



GROUPED PROJECTS FOR CAMBODIA IMPROVED COOKSTOVE

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Joint Stock Company
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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 (hereafter “users”) of Kingdom of Cambodia for cooking households. 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 will promote the dissemination of energy efficient ICS. This will in turn reduce deforestation and degradation of forests in Cambodia through participation of the people in adopting energy efficient stoves. This will also contribute 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 will contribute 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.

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 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 estimates of annual average GHG emission reductions of the

grouped projects is 7,115,853 tCO₂e/annum. Currently, there are 29 project activity instances are included under the grouped project¹. The first ICS was distributed on 02-May-2022 in Takeo Province. In the first monitoring period is from 02-May-2022 to 31-March-2023. Till the end of this monitoring period, a total of 200,001 ICSs was reported installed under the grouped project. The detail is illustrated as the table below:

Month of installation	Number of ICSs
May-2022	32,000
June-2022	20,494
July-2022	17,636
August-2022	23,800
September-2022	16,071
October-2022	16,000
November-2022	40,000
December-2022	16,000
January-2023	3,000
February-2023	8,000
March-2023	7,000

The actual emission reduction achieved the monitoring is 608,477 tCO₂

Audit Type	Period	Program	VVB 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 Ltd.,	N/A
Verification	From 02-May-2022 to 31-March-2023	VCS	Carbon Check (India) Private Ltd.,	0.915
Total	1	1	1	1

¹ The detail of the 29 projects are mentioned in the section 3.1

1.2 Sectoral Scope and Project Type

The project activity under consideration is a grouped project activity. The project activity instances as part of the grouped project will have following sectoral scope, project type and methodologies:

Sectoral Scope applicable to project: 03 – Energy Demand

Project type: Type II – Energy efficiency improvement project

Methodology: VMR0006: Methodology for installation of high efficiency firewood cookstoves version 1.1.

1.3 Project Proponent

Organization name	Sustainability Investment Promotion and Development Joint Stock Company
Contact person	Mr. Hoang Anh Dung
Title	Chairman
Address	6 th Floor, Hop Long Building, No.1, 59 Lang Ha Street, Ba Dinh District, Hanoi, Viet Nam
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1.4 Other Entities Involved in the Project

Not Applicable.

1.5 Project Start Date

The starting date is on 02-May-2022.

As per section 3.7 of the VCS Standard (v4.4), 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 cookstove under the project has been operating from 02-May-2022. Thus, the project start date is as 02-May-2022.

1.6 Project Crediting Period

The crediting period: From 02-May-2022 to 01-May-2032

Total number of years: 10 years 00 months

The first monitoring period: From 02-May-2022 to 31-March-2023 (both days included)

1.7 Project Location

The grouped project will be hosted by Cambodia. The grouped project covers the whole of Cambodia between: Latitudes: 13.105 N; Longitudes: 105.137 E. The details of coordinates are being submitted separately as KML file



Figure 1: Cambodia Map

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, Monduliri, 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

29 instances during this monitoring were implemented at 6 provinces within Cambodia with the longitude and latitude coordinates the below:

Project activity	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-@10.9366166,104.4246985,10z-data=!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%2FOcrfr1v?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!1s0x310b07eb6e6a2b43:0xea23edfab65bf0c8!8m2!3d11.142722!4d105.8290298!16zL20vMDJoMmQ1?hl=vi-VN
PA 012, PA 013, PA 014, PA 015, PA 016, PA 017	Prey Veng	105.3280 E, 11.4851 N https://www.google.com/maps-place-Prey+Veng,+Campuchia-@11.3648215,105.456473,10z-data=!3m1!4b1!4m6!3m5!1s0x310b936cb013b065:0x3a05a414cdd1429b!8m2!3d11.3802442!4d105.5005483!16zL20vMDJoMmM5?hl=vi-VN
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 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!4b1!4m6!3m5!1s0x310836897d5fd26f:0x6f50ed443bd607ff!8m2!3d10.5942421!4d104.1640355!16zL20vMGMzbnRi?hl=vi-VN

1.8 Title and Reference of Methodology

VMR0006. “Methodology for installation of High efficiency firewood cookstoves”, version 1.1.

This grouped project also refers to the approved versions of the following tools and methodologies:

- Tool 21 – “Demonstration of Additionality of small-scale project activities”; version 13.1
- Tool 30 – “Calculation of the fraction of non-renewable biomass”; version 03.0.
- VMR0006 – “Energy Efficiency and Fuel Switch Measures in Thermal Applications”, version 1.2.

1.9 Participation under other GHG Programs

This is a new project and neither the grouped project nor the project instances included in this document has not been registered or seeking registration under any other GHG programs.

1.10 Other Forms of Credit and Supply Chain (Scope 3) Emissions

- Emission Trading Programs and Other Binding Limits: The project is not included in an emissions trading program or any other mechanism that includes GHG allowance trading.
- Other Forms of Environmental Credit: The project has not sought, nor received another form of GHG-related environmental credit.
- Supply Chain (Scope 3) Emissions: *Viet Charcoal Production Company Limited is in charge of manufacturing improved cookstoves for SIPCO's greenhouse gas emission reduction projects. The company received an email from SIPCO requesting a public statement for scope 3 emission of the project. However, Viet Charcoal's website is only used to introduce their products to partners, and does not publish information on their partners' projects to avoid misunderstanding. Therefore, all public statements for supply chain of scope 3 emission will be announced directly by the project proponents on their websites instead. Content of public statement below: VCU's may be issued for the greenhouse gas emission reductions and removals associated with Ecozen Cookstove, manufactures by Viet Charcoal Production Company Limited in Di Su commune, My Hao District, Hung Yen Province and distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) under their project activity title “Grouped Projects for Cambodia Improved Cookstove (VCS ID: 2925).” SIPCO has seen the notification of the grouped project and the potential risk of Scoped 3 emissions double claiming to Viet Charcoal Production Company Limited via email. (See evidence in Appendix in the document)*

1.11 Sustainable Development Contributions

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

A) Environment well-being:

- The project activity will contribute 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 will lead 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 will support 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 will improve 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 will be 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 will alleviate 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 will be 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
Sequential row number	SDG Target number	Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator	Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)	Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.	Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.
1.	1.4	1.4.1. Proportion of population living in households with access to basic services	Increase	Provide 200,001 households in this monitoring period with greater access to basic services in the form of clean cooking technology	No further changes compare with this monitoring period
2.	3.9	3.9.1: Mortality rate attributed to household and ambient air pollution	Decrease	No further changes this monitoring period	The project will lead to reduction for 200,001 households in Household Air Pollution (HAP) thereby resulting in improved health conditions of women and children

3.	5.4	5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location	Decrease	Especially for women and children in 200,001 families, lessen drudgery by cutting down on time spent cooking and gathering wood in rural regions using an open-fire or other traditional cookstove.	Under the project scenario, women will see a massive reduction in both the amount of fuelwood required for cooking, and the amount of time taken to cook. They would be able to save 1- 2 hours daily. They would also have time to engage in other employment opportunities
4.	7.1	7.1.2. Proportion of population with primary reliance on clean fuels and technology	Increase	Increase access to clean cooking technology with ICS installations in 200,001 households under the project activity	Increase access to clean cooking technology with ICS installations in 200,001 households under the project activity
5.	8.3	8.3.1. Proportion of informal employment in total employment, by sector and sex	Increase	The project will generate around 68 employment opportunities for assembling of ICSs, distribution of ICSs and post-sale operation & Maintenance of ICSs	Employment provided to around 68 male and female employees for stove manufacturing unit. Employment provided to around 16 male and female employees for ICS distribution and monitoring activity
6.	13.0	Tonnes of greenhouse gas emissions avoided or removed	Decrease	Contribute to GHG emission reduction of 608,477 tCO _{2e} into the atmosphere	Prevented the release of 608,477 tCO _{2e} into the atmosphere

2 SAFEGUARDS

2.1 No Net Harm

Greenhouse gas reductions: Project implementation will result in GHG reductions because it will reduce the consumption of non-renewable biomass in countries where the biomass harvested for fuel use is typically non-renewable.

Air quality: Users (especially women and children) will be exposed to fewer air pollutants through reduced emission of not only CO₂, but also carbon monoxide and particulate matter. Air pollution from cooking with solid fuel is a key risk factor for childhood pneumonia as well as many other respiratory, cardiovascular and ocular diseases.

Biodiversity: will be improved as the programme reduces pressure on remaining forest reserves in Cambodia. No negative impacts can be identified.

2.2 Local Stakeholder Consultation

Procedure followed to invite stakeholder comments

The local stakeholder consultation consisted of a public meeting with the stakeholders. Stakeholders were identified as relevant NGOs, local authorities and representative of households that directly or indirectly impact on the project activities and were invited by post mail letter.

Program of the public

Date of meeting: 02-May-2022

Place: at meeting room in Takeo provincial administration

Language: English and Khmer

Meeting procedure:

- Introduction: Stakeholder, Project developers
- Context of objectives of public consultation
- Presentation of Cambodia Improved Cookstove Project
- Modalities of distribution and use
- Environment and socio-economic impacts
- Questions and answer with participants
- Conclusion

Stakeholder comments

- These poor households are mainly using traditional stoves which have smoke and very hot. If the project will implement, it will bring many benefits to poor and close to poor households.
- The project of free distribution of ICS to households who are using traditional cookstove. These households have not to pay any fee so they are very happy

Suggestion

- The quality of ICS must be guaranteed
- The project owner should have training to guide using and maintain the ICS effectively.
- Expect cookstove and its fuel door are larger so that more firewood can be put in, saving the cooking time.

All stakeholders supported the project activities without negative comments.

At the end of the meeting, the contact details of SIPCO have been shared with the participants to ensure on-going communication with the stakeholders.

Mechanism for on-going communication

SIPCO through Cambodian Women for Peace and Development (CWPD) to jointly distribute ICS to households. The CWPD network from district to commune to village level which receive any comments from households in using ICS. After that, CWPD will immediately report to SIPCO.

Following details have been communicated to participants:

- Via email: info@carbonvietnam.com

SIPCO will continue to implement these informal on-going consultation procedures, alongside formalized consultation through annual our survey.

Feedback was requested from local stakeholders for the grouped project during period from 02-May-2022 to 31-March-2023 sent to SIPCO and PP responded it as following:

Representative of stakeholder	Feedback	Response by SIPCO
Household in Kampot Province	I have used project's device for 1 month. I am really like it. More efficient, cooking time is much faster than before. Can the company give me more ICSs?	The project's device is being distributed free of cost one ICS per household who have from 4-7 people and are using traditional cookstove to cook and boil drinking water. The grouped project has calculated suitable to household demand.

		Since it's a criteria of the project, hence SIPCO cannot distribute more to you.
Household in Kampot Province	I have used cookstove of the company for 4 - 5 months. I am really like it. More efficient, cooking time is much faster than before. Neighbours saw my cookstove, they liked it very much. But they are not accepted. Can the company distribute more?	The goal of the grouped project is to distribute ICSs to households who are using traditional cookstove to cook meal. Prior to implementing, we were determined that which household meets the goal of the project. Household used improved cookstove, LPD, electrical stove. This household will not be given project's device. If your neighbors are using traditional cookstove, they could registry to CWPDP. They will survey and check. If household meets the criteria, we would note and distribute after.
Household in Svay Rieng Province	Project's device is very good and efficient. However, I see the cookstove is small. Can the company consider to conduct cookstove bigger?	Project's device would be distributed free of cost to households. The designs have been considered and calculated to suit the project. Also, the project aims to households who are using traditional cookstove for cooking meal. Therefore, the design of ICS is met demand for household from 4 - person. However, We also note your feedback, we will consider and research ICS bigger in the future
Household in Kampong Speu	Wind valve of ICS is small. I may to cut small woodfuel to use. Can the company change it?	Project's device would be distributed free of cost to households. The cookstove researched and designed to suitable with budget. Moreover, ICS is more efficient than traditional cookstove. Therefore, it helps to save fuel. End-users only need small stick of firewood to cook everyday instead of big one like before.

2.3 AFOLU-Specific Safeguards

The grouped project is a non-AFOLU project activity. Hence not applicable.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

This monitoring would be verified 28 instances. The project start date of first crediting during this monitoring is 02-May-2022. PA 001 was validated during project validation period; the remaining 28 instances will be included after this MR is approved. The grouped project registration date is 05-July-2023. Timeline of project activity instances illustrate as the table below:

Number instances	Steps				Total of ICSs have been distributed as on 31-March-2023
	Start date of first crediting period	Project start date (the first equipment distributed)	Inclusion date	Implementation status as on 31-March-2023	
PA 001	02-May-2022	02-May-2022	05-July-2023	8,000 ICSs were distributed in May 2022	8,000
PA 002	02-May-2022	04-May-2022	To be included in this monitoring period	8,000 ICSs were distributed in May 2022	8,000
PA 003	02-May-2022	07-May-2022	To be included in this monitoring period	8,000 ICSs were distributed in May 2022	8,000
PA 004	02-May-2022	07-June-2022	To be included in this monitoring period	2,272 ICSs were distributed in June 2022	2,272
PA 005	02-May-2022	12-May-2022	To be included in this monitoring period	8,000 ICSs were distributed in May 2022	8,000
PA 006	02-May-2022	09-January-2023	To be included in this monitoring period	2,000 ICSs were distributed in January 2023	2,000
PA 007	02-May-2022	02-August-2022	To be included in this monitoring period	8,000 ICSs were distributed in August 2022	8,000
PA 008	02-May-2022	06-August-2022	To be included in this monitoring period	8,000 ICSs were distributed in August 2022	8,000
PA 009	02-May-2022	04-September-2022	To be included in this monitoring period	8,000 ICSs were distributed in September 2022	8,000
PA 010	02-May-2022	09-September-2022	To be included in this monitoring period	8,000 ICSs were distributed in September 2022	8,000
PA 011	02-May-2022	10-September-2022	To be included in this monitoring period	71 ICSs were distributed in September 2022	71

PA 012	02-May-2022	02-November-2022	To be included in this monitoring period	8,000 ICSs were distributed in November 2022	8,000
PA 013	02-May-2022	04-November-2022	To be included in this monitoring period	8,000 ICSs were distributed in November 2022	8,000
PA 014	02-May-2022	07-November-2022	To be included in this monitoring period	8,000 ICSs were distributed in November 2022	8,000
PA 015	02-May-2022	08-November-2022	To be included in this monitoring period	8,000 ICSs were distributed in November 2022	8,000
PA 016	02-May-2022	05-July-2022	To be included in this monitoring period	8,000 ICSs were distributed in July 2022	8,000
PA 017	02-May-2022	03-August-2022	To be included in this monitoring period	7,800 ICSs were distributed in August 2022	7,800
PA 025	02-May-2022	02-December-2022	To be included in this monitoring period	8,000 ICSs were distributed in December 2022	8,000
PA 026	02-May-2022	03-October-2022	To be included in this monitoring period	8,000 ICSs were distributed in October 2022	8,000
PA 027	02-May-2022	06-October-2022	To be included in this monitoring period	8,000 ICSs were distributed in October 2022	8,000
PA 028	02-May-2022	05-June-2022	To be included in this monitoring period	8,000 ICSs were distributed in June 2022	8,000
PA 029	02-May-2022	06-June-2022	To be included in this monitoring period	2,222 ICSs were distributed in June 2022	2,222
PA 043	02-May-2022	11-January-2023	To be included in this monitoring period	- 1,000 ICSs were distributed in January 2023 - 7,000 ICSs were distributed in March 2023	8,000
PA 044	02-May-2022	07-February-2023	To be included in this monitoring period	8,000 ICSs were distributed in February 2023	8,000
PA 045	02-May-2022	07-November-2022	To be included in this monitoring period	8,000 ICSs were distributed in November 2022	8,000
PA 046	02-May-2022	04-June-2022	To be included in this monitoring period	8,000 ICSs were distributed in June 2022	8,000
PA 047	02-May-2022	05-December-2022	To be included in this monitoring period	8,000 ICSs were distributed in December 2022	8,000
PA 048	02-May-2022	03-July-2022	To be included in this monitoring period	8,000 ICSs were distributed in July 2022	8,000
PA 049	02-May-2022	06-July-2022	To be included in this monitoring period	1,636 ICSs were distributed in July 2022	1,636

3.2 Deviations

3.2.1 Methodology Deviations

Not applicable. The grouped project did not apply any methodology deviations.

3.2.2 Project Description Deviations

The deviation has been sought with the fNRB value which is approved in project registration period. To ensure the most conservative figure and fair with the new Verra cookstove methodology (VMR006 version 1.2), the project developer voluntarily decided to deduct the calculated fNRB by 26%. This would result in a new fNRB value:

$$96.91\% \times (1-26\%) = 71.71\%$$

This value will be applied both this monitoring and the entire crediting period of the grouped projects.

3.3 Grouped Projects

For the inclusion of new project activity instance. The project proponent shall ensure that it meets 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 VMR0006: “Methodology for installation of high efficiency firewood cookstoves”, version 1.1	The new project activity instances including: PA 002, PA 003, PA 004, PA 005, PA 006, PA 007, PA 008, PA 009, PA 010, PA 011, PA 012, PA 013, PA 014, PA 015, PA 016, PA 017, PA 025, PA 026, PA 027, PA 028, PA 029, PA 043, PA 044, PA 045, PA 046, PA 047, PA 048, PA 049 – total 28 instances meet applicability conditions listed section 3.3 in this monitoring report. See details below
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.	Only Ecozen cookstove will be distributed in 28 instances during this monitoring with the efficiency of 38.44%.

		The instance consists of replacement of conventional firewood cookstoves for biomass fired ICS as defined in the Grouped project.	
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 instances during this monitoring have been implemented in 06 provinces in Cambodia, detail below: • Takeo: PA 002, PA 003, PA 005, PA 006, PA 043, PA 044 • Kep: PA 004 • Svay Rieng: PA 007 – PA 011 • Prey Vieng: PA 012 – PA 017 • Kampong Speu: PA 025 – PA 029 • Kampot: PA 045 – PA 049
5	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	All new project activity instances will use the activity method for demonstration of additionality. Step 1: Regulatory Surplus 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	New instances under this monitoring are eligible when the CME has provided the confirmation that ICSs are distributed for free of cost to household.

		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.	
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 project activity instance (PAI) under the grouped project is uniquely identifiable and not part of any other CDM-VCS registered project or instance of the other grouped project. The ICSs will carry unique IDs comprised of the project activity instance number. The labels are below: • PA 001: CAM001-ICS-0001 to CAM001-ICS-8000 • PA 002: CAM002-ICS-0001 to CAM002-ICS-8000 • PA 003: CAM003-ICS-0001 to CAM003-ICS-8000 • PA 004: CAM004-ICS-0001 to CAM004-ICS-2272 • PA 005: CAM005-ICS-0001 to CAM005-ICS-8000 • PA 006: CAM006-ICS-0001 to CAM006-ICS-2000 • PA 007: CAM007-ICS-0001 to CAM007-ICS-8000 • PA 008: CAM008-ICS-0001 to CAM008-ICS-8000 • PA 009: CAM009-ICS-0001 to CAM009-ICS-8000 • PA 010: CAM010-ICS-0001 to CAM010-ICS-8000 • PA 011: CAM011-ICS-0001 to CAM011-ICS-0071

			• PA 012: CAM012-ICS-0001 to CAM012-ICS-8000 • PA 013: CAM013-ICS-0001 to CAM013-ICS-8000 • PA 014: CAM014-ICS-0001 to CAM014-ICS-8000 • PA 015: CAM015-ICS-0001 to CAM015-ICS-8000 • PA 016: CAM016-ICS-0001 to CAM016-ICS-8000 • PA 017: CAM017-ICS-0001 to CAM017-ICS-7800 • PA 025: CAM025-ICS-0001 to CAM025-ICS-8000 • PA 026: CAM026-ICS-0001 to CAM026-ICS-8000 • PA 027: CAM027-ICS-0001 to CAM027-ICS-8000 • PA 028: CAM028-ICS-0001 to CAM028-ICS-8000 • PA 029: CAM029-ICS-0001 to CAM029-ICS-2222 • PA 043: CAM043-ICS-0001 to CAM043-ICS-8000 • PA 044: CAM044-ICS-0001 to CAM044-ICS-8000 • PA 045: CAM045-ICS-0001 to CAM045-ICS-8000 • PA 046: CAM046-ICS-0001 to CAM046-ICS-8000 • PA 047: CAM047-ICS-0001 to CAM047-ICS-8000 • PA 048: CAM048-ICS-0001 to CAM048-ICS-8000 • PA 049: CAM049-ICS-0001 to CAM049-ICS-1636
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	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 VMR0006 methodology version 1.1

	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		
8	Target group	Each project instance will target end users which includes households who use traditional cookstove to cook meal.	The new project activity instances under this monitoring satisfy the criteria. Each household in PIs 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	The geographic boundary of instances under in this monitoring is illustrated to be within Cambodia (Figure 1). The location data captured from

		location will be defined in the monitoring reports	each household who received the project devices will be stored in the database file and agreement. They will be 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.	28 instances for baseline surveys and applicable provisions is submitted alongside this monitoring report. Monitoring data for this instances will be 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.	28 instances are included during this monitoring, are 6 provinces within Cambodia only. The detailed coordinates of each instance are described in section 1.7 in the monitoring report and provided to the VVB at verification.
13	Have evidence of project ownership, in respect of each project activity	New project activity instances will demonstrate ownership by the	The PP has an agreement in place with residents who use ICS in the 28 instances in which the

	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).	project proponent, from the start date of the PAI	owner transfers the rights to the emissions reductions exclusively to the CME 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 28 instances are the same as or 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	28 instances under the grouped project in this monitoring period are only be eligible for crediting from its start date through to the end of the project crediting period. Detail information is showed in section 5.4 in the report. This is be provided in the monitoring report to DOE 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.	28 instances 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. The detail information is illustrated in section 5.4 in the report. Also, this is provided DOE 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.	28 activity instances under the grouped project during the monitoring period are new activities. This is also be stated in section 1.9 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).	The distance of 28 instances within the grouped project and with the same project proponent in this monitoring period is more than 10 km. The information is detailed in database file.
		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	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.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	η_{old}
Data unit	Percentage
Description	Efficiency of pre project device
Source of data	Default value as per applied methodology
Value applied	10
Justification of choice of data or description of measurement methods and procedures applied	The default value of 0.10 is used as the replaced system is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, i.e. without a grate or a chimney.
Purpose of Data	Calculation of emission reduction
Comments	The value is fixed ex - ante

Data / Parameter	$f_{NRB,y}$
Data unit	%
Description	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
Source of data	Independent third party i.e C4 Ecosolution (PTY) Ltd
Value applied	71.71%
Justification of choice of data or description of measurement methods and procedures applied	Tool30 “Calculation of fraction of non- renewable biomass” version 03.0 was used to calculate f_{NRB} values. Project proponents considered the area where biomass is sourced and justify the selection of the area in project design documents. For this project, secondary data is used to determine the parameter as per the calculation of the fraction of non-renewable biomass, Version 03.0. The analysis was independently completed by third party named C4 Ecosolutions (Pty) Ltd. With regards to the calculations, the third party analyze the f_{NRB} based on satellite data availability, Geographic Information System (GIS) and data modelling which provided the most reliable measuring method. Futhurmore, to ensure the most conservative figure and fair with the new Verra cookstove methodology (VMR006 version 1.2), the project developer voluntarily decided to deduct the calculated f_{NRB} by 26%. This would result in a new f_{NRB} value: $96.91\% \times (1-26\%) = 71.71\%$

	This value will be applied both this monitoring and the entire crediting period of the grouped projects.
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	NCV _{wood fuel}
Data unit	TJ/Tonne
Description	Net calorific value of the non-renewable woody biomass that is substituted or reduced
Source of data	2006 IPCC default for wood fuel
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	2006 IPCC Default value
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	EF _{wf,CO2}
Data unit	tCO2/TJ
Description	CO2 emission factor for the use of wood fuel in baseline scenario.
Source of data	2006 IPCC
Value applied	112
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	EF _{wf,nonCO2}
Data unit	tCO2/TJ
Description	Non-CO2 emission factor for the use of wood fuel in baseline scenario.
Source of data	2006 IPCC
Value applied	26.23

Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	η_p
Data unit	fraction
Description	Efficiency of the project device at the start of project activity
Source of data	Manufacturer's specification
Value applied	0.3844
Justification of choice of data or description of measurement methods and procedures applied	This parameter shall be determined ex ante
Purpose of Data	Calculation of $\eta_{new,i,j}$
Comments	-

4.2 Data and Parameters Monitored

Data / Parameter	$N_{y,i,j}$
Data unit	Number
Description	Number of project devices of type i and batch j operating during year y.
Source of data	Monitoring
Description of measurement methods and procedures to be applied	Measured directly or based on a representative sample. Sampling standard shall be used for determining the sample size to achieve 95/10 confidence precision according to the latest version of Standard for sampling and surveys for project activities and programme of activities.
Frequency of monitoring/recording	At least once every two years
Value monitored	200,001
Monitoring equipment	Monitoring survey

QA/QC procedures to be applied	The total number of devices in operation compared to the total number of distributed (according to the monitoring database) will be surveyed. Data from the monitoring survey will be collected at least once every two years. The unique reference number of each ICS shall be logged in the monitoring database showing the total number of ICSs. Data from the sampling plan will be collected in each monitoring period by trained project staff and applied in the emission reduction calculations.
Purpose of the data	Calculation of baseline emissions
Calculation method	The percentage of Ecozen stove was found in operation from survey is 100% $N_{y,i,j} = 100\% * 200,0001 = 200,001$
Comments	Proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value

Data / Parameter	$\eta_{new,y,i,j}$				
Data unit	Fraction				
Description	Efficiency of the device of each type <i>i</i> and batch <i>j</i> implemented as part of the project activity				
Source of data	Calculation				
Description of measurement methods and procedures to be applied	To adopt Option 5 given in the methodology: “Efficiency of the improved cookstoves to be estimated using equation 5 above where loss in efficiency per year is calculated, and therefore this parameter does not need to be monitored”				
Frequency of monitoring/recording	Annually				
Value monitored	For ex ante calculation, the value below is applied <table border="1"> <thead> <tr> <th>Year (y)</th><th>$\eta_{new,i,j}$</th></tr> </thead> <tbody> <tr> <td>1</td><td>0.3613</td></tr> </tbody> </table>	Year (y)	$\eta_{new,i,j}$	1	0.3613
Year (y)	$\eta_{new,i,j}$				
1	0.3613				
Monitoring equipment	Calculated value				
QA/QC procedures to be applied	This parameter has been calculated using equation 5 of the applied methodology				
Purpose of the data	Calculation of baseline emission				

Calculation method	Calculation to be performed using equation below: $\eta_{new,y,i,j} = \eta_p \times (DF_n)^{y-1} \times 0.94$ Year 1: $\eta_{new,y,i,j} = 0.3844 \times 0.99^{1-1} \times 0.94 = 0.3613$
Comments	No comments

Data / Parameter	$B_{y=1,new,i,j,survey}$								
Data unit	Tonnes								
Description	Quantity of woody biomass used by project devices in tonnes per device of type i.								
Source of data	Monitoring survey								
Description of measurement methods and procedures to be applied	Minimum sample size of each type i and batch j should be in line with the latest version of Standard for sampling and surveys for CDM project activities and programme of activities or guidelines provided in methodology Section 8.4 option (b). Determined in the first year of the introduction of the devices (e.g.during the first year of the crediting period, $y=1$) through measurement campaigns at representative households and/or sample survey. Sample surveys to estimate this parameter, that are solely based on questionnaires or interviews (i.e. that do not implement measurement campaigns) may only be used if the following conditions are satisfied. (i) Baseline cookstoves have been completely decommissioned and only improved cookstoves are exclusively used in the project households; (ii) If multiple devices are used in the project, it is possible from the results of the survey questions to clearly differentiate the quantity of fire wood being used by each device. In other words, if more than one device, or another device that consumes firewood, are in use in project households, then the sample survey needs to distinguish the quantity of firewood used by the project device and the other devices that use firewood.								
Frequency of monitoring/recording	Determined in the first year of project implementation								
Value monitored	1.392								
Monitoring equipment	Weighing Scale <table border="1"> <tr> <td>Model</td><td>FCN 15K5N</td></tr> <tr> <td>Serial No</td><td>WD170044597</td></tr> <tr> <td>Max</td><td>15 kg</td></tr> <tr> <td>Division</td><td>0,005 kg</td></tr> </table>	Model	FCN 15K5N	Serial No	WD170044597	Max	15 kg	Division	0,005 kg
Model	FCN 15K5N								
Serial No	WD170044597								
Max	15 kg								
Division	0,005 kg								

	Confidence level of P	95.45%
	Date of calibration	03-November-2022
	Until	30-November-2023
QA/QC procedures to be applied	Calibration of weighing scales used for measuring the fuel wood was done in house before start using on site	
Purpose of the data	Calculation of baseline emissions	
Calculation method	This is monitored value	
Comments	This parameter was validated and verified by VVB during the first verification as per the methodology requirement	

Data /Parameter	Life span	
Data unit	Number of years	
Description	The operating lifetime of the project device. The life span should be reported if the methodology equation 5 is adopted to determine the project stove efficiency	
Source of data	Manufacture's specification	
Description of measurement methods and procedures to be applied	PP will conduct periodic audits and surveillance of the stoves that will be distributed under the project activity to ensure their proper functioning throughout the project lifetime. This along with spot audits and after installation maintenance services, will ensure that the project stoves continue to work at efficiencies as specified by the manufacturer.	
Frequency of monitoring/recording	Once at the time of project stove installation	
Value monitored	10	
Monitoring equipment	-	
QA/QC procedures to be applied	This parameter is referred from the manufacture's specification	
Purpose of the data	For calculation of baseline emission	
Calculation method	-	
Comments	-	

4.3 Monitoring Plan

- The organizational structure, responsibilities and competencies of the personnel that carried out the monitoring activities.
- The methods used for generating/measuring, recording, storing, aggregating, collating and reporting the data on monitored parameters.
- The procedures used for handling any internal auditing performed and any non-conformities identified.
- The implementation of sampling approaches, including target precision levels, sample sizes, sample site locations, stratification, frequency of measurement and QA/QC procedures. Where applicable, demonstrate whether the required confidence level or precision has been met.

During this first monitoring survey was conducted from 14 to 19-March-2023

(a) Sampling Methodology

Representative sampling will be undertaken that is designed in line with the requirements of the VMR0006 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	Parameter type /frequency	Methods to be applied
$N_{y,i,j}$	Number of commissioned project devices of type i and batch j operating during year y	Proportion/ biennially	Visiting to the premises, visual inspection and interview with ICS end-user
$B_{y=1,new,l,survey}$	Quantity of woody biomass used by project devices in tonnes per device of type l and batch j	Mean value	Visiting to the premises, visual inspection and interview with ICS end-user

Note: Parameter $B_{y=1,new,l,survey}$ was monitored in the first year of project implementation.

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. The method of collecting data will be field surveys and the frequency of data collection is as per the frequency defined for

each parameter in the above section. Data will be collected from the field surveys, entered in the database and included in the monitoring report.

As per approved methodology, the following guidance is being used for the representative sampling method:

“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 for sampling in the “Standard for sampling and surveys for CDM project activities and programmes of activities”. When biennial inspection is chosen a 95 per cent confidence interval and a 10 per cent margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90 per cent confidence interval and a 10 per cent margin of error shall be achieved for the sampled parameters. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90 per cent or 95 per cent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.”

Sample size will be chosen for a 95/10 precision (95% confidence interval and 10% margin of error); in cases where survey results indicate that 90/10 precision is not achieved, the lower bound of a 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve a 95/10 precision.

As per “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 09, the following Sampling plan has been developed:

As per para 3 of “Standard: Sampling and Surveys for CDM project activities and programme of activities”, version 09” The general requirements of sampling methods shall be applicable to PoAs with any requirement specified in the applicable methodologies having precedence”.

As per approved methodology, the following guidance is being used for the representative sampling method:

“When biennial inspection is chosen a 95% confidence interval and a 10% margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90% confidence interval and a 10% margin of error shall be achieved for the sampled parameters. In cases where survey results indicate that 90/10 precision or 95/10 precision are 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 efforts to achieve the 90/10 or 95/10 precision.”

Additional requirement for grouped project as per sampling standard, version 09, para 21 to 23, EB 110 will be followed:

In case a single sampling plan for more than one instance is used, “parameter values shall be estimated by sampling in accordance with the requirements in the applied methodology

separately and independently for each of the instance project activity included in the grouped project except when a single sampling plan covering a grouped project is undertaken applying 95/10 confidence/precision for the sample size calculation”.

(b) Sample Frame

The sampling frame refers to all the information in the database. The grouped project is open to different instance Implementers and different models of ICS. As explained below, to take the different characteristics of different project proponent and ICS models and other factors that may affect estimates into consideration, the instances shall be either sampled separately and independently, or grouped together under a single sampling plan across instances, in each case using strata that have unique combinations of these factors.

(i) Target Population

The overall target population is the ICS distributed. The ICS to be sampled will be 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 will be 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 will be 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 – retention rate of improved cookstove
- (b) A numeric value – the mean value of operating efficiency of improved cookstove

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 parameter $N_{y,i,j}$

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

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 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

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

Monitoring Parameter		Stove Operating Fraction for determination of N_y			
Sampling frame (s)		Given stove age population			
Sampling approach		Stratified random sampling across stove age			
Sampling population (Batch)	Age	Stove population	Expected operational proportion	Calculated Sample Size (n)	Actual Monitored sample size
Ecozen Batch 1	1	200,001	0.90	43	54
Sample size determination					
Estimated Operation (p)					0.90
$V_{operation} = p(1-p)/p^2$					0.111
Sample Size required (SOF)					43

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

For parameter $B_{y=1, new, i, survey}$

This is a numeric value – the mean value of operating efficiency of improved cookstoves for the monitoring period. To estimate the sample size for parameter $B_{y=1, new, i, survey}$ which is related to stove efficiency. Therefore, PP uses 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: $V = (SD/mean)^2$

n = Sample size

N = Population size (Total number of households/ICS)

Mean= Expected mean of ICS thermal efficiency

SD = Expected standard deviation

1.96 = Represents the 95% confidence required

0.1 = Represents the 10% relative precision

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

Monitoring Parameter	Quantity of woody biomass used By=1,new,i,2022 (age 1)				
Sampling Frame requirement as per GP	Given age population				
Sampling approach	Stratified random sampling across stove age				
Sampling Category	Sampling frame size	Expected Mean Efficiency (Fraction)	Expected SD	Calculated Sample Size	Actual Monitored sample size
Ecozen Batch 1	200,001	0.3844	0.0384	7	54
Sample size determination					
Mean					0.3844
Standard Deviation (SD)					0.03844
$V_{\text{mean}} = (SD/\text{mean})^2$					0.01000
Minimum Sample Size required					4
t-Distribution sample size adjustment				Iteration 1	11
				Iteration 2	5
				Iteration 3	8
				Iteration 4	6
				Iteration 5	7
				Iteration 6	6
				Iteration 7	7

Since parameters Ny,j,j, and By=1,new,i, survey share the same sampling units, CME may choose to have one common survey for these two para meters with largest number of sample size between these two parameters being chosen. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs. At the same time this approach ensures the random selection of samples for every parameter.

Therefore the sample size for parameters Ny,i,j and By=1,new,i,j,survey is 54 samples.

(iv) Survey and Data Collection Method

The sample to be surveyed will be drawn randomly with a geographical spread within the project boundary of the project activity instance

A survey will be conducted through: physical on-site visit (face-to-face). For the physical on-site visit (face-to-face interview), data is collected through hard-copy questionnaires.

Training

The project proponent will conduct a training programme for project participant's representative and its nominated distributor or third party surveyor for survey framework and approach. Major focus will be on understanding collection of data as per the survey questionnaire.

Data Collection

The survey team will collect the data as per the sampling method.

Data entry and storage

Level of supervision and guidance provided to staff, for example written instructions; The standardized system used to initially enter data into a computer and produce a final dataset, documenting steps taken to minimize the introduction of errors. There will be Systems in place to ensure all collected data is processed.

The type of quality checks performed on data entered, for example range checks, inconsistency checks, checking of subsamples of data by supervisors will be done. Clear guidelines will be done on How errors are recorded, reported and the remedial action taken. Level of security and type of backup processes to guarantee data integrity, for example methods to prevent fraud and accidental deletion will be done.

Data Analysis

The data will be analysed for consolidation of findings.

The data from the survey will be analyzed.

- Determine the mean value of the efficiency of the ICS that are still operating (η_{new})
- To determine number of project ICS that are still in operation

Report generation.

A report will be prepared. The report should contain explicit statements, explanations or content related to the following: (a) A suitable qualification of the data analyst; (b) The statistical design of the survey, justification of its choice and the sample size used; (c) The statistical methods employed to analyse the data and reasons for choosing these methods, which should cite official or industry guidelines or other references where appropriate.

Quality Assurance/Quality Control:

The overall monitoring and the implementation of the sampling plan will be co-ordinated by the project proponent. They will ensure successful monitoring of the emission reductions of the proposed project during its crediting period. Furthermore, the survey of the representative sample for the parameters will be carried out by the project proponent in conjecture with the project proponent. The project proponent will undertake the efficiency tests for the representative samples of ICS installed and in operation as per the requirement of methodology.

During the survey, in order to anticipate any low response rate and answers bias, 10% will be applied over the determined sample size. The survey team will ensure that all questionnaires are. To remedy the incomplete questionnaires, additional households/users will be drawn randomly until the required number is met at per the sample size determined. There might be changes of getting outliers while sampling. The following approach will be used to identify and address outliers for the samples during monitoring. Outliers will be defined as those data points with values greater than three standard deviations from the mean of the sample.

Data points identified as outliers according to the above analysis will be examined further to correct for possible transcription and data entry errors, but will be omitted from the analysis if no such administrative errors exist.

Analysis

The data from the survey will be analysed

Determine the mean value of the efficiency of the ICS that are still operating

To determine number of project ICS that are still in operation

Implementation plan

Survey Implementation Schedule:

The survey for collecting the details of the number of ICS in operation will be conducted at least every 2 years and will be scheduled during the last month of the monitoring period. If the time period between surveys should exceed 2 years, then no emission reductions shall be claimed for such period.

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

The survey method has been used by PP include:

- Hard-copy questionnaires
- Face to face interview

The implementation of this monitoring plan is the responsibility of SIPCO and its specifically training monitoring team. This team comprised Women Union level commune, district and province who are conversant in local languages and customs of rural Cambodia. Individual were trained accordingly.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

In accordance with the applied methodology, the baseline scenario is continued use of non-renewable wood fuel (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity

The actual baseline scenario is the use of non-renewable biomass. The quantity of biomass used in absence of the project activity for target consumers will be determined at the Instance level. Assessments, information used in initial instances may be used in subsequent instances in lieu of conducting fresh assessments at each instance level.

The methodology does not account for baseline emissions separately, but instead quantifies net emission reductions achieved by the project. Please refer to Section 5.4.

5.2 Project Emissions

Refer to section 5.4 for the calculation of emission reductions resulting from the proposed project. There are no project emissions considered.

5.3 Leakage

As detailed in section 8.3 of the methodology VMR0006, Version 1.1, leakage shall be considered as default 0.95.

5.4 Net GHG Emission Reductions and Removals

Emission reductions are calculated as follows:

$$ER_y = \sum_i \sum_j ER_{y,i,j}$$

Where:

i	Indices for the situation where more than one type/model of improved cookstove is introduced to replace three stone fire.
j	Indices for the situation where there is more than one batch of improved cookstove of type i
ER _y	Emission reductions during year y in t CO ₂ e
ER _{y,i,j}	Emission reductions by improved cookstove of type i and batch j during year y in tCO ₂ e

Since the project activity instance involves the deployment of ICS, the following equation is applicable as per VMR0006, version 1.1:

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO2} + EF_{wf,non\ CO2}) \times N_{y,i,j} \times 0.95$$

Where:

- $B_{y,savings,i,j}$: Quantity of woody biomass that is saved in tonnes per improved cookstove of type i and batch j during year y
- $f_{NRB,y}$: Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB})
- $NCV_{woodfuel}$: Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)
- $EF_{wf,CO2}$: CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO₂/TJ)
- $EF_{wf,non\ CO2}$: Non CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO₂/TJ)
- $N_{y,i,j}$: Number of improved cookstoves of type i and batch j operating during year y.
- 0.95 : Discount factor to account for leakage.

To calculate $B_{y,savings,i,j}$ used the following equation of the applied methodology:

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times (\eta_{new,i,j} / \eta_{old} - 1).$$

Where:

- $B_{y=1,new,i,survey}$: Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j, determined in the first year of the implementation of the project through a sample survey.
- η_{old} : Efficiency of baseline cookstove
- $\eta_{new,i,j}$: Efficiency of the improved cookstove type I and batch j determined through water boiling test (WBT) during year y. Alternatively, efficiency may be determined using equation 5 of methodology.

$B_{y=1,new,i,survey}$: Annual quantity of woody biomass used by ICS in tonnes per device of type I and batch j, determined in the first year of the implementation of the project through a sample survey. The value is 1.392 tonnes/year

$$\eta_{old} = 10\%$$

$$\eta_{new,i,j} = 36.13\%$$

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

Name of CPA	Age	Quantity	Start date of distribution ICS in a month	End date of distribution ICS in a month	Vintage 1				Vintage 2			
					Start date of stove crediting (considering the start date of monitoring vintage)	End date of stove crediting (considering the end date of monitoring vintage)	Equivalent Operational year in the monitoring period	CERs	Start date of stove crediting (considering the start date of monitoring vintage)	End date of stove crediting (considering the end date of monitoring vintage)	Equivalent Operational year in the monitoring period	CERs
PA 001	1	8,000	2-May-22	3-May-22	3-May-22	31-Dec-22	0.67	28,460	1-Jan-23	31-Mar-23	0.25	10,541
PA 002	1	8,000	4-May-22	5-May-22	5-May-22	31-Dec-22	0.66	28,226	1-Jan-23	31-Mar-23	0.25	10,541
PA 003	1	8,000	7-May-22	8-May-22	8-May-22	31-Dec-22	0.65	27,874	1-Jan-23	31-Mar-23	0.25	10,541
PA 004	1	2,272	7-Jun-22	7-May-22	7-May-22	31-Dec-22	0.65	7,950	1-Jan-23	31-Mar-23	0.25	2,994
PA 005	1	8,000	12-May-22	14-May-22	14-May-22	31-Dec-22	0.64	27,172	1-Jan-23	31-Mar-23	0.25	10,541
PA 006	1	2,000	9-Jan-23	11-Jan-23	-	-	-	-	11-Jan-23	31-Mar-23	0.22	2,342
PA 007	1	8,000	2-Aug-22	3-Aug-22	3-Aug-22	31-Dec-22	0.41	17,685	1-Jan-23	31-Mar-23	0.25	10,541
PA 008	1	8,000	6-Aug-22	7-Aug-22	7-Aug-22	31-Dec-22	0.40	17,216	1-Jan-23	31-Mar-23	0.25	10,541
PA 009	1	8,000	4-Sep-22	6-Sep-22	6-Sep-22	31-Dec-22	0.32	13,703	1-Jan-23	31-Mar-23	0.25	10,541
PA 010	1	8,000	9-Sep-22	10-Sep-22	10-Sep-22	31-Dec-22	0.31	13,234	1-Jan-23	31-Mar-23	0.25	10,541
PA 011	1	71	10-Sep-22	10-Sep-22	10-Sep-22	31-Dec-22	0.31	117	1-Jan-23	31-Mar-23	0.25	94
PA 012	1	8,000	2-Nov-22	3-Nov-22	3-Nov-22	31-Dec-22	0.16	6,910	1-Jan-23	31-Mar-23	0.25	10,541
PA 013	1	8,000	4-Nov-22	5-Nov-22	5-Nov-22	31-Dec-22	0.16	6,676	1-Jan-23	31-Mar-23	0.25	10,541
PA 014	1	8,000	7-Nov-22	8-Nov-22	8-Nov-22	31-Dec-22	0.15	6,324	1-Jan-23	31-Mar-23	0.25	10,541
PA 015	1	8,000	8-Nov-22	10-Nov-22	10-Nov-22	31-Dec-22	0.14	6,090	1-Jan-23	31-Mar-23	0.25	10,541
PA 016	1	8,000	5-Jul-22	6-Jul-22	6-Jul-22	31-Dec-22	0.49	20,964	1-Jan-23	31-Mar-23	0.25	10,541
PA 017	1	7,800	3-Aug-22	7-Aug-22	7-Aug-22	31-Dec-22	0.40	16,786	1-Jan-23	31-Mar-23	0.25	10,277
PA 025	1	8,000	2-Dec-22	3-Dec-22	3-Dec-22	31-Dec-22	0.08	3,396	1-Jan-23	31-Mar-23	0.25	10,541
PA 026	1	8,000	3-Oct-22	4-Oct-22	4-Oct-22	31-Dec-22	0.24	10,424	1-Jan-23	31-Mar-23	0.25	10,541
PA 027	1	8,000	6-Oct-22	7-Oct-22	7-Oct-22	31-Dec-22	0.24	10,072	1-Jan-23	31-Mar-23	0.25	10,541
PA 028	1	8,000	5-Jun-22	6-Jun-22	6-Jun-22	31-Dec-22	0.57	24,478	1-Jan-23	31-Mar-23	0.25	10,541

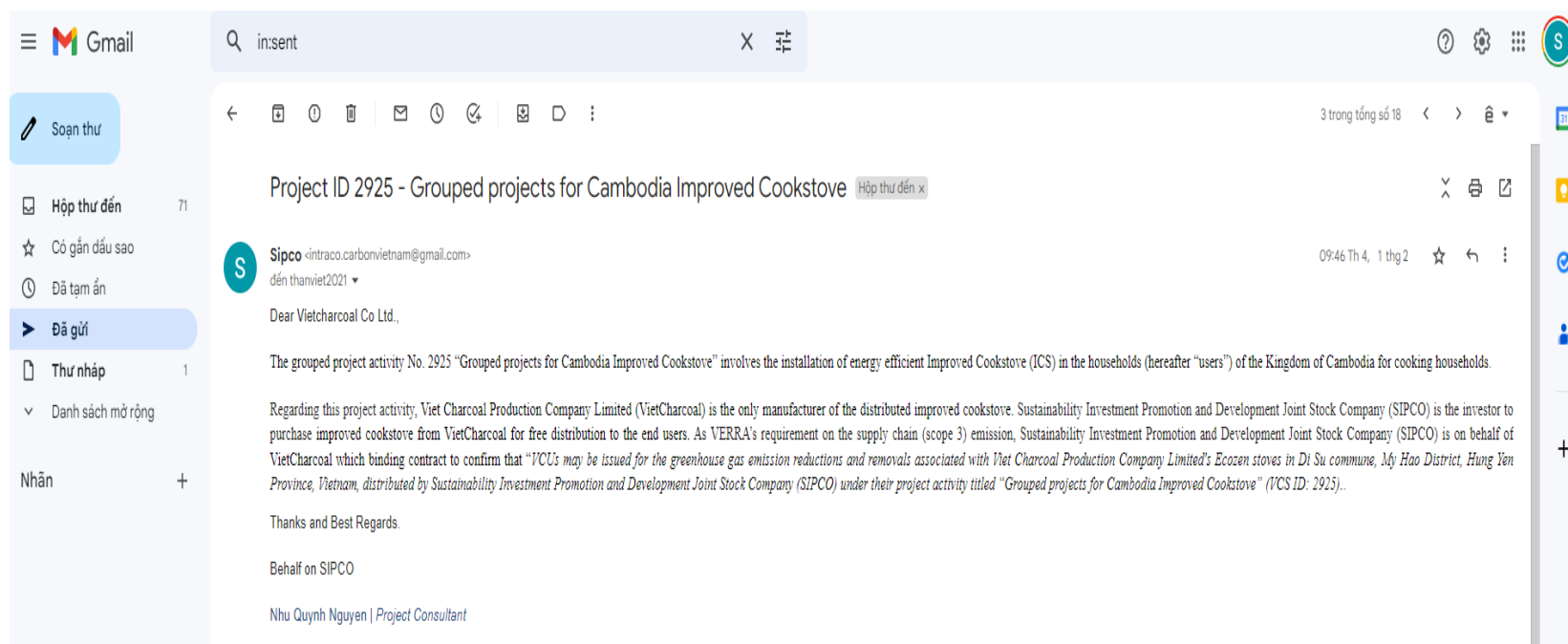
PA 029	1	2,222	6-Jun-22	6-Jun-22	6-Jun-22	31-Dec-22	0.57	6,799	1-Jan-23	31-Mar-23	0.25	2,928
PA 043	1	1,000	11-Jan-23	11-Jan-23	-	-	-	-	11-Jan-23	31-Mar-23	0.22	1,171
PA 043	1	7,000	6-Mar-23	8-Mar-23	-	-	-	-	8-Mar-23	31-Mar-23	0.07	2,459
PA 044	1	8,000	7-Feb-23	8-Feb-23	-	-	-	-	8-Feb-23	31-Mar-23	0.14	6,090
PA 045	1	8,000	7-Nov-22	27-Nov-22	27-Nov-22	31-Dec-22	0.10	4,099	1-Jan-23	31-Mar-23	0.25	10,541
PA 046	1	8,000	4-Jun-22	7-Jun-22	7-Jun-22	31-Dec-22	0.57	24,361	1-Jan-23	31-Mar-23	0.25	10,541
PA 047	1	8,000	5-Dec-22	13-Dec-22	13-Dec-22	31-Dec-22	0.05	2,225	1-Jan-23	31-Mar-23	0.25	10,541
PA 048	1	8,000	3-Jul-22	5-Jul-22	5-Jul-22	31-Dec-22	0.49	21,081	1-Jan-23	31-Mar-23	0.25	10,541
PA 049	1	1,636	6-Jul-22	6-Jul-22	6-Jul-22	31-Dec-22	0.49	4,287	1-Jan-23	31-Mar-23	0.25	2,156

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Vintage 1 (02-May-2022 to 31-Dec-2022)	375,380	0	18,769	356,611
Vintage 2 (01-Jan-2023 to 31-Mar-2023)	265,122	0	13,256	251,866
Total	640,502	0	32,025	608,477

<u>Ex-ante emissions reductions/removals</u>	<u>Ex-ante emission reductions/removals</u>	<u>Achieved emission reductions/removals</u>	<u>Percent difference</u>	<u>Justification for the difference</u>
PA 001 From 02-May-2022 to 31-March-2023	65,114	39,001	-40.10%	- Parameter By=1,new,i,j,survey is estimated value in registered PD, when do monitoring, this value is decrease. - The number of stoves distributed in many months, not fully distributed on the first day of distribution. - PP uses the updated value of fNRB which is voluntarily deducted the calculated fNRB by 26% based on the new Verra cookstove methodology (VMR 0006 version 1.2)

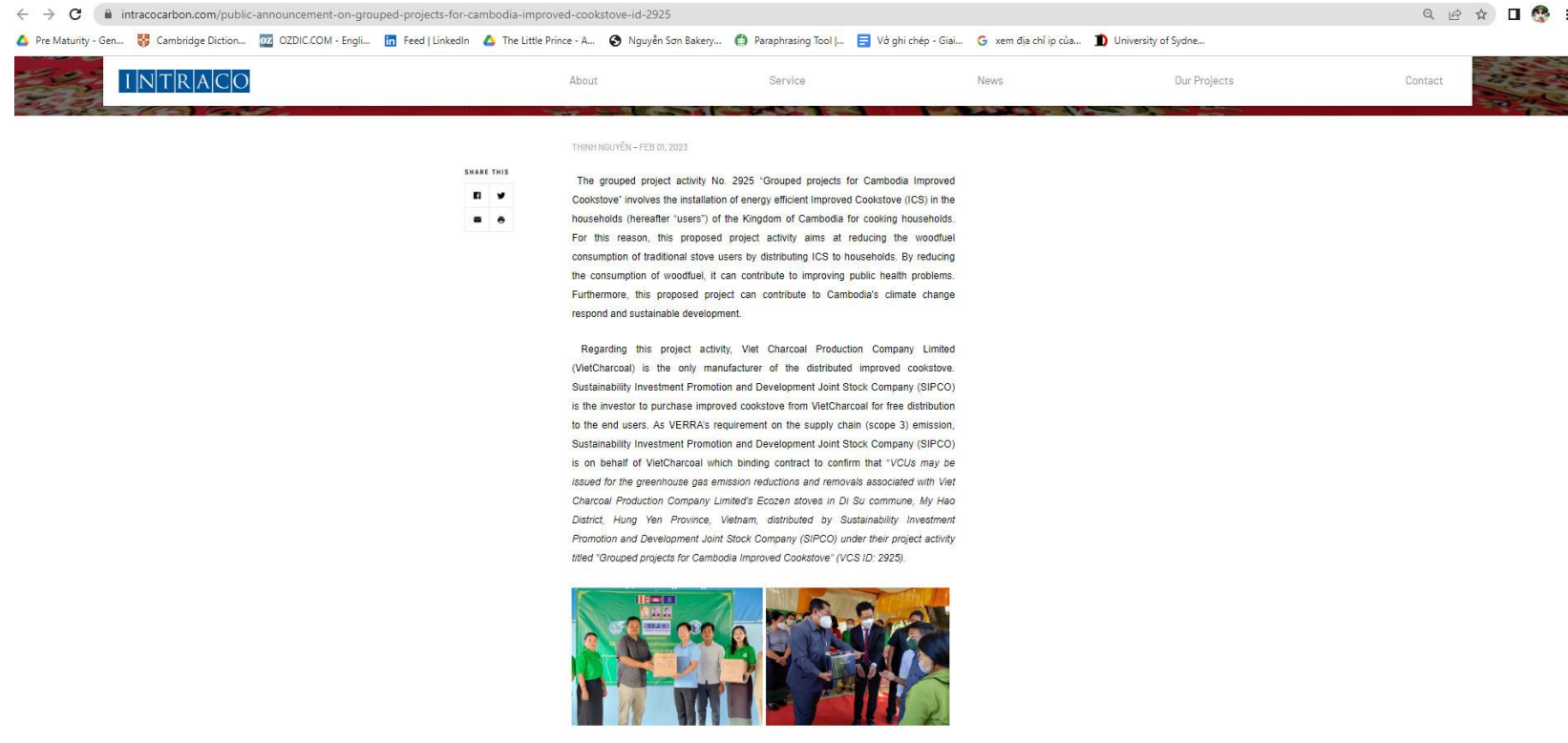
APPENDIX: SUPPLY CHAIN (SCOPE 3)

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



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

<https://intracocarbon.com/public-announcement-on-grouped-projects-for-cambodia-improved-cookstove-id-2925>



The screenshot shows a web browser displaying the Intraco website. The URL in the address bar is <https://intracocarbon.com/public-announcement-on-grouped-projects-for-cambodia-improved-cookstove-id-2925>. The website header includes the Intraco logo and navigation links: About, Service, News, Our Projects, and Contact. The main content area features a public announcement dated February 01, 2023, by THINH NGUYEN. The announcement describes the 'Grouped project activity No. 2925' for Cambodia Improved Cookstove, which involves installing energy-efficient Improved Cookstoves (ICS) in households. It states that the project aims to reduce woodfuel consumption and improve public health. The announcement also mentions that Viet Charcoal Production Company Limited (VietCharcoal) is the manufacturer, and Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) is the investor. Two photographs at the bottom show people receiving cookstoves and a group of people standing together.

SHARE THIS

THINH NGUYEN - FEB 01, 2023

The grouped project activity No. 2925 "Grouped projects for Cambodia Improved Cookstove" involves the installation of energy efficient Improved Cookstove (ICS) in the households (hereafter "users") of the Kingdom of Cambodia for cooking households. 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.

Regarding this project activity, Viet Charcoal Production Company Limited (VietCharcoal) is the only manufacturer of the distributed improved cookstove. Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) is the investor to purchase improved cookstove from VietCharcoal for free distribution to the end users. As VERRA's requirement on the supply chain (scope 3) emission, Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) is on behalf of VietCharcoal which binding contract to confirm that "VCUs may be issued for the greenhouse gas emission reductions and removals associated with Viet Charcoal Production Company Limited's Ecozen stoves in Di Su commune, My Hao District, Hung Yen Province, Vietnam, distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) under their project activity titled "Grouped projects for Cambodia Improved Cookstove" (VCS ID: 2925).