hop Long Building,	+84243 5190955	Mr. Pham Ngoc Nhan	info@carb-onvietnam.com							

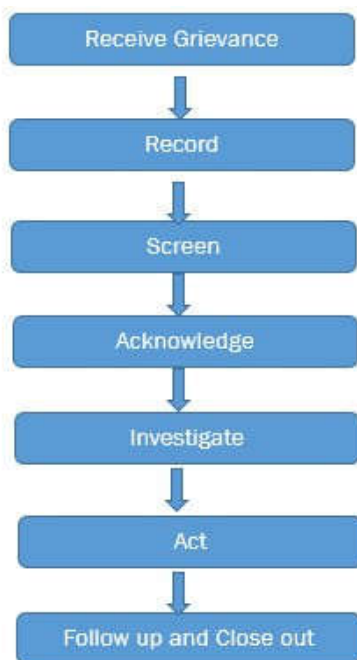
	No.1, 59 Lang Ha Street, Ba Dinh District, Hanoi, Viet Nam			
2	CWPD's office: # 128D9-D10, St. Samdech Sothearos, Sangkat Tonle Bassac, Khan Chamcarmon, Phnom Penh, Cambodia	+85523 222453	Ms. Meach So Theary	info@cwpd.net
3	CWPD at Takeo province: XQRM+7FG, Krong Doun Kaev, Campuchia	+85953999 95	Ms. Kea Sophou	
4	CWPD at Kep province: F8VC+2X, Krong Kaeb, Campuchia	+85927065 65	Ms. UI Phirun	
5	CWPD at Kampot province: J53J+38X, Krong Kampot, Campuchia	+851275202 1	Ms. Yu Sokun	
6	CWPD at Kampong Speu province: Kampong Spue Prinvince Hall, Krong Chbar Mon, Campuchia	+85923578 63	Ms. Long Bo Nareth	
7	CWPD at Kampong Cham province: XFW5+6VC, Krong Kampong Cham, Campuchia	+85892499 99	Ms. Pang Dany	
8	CWPD at Kampong Thom province:	+851255531 3	Ms. Lom Sotheavy	

	PV6J+XVR, Krong Stueng Saen, Campuchia			
9	CWPD at Tbong Khmum province: VQXM+259, Kandaol Chrum, Campuchia	+85977401079	Ms. Chan Thida	
10	CWPD at Svay Rieng province: 3RJ3+RX9, Krong Svay Rieng, Campuchia	+85977411886	Ms. Pov Sopheap	
11	CWPD at Prey Veng province: F8MC+2JQ, National Road N° 11, Krong Prey Veng, Campuchia	+8589599971	Ms. Long Kunthea	
12	CWPD at 7M38+97Q, NR53, Krong Kampong Chhnang, Campuchia	+855 12 260 056	Ms. Pal Yoeun	

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.

Project proponent has established a grievance mechanism in the project area which has been explained to the stakeholders during stakeholder meetings and the project implementation progress. The stakeholders affected by the project can express any complaint. Any grievances could send to SIPCO email address. Also stakeholders can voice their grievances to any officers who will then escalate using the correct process.

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 are 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 is 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 is analysed 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 formally advise the external stakeholder via their preferred method of contact.

- Follow up and close out

The grievance owner makes contact with the external stakeholder/s three weeks after the grievance is resolved. When contacting the external stakeholder, the grievance owner verifies 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.

All formal grievances are recorded in summary with the PP to identify if the complaint is a project wide issue that necessitates a system change in the implementation.

2.1.5 Public Comments

Summary of comments received	Actions taken
During the public comment period, the grouped project did not receive any comments.	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 ICS 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	The grouped project activities distribute ICS to household. They can decide to receive ICS or not. If they want, they can register to CWPDP. After CWPDP and SIPCO check that the households meet the criteria to participate in the project, before receiving ICS, household voluntarily signs the beneficiary agreement with SIPCO. There is no trade-off or any negative impact to their livelihood, land, food, etc... Hence no risk for stakeholders to participate in this project.
Working conditions	No risk identified	The grouped project activities create jobs for local people, ICS manufacture, distribution unit. All of working condition such as working hours, working environment, physical pressure, rest hour, minimum wage, etc... as per Cambodian Labor and Employment Law. Hence, no risk about working conditions for stakeholders to participate in this project.
Safety of women and girls	No risk identified	Until this monitoring, PP distributed 484,892 ICSs to 484,892 households. This helps them access to sustainable and modern energy. The proposed project aims to reduction in indoor air pollutants from wood smoke and avoid smoke related health disorders for households in Kingdom of Cambodia. Moreover, the project activity supports fire prevention in the household kitchen. From there, reduce polluted indoor air due to cook meal. So project's cookstove is safe when using. Hence, no any risk identified relate to safety of women and girls.
Safety of minority and marginalized groups, including children	No risk identified	Until this monitoring, PP distributed 484,892 ICSs to 484,892 households. This helps them access to sustainable and modern energy. The proposed project aims to reduction in indoor air pollutants from wood smoke and avoid smoke

		related health disorders for households in Kingdom of Cambodia. Moreover, the project activity supports fire prevention in the household kitchen. From there, reduce polluted indoor air due to cook meal. So project's cookstove is safe when using. Hence, no any risk identified relate to safety or minority and marginalized groups, including children.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified.	The grouped project aims at reducing the woodfuel consumption of traditional cookstove, this can contribute to improving public health problems. This also contributes to improvement in quality of lives of the people from Cambodia through reduction of drudgery, time and money spent on fuel wood collection and through improvement of indoor air pollution. Globally, the project contributes by reducing emission of GHG into the atmosphere. Hence the grouped project brings positive benefits to the citizens and environments. The project activity is not adding any pollutant into the environment.

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.	SIPCO distributes ICSs to households who are using woodfuel to cook without distinction in genders, races, religions, educational backgrounds or any other aspects. SIPCO also dedicate to the elimination of discrimination. The same is also governed by government policies and any such discrimination has considered a punishable offence in the host country. Cambodia is also party to the "Convention on the Elimination of All Forms of Discrimination against Women" and the project has aligned its labour policies accordingly.
Sexual harassment	No risk identified.	

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.

Gender equity in labor and work	No risk identified.	SIPCO is committed to ensuring that all stakeholders, regardless of their genders, colours, faiths, educational backgrounds, or any other factors, will be given an equal chance to fill all job positions. This commitment is fulfilled by providing equal access to employment opportunities. Before any full-time or part-time employees for the project are hired, the project proponent advertises applicable employment opportunities by contacting village heads and posting announcements on local notice boards seeking potential candidates for the positions. Also, the initiative encourages women, people with disabilities, and members of underrepresented groups to apply for the positions.
Forced labor	No risk identified.	SIPCO does not tolerate child labor or forced, involuntary or trafficked labor in any form. To ensure this, workers have to give a job application to SIPCO. When recruiting, SIPCO checks ID card each worker to ensure that they are of working age. Besides that, workers also submit curriculum vitae verified by local authority.
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	Each of our workers has a contract that states their rights and obligations. The contract details comply with Cambodia labor laws. Specific information is provided on anti-terrorism and anti-corruption efforts, including a code of conduct. Per the Core Labor 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 grouped project activities involve installing ICS and it does not involve any indigenous peoples and cultural heritage.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The grouped project activity involves distribution of ICSs to households and only install at the informed invitation of the households and these ICSs do not infringe or interact with property rights.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	The ownership rights of the carbon assets generated from this project is with the project proponent, SIPCO. SIPCO has signed a detailed end-user beneficiary agreement mentioning all the criteria with all beneficiaries before commissioning the project devices. The agreement also explicitly states that the carbon rights are with SIPCO, and the same was explained to the beneficiaries before the installation of the project cookstoves.
Benefit sharing during the monitoring period	No benefit sharing through carbon revenue is planned for end-users so this section 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. The project activities help in reducing the consumption of fuel wood by efficient fuel combustion thereby reducing deforestation and reducing indoor air pollution. The use of ICS technology helps to 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
Soil degradation and soil erosion	No risk identified	
Water consumption and stress	No risk identified	

		indoor air pollution, reduce the risk of respiratory diseases, especially for women and children. ICSs also contribute to environment protection by reducing biomass consumption and hence greenhouse gas emissions, mainly CO ₂ , 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	Not Applicable. The grouped project activity involves distributions of improved cookstoves to households in only and it does not involve rare, threatened and endangered species. This was identified during validation period.
Areas needed for habitat connectivity	

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No risk identified	The grouped project activity involves distributions of improved cookstoves to households only and it does not involve rare, threatened and endangered species.
Areas for habitat connectivity	No risk identified	

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
Not applicable			

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
Not applicable	

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No risk identified	The grouped project activity involves distributions of improved cookstoves to households only and it does not involve introduction of species.

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	Not applicable. The grouped project activities only distribute improved cookstove to households and do not involve any ecosystem conversion.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Until the end of this 5th monitoring period, a total of 484,892 ICSs was reported installed with 50 project activity instances under the grouped project. Project devices were transported and gathered in district points before distribution about a week before the start distribution date. Then, SIPCO in conjunction with the partner (Cambodia Women for Peace and Development) organizes one or two-day mass distributions in all communes in the district. Representation of households whose names are on the demand registration list who have been determined to be eligible to participate in the project is invited to the commune center or the distribution points to attend the communication session and receive project cookstoves.

PA 001 was included in the project registration period on 05-July-2023. During the first monitoring period, the 28 instances are PA 002 – PA 017, PA 025 – PA 029. PA 043 – PA 049 were included and approved on 21-December-2023. 20 project activity instances (namely PA 018 to PA 024 and PA 030 to PA 042) were included in the second monitoring period and approved on 05-July-2024. PA 050 will be included in this 5th monitoring period. Timeline of project activity instances is illustrated as the table below:

Number instances	PA start date (the first equipment distributed)	Inclusion date	The operational period in this monitoring period	Implementation status as on 31-Oct-2025			Total of ICSs have been distributed as on 31-Oct-2025	Note
				Quantity	Start date of distribution ICS in a month	End date of distribution ICS in a month		
PA 001	02-May-22	05-Jul-23	01-Feb-25 to 31-Oct-25	8,000	2-May-22	3-May-22	8,000	
PA 002	04-May-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	4-May-22	5-May-22	8,000	
PA 003	07-May-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	7-May-22	8-May-22	8,000	
PA 004	07-Jun-22	21-Dec-23	01-Feb-25 to 31-Oct-25	2,272	7-Jun-22	7-Jun-22	6,062	
			01-Feb-25 to 31-Oct-25	3,790	1-Jan-24	2-Jan-24		
PA 005	12-May-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	12-May-22	14-May-22	8,000	
PA 006	09-Jan-23	21-Dec-23	01-Feb-25 to 31-Oct-25	2,000	9-Jan-23	11-Jan-23	2,000	
PA 007	02-Aug-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	2-Aug-22	3-Aug-22	10,077	
			01-Feb-25 to 31-Oct-25	2,077	9-Jan-24	9-Jan-24		
PA 008	06-Aug-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	6-Aug-22	7-Aug-22	9,686	
			01-Feb-25 to 31-Oct-25	1,686	10-Jan-24	10-Jan-24		
PA 009	04-Sep-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	4-Sep-22	6-Sep-22	9,893	
			01-Feb-25 to 31-Oct-25	1,893	11-Mar-24	11-Mar-24		
PA 010	09-Sep-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	9-Sep-22	10-Sep-22	9,921	
			01-Feb-25 to 31-Oct-25	1,921	12-Mar-24	12-Mar-24		
PA 011	10-Sep-22	21-Dec-23	01-Feb-25 to 31-Oct-25	71	10-Sep-22	10-Sep-22	11,527	
			01-Feb-25 to 31-Oct-25	11,456	13-Mar-24	19-Mar-24		
PA 012	02-Nov-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	2-Nov-22	3-Nov-22	9,998	
			01-Feb-25 to 31-Oct-25	1,998	13-Jan-24	13-Jan-24		
PA 013	04-Nov-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	4-Nov-22	5-Nov-22	9,909	
			01-Feb-25 to 31-Oct-25	1,909	12-Jan-24	12-Jan-24		
PA 014	07-Nov-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	7-Nov-22	8-Nov-22	8,000	An ICS with serial number CAM014-ICS-7845 was non-operational
PA 015	08-Nov-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	8-Nov-22	10-Nov-22	8,000	

PA 016	05-Jul-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	5-Jul-22	6-Jul-22	14,002	
			01-Feb-25 to 31-Oct-25	6,002	12-May24	16-May-24		
PA 017	03-Aug-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	3-Aug-22	3-Apr-23	13,516	
			01-Feb-25 to 31-Oct-25	5,516	1-Apr-24	2-Apr-24		
PA 018	03-Apr-23	05-Jul-24	01-Feb-25 to 31-Oct-25	7,181	3-Apr-23	5-Apr-23	9,794	
			01-Feb-25 to 31-Oct-25	2,613	3-Apr-24	3-Apr-24		
PA 019	06-Apr-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	6-Apr-23	10-Apr-23	11,476	
			01-Feb-25 to 31-Oct-25	3,476	5-Feb-24	7-Feb-24		
PA 020	3-Jul-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	3-Jul-23	7-Jul-23	11,487	
			01-Feb-25 to 31-Oct-25	3,487	6-Feb-24	7-Feb-24		
PA 021	10-Jul-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	10-Jul-23	2-Oct-23	10,646	
			01-Feb-25 to 31-Oct-25	2,646	3-May-24	3-May-24		
PA 022	2-Oct-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	3-Oct-23	6-Oct-23	11,422	
			01-Feb-25 to 31-Oct-25	3,422	6-May-24	8-May-24		
PA 023	3-Oct-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	9-Oct-23	4-Dec-23	10,307	
			01-Feb-25 to 31-Oct-25	2,307	7-May-24	7-May-24		
PA 024	9-Oct-23	05-Jul-24	01-Feb-25 to 31-Oct-25	1,149	5-Dec-23	5-Dec-23	1,846	
			01-Feb-25 to 31-Oct-25	697	9-May-24	9-May-24		
PA 025	02-Dec-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	2-Dec-22	3-Dec-22	13,783	
			01-Feb-25 to 31-Oct-25	5,783	27-Feb-24	28-Feb-24		
PA 026	03-Oct-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	3-Oct-22	4-Oct-22	11,236	
			01-Feb-25 to 31-Oct-25	3,236	3-Feb-24	3-Feb-24		
PA 027	06-Oct-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	6-Oct-22	7-Oct-22	8,000	
PA 028	05-Jun-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	5-Jun-22	6-Jun-22	8,000	
PA 029	06-Jun-22	21-Dec-23	01-Feb-25 to 31-Oct-25	2,222	6-Jun-22	6-Jun-22	9,923	
			01-Feb-25 to 31-Oct-25	5,778	1-Mar-23	2-Mar-23		
			01-Feb-25 to 31-Oct-25	1,923	1-May-24	1-May-24		
PA 030	12-Apr-23	05-Jul-24	01-Feb-25 to 31-Oct-25	5,659	3-Mar-23	5-Mar-23	8,796	
			01-Feb-25 to 31-Oct-25	3,137	2-May-24	2-May-24		

PA 031	2-May-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	2-May-23	9-May-23	11,885	
			01-Feb-25 to 31-Oct-25	3,885	4-Apr-24	5-Apr-24		
PA 032	10-May-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	10-May-23	16-May-23	12,005	
			01-Feb-25 to 31-Oct-25	4,005	8-Apr-24	25-Apr-24		
PA 033	1-Aug-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	1-Aug-23	7-Aug-23	9,983	
			01-Feb-25 to 31-Oct-25	1,983	10-Apr-24	10-Apr-24		
PA 034	8-Aug-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	8-Aug-23	4-Sep-23	9,852	
			01-Feb-25 to 31-Oct-25	1,852	9-May-24	9-May-24		
PA 035	1-Sep-23	05-Jul-24	01-Feb-25 to 31-Oct-25	5,546	5-Sep-23	7-Sep-23	7,958	
			01-Feb-25 to 31-Oct-25	2,412	10-May-24	10-May-24		
PA 036	5-Sep-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	1-Jun-23	7-Jun-23	10,410	
			01-Feb-25 to 31-Oct-25	2,410	8-Feb-24	8-Feb-24		
PA 037	1-Jun-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	8-Jun-23	13-Jun-23	9,452	
			01-Feb-25 to 31-Oct-25	1,452	9-Feb-24	9-Feb-24		
PA 038	8-Jun-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	14-Jun-23	12-Sep-23	10,508	
			01-Feb-25 to 31-Oct-25	2,508	12-Feb-24	12-Feb-24		
PA 039	14-Jun-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	13-Sep-23	18-Sep-23	9,888	
			01-Feb-25 to 31-Oct-25	1,888	13-Feb-24	13-Feb-24		
PA 040	8-Sep-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	1-Nov-23	7-Nov-23	11,063	
			01-Feb-25 to 31-Oct-25	3,063	11-Apr-24	11-Apr-24		
PA 041	13-Sep-23	05-Jul-24	01-Feb-25 to 31-Oct-25	8,000	8-Nov-23	13-Nov-23	11,075	
			01-Feb-25 to 31-Oct-25	3,075	12-Apr-24	12-Apr-24		
PA 042	1-Nov-23	05-Jul-24	01-Feb-25 to 31-Oct-25	4,486	5-Dec-23	8-Dec-23	5,890	
			01-Feb-25 to 31-Oct-25	1,404	15-Apr-24	15-Apr-24		
PA 043	11-Jan-23	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	11-Jan-23	8-Mar-23	8,000	
PA 044	07-Feb-23	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	7-Feb-23	8-Feb-23	8,000	
PA 045	07-Nov-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	7-Nov-22	27-Nov-22	8,000	
PA 046	04-Jun-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	4-Jun-22	7-Jun-22	11,537	An ICS with serial number
			01-Feb-25 to 31-Oct-25	3,537	3-Jan-24	4-Jan-24		

								CAM046-ICS-7631 was non-operational
PA 047	05-Dec-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	5-Dec-22	13-Dec-22	12,032	
			01-Feb-25 to 31-Oct-25	4,032	5-Jan-24	6-Jan-24		
PA 048	03-Jul-22	21-Dec-23	01-Feb-25 to 31-Oct-25	8,000	3-Jul-22	5-Jul-22	11,248	
			01-Feb-25 to 31-Oct-25	3,248	8-Jan-24	8-Jan-24		
PA 049	06-Jul-22	21-Dec-23	01-Feb-25 to 31-Oct-25	1,636	6-Jul-22	6-Jul-22	9,907	
			01-Feb-25 to 31-Oct-25	8,271	4-Mar-24	7-Mar-24		
PA 050	18-Feb-25	12-Mar-25	22-Feb-25 to 31-Oct-25	6,970	18-Feb-25	21-Feb-25	14,892	
			13-Mar-25 to 31-Oct-25	7,922	6-Mar-25	12-Mar-25		
Total							484,892	

However, after the 3rd and 4th monitoring period, two cookstoves with serial numbers CAM046-ICS-7631 and CAM014-ICS-7845 were reported as non-operational. Hence, in the 5th monitoring period, there are 484,890 ICSs in use.

3.2 Deviations

3.2.1 Methodology Deviations

The project was originally developed under methodology VMR0006 version 1.1 but has transitioned to methodology VM0050 version 1.0. This change was approved on 28-November-2025 in the 4th monitoring period, as reflected in the revised PD version 01.4, dated 23-October-2025. This change was made to better align with the latest best practices and ensure compliance with the most updated requirements under the Verra framework. The deviation is more conservative than what is set out in the old methodology.

It includes several updates and changes that reflect current best practices of project design and implementation in distributed thermal energy generation. It also incorporates streamlined monitoring approaches such as prescribes robust means for the determination of parameter values (like fNRB), and contains updated default values for various ex-ante parameters (like baseline device efficiency).

No deviations from VM0050 have been made in the application of the methodology. All calculations, baseline assessments, and monitoring approaches strictly adhere to the provisions outlined in VM0050.

3.2.2 Project Description Deviations

The project activity involves the distribution of ICSs to households in Cambodia that traditionally rely on traditional cookstove for cooking meals. The project was originally developed and implemented under the methodology VMR 0006 version 1.1. However, the project activity has been transitioned from VMR 0006 version 1.1 to VM 0050 version 1.0 since the fourth monitoring period was approved. The purpose of this deviation is to improve the accuracy and consistency of emission reduction calculations by applying the updated and more robust methodological framework provided by VM0050.

The deviation includes adoption of updated default values, equations and procedures from VM 0050 version 1.0. The deviation does not affect the fundamental design or implementation of the grouped project activity. The improved cookstove distribution remains consistent with the original project goals and scope as described in the registered PD. The deviation has been made in accordance with Verra's rules and guidance for transitioning between methodologies and is justified on the basis of methodological advancement and improved emission reduction accuracy.

This deviation was approved on 28-November-2025 in the 4th monitoring period, as reflected in the revised PD version 01.4, dated 23-October-2025. No additional deviations have been implemented during this monitoring period beyond those described in the updated PD.

3.3 Grouped Projects

For the inclusion of new project activity instance, the project proponent shall ensure that it meets for the eligibility criteria below:

No.	Eligibility criterion - Category	Eligibility criterion – Required condition	Evidence provided and applicability
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 VM 0050: “Energy Efficiency and Fuel-Switch Measures in Cookstoves”, version 1.0.	The new project activity instance namely PA 050 meet applicability conditions listed section 3.3 in this monitoring report.
2	Use the technologies or measures specified in the project description.	Each Instance under this Grouped project will consist of the distribution of Ecozen cookstove with a thermal efficiency of 38.44% to household users cooking with non-renewable biomass in the baseline scenario. The instance consists of replacement of conventional firewood cookstoves for biomass fired ICS as defined in the Grouped project.	Only Ecozen cookstove are distributed in PA 050 during this monitoring with the efficiency of 38.44%.
3	Apply the technologies or measures in the same manner as specified in the project description	Each instance under this grouped project shall consist of the distribution of ICSs with efficiency improvements in thermal applications of non-renewable biomass. Ecozen cookstove have a thermal efficiency of 38.44%, larger than 25%.	Only Ecozen cookstove with the efficiency is 38.44% to be adopted in this monitoring.
4	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	The new project activity instances will be installed within Cambodia only and subject to the same baseline scenario determined in section 3.4.	The new project activity instance (PA 050) during this monitoring have been implemented in Kampong Chhnang province in Cambodia.
5	Have characteristics with respect to additionality that are consistent with the initial instances for the	All new project activity instances will use the activity method for demonstration of additionality. Step 1: Regulatory Surplus	The new project activity instance (PA 050) under this monitoring is eligible when the PP has provided the confirmation that

	specified project activity and geographic area.	There is no mandated government programme or policy in host country of this project ensuring the distribution of new project activity instances. Step 2: Positive List The inclusion of new project activity instances will comply with positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology. Step 3: Project Method This step is not applicable under project activity because the stoves are provided at zero cost to the end-users.	ICSs are distributed for free of cost to household.
6	Conditions that avoid double counting of emission reductions.	The new project activity instances will: 1. Apply a unique system (i.e. conformity letter) for ICS in each project instance, assigning a unique ID to each ICS and allowing to clearly identify each ICS and to which project instance it belongs. 2. Each ICS 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 ICS 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 ICS in the new project activity instance (PA 050) under the grouped project is uniquely identifiable and not part of any other CDM/VCS/GS/GCC registered project or instance of the other grouped project. The ICSs are be carried unique IDs comprised of the project activity instance number. The labels are below: • PA 050: CAM050-ICS-00001 to CAM050-ICS-14138.

7	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 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 of any system of 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.	This eligibility criterion is not applicable. According to the applied methodology, there are no capacity limits defined. Therefore, the grouped project does not have any specified capacity limits applicable.	Not applicable. A capacity limit does not apply under the VM 0050 methodology version 1.0.
8	Target group	Each project instance will target end users which includes households who use traditional cookstove to cook meal.	The new project activity instance (PA 050) under this monitoring satisfy the criteria. Each household in PA 050 must sign a beneficiary agreement to commit that they are using traditional cookstove.

9	Occur within one of the designated geographic areas specified in the project description	New project activity instances will be located within the geographic boundaries of Cambodia. The new project instances geographic location will be defined in the monitoring reports	The geographic boundary of instances under in this monitoring is illustrated to be within Cambodia (Figure 1). The location data captured from each household who received the project devices are stored in the database file and agreement. They are provided to VVB at the time of verification.
10	Comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial compliance with multiple sets of eligibility criteria is insufficient	New project activity instances must comply set of eligibility criteria for the inclusion of new project activity instances in the table	The new project activity instances during this monitoring comply set of eligibility criteria for the inclusion of new project activity instances as described in this table of the document.
11	Be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/ verification body	New project activity instances must comprise monitoring plans that outline the technical, financial, geographic and other relevant information to enable sampling by the validation/ verification body.	Baseline survey and applicable provisions of the new project activity instance (PA 050) are submitted alongside this monitoring report. Monitoring data for this instance are provided to the VVB at verification.
12	Be included in an updated project description, with updated project location information (as set out in Section 3.11), which shall be validated at the time of verification against the applicable set of eligibility criteria.	The location of new project activity instances in the grouped project must comprise project location which illustrated in the project description. The information is as set out in Section 3.11 which shall be validated at the time of verification against the applicable set of eligibility criteria.	The new project activity instance (PA 050) is included during this monitoring in Kampong Chhnang province within Cambodia only. The detailed coordinates of each instance are described in section 1.8 in the monitoring report and provided to the VVB at verification.

13	Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).	New project activity instances will demonstrate ownership by the project proponent, from the start date of the PAI	The PP has an agreement in place with residents who use ICS in the new project activity instance (PA 050) in which the owner transfers the rights to the emissions reductions exclusively to the PP as part of the Carbon Rights Waiver within the Beneficiary agreement.
14	Have a start date that is the same as or later than the grouped project start date	Only PIs having a start date that is the same as or later than the GP start date will be included in the grouped project. The start date of GP is the date of distribution of first unit as per section 1.6 of this document. And subsequent additions will have start date after GP start date only	The start date of PA050 is later than the GP start date is 02-May-2022. Detail information is illustrated in section 3.1 in the report. Same can be verified by ER spreadsheet being submitted to the VVB.
15	Be eligible for crediting from the start date of the project activity instance through to the end of the project crediting period (only)	New PI within this grouped project shall only be eligible for crediting from its start date through to the end of the project crediting period	The new project activity instance (PA 050) under the grouped project in this monitoring period is only eligible for crediting from its start date through to the end of the project crediting period. Detailed information is showed in ER calculation spreadsheet. This is provided in the monitoring report to VVB at verification.
16	Only eligible for crediting from the start of the verification period in which they were added to the grouped project	New PI within this grouped project shall only be eligible for crediting from the start of the verification period in which they were added to the grouped project.	The new project activity instance (PA 050) under the grouped project in this monitoring period are only eligible for crediting from the start of the verification period in which they were added to the grouped project. Detailed information is showed in ER calculation spreadsheet. Also, this is provided VVB during verification

17	Not be or have been enrolled in another VCS project.	All of new PIs within this grouped project will be a new activity and not be or have been enrolled in another VCS project.	The new project activity instance (PA 050) under the grouped project during the monitoring period are new activities in the new provinces. This is also be stated in section 1.8 in the report.
18	Adhere to the clustering and capacity limit requirement for multiple project activity instance set out in 3.6.8 – 3.6.9	The project proponent shall include in a singular project all project activity instances within ten kilometers of another instance of the same project activity and with the same project proponent (i.e., instances of the same project activity may not be spread across more than one project if they are within ten kilometers of each other). 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 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 of any system of instances such that each instance is within one kilometer of at least one 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	The distance of 50 instances within the grouped project and with the same project proponent in this monitoring period is more than 10 km. This eligibility criterion is not applicable. According to the applied methodology, there are no capacity limits defined. Therefore, the grouped project does not have any specified capacity limits applicable.

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	EF _{b,i,CO2}
Data unit	t CO ₂ e/TJ
Description	CO ₂ emission factor for fuel used by baseline device type <i>i</i> in the baseline scenario
Source of data	Option 3: Default value from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories
Value applied	112
Justification of choice of data or description of measurement methods and procedures applied	The value is determined ex ante by using of default values from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories for wood</i>
Purpose of Data	Calculation of baseline emissions
Comments	N/A

Data / Parameter	EF _{b,i,nonCO2}
Data unit	t CO ₂ e/TJ
Description	Non-CO ₂ emission factor for fuel used by baseline device type <i>i</i> in the baseline scenario
Source of data	Option 3: Default value from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories
Value applied	9.46
Justification of choice of data or description of measurement methods and procedures applied	The value is determined ex ante by using of default values from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories for wood</i>
Purpose of Data	Calculation of baseline emissions
Comments	N/A

Data / Parameter	NCV _{b,i}
Data unit	TJ/tonne
Description	Net calorific value of baseline fuel used by baseline device type <i>i</i>
Source of data	Option 3: Default value from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	The value is determined ex ante by using of default values from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i> for wood
Purpose of Data	Calculation of baseline emissions
Comments	N/A

Data / Parameter	BC _{ex-ante,b,i}
Data unit	tonne
Description	Ex-ante annual average quantity of fuel used per baseline device type <i>i</i>
Source of data	Option 1: A measurement campaign following the Kitchen Performance Test Protocol must be designed, carried out, and analyzed in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The campaign must achieve a confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent. Where the project does not achieve the target precision in a monitoring period, the project proponent must apply an appropriate conservativeness deduction as per Section 4 of the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The result must be scaled appropriately using the average household size to obtain the value of BC_{ex-ante,b,i}
Value applied	3.5696
Justification of choice of data or description of measurement methods and procedures applied	PP applied the value of BC _{ex-ante,b,i} equal to the parameter BC _{b,i,y} . In accordance with the applied methodology VM0050, the average quantity of firewood consumed by the baseline stove is determined through the Kitchen Performance Test (KPT) conducted on representative samples from 13-January-2025 to

	08-February-2025 during the 4th monitoring period. Based on the KPT survey results, $BC_{b,i,y} = 3.5696$ tonnes/household/year = $BC_{ex-ante,b,i..}$ Furthermore, the parameter $BC_{b,i,y}$ has been cross-checked against published literature: According to a public research released in 2024, Firewood is Cambodia's primary energy source, particularly in rural areas and among the poor. As of 2022, two million households used firewood for cooking⁷. Besides, reference is made to a project that has already been issued credits under the UNFCCC platform, with the project number PoA 10030, issued in 2020. The component project activity 10030-P1-0004-CP1, implemented in Cambodia, was registered under the methodology AMS II.G approved by the UNFCCC⁸. According to the project report, the amount of firewood saved through the use of the project stove is 3 tonnes/household/year, while the firewood consumption of the project stove is reported as 1.118 tonnes/household/year. Accordingly, the baseline stove consumption can be estimated at 4.118 tonnes/household/year. In comparison, the baseline firewood consumption applied in the project, 3.5696 tonnes per household per year, is 13.32% lower than the value reported in the publicly available documentation. This demonstrates that the baseline adopted in this project is conservative, ensuring that the estimated emission reductions are not overstated and remain consistent with the principle of environmental integrity.
Purpose of Data	Calculation of baseline emission
Comments	Energy consumption must be determined once prior to validation.

Data / Parameter	$\eta_{old,avg}$
Data unit	Fraction
Description	Weighted average efficiency of baseline devices that are replaced by project devices
Source of data	The applied methodology. Default value for three-stone fire using firewood or a cookstove with no improved combustion air supply or flue gas ventilation

⁷ <https://www.ebsco.com/research-starters/environmental-sciences/cambodias-natural-resources>

⁸ <https://cdm.unfccc.int/UserManagement/FileStorage/AOIR2UGTELHMZCB9DQXS4FVOK183Y5>

Value applied	0.15
Justification of choice of data or description of measurement methods and procedures applied	These methods and sources are recognized by the VCS Program
Purpose of Data	Calculation of baseline emission
Comments	N/A.

Data / Parameter	Hh _i
Data unit	Equivalent standard male adults
Description	Average household size of the target population using device type <i>i</i>
Source of data	Baseline survey The campaign must achieve a confidence and precision of at least 90/10 for the target parameter of average household size.
Value applied	4.34
Justification of choice of data or description of measurement methods and procedures applied	Recognized survey methods based on the CDM <i>Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities</i>
Purpose of Data	Estimation of average energy consumption
Comments	This parameter must be determined ex ante via the baseline survey as described in Section 6.2 of the applied methodology in the PD update phase. Equivalent standard male adults according to Guidelines for Woodfuel Surveys for FAO by Keith Openshaw, cited in Joseph, S. (1990). <i>Guidelines for Planning, Monitoring and Evaluating Cookstove Programmes</i>, UNFAO: Community Forestry Field Manual 1. Through the KPT tests were conducted on 11 control households from 13-January-2025 to 08-February-2025, this parameter has determined to have value of 4.35. However, during this PD update phase, PP also conducted the 4th monitoring period of the project. After calculating the sample size for parameter n_{j,k,y}, there were 54 representative samples participating in the interview. PP designed a questionnaire with a population size survey. The results showed that the total number of adults in these 54 representative samples was 4.34 adults per household.

	Therefore, to ensure conservativeness for emission reduction calculation, PP chooses the value of parameter “average household size (HHi)” is 4.34 adults/household. This was approved on 28-November-2025 in the 4th monitoring period, as reflected in the revised PD version 01.4, dated 23-October-2025.
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Data / Parameter	EF_{p,j,CO_2}
Data unit	t CO ₂ e/TJ
Description	CO ₂ emission factor for fuel used by project device type <i>j</i> in the project scenario
Source of data	Option 3: Default value from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied	112
Justification of choice of data or description of measurement methods and procedures applied	The value is determined ex ante by using of default values from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i> for wood
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	$EF_{p,j,nonCO_2}$
Data unit	t CO ₂ e/TJ
Description	Non-CO ₂ emission factor for fuel used by project device type <i>j</i> in the project scenario
Source of data	Option 3: Default value from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied	9.46
Justification of choice of data or description of measurement methods and procedures applied	The value is determined ex ante by using of default values from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i> for wood
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	$NCV_{p,j}$
Data unit	TJ/tonne
Description	Net calorific value of project fuel used by project device type j
Source of data	Option 3: Default value from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	The value is determined ex ante by using of default values from the most recent version of the <i>IPCC Guidelines for National Greenhouse Gas Inventories</i> for wood
Purpose of Data	Calculation of project emissions
Comments	N/A

4.2 Data and Parameters Monitored

Data / Parameter	$N_{j,k,y}$
Data unit	Number
Description	Number of commissioned project devices of type j from batch k in year y
Source of data	Monitoring
Description of measurement methods and procedures to be applied	The following data must be recorded during project activity implementation: 1) Number of new devices distributed under the project activity, identified by the type of device and date of commissioning; and 2) Identification information of the recipient of the device distributed under the project. Data management and reporting of this information must adhere to both data privacy requirements and good practice.
Frequency of monitoring/recording	Every time that new project devices are distributed
Value applied	484,890
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	-
Purpose of data	Calculation of baseline and project emissions

Calculation method	-
Comments	The number of project devices must be recorded in a database, sales record, or similar to ensure transparency. Until this monitoring period, a total of 484,892 ICS was distributed. However, 2 ICSs with serial numbers CAM046-ICS-7631 and CAM014-ICS-7845 were reported to be not used in the 3rd and 4th monitoring period. Therefore, the value of this parameter is applied at 484,890 in this monitoring period.
Data / Parameter	$n_{j,k,y}$
Data unit	Fraction
Description	Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y
Source of data	Monitoring
Description of measurement methods and procedures to be applied	Option 2 (surveys): Based on an adoption rate determined by a survey according to the most recent version of the CDM Standard for Sampling and Surveys for Project Activities and Programmes of Activities and achieving 90/10 confidence precision for the proportion of devices in operation. The lower end of the 90% confidence interval must be used to ensure conservativeness. The adoption survey must include: a) Kitchen observation (which includes visual and physical checks of the stove and its components), including photographic evidence; and b) Interview with the primary cook. The project proponent must provide proof of training and supervision to ensure field teams have the capacity required to complete adoption surveys successfully.
Frequency of monitoring/recording	Annually
Value applied	0.8833
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	Where the project device is not working or not being used at the time of conducting the survey, it should be conservatively assumed that the project device has not been active since the date on which the last adoption survey was conducted.
Purpose of data	Calculation of baseline and project emissions
Calculation method	The result of the monitoring survey, there is 3 project cookstove unused among 54 representative samples. Therefore, operation fraction was measured at 0.9444. However, to meet the

	requirement of the applied methodology, the lower boundary level of the 95% confidence interval has been used to ensure conservativeness. As such, a value of 0.8833 has been applied for the 5th monitoring period. Calculation details in emission reduction calculation spreadsheet.
Comments	To ensure sustained usage of the improved cookstoves and support the entire target population, the project has implemented a comprehensive customer support system in alignment with the three required criteria: 1. Before stove distribution, the project team, in collaboration with CWPDP (local implementing partner) and SIPCO, conducted a field survey to investigate the cooking practices, fuel types, and attitudes of the target households currently using traditional three-stone stoves (with average efficiency of 15%). The survey confirmed that the improved cookstoves being distributed (with 38.44% thermal efficiency) are compatible with the typical cooking habits, pot sizes, fuel types (primarily wood), and dishes commonly prepared by the target population. The selected stoves are thus capable of fully meeting the daily cooking needs of the households. The stove model was selected based on its compatibility with local cooking practices, durability, and ease of use, which was validated during field testing with representative households. 2. Prior to distribution, CWPDP and SIPCO organized structured communication sessions in Khmer language in each commune to introduce the stove, provide demonstrations on its proper use, maintenance, and storage. Additionally, CWPDP village-level coordinate with village lead conduct monthly or quarterly community meetings where CWPDP addresses content to provide ongoing guidance, address user questions, and reinforce good practices. 3. The grievance register is being maintained by the project's distribution partner (CWPDP) and SIPCO for submission of input/grievance (if any) related to the project activity. End-users can easily access through several widely accessible channels: • Contacting CWPDP focal persons at the village or commune level to request stove maintenance or replacement. • Calling a dedicated phone number printed on the stove packaging, which connects them directly to SIPCO's support staff in Cambodia. • Visiting SIPCO's official website for guidance and assistance. All communication and support materials are provided in Khmer – the primary language of the target area – ensuring accessibility and comprehension across the entire user population.

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass that is established to be non-renewable used by device in year y
Source of data	Default value of the most recent version of CDM TOOL33
Description of measurement methods and procedures to be applied	See "Source of data"
Frequency of monitoring/recording	Ex-ante for each crediting period
Value applied	0.3
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	$BC_{b,i,y}$
Data unit	Tonnes
Description	Fuel used per baseline device type i during year y
Source of data	This parameter has been determined as per option 1 given below in line with requirements of applied methodology and monitoring plan of the updated PD. Option 1: A measurement campaign following the <i>Kitchen Performance Test Protocol</i> in control households that do not participate in the project, established prior to validation as statistically equivalent to the pre-project conditions of project households regarding baseline fuel consumption
Description of measurement methods and procedures to be applied	Follow-up baseline surveys must be conducted at most every five years from the date of the last survey in control households that do not participate in the project, established prior to validation as statistically equivalent to the pre-project conditions of project households regarding baseline fuel consumption.

	Measurement campaign must be updated where follow-up baseline surveys show that the fuels, fuel sources, or technologies used by the control group are no longer statistically equivalent to the pre-project conditions of project households. The measurement campaign must be designed, carried out, and analyzed in compliance with the most recent version of the CDM <i>Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities</i>. The result must be scaled appropriately using the average household size to obtain the value of $BC_{b,i,y}$.
Frequency of monitoring/recording	At most every five years from the date of the last survey.
Value applied	3.5696
Monitoring equipment	Based on KPT method, the equipment need to be calibrated every year is weighing scale and moisture content meters. Weighing scale: Calibrated frequency: Annual Calibrated by Intertek Type: ELECTRONIC BALANCE - Serial number: SI-001 Manufacture: DAHONGYING Capacity: 40 kg x 5g Accuracy class: +/- 5 g Ambient Temperature: 22 ± 2 °C Relative humidity: 62 ± 4 % RH Calibration Certificate No.: KHMTT25002267, dated 06-January-2025 Due date: 06-January-2026 - Serial number: SI-002 Manufacture: DAHONGYING Capacity: 40 kg x 5g Accuracy class: +/- 5 g Ambient Temperature: 22 ± 2 °C Relative humidity: 62 ± 4 % RH Calibration Certificate No.: KHMTT25002269, dated 06-January-2025 Due date: 06-January-2026 Moisture content meters: Calibrated frequency: Annual Calibrated by VMI Type: Laser liner - Serial number: 18042925 Manufacturer: Dampfinder compact

	Accuracy class: 0.1% Calibration Certificate No.: V06.CN5.177.26, dated 15-April-2024 Due date: 30-April-2025 2. Serial number: 18042926 Manufacturer: Dampfinder compact Accuracy class: 0.1% Calibration Certificate No.: V06.CN5.177.27, dated 15-April-2024 Due date: 30-April-2025
QA/QC procedures to be applied	The campaign must achieve a confidence and precision of 95/10 for the target parameter of average daily fuel consumption per adult equivalent. Where the project does not achieve the target precision in a monitoring period, the project proponent must apply an appropriate conservativeness deduction as per Section 4 of the most recent version of the CDM <i>Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities</i>. <u>Comparison with the published literature</u> According to a public research released in 2024, Firewood is Cambodia's primary energy source, particularly in rural areas and among the poor. As of 2022, two million households used firewood for cooking⁹. Besides, reference is made to a project that has already been issued credits under the UNFCCC platform, with the project number PoA 10030, issued in 2020. The component project activity 10030-P1-0004-CP1, implemented in Cambodia, was registered under the methodology AMS II.G approved by the UNFCCC¹⁰. According to the project report, the amount of firewood saved through the use of the project stove is 3 tonnes/household/year, while the firewood consumption of the project stove is reported as 1.118 tonnes/household/year. Accordingly, the baseline stove consumption can be estimated at 4.118 tonnes/household/year. In comparison, the baseline firewood consumption applied in <i>the</i> project, 3.5696 tonnes per household per year, is 13.32% lower than the value reported in the publicly available documentation. This demonstrates that the baseline adopted in <i>this</i> project is conservative, ensuring that the estimated emission reductions are not overstated and remain consistent with the principle of environmental integrity.

⁹ <https://www.ebsco.com/research-starters/environmental-sciences/cambodias-natural-resources>

¹⁰ <https://cdm.unfccc.int/UserManagement/FileStorage/AOIR2UGTELHMZCB9DQXS4FVOK183Y5>

Purpose of data	Calculation of baseline emissions
Calculation method	N/A
Comments	The last survey for this parameter was also the first one conducted on 11 control households from 13-January-2025 to 08-February-2025 via KPT tests. The value was determined to be 3.5696 tonnes/household/year. The next survey would be completed no later than 10-February-2030.

Data / Parameter	$\eta_{new,avg,y}$										
Data unit	Fraction										
Description	Weighted average efficiency of project devices in year y										
Source of data	Calculation										
Description of measurement methods and procedures to be applied	Certification from the host country's national standards body or certifying agency. The decrease in thermal efficiency of project device j from batch k due to aging must be accounted for during the monitoring period. The project devices using biomass, PP has chosen A linear decrease approach, applying a default schedule of linearly decreasing efficiency up to the terminal efficiency (assumed to be 25%) through the lifespan of the project device										
Frequency of monitoring/recording	Annually										
Value applied	<table border="1"> <thead> <tr> <th>Age</th><th>$\eta_{new,avg,y}$</th></tr> </thead> <tbody> <tr> <td>1</td><td>0.3777</td></tr> <tr> <td>2</td><td>0.3642</td></tr> <tr> <td>3</td><td>0.3508</td></tr> <tr> <td>4</td><td>0.3374</td></tr> </tbody> </table>	Age	$\eta_{new,avg,y}$	1	0.3777	2	0.3642	3	0.3508	4	0.3374
Age	$\eta_{new,avg,y}$										
1	0.3777										
2	0.3642										
3	0.3508										
4	0.3374										
Monitoring equipment	N/A										
QA/QC procedures to be applied	N/A										
Purpose of data	Calculation of baseline and project emission										
Calculation method	N/A										
Comments	N/A										

Data / Parameter	$BC_{p,j,k,y}$
Data unit	Tonnes
Description	Average quantity of fuel used by project device type j from batch k during year y
Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	This parameter has been determined through a KPT campaign in line with updated PD and applied methodology's option 1 as listed below: Option 1: A measurement campaign following the Kitchen Performance Test protocol must be designed, carried out, and analyzed in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The campaign must achieve confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent. The result must be scaled appropriately using the average household size to obtain the value of $BC_{p,j,k,y}$. Project activities applying KPTs must also measure the quantity of fuel used by pre-project devices that are still operational and provide it in the calculation sheet and monitoring reports (this is a reporting-only requirement). Also, the PP has applied a confidence precision of 95/10, although the methodology only requires 90/10 as mentioned above. Further details are provided in Section 4.3 of the document.
Frequency of monitoring/recording	Annually
Value applied	Based on the survey, - Ecozen 1 year old: 1.4655 - Ecozen 2 year old: 1.3877 - Ecozen 3 year old: 1.3403 - Ecozen 4 year old: 1.3071
Monitoring equipment	Based on KPT method, the equipment need to be calibrated every year is weighing scale and moisture content meters. Weighing scale: Calibrated frequency: Annual Calibrated by Intertek Type: ELECTRONIC BALANCE - Serial number: SI-001 - Manufacture: DAHONGYING - Capacity: 40 kg x 5g - Ambient Temperature: 22 ± 2 °C - Relative humidity: 62 ± 4 % RH - Calibration Certificate No.: KHMTT25002267, dated 06-January-2025 - Due date: 06-January-2026

	2. Serial number: SI-002 Manufacture: DAHONGYING Capacity: 40 kg x 5g Ambient Temperature: 22 ± 2 °C Relative humidity: 62 ± 4 % RH Calibration Certificate No.: KHMTT25002269, dated 06-January-2025 Due date: 06-January-2026 Moisture content meters: Calibrated frequency: Annual Calibrated by 3D Vina Type: Laser liner 1. Serial number: 18042925 Manufacturer: Laserliner – Germany Accuracy class: 0.1% Calibration Certificate No.: 25050904, dated 09-May-2025 Due date: 09-May-2026 2. Serial number: 18042926 Manufacturer: Laserliner – Germany Accuracy class: 0.1% Calibration Certificate No.: 25050905, dated 09-May-2025 Due date: 09-May-2026
QA/QC procedures to be applied	Refer to the study of Chan Somanta, the average households' fuelwood consumption for cooking is 3.23 ± 0.30 ($\pm$ refers to 90% of confidence level), 3.73 ± 0.23, and 4.83 ± 0.50 kg day⁻¹ household⁻¹ for small, medium, and large families, respectively. This study was conducted in Cambodia with sampling is households who were using the improved cookstove¹¹. Findings in this study were similar to that found by San et al, average fuelwood consumption for cooking and boiling water per family per day is 5.21 ± 0.11 kg and 2.82 ± 0.11 kg respectively¹². Compare to the parameter $BC_{p,j,k,y}$ that has been determined by PP is 4.01 kg/day for device in the first year, this value does not exceed the public references listed above.
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	N/A

¹¹ https://u-hyogo.repo.nii.ac.jp/record/305/files/Dr_39a.pdf

¹² <https://www.sciencedirect.com/science/article/abs/pii/S0360544212004768>

4.3 Monitoring Plan

(a) Sampling Methodology

Representative sampling will be undertaken that is designed in line with the requirements of the VM 0050 methodology applied and the “Standard for sampling and surveys for CDM project activities and programme of activities”, version 09.0. This sampling plan follows the recommended outline as contained in “Guidelines for sampling and surveys for CDM project activities and programme of activities”, version 04.0.

Monitoring Parameters

Parameter	Description	Type of parameter	Parameter type /frequency	Methods to be applied
$N_{j,k,y}$	Number of commissioned project devices of type j from batch k in year y	Mean value	Every time that new project devices are distributed	Visiting to the premises, visual inspection and interview with ICS end-user
$n_{j,k,y}$	Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y	Proportion value	Annually	Visiting to the premises, visual inspection and interview with ICS end-user
$BC_{p,j,k,y}$	Average quantity of fuel used by project device type j from batch k during year y	Mean value	Annually	Visiting to the premises, visual inspection, interview with ICS end-user and weigh firewood

To monitor the required parameters data will be collected from a statistically valid sample of ICS in the database for the monitoring period, as per this sampling plan. Data are collected through field surveys at the frequency defined for each parameter in below. Survey data are then entered into the database and included in the monitoring report.

As per the approved methodology and the Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities (Version 09), the representative sampling method requires that:

“A statistically valid sample of the locations where the devices are deployed, with consideration in the sampling design of occupancy and demographic differences, can be used to determine parameter values used to calculate emission reductions, as per the relevant requirements in the Standard. When biennial inspection is chosen, a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. When the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved. In cases where survey results indicate that the required precision is not achieved, the lower bound of the 90% or 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey.”

For this project, the sample size has been determined to achieve a 95/10 precision level (95% confidence interval and 10% margin of error), in line with the monitoring plan of the revised PD. In cases where survey results do not achieve the 95/10 precision, the lower bound of the 95% confidence interval may be applied as an alternative, consistent with the approved methodology.

Additional requirements for grouped projects, as per the Sampling Standard (Version 09, paragraphs 21–23, EB 110), will be followed. In cases where a single sampling plan covers more than one instance, parameter values shall be estimated separately for each instance, unless a single sampling plan applying 95/10 confidence/precision is undertaken.

(b) Sample Frame

For parameter $N_{j,k,y}$, $n_{j,k,y}$, $BC_{p,j,k,y}$: The sampling frame refers to all the information in the database. The grouped project is open to different models of ICS. As explained below, to take the different characteristics of ICS models and other factors that may affect estimates into consideration, type of ICSs shall be either sampled separately and independently, or grouped together under a single sampling plan across the age and model of ICS, in each case using strata that have unique combinations of these factors.

(i) Target Population

For parameter $N_{j,k,y}$, $n_{j,k,y}$, $BC_{p,j,k,y}$: The overall target population is the ICS distributed. The ICS to be sampled are drawn from the list of individual ICS serial ID numbers contained in the sales record database, which is maintained by the distributor.

(ii) Sampling method

Sampling has conducted using stratified random sampling techniques, and detailed calculations are provided within the monitoring plan as per CDM guidelines “Sampling and surveys for CDM project activities and programmes of activities”. Optionally, other sampling approaches may be used in accordance with “Sampling and surveys for CDM project activities and programmes of activities” and Guideline for Sampling and Surveys for CDM Project. Activities when sampling techniques or statistical analysis necessitates it.

(iii) Sample size

The sample size has been calculated using the EB 86, “Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 04.0.

According to the “Standard for sampling and surveys for CDM project activities and programme of activities”, if there is more than one parameter to be estimated, then a sample size calculation should be done for each of them. Then either the largest number for the sample size is chosen as sampling effort with one common survey, or separate sampling efforts and surveys are undertaken for each parameter.

In order to calculate the required sample size estimates, values for the proportions, mean values, and standard deviations are required. As per Guidelines for Sampling and surveys for CDM project

activities and programmes of activities (version 04.0) Appendix 1 paragraph 5, there are different ways available to obtain the estimates of the parameter of interest:

- (a) Refer to the result of previous studies and use these results;
- (b) In a situation where information from previous studies is not available, a preliminary sample as a pilot could be conducted and use that sample is used to provide the estimates;
- (c) Use best guesses based on the researcher's own experiences.

For the registration/inclusion purpose of instance, option C shall be applied. Thus, there are different equations to calculate a required sample size for different situations. Different equation that will be used, depends on the type of parameter of interest, that is either:

- (a) A percentage – the proportion value
- (b) A numeric value – the mean value

For all of the parameters 95% confidence is required that the margin of error in the estimate is not more than $\pm 10\%$ in relative terms.

For a percentage – the proportion value

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

Where:

- | | |
|------------------|--|
| N | : Sample size |
| N=N _y | : Number of ICS in the instance project activity installed in year y = total number of households. |
| p | : Our expected proportion ([proportion] assuming [proportion] of the installed (ICS) 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).

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

For a numeric value –the mean value

The following equation is used:

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

Where: $V = (SD/\text{mean})^2$

n = Sample size

N = Population size

Mean= Expected mean

SD = Expected standard deviation

1.96 = Represents the 95% confidence required

(In the case of 90% confidence, 1.645 shall be used)

0.1 = Represents the 10% relative precision

For parameter $n_{j,k,y}$ – This is a percentage – the proportion value

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

Monitoring parameter(s)		$n_{j,k,y}$			
Sampling frame(s)		Given stove model and age			
Sampling approach		Stratified random sampling based on model and operation age of cookstove			
Type of ICS	Age	Stove population	Expected operational proportion	Calculated Sample Size (n)	Actual Monitored sample size
Ecozen	1	14,892	0.90	1	2
Ecozen	2	143,097	0.90	13	16
Ecozen	3	200,901	0.90	18	22
Ecozen	4	126,000	0.90	11	14
Total		484,890		43	54
Sample size determination					
Estimated Operation (p)				0.90	
Voperation= $p(1-p)/p^2$				0.111	
Sample Size required (SOF)				43	

Since $n_{j,k,y}$ share the same sampling units, project proponent may choose to have one common survey for this parameter. PP expected response rate from the sampled households to be 80%. Thus, we would decide to sample $43/0.8 = 54$ samples.

For parameter $BC_{p,j,k,y}$ – This is a numeric value – the mean value

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

Monitoring Parameter	BC _{p,j,k,y}					
Sampling frame(s)	Given stove model and age					
Sampling approach	Stratified random sampling based on model and operation age of cookstove					
Type of ICS	Age	Stove population	Expected Mean	Expected Standard Deviation	Calculated Sample Size	Actual Monitored sample size
Ecozen	1	14,892	1.50	0.150	1	2
Ecozen	2	143,097	1.45	0.145	4	6
Ecozen	3	200,901	1.40	0.140	5	8
Ecozen	4	126,000	1.35	0.135	3	5
Total		484,890			13	21
Sample size determination						
Mean					1.4048	
Standard Deviation (SD)					0.1405	
$V_{\text{mean}} = (SD/\text{mean})^2$					0.01	
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	

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)).

The adjusted sample size obtained after applying Student's t-distribution is 11. PP expected response rate from the sampled households to be 70%. Thus, we have decided to sample $11/0.7 = 15.7$ samples.

In the other hand, 21 samples for this parameter were selected using a stratified random approach based on stove age and stove model from the 54 samples of parameter $n_{j,k,y}$ for the survey. The KPT test was conducted from 16-October-2025 to 21-November-2025. Detailed survey results are presented in Section 5.2 of the document.

Finally, The number of samples for 3 parameters below:

Parameter	Sample size
$n_{j,k,y}$	54
BC _{p,j,k,y}	21

Analysis of data collected and confidence/precision achieved

Analysis of data monitored through sampling revealed the following results:

ANALYSIS for parameter $n_{j,k,y}$	
Samples Monitored	54
Operation fraction Measured	0.9444
Standard Error of operation	0.0312
Upper Boundary Level	100.55%
Lower Boundary Level	88.33%
Relative precision (Margin of error)	6.08%
Check precision	6.47%
Result	Ok, reliability level met
Lower Bound confidence value	Not applicable

ANALYSIS for parameter $BC_{p,j,k,1}$		ANALYSIS for parameter $BC_{p,j,k,2}$	
Samples Monitored	2	Samples Monitored	6
Mean value	3.700	Mean value	3.927
Standard deviation	0.151	Standard deviation	0.369
Upper boundary level	3.854	Upper boundary level	4.292
Lower boundary level	3.546	Lower boundary level	3.562
Check precision	4.17%	Check precision	9.29%
Lower outlier limit	3.473	Lower outlier limit	3.374
Upper outlier limit	3.927	Upper outlier limit	4.480

ANALYSIS for parameter $BC_{p,j,k,3}$		ANALYSIS for parameter $BC_{p,j,k,4}$	
Samples Monitored	8	Samples Monitored	5
Mean value	3.712	Mean value	3.498
Standard deviation	0.101	Standard deviation	0.137
Upper boundary level	3.815	Upper boundary level	3.642
Lower boundary level	3.609	Lower boundary level	3.354
Check precision	2.78%	Check precision	4.11%
Lower outlier limit	3.560	Lower outlier limit	3.292
Upper outlier limit	3.864	Upper outlier limit	3.704

For detailed calculations refer to ER sheet.

(iv) Survey and Data Collection Method

The sample to be surveyed is be drawn randomly with a geographical spread within the project boundary of the project activity instance. The survey was conducted through: physical on-site visit (face-to-face) from 16 October to 21 November 2025. For the physical on-site visit (face-to-face interview), data is collected through hardcopy questionnaires.

Training

The sample to be surveyed is be drawn randomly with a geographical spread within the project boundary of the project activity instance. The project proponent conducted a training programme for project participant's representative and its nominated distributor and distribution partner (CWPD) for survey framework and approach on 15-October-2025. Major focus is on understanding collection of data as per the survey questionnaire.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

Baseline emissions are calculated as follows:

$$BE_y = \sum_{i,j,k} EC_{i,y} \times N_{j,k,y} \times n_{j,k,y} \times (EF_{b,i,CO_2} \times f_{NRB,y} + EF_{b,i,nonCO_2})$$

BE_y	:	Baseline emissions during year y (t CO ₂ e)
$EC_{i,y}$	:	Average energy consumption of baseline device type i in year y (TJ)
$N_{j,k,y}$	:	Number of commissioned project devices of type j from batch k in year y
$n_{j,k,y}$	:	Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)
EF_{b,i,CO_2}	:	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ /TJ)
$f_{NRB,y}$	:	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not considered for fossil fuels (fraction)
$EF_{b,i,nonCO_2}$	:	Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ e/TJ)
i	:	Baseline device type and its respective fuel type
j	:	Project device type and its respective fuel type

For parameter $EC_{i,y}$ is calculated as follow:

$$EC_{i,y} = BC_{b,i,y} \times NCV_{b,i}$$

Where:

- $BC_{b,i,y}$: Fuel used per baseline device type i during year y (tonnes)
 $NCV_{b,i}$: Net calorific value of baseline fuel for baseline device type i (TJ/tonne)

For $BC_{b,i,y}$, PP conducted the Kitchen Performance Test (KPT) in line with the applied methodology VM0050, ver 1.0 and KPT protocol. the sample size for the baseline KPTs was calculated in line with section 8.4(b) of the applied methodology, using the CDM Guideline for Sampling and Surveys, version 4.0. Using CDM Guidelines, the sample size for each parameter $BC_{b,i,y}$ (mean parameter) was 11 and the survey was conducted from 13-January-2025 to 08-February-2025 in the 4th monitoring period. This parameter value was verified and approved at 3.5696 (tonnes/year).

The project activity is replacing the traditional cookstove to improved cookstove. The traditional cookstoves only use wood fuel, so according to 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the value of $NCV_{b,i}$ is 0.0156 TJ/tonne.

So $EC_{i,y} = 3.5696 \times 0.0156 = 0.0557$ (TJ)

Cross-check of $EC_{i,y}$ to address stove stacking

$$EC_{est,y} = EC_{p,y} \times \frac{\eta_{new,avg,y}}{\eta_{old,avg}}$$

Where:

- $EC_{est,y}$: Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)
 $EC_{p,y}$: Energy used in project scenario by project devices during year y (TJ)
 $\eta_{new,avg,y}$: Weighted average efficiency of project devices in year y (fraction)
 $\eta_{old,avg}$: Weighted average efficiency of baseline devices that are replaced by project devices (fraction)

$$EC_{p,y} = \sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j}$$

Where:

- $BC_{p,j,k,y}$: Average quantity of fuel used by project device type j from batch k during year y (tonnes or m³)
 $NCV_{p,j}$: Net calorific value of project fuel used in project device type j (TJ/tonne or TJ/m³)

Through the monitoring survey, the result of average quantity of fuel used by project device based on the operation year of project cookstove as following (details of the process, time and results of KPT implementation to determine the parameter in the section 5.2 of this document):

$$BC_{p,Ecozen,age\ 1} = 1.4655 \text{ (tonnes)}$$

$$BC_{p,Ecozen,age\ 2} = 1.3877 \text{ (tonnes)}$$

$$BC_{p,Ecozen,age\ 3} = 1.3403 \text{ (tonnes)}$$

$$BC_{p,Ecozen,age\ 4} = 1.3071 \text{ (tonnes)}$$

So energy used in project scenario by project devices for each operation age of project cookstove as following:

$$EC_{p,age\ 1} = 1.4655 \times 0.0156 = 0.0229 \text{ (TJ)}$$

$$EC_{p,age\ 2} = 1.3877 \times 0.0156 = 0.0216 \text{ (TJ)}$$

$$EC_{p,age\ 3} = 1.3403 \times 0.0156 = 0.0209 \text{ (TJ)}$$

$$EC_{p,age\ 4} = 1.3071 \times 0.0156 = 0.0204 \text{ (TJ)}$$

Weighted average efficiency of project devices in the operation age year of project cookstove as following:

Age	$\eta_{new,avg,y}$
1	0.3777
2	0.3642
3	0.3508
4	0.3374

So back-calculated energy consumption of the potential mix of devices and fuels in the baseline in the cookstove age as following:

$$EC_{est,age\ 1} = 0.0229 \times (0.3777 / 0.15) = 0.0576$$

$$EC_{est,age\ 2} = 0.0216 \times (0.3642 / 0.15) = 0.0526$$

$$EC_{est,age\ 3} = 0.0209 \times (0.3508 / 0.15) = 0.0489$$

$$EC_{est,age\ 4} = 0.0204 \times (0.3374 / 0.15) = 0.0459$$

Cross check to $EC_{b,i,y} = 0.05569 \text{ TJ}$ as calculating above:

$$EC_{b,i,age\ 1} < EC_{est,age\ 1} \text{ therefore, } EC_{i,age\ 1} = EC_{b,i,age\ 1} = 0.0557 \text{ (TJ)}$$

$$EC_{b,i,age\ 2} > EC_{est,age\ 2} \text{ therefore, } EC_{i,age\ 2} = EC_{est,age\ 2} = 0.0526 \text{ (TJ)}$$

$$EC_{b,i,age\ 3} > EC_{est,age\ 3} \text{ therefore, } EC_{i,age\ 3} = EC_{est,age\ 3} = 0.0489 \text{ (TJ)}$$

$$EC_{b,i,age\ 4} > EC_{est,age\ 4} \text{ therefore, } EC_{i,age\ 4} = EC_{est,age\ 4} = 0.0459 \text{ (TJ)}$$

The values of the remaining parameters are applied for all of instance as follows:

$$EF_{b,i,CO_2} = 112 \text{ tCO}_2/\text{TJ}$$

$$EF_{b,i,nonCO_2} = 9.46 \text{ tCO}_2/\text{TJ}$$

$$f_{NRB} = 0.3$$

$$n_{j,k,y} = 0.8833$$

Therefore, the baseline emission calculated each project instances as follows:

Project Activity Instance	Age	Quantity distributed	Quantity operated in the last monitoring period	Vintage 2025	
				Equivalent Operational year in the vintage 2025 during the 5 th monitoring period	Baseline Emission
PA 001	4	8,000	8,000	0.75	10,446
PA 002	4	8,000	8,000	0.75	10,446
PA 003	4	8,000	8,000	0.75	10,446
PA 004	4	2,272	2,272	0.75	2,967
	2	3,790	3,790	0.75	5,671
PA 005	4	8,000	8,000	0.75	10,446
PA 006	3	2,000	2,000	0.75	2,782
PA 007	4	8,000	8,000	0.75	10,446
	2	2,077	2,077	0.75	3,108
PA 008	4	8,000	8,000	0.75	10,446
	2	1,686	1,686	0.75	2,523
PA 009	4	8,000	8,000	0.75	10,446
	2	1,893	1,893	0.75	2,833
PA 010	4	8,000	8,000	0.75	10,446
	2	1,921	1,921	0.75	2,874
PA 011	4	71	71	0.75	93
	2	11,456	11,456	0.75	17,142
PA 012	3	8,000	8,000	0.75	11,129
	2	1,998	1,998	0.75	2,990
PA 013	3	8,000	8,000	0.75	11,129
	2	1,909	1,909	0.75	2,857
PA 014	3	8,000	7,999	0.75	11,127
PA 015	3	8,000	8,000	0.75	11,129
PA 016	4	8,000	8,000	0.75	10,446
	2	6,002	6,002	0.75	8,981
PA 017	4	7,800	7,800	0.75	10,185
	3	200	200	0.75	278
	2	5,516	5,516	0.75	8,254
PA 018	3	7,181	7,181	0.75	9,989
	2	2,613	2,613	0.75	3,910
PA 019	3	8,000	8,000	0.75	11,129
	2	3,476	3,476	0.75	5,201

PA 020	3	8,000	8,000	0.75	11,129
	2	3,487	3,487	0.75	5,218
PA 021	3	5,500	5,500	0.75	7,651
	3	2,500	2,500	0.75	3,478
	2	2,646	2,646	0.75	3,959
PA 022	3	8,000	8,000	0.75	11,129
	2	3,422	3,422	0.75	5,120
PA 023	3	6,538	6,538	0.75	9,095
	2	1,462	1,462	0.75	2,188
	2	2,307	2,307	0.75	3,452
PA 024	2	1,149	1,149	0.75	1,719
	2	697	697	0.75	1,043
PA 025	3	8,000	8,000	0.75	11,129
	2	5,783	5,783	0.75	8,653
PA 026	4	8,000	8,000	0.75	10,446
	2	3,236	3,236	0.75	4,842
PA 027	4	8,000	8,000	0.75	10,446
PA 028	4	8,000	8,000	0.75	10,446
PA 029	4	2,222	2,222	0.75	2,901
	3	5,778	5,778	0.75	8,038
	2	1,923	1,923	0.75	2,877
PA 030	3	5,659	5,659	0.75	7,872
	2	3,137	3,137	0.75	4,694
PA 031	3	8,000	8,000	0.75	11,129
	2	3,885	3,885	0.75	5,813
PA 032	3	8,000	8,000	0.75	11,129
	2	4,005	4,005	0.75	5,993
PA 033	3	8,000	8,000	0.75	11,129
	2	1,983	1,983	0.75	2,967
PA 034	3	5,588	5,588	0.75	7,773
	3	2,412	2,412	0.75	3,355
	2	1,852	1,852	0.75	2,771
PA 035	3	5,546	5,546	0.75	7,715
	2	2,412	2,412	0.75	3,609
PA 036	3	8,000	8,000	0.75	11,129
	2	2,410	2,410	0.75	3,606
PA 037	3	8,000	8,000	0.75	11,129
	2	1,452	1,452	0.75	2,173
PA 038	3	1,900	1,900	0.75	2,643
	3	6,100	6,100	0.75	8,486
	2	2,508	2,508	0.75	3,753
PA 039	3	8,000	8,000	0.75	11,129
	2	1,888	1,888	0.75	2,825
PA 040	2	8,000	8,000	0.75	11,971
	2	3,063	3,063	0.75	4,583
PA 041	2	8,000	8,000	0.75	11,971
	2	3,075	3,075	0.75	4,601
PA 042	2	4,486	4,486	0.75	6,713

	2	1,404	1,404	0.75	2,101
PA 043	3	1,000	1,000	0.75	1,391
	3	7,000	7,000	0.75	9,738
PA 044	3	8,000	8,000	0.75	11,129
PA 045	3	8,000	8,000	0.75	11,129
PA 046	4	8,000	7,999	0.75	10,445
	2	3,537	3,537	0.75	5,293
PA 047	3	8,000	8,000	0.75	11,129
	2	4,032	4,032	0.75	6,033
PA 048	4	8,000	8,000	0.75	10,446
	2	3,248	3,248	0.75	4,860
PA 049	4	1,636	1,636	0.75	2,136
	2	8,271	8,271	0.75	12,376
PA 050	1	6,970	6,970	0.69	10,192
	1	7,922	7,922	0.64	10,711
Total		484,892	484,890		658,121

See detailed calculations in ERR spreadsheet.

5.2 Project Emissions

The project devices only use biomass. Hence, project emissions are calculated as following:

$$PE_y = \sum_j \sum_k BC_{p,j,k,y} \times N_{j,k,y} \times NCV_{p,j} \times n_{j,k,y} \times (EF_{p,j,CO_2} \times f_{NRB,y} + EF_{p,j,nonCO_2})$$

Where:

- PE_y : Project emissions during year y (t CO₂e)
- $BC_{p,j,k,y}$: Average quantity of fuel used by project device type j from batch k during year y (tonnes or m³)
- $N_{j,k,y}$: Number of commissioned project devices of type j from batch k in year y
- $n_{j,k,y}$: Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)
- $NCV_{p,j}$: Net calorific value of project fuel for project device type j (TJ/tonne)
- EF_{p,j,CO_2} : CO₂ emission factor for fuel used by project device type j in the project scenario (t CO₂/TJ)
- $EF_{p,j,nonCO_2}$: Non-CO₂ emission factor for fuel used by project device type j in the project scenario (t CO₂e/TJ)

For parameter Average quantity of fuel used by project device type j from batch k during year y ($BC_{p,j,k,y}$):

PP has conducted the Kitchen Performance Test (KPT) In line with the applied methodology VM0050, ver 1.0 and KPT protocol. the sample size for the project KPTs was calculated in line with section 8.4(b) of the applied methodology, using the CDM Guideline for Sampling and Surveys, version 4.0. Using CDM Guidelines, the sample size for each parameter $BC_{p,j,k,y}$ (mean parameter) was 21 and the survey was conducted from 16-October-2025 to 21-November-2025.

Procedures followed for Conducting KPT:

The KPT surveys were conducted by a competent team trained for the KPT surveys by SIPCO for performing KPTs, based on the KPT protocol. Once the villages were selected by the operational team, enumerators were issued with protocols for the selection of the individual households. These protocols outlined that the selected households should, but are not limited to, the following criteria in accordance with the KPT protocol:

- Have the person who is primarily responsible for cooking available for visits once a day for the next 4 days (For households where the survey took three days, the SIPCO team arrived early in the morning on the first day to provide an introduction and instructions to the families. For households where the survey lasted four days, the first day was dedicated to providing information and guidance);
- Not have any events scheduled that would disrupt normal cooking practices during this time (e.g Weddings, community events);
- Primarily cook on wood

Additionally, the enumerators were instructed to follow, but are not limited to, the following criteria in accordance with the KPT protocol

- Avoid a measurement campaign during special occasions, holidays, or any day when cooking is not normal and be aware of local events like market days that may involve above-average fuel consumption.
- To explain the purpose of the test to the family members and arrange to measure their fuel consumption.
- Stress to household members that their cooking practices should remain as close to normal as possible for the duration of the test.
- Explain to family members that the surveyor will visit the respondent daily to collect the information.
- Ask the family to define an inventory area to store the fuel during the test. Record the weight and moisture content of the initial stock of fuels and if the family is going to collect or purchase fuel during the days of the test, ask them to keep newly collected or purchased fuel separate from fuel that has already been tested for moisture and weighed.
- Visit each household at roughly the same time each day, without being intrusive.

- Record fuel consumption by weighing the remaining fuel. Record the weight and moisture content of newly collected fuel before it is added to the family's stock.

KPT results for the project fuel consumption

The annual baseline fuel consumption per household was calculated from the KPT survey results of 21 households. The parameter was within the 95/10 confidence/precision which can be checked in the table below:

Serial Number	Age	Member in household					Fuel used by traditional cookstove (kg/day)			
		Children (0-14 years)	Female > 14 years	Male 15-59 years	Male > 59 years	Total member Equivalent to adult male standard	Day 1	Day 2	Day 3	Average
CAM050-ICS-14646	Age 1	1	2	1	1	3.9	3.48	3.52	3.78	3.593
CAM050-ICS-03713	Age 1	1	1	2	1	4.1	3.65	4.02	3.75	3.807
CAM049-ICS-6942	Age 2	2	1	2	1	4.6	4.12	4.01	3.91	4.013
CAM030-ICS-7652	Age 2	1	2	2	0	4.1	3.61	3.48	3.55	3.547
CAM049-ICS-9905	Age 2	1	2	2	1	4.9	4.42	4.28	4.11	4.270
CAM026-ICS-8906	Age 2	1	2	3	0	5.1	4.63	4.25	4.37	4.417
CAM019-ICS-9161	Age 2	1	2	1	1	3.9	3.42	3.72	3.56	3.567
CAM034-ICS-8269	Age 2	1	1	3	0	4.3	3.74	3.81	3.62	3.723
CAM031-ICS-7634	Age 3	2	1	2	1	4.6	3.88	4.02	3.71	3.870
CAM014-ICS-2140	Age 3	1	2	2	0	4.1	3.46	3.68	3.72	3.620
CAM015-ICS-7893	Age 3	0	3	2	0	4.4	3.61	3.92	3.58	3.703
CAM018-ICS-0855	Age 3	1	2	2	0	4.1	3.46	3.51	3.82	3.597
CAM025-ICS-7460	Age 3	2	2	2	0	4.6	3.85	3.68	3.98	3.837
CAM045-ICS-1416	Age 3	0	3	2	0	4.4	3.71	3.92	3.58	3.737
CAM022-ICS-4829	Age 3	2	1	2	1	4.6	3.68	3.58	3.75	3.670
CAM031-ICS-6363	Age 3	1	1	3	0	4.3	3.63	3.34	3.91	3.627
CAM009-ICS-4155	Age 4	1	2	2	0	4.1	3.39	3.51	3.28	3.393
CAM016-ICS-5074	Age 4	2	1	2	1	4.6	3.81	3.51	3.82	3.713
CAM007-ICS-0956	Age 4	1	1	2	1	4.1	3.39	3.47	3.29	3.383

CAM017-ICS-4032	Age 4	1	2	2	0	4.1	3.41	3.41	3.52	3.447
CAM007-ICS-0675	Age 4	1	0	3	1	4.3	3.46	3.34	3.84	3.547

Average of fuel used by project device per each member equivalent to adult male standard of ICS age 1 to age 4 are 0.925, 0.876, 0.846 and 0.825 kg/capacity/day, respectively.

Average household size of the target population using device type i, which is applied at 4.34 people/household, was approved in the 4th monitoring period. Therefore, the result of average quantity of fuel used by project device based on the operation year of project cookstove as following:

$$BC_{p,Ecozen,age\ 1} = 0.925 \times 4.34 = 4.015 \text{ (kg/day)} = 1.4655 \text{ (tonnes/year)}$$

$$BC_{p,Ecozen,age\ 2} = 0.876 \times 4.34 = 3.802 \text{ (kg/day)} = 1.3877 \text{ (tonnes/year)}$$

$$BC_{p,Ecozen,age\ 3} = 0.846 \times 4.34 = 3.672 \text{ (kg/day)} = 1.3403 \text{ (tonnes/year)}$$

$$BC_{p,Ecozen,age\ 4} = 0.825 \times 4.34 = 3.581 \text{ (kg/day)} = 1.3071 \text{ (tonnes/year)}$$

The values of the remaining parameters are applied for all of instance as follows:

$$EF_{b,i,CO_2} = 112 \text{ tCO}_2/\text{TJ}$$

$$EF_{b,i,nonCO_2} = 9.46 \text{ tCO}_2/\text{TJ}$$

$$f_{NRB} = 0.3$$

$$NCV_{biomass} = 0.0156 \text{ (TJ/tonne)}$$

$$n_{j,k,y} = 0.8833$$

Therefore, the project emission calculated each project instances as follows:

Project Activity Instance	Age	Quantity distributed	Quantity operated in the last monitoring period	Vintage 2025	
				Equivalent Operational year in the vintage 2025 during the 5 th monitoring period	Project Emission
PA 001	4	8,000	8,000	0.75	4,640
PA 002	4	8,000	8,000	0.75	4,640
PA 003	4	8,000	8,000	0.75	4,640
PA 004	4	2,272	2,272	0.75	1,318
	2	3,790	3,790	0.75	2,334
PA 005	4	8,000	8,000	0.75	4,640
PA 006	3	2,000	2,000	0.75	1,190
PA 007	4	8,000	8,000	0.75	4,640
	2	2,077	2,077	0.75	1,279

PA 008	4	8,000	8,000	0.75	4,640
	2	1,686	1,686	0.75	1,038
PA 009	4	8,000	8,000	0.75	4,640
	2	1,893	1,893	0.75	1,166
PA 010	4	8,000	8,000	0.75	4,640
	2	1,921	1,921	0.75	1,183
PA 011	4	71	71	0.75	41
	2	11,456	11,456	0.75	7,055
PA 012	3	8,000	8,000	0.75	4,758
	2	1,998	1,998	0.75	1,230
PA 013	3	8,000	8,000	0.75	4,758
	2	1,909	1,909	0.75	1,176
PA 014	3	8,000	7,999	0.75	4,758
PA 015	3	8,000	8,000	0.75	4,758
PA 016	4	8,000	8,000	0.75	4,640
	2	6,002	6,002	0.75	3,696
PA 017	4	7,800	7,800	0.75	4,524
	3	200	200	0.75	119
	2	5,516	5,516	0.75	3,397
PA 018	3	7,181	7,181	0.75	4,271
	2	2,613	2,613	0.75	1,609
PA 019	3	8,000	8,000	0.75	4,758
	2	3,476	3,476	0.75	2,141
PA 020	3	8,000	8,000	0.75	4,758
	2	3,487	3,487	0.75	2,147
PA 021	3	5,500	5,500	0.75	3,271
	3	2,500	2,500	0.75	1,487
	2	2,646	2,646	0.75	1,630
PA 022	3	8,000	8,000	0.75	4,758
	2	3,422	3,422	0.75	2,107
PA 023	3	6,538	6,538	0.75	3,889
	2	1,462	1,462	0.75	900
	2	2,307	2,307	0.75	1,421
PA 024	2	1,149	1,149	0.75	708
	2	697	697	0.75	429
PA 025	3	8,000	8,000	0.75	4,758
	2	5,783	5,783	0.75	3,561
PA 026	4	8,000	8,000	0.75	4,640
	2	3,236	3,236	0.75	1,993
PA 027	4	8,000	8,000	0.75	4,640
PA 028	4	8,000	8,000	0.75	4,640
PA 029	4	2,222	2,222	0.75	1,289
	3	5,778	5,778	0.75	3,437
	2	1,923	1,923	0.75	1,184
PA 030	3	5,659	5,659	0.75	3,366
	2	3,137	3,137	0.75	1,932
PA 031	3	8,000	8,000	0.75	4,758
	2	3,885	3,885	0.75	2,393

PA 032	3	8,000	8,000	0.75	4,758
	2	4,005	4,005	0.75	2,466
PA 033	3	8,000	8,000	0.75	4,758
	2	1,983	1,983	0.75	1,221
PA 034	3	5,588	5,588	0.75	3,324
	3	2,412	2,412	0.75	1,435
	2	1,852	1,852	0.75	1,141
PA 035	3	5,546	5,546	0.75	3,299
	2	2,412	2,412	0.75	1,485
PA 036	3	8,000	8,000	0.75	4,758
	2	2,410	2,410	0.75	1,484
PA 037	3	8,000	8,000	0.75	4,758
	2	1,452	1,452	0.75	894
PA 038	3	1,900	1,900	0.75	1,130
	3	6,100	6,100	0.75	3,628
	2	2,508	2,508	0.75	1,545
PA 039	3	8,000	8,000	0.75	4,758
	2	1,888	1,888	0.75	1,163
PA 040	2	8,000	8,000	0.75	4,927
	2	3,063	3,063	0.75	1,886
PA 041	2	8,000	8,000	0.75	4,927
	2	3,075	3,075	0.75	1,894
PA 042	2	4,486	4,486	0.75	2,763
	2	1,404	1,404	0.75	865
PA 043	3	1,000	1,000	0.75	595
	3	7,000	7,000	0.75	4,164
PA 044	3	8,000	8,000	0.75	4,758
PA 045	3	8,000	8,000	0.75	4,758
PA 046	4	8,000	7,999	0.75	4,640
	2	3,537	3,537	0.75	2,178
PA 047	3	8,000	8,000	0.75	4,758
	2	4,032	4,032	0.75	2,483
PA 048	4	8,000	8,000	0.75	4,640
	2	3,248	3,248	0.75	2,000
PA 049	4	1,636	1,636	0.75	949
	2	8,271	8,271	0.75	5,094
PA 050	1	6,970	6,970	0.69	4,184
	1	7,922	7,922	0.64	4,397
Total		484,892	484,890		280,697

See detailed calculations in ERR spreadsheet.

5.3 Leakage Emissions

Leakage emissions of the grouped project associated with reduced or avoided use of non-renewable biomass. Hence, as detailed in section 8.3 of the methodology VM 00050, Version 1.0, an adjustment factor of 0.95 is applied to the GHG emission reduction in Equation in section 4.4 below.

See detailed calculations in ERR spreadsheet.

5.4 GHG Emission Reductions and Carbon Dioxide Removals

Emission reductions are calculated by the equation as follows:

$$ER_y = (BE_y - PE_y) \times 0.95$$

Where:

ER_y Emission reductions during year y in tCO₂e

BE_y Baseline emissions during year y in tCO₂e

PE_y Project emissions during year y in tCO₂e

Result calculation for each instances depend on number of distributed ICS and proportion activity days in a year, detail below (refer to ER sheet):

Project Activity Instance	Age	Quantity distributed	Quantity operated in the last monitoring period	Vintage 2025			
				Equivalent Operational year in the vintage 2025 during the 5 th monitoring period	Baseline Emission	Project Emission	Emission Reduction
PA 001	4	8,000	8,000	0.75	10,446	4,640	5,516
PA 002	4	8,000	8,000	0.75	10,446	4,640	5,516
PA 003	4	8,000	8,000	0.75	10,446	4,640	5,516
PA 004	4	2,272	2,272	0.75	2,967	1,318	1,567
	2	3,790	3,790	0.75	5,671	2,334	3,170
PA 005	4	8,000	8,000	0.75	10,446	4,640	5,516
PA 006	3	2,000	2,000	0.75	2,782	1,190	1,512
PA 007	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	2,077	2,077	0.75	3,108	1,279	1,738
PA 008	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	1,686	1,686	0.75	2,523	1,038	1,411
PA 009	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	1,893	1,893	0.75	2,833	1,166	1,584
PA 010	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	1,921	1,921	0.75	2,874	1,183	1,606
PA 011	4	71	71	0.75	93	41	49
	2	11,456	11,456	0.75	17,142	7,055	9,583
PA 012	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	1,998	1,998	0.75	2,990	1,230	1,672
PA 013	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	1,909	1,909	0.75	2,857	1,176	1,597
PA 014	3	8,000	7,999	0.75	11,127	4,758	6,051
PA 015	3	8,000	8,000	0.75	11,129	4,758	6,052
PA 016	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	6,002	6,002	0.75	8,981	3,696	5,021
PA 017	4	7,800	7,800	0.75	10,185	4,524	5,378
	3	200	200	0.75	278	119	151

	2	5,516	5,516	0.75	8,254	3,397	4,614
PA 018	3	7,181	7,181	0.75	9,989	4,271	5,432
	2	2,613	2,613	0.75	3,910	1,609	2,186
PA 019	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	3,476	3,476	0.75	5,201	2,141	2,907
PA 020	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	3,487	3,487	0.75	5,218	2,147	2,917
PA 021	3	5,500	5,500	0.75	7,651	3,271	4,161
	3	2,500	2,500	0.75	3,478	1,487	1,891
	2	2,646	2,646	0.75	3,959	1,630	2,213
PA 022	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	3,422	3,422	0.75	5,120	2,107	2,862
PA 023	3	6,538	6,538	0.75	9,095	3,889	4,946
	2	1,462	1,462	0.75	2,188	900	1,224
	2	2,307	2,307	0.75	3,452	1,421	1,929
PA 024	2	1,149	1,149	0.75	1,719	708	960
	2	697	697	0.75	1,043	429	583
PA 025	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	5,783	5,783	0.75	8,653	3,561	4,837
PA 026	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	3,236	3,236	0.75	4,842	1,993	2,707
PA 027	4	8,000	8,000	0.75	10,446	4,640	5,516
PA 028	4	8,000	8,000	0.75	10,446	4,640	5,516
PA 029	4	2,222	2,222	0.75	2,901	1,289	1,531
	3	5,778	5,778	0.75	8,038	3,437	4,371
	2	1,923	1,923	0.75	2,877	1,184	1,608
PA 030	3	5,659	5,659	0.75	7,872	3,366	4,281
	2	3,137	3,137	0.75	4,694	1,932	2,624
PA 031	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	3,885	3,885	0.75	5,813	2,393	3,249
PA 032	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	4,005	4,005	0.75	5,993	2,466	3,351
PA 033	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	1,983	1,983	0.75	2,967	1,221	1,659
PA 034	3	5,588	5,588	0.75	7,773	3,324	4,227

	3	2,412	2,412	0.75	3,355	1,435	1,824
	2	1,852	1,852	0.75	2,771	1,141	1,549
PA 035	3	5,546	5,546	0.75	7,715	3,299	4,195
	2	2,412	2,412	0.75	3,609	1,485	2,018
PA 036	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	2,410	2,410	0.75	3,606	1,484	2,016
PA 037	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	1,452	1,452	0.75	2,173	894	1,215
PA 038	3	1,900	1,900	0.75	2,643	1,130	1,437
	3	6,100	6,100	0.75	8,486	3,628	4,615
	2	2,508	2,508	0.75	3,753	1,545	2,098
PA 039	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	1,888	1,888	0.75	2,825	1,163	1,579
PA 040	2	8,000	8,000	0.75	11,971	4,927	6,692
	2	3,063	3,063	0.75	4,583	1,886	2,562
PA 041	2	8,000	8,000	0.75	11,971	4,927	6,692
	2	3,075	3,075	0.75	4,601	1,894	2,572
PA 042	2	4,486	4,486	0.75	6,713	2,763	3,753
	2	1,404	1,404	0.75	2,101	865	1,174
PA 043	3	1,000	1,000	0.75	1,391	595	756
	3	7,000	7,000	0.75	9,738	4,164	5,295
PA 044	3	8,000	8,000	0.75	11,129	4,758	6,052
PA 045	3	8,000	8,000	0.75	11,129	4,758	6,052
PA 046	4	8,000	7,999	0.75	10,445	4,640	5,515
	2	3,537	3,537	0.75	5,293	2,178	2,959
PA 047	3	8,000	8,000	0.75	11,129	4,758	6,052
	2	4,032	4,032	0.75	6,033	2,483	3,373
PA 048	4	8,000	8,000	0.75	10,446	4,640	5,516
	2	3,248	3,248	0.75	4,860	2,000	2,717
PA 049	4	1,636	1,636	0.75	2,136	949	1,128
	2	8,271	8,271	0.75	12,376	5,094	6,918
PA 050	1	6,970	6,970	0.69	10,192	4,184	5,708
	1	7,922	7,922	0.64	10,711	4,397	5,998
Total		484,892	484,890		658,121	280,697	358,552

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-Feb-2025 to 31-Oct-2025	658,121	280,697	-	358,552	-	358,552
Total	658,121	280,697	0	358,552	0	358,552

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-Feb-2025 to 31-Oct-2025	823,580	358,552	-56.46%	- Operation rate of project cookstove was reduced. - Total number of cookstoves incompletely distributed.
Total	823,580	358,552	-56.46%	

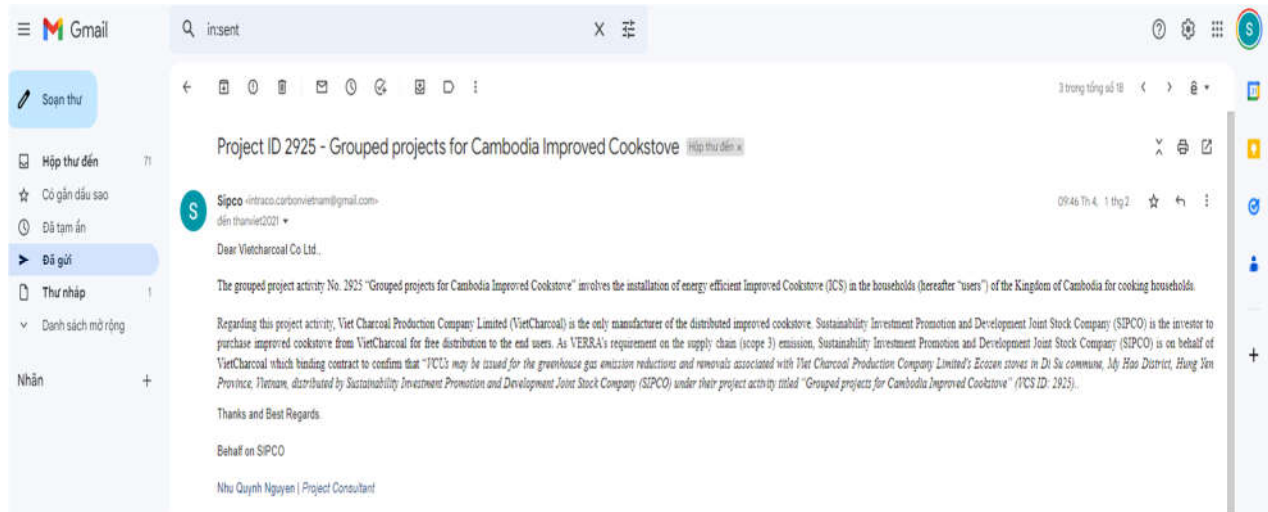
APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Not Applicable.

Section	Information	Justification

APPENDIX 2: SUPPLY CHAIN (SCOPE 3)

1. Email of SIPCO sent to Viet Charcoal about supply chain



2. Public statement has been posted on SIPCO's website:

<https://carbonvietnam.com/public-announcement-on-grouped-projects-for-cambodia-improved-cookstove-vcs-project-id-2925-2/>



The *Grouped Projects for Cambodia Improved Cookstove* (VCS Project ID 2925) is an initiative designed to reduce greenhouse gas (GHG) emissions while improving household health and livelihoods through the adoption of cleaner cooking solutions in Cambodia.

Under this project, **carbon credits may be issued through the Verified Carbon Standard (VCS)** for the verified emission reductions or removals generated by the use of **Ecozen cookstoves**. These stoves are manufactured by **Viet Charcoal Production Company Limited**, based in Di Su Commune, My Hao District, Hung Yen Province, Viet Nam, and are distributed by the **Sustainability Investment Promotion and Development Joint Stock Company (SIPCO)**.

The Ecozen cookstove replaces traditional cooking methods that typically rely on inefficient and carbon-intensive fuels, such as firewood or charcoal. By improving fuel efficiency and reducing the need for non-renewable biomass, the project not only lowers carbon emissions but also helps mitigate deforestation pressures in Cambodia.

In addition to environmental benefits, the project delivers positive social and health outcomes. Families using improved cookstoves experience cleaner kitchens, reduced exposure to harmful indoor air pollution, and lower household fuel costs. The initiative further supports sustainable development by enhancing community well-being and contributing to better living conditions.