



GROUPED PROJECTS FOR LAOS IMPROVED COOKSTOVE

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Sustainability Investment Promotion and Development

Joint Stock Company

(SIPCO)

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The intention of the grouped project activity involves the installation of energy efficient Improved Cooking Stove (ICS) in the households (hereafter “users”) of Lao People's Democratic Republic (here after “Laos”) 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 Laos's climate change respond and sustainable development.

The project activity targets households with no previous ICS access. The geographical boundary is in villages/Districts/provinces in Laos as per official decision No. 0365/DCC assigning specific geographic areas of stove distribution to three project developers (SIPCO, Bridge Carbon, and IceBerg) in order to avoid overlaps in project boundaries. 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 Laos through participation of the people in adopting energy efficient stoves. This will also contribute to improvement in quality of lives of the people from Laos 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. The grouped project will distribute free of ICSs to households who using traditional cookstove for cooking meal. All the project instances to be included in this grouped project will be from within Laos only.

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

Until end of this monitoring period, there are 32 project instances under the grouped project¹. The first ICS was distributed on 10 March 2023. The first monitoring period is from 10 March 2023 to 30 September 2023. The second monitoring period is from 01 October 2023 to 30 June 2024. The third monitoring period is from 01 July 2024 to 31 January 2025. The fourth

¹ The detail of the 32 project instances is mentioned in the section 3.1

monitoring period is from 01 February 2025 to 31 October 2025. Till the end of fourth monitoring period, a total of 434,148 ICSs was reported installed under the project.

As of now, there are 3 registered cookstove distribution projects including:

- 1) The Installation of High Efficiency Wood Burning Cookstoves in Laos, registered on Verra – VCS 2521 by Bridge Carbon;
- 2) Laos Green Benefit Cookstove Project, registered under the Gold Standard – GS12796 by Iceberg;
- 3) The Grouped Projects for Laos Improved Cookstove, registered on Verra – VCS 2924 by SIPCO.

On 09 April 2024, SIPCO received email from VERRA that the project may be distributing improved cookstoves in the same area or province as another VCS-certified project. Subsequently, we conducted a resurvey of the overlapping areas from April 21 to May 14, 2025, in coordination with our local partner to thoroughly review all distribution zones. The results are as follows:

- Number of households affected by overlap between SIPCO with Bridge Carbon and Iceberg is 136,292 households. Specifically, SIPCO overlaps with:
- Iceberg: 7,320 households
- Bridge Carbon: 128,972 households.

The Department of Climate Change – the authority for managing carbon projects in Laos – held a meeting with the relevant companies on 28/04/2025 to listen to opinions and resolve the overlapping distribution issue and issued Decision No.0365/DCC dated 30 April 2025 as follows:

- The three cookstove project developers will agree to compile a list of villages under each company's projects with confirmation from the Department of Climate Change.²
- The Department of Climate Change will organize quarterly meetings (every 03 months) for companies to update on the progress and status of project distribution.
- Every 06 months, The Department of Climate Change will conduct internal supervision to check project quality.
- SIPCO, which has overlapping distribution with Bridge Carbon and Iceberg, will proceed to recall the stoves already distributed and completely exclude them from all emission reduction calculations.

Details of the number of improved cookstoves distributed to households after excluding overlapping households as per the result of the survey as followings:

² https://drive.google.com/file/d/1XaMPmxB_PaqMDTzaJsJ7ItMPZIJJsJ7mE/view?usp=sharing

Table 1: Distribution schedule

Month of installation	Number of ICSs distributed	Number of ICSs after removed	Number of commissioned ICSs in this MR
03/2023	3,026	3,026	3,026
04/2023	26,030	24,212	24,212
05/2023	15,340	13,431	13,431
06/2023	21,739	17,432	17,432
07/2023	19,312	11,277	11,277
08/2023	27,819	18,020	18,019
09/2023	23,115	4,616	4,616
10/2023	21,854	21,854	21,854
11/2023	23,690	22,487	22,487
12/2023	23,943	12,228	12,228
01/2024	28,187	26,969	26,969
02/2024	15,443	2,284	2,284
03/2024	28,678	7,520	7,520
04/2024	31,393	27,292	27,292
05/2024	28,113	25,257	25,257
06/2024	32,318	5,959	5,959
02/2025	14,233	14,233	14,233
03/2025	14,732	14,653	14,653
04/2025	16,997	11,479	11,479
05/2025	18,186	13,627	13,627
Total	434,148	297,856	297,855

Due to the full completion of new ICS distribution to eligible end users under this project, the retrieval of stoves from overlapping households is currently ongoing. The stoves recovered from these overlapping households have typically been in operation for approximately two years and

will be stored for other purposes, such as spare parts, repairs, or replacement of malfunctioning ICS units already in use, rather than being redistributed to new households. This approach ensures that no new households become beneficiaries through the redistribution of overlapping stoves. As a result, project households continue to use new ICS units and are not affected in terms of stove efficiency. Furthermore, households identified as overlapping have been completely excluded from the emission reduction calculations to ensure conservativeness.

A total of 136,292 cookstoves were identified as overlapping with those recorded under two other project developers. Accordingly, the project participants excluded 136,292 cookstoves from the project for the purpose of emission reduction calculations.

Please noted that in third monitoring period, we identified 01 non-operational cookstove of LAO-011-ICS-03202. Therefore, total of commissioned cookstoves in this monitoring period is 297,855 stoves.

This deviation has been reflected in an updated version of the Project Description that approved on 10 December 2025 by VERRA.

The total GHG emission reductions generated in the fourth monitoring from 01 February 2025 to 31 October 2025 is 354,926 tCO₂e GHG emission reductions.

1.2 Audit History

Audit Type	Period	Program	VVB Name	Number of years
Validation	14 September 2023 (The registered date) (the	VCS	Carbon Check (India) Private Ltd.	-
1 st Verification	10 March 2023 – 30 September 2023	VCS	Ecolance Private Limited	0.56
2 nd Verification	01 October 2023 – 30 June 2024	VCS	Ecolance Private Limited	0.75
3 rd verification	01 July 2024 – 31 January 2025	VCS	Ecolance Private Limited	0.59
4 th verification	01 February 2025 - 31 October 2025	VCS	Ecolance Private Limited	0.75

1.3 Sectoral Scope and Project Type

Sectoral scope³	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. (SIPCO)
Contact person	Ms. Nguyen Thi Hong Hanh
Title	Director
Address	6th 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	10-March-2023
Justification	The project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or removals. The project start date is 10 March 2023 which is the distribution date of the first cookstove under the project activity.

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)
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³ 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>

Start and end date of first or fixed crediting period

10 March 2023 to 09 March 2033

1.8 Project Location

The grouped project will be hosted by Laos. It covers the villages/districts/provinces in the country as specific as per Documents No.0365/DCC dated 30 April 2025 issued by the Department of Climate Change, which determines the distribution area for high efficiency of wood burning cookstove implemented by of three Companies—SIPCO, Bridge Carbon, and IceBerg. Detail of the SIPCO distribution area/boundary are in table as follows:

No.	Province	District	Village
1	Houphanh	Aed	All of villages
		Hiem	Houaysa, Meuanghiem, Nathuan, Na Vieng, Samphanthong, Thathiem, Thenhinh, Viengthong.
		Houameuang	All of villages
		Kouan	Bouak, Dendin, Houayang, Houayhae, Houayheng, Houayhong, Houayjeun, Houaymai, Houayngua, Houapoung, Houaytha, Houayxai, Kengnor, Keokoud, Korfoung, Meuangkouan, Meuangyeuang, Najom, Nakormi, Nampad, Pakhom(homephanh), Pakhom(phadeng), Pongthak, Phalem, Phiengdee, Phiengmone, Phiengpho, Phiengthat, Sankhoun, Sopkang, Sopsarn, Soumlouang, Tangaou, Tangsao, Thakheuang, Thakhouay, Vidxai, Yortain, Yortpao.
		Sophao	All of Villages
		Viengxay	All of Villages
		Xamnua	All of Villages
		Xamtai	Aid, Hintang, Houaymoun, Houakhang, Houaykhai, Houana, Houayni, Houaysadeb, Houaypoung, Houaysala, Houaykoun, Khor,

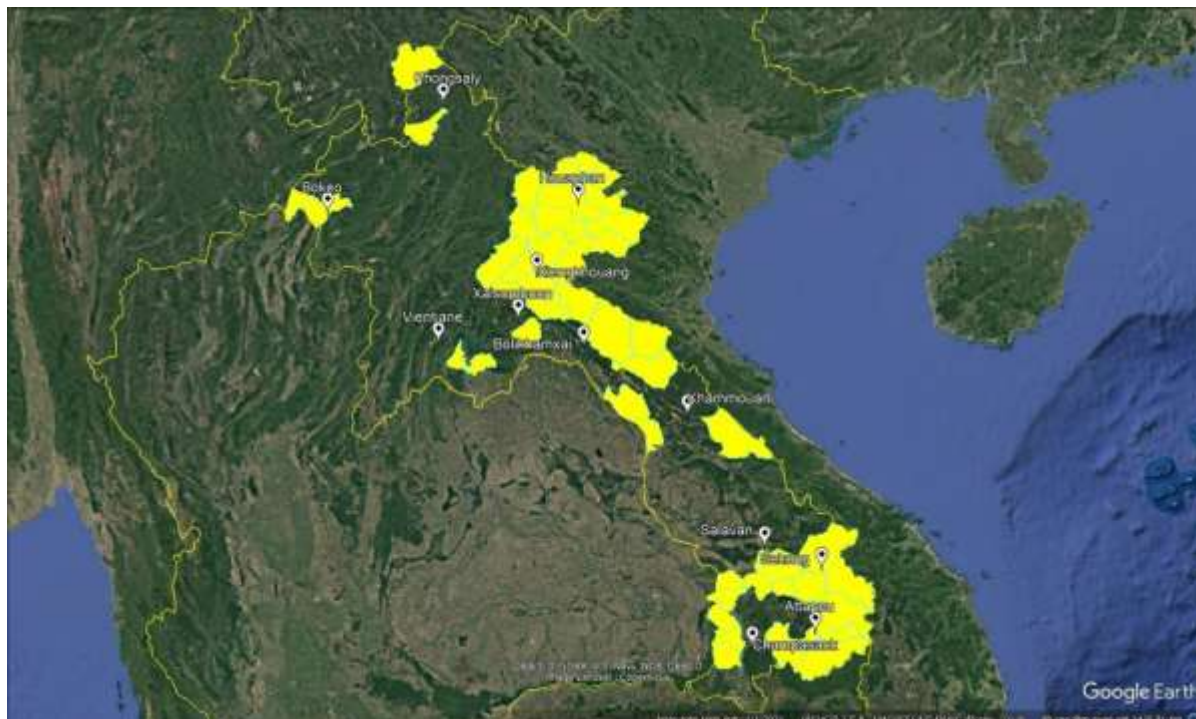
			Kengnai, Jaai, Nahieng, Nasikhamxay, Naxeo, Namtaep, Nameuang, Phalom, Phanokxao, Phapherng, Phansavanh, Thin, Thamchok, Thamnou, Yortyeuang,
		Xiengkho	All of villages
		Xon	All of villages
2	Attapeu	Phouvoung	All of Villages
		Samakkhixay	Laksam, Muangmai, Phonsawang, Safao, Sammakhi, Thahin, Vatluang, Vernkhaen, Xaysaat, Xekaman, Xekong, Xeyai.
		Samanxay	All of Villages
		Sansay	All of Villages
		Xaysettha	Hatxaiykhao, Kaengyai, Khanmakong, Phangdaeng, Phoxay, Tuay, Thaphaxay, Vatluang, Xaiy, Xaysy
3	Bokeo	Houayxay	All of villages
		Tonpheung	All of villages
4	Bolikhamxay	Khamkhert	Houaykeo 1, Houaykeo 2, Jengsavang, Kesernkham, Kouanchanh, Lak 10, Lak 20, Lak 5, Lak 7, Namdern, Nampao, Namthi, Napae, Nongaor, Nongdong, Nongmek, Nongpong, Nongxong, Phonmeuangnoy, Phonpheng, Phonsaad, Phontan, Phonthong, Phonxay, Phonhong, Senaoudom, Sobphouan, Somsanouk, Thabak, Thasala, Thaveng, Thongchalern, Thongpae, Thongsen, Vangpha,
		Pakkading	All of villages

		Viengthong	Chomthong, Hinngon, Houayhoy, Meuangmouan, Mixay, Namkang, Navangkhai, Nayang, Nongpad, Phondou, Sobna, Thaphae, Vanghin
		Xaychamphone	Phonsi
5	Champasack	Champasack	All of villages
		Phonthong	All of villages
		Sanasombun	All of villages
		Sukhuma	All of villages
6	Khammoun	Boualapha	Kengvak, Khayou, Khok, Napang, Napeng, Naphanang, Nasomboun, Pakphanang, Pakuaytai, Saang, Sengphanh, Talong, Thahae, Thapachon, Thublao, Yawai
		Hinboun	All of villages
		Thakhae	All of villages
7	Phongsaly	Yot Ou	All of villages
		Boun Tay	All of villages
8	Salavan	Khongxedon	All of villages
		Laongam	All of villages (excepted Huaypao, Keppherng, Kuangxi, Khamthong, Khanuan, Laongam, Nami, Nongjua, Nongtakai and Phuakyai vilagges)
		Salavan	All of villages (excepted Bounsouy, buangyai, Dongkoc, Khanmakyod, Khokyai, Lernamlan and Napali vilagges)
9	Vientiane	Phonhong	All of villages

		Thoulakhom	All of villages
10	Xaysomboul	Home	All of villages
		Thathome	All of villages
11	Xekong	Dakchueng	All of villages
		Kaluem	All of villages
		Laman	All of villages
		Thataeng	All of villages
12	Xieng Khoang	Kham	Ban, Chomsy, Dorkkham, Hin, Jomthong, Longpiw, Namouan, Nathongkhaivieng, Nayong, Phathang, Phiengdang, Phoxay, Phumeuang-Yortkeua, Sanphan, Sanh, Sopaor, Tat, Tong, Xiengkiew, Youmjong
		Khoun	Phosy, Naaou, Napho, Naxay, Xang, Phiavat, Siphom,
		Mork	Chalernmai, Nakhone, Namkeng
		Nonghed	Bouamphat, Dongkor, Houaydan, Houaykor, Keochia, Korsan, Namkouang, Namkoud, Nong, Nonghed, Nongxang, Pacha, Palan, Palao, Panee, Pounghom, Phakkheneua, Phakkhetai, Phaklak, Phangone, Phienghong, Phiengxeun, Pho, Souanaoy, Tinpha, Thamhok, Thamthoum, Thamxay, Vieng, Xangket, Yia, Yortteun
		Peak	Mon, Dong, Houa, Houaysang, Khangkhai, Khangnonglouang, Latngon, Lathouang, Lek, Nahoy, Namkoh, Namngam, Namtom, Nao, Naphong, Nathao, Ngoy, Phonmixai, Phonngamnua, Phonsaatneua, Phonsavankang, Phonsavannua, Phonsavantai, Phonsavanxai,

			Phonsavang, Phonthong, Saylom, Thachok, Theun, Yon, Yotngeum, Youanthong
		Phaxay	Latsen, Nakho, Naphia, Ngoua, Xiengdee
		Phukoud	Phienglouang, Phouvieng, Yortphae

The detail of coordinate of distribution area shall be provided separately in KML file.



Map 1: Map of grouped project

Detail geographic information of the project activity instance is below⁴:

Project activity Instance	Province	Coordinate
PA 1	Houaphanh	<u>20.333°N 103.833°E</u>
PA 2		https://www.google.com.hk/maps/place/Houaphanh+Province,+Laos/@20.2940879,103.3907176,9z/data=!3m1!4b1!4m6!3m5!1s0x313190c0e0de9649:0xd826dd5dfbe92
PA 3		
PA 4		

⁴ These PA23, PA25 and PA28 are removed due to overlap with other projects.

PA 5		5e8!8m2!3d20.3254175!4d104.1001326!16zL20vMDJqZm5u?entry=ttu
PA 6	Bolikhamxay	18.383°N 103.650°E
PA 7		https://www.google.com.hk/maps/place/Bolikhamsai+Province,+Laos/@18.4950666,103.3815804,9z/data=!3m1!4b1!4m6!3m5!1s0x313a5a3f0e5e5b65:0xcdd6b624492b6bc0!8m2!3d18.4362924!4d104.4723301!16zL20vMDJqM2Jo?entry=ttu
PA 8		
PA 9	Xaysomboun	18.905°N 103.092°E https://www.google.com.hk/maps/place/Xaisomboun+Province,+Laos/@18.8688982,102.8705794,10z/data=!3m1!4b1!4m6!3m5!1s0x31256f9f80a312df:0x18ae02974f069405!8m2!3d18.9181183!4d102.989615!16s%2Fm%2F0138td9t?entry=ttu
PA 10	Khammouan	17.500°N 105.333°E https://www.google.com.hk/maps/place/Khammouane+Province,+Laos/@17.5846778,104.6890242,9z/data=!3m1!4b1!4m6!3m5!1s0x31394e912b041533:0xf4c3a45264b6d1e1!8m2!3d17.6384066!4d105.2194808!16zL20vMDJqM3Rs?entry=ttu
PA 11	Xiengkhoang	19.609°N 103.728°E
PA 12		https://www.google.com.hk/maps/place/Xiangkhouang+Province,+Laos/@18.3675262,102.0988092,7z/data=!4m6!3m5!1s0x312fe135c0fed4f3:0x698eaca74dc84387!8m2!3d19.6375088!4d103.3587288!16zL20vMDJqZzAx?entry=ttu
PA 13		
PA 14		
PA 15	Xekong	15.6065°N 106.3082°E
PA 16		https://www.google.com.hk/maps/place/Sekong+Province,+Laos/@15.606588,106.308181,9z/data=!3m1!4b1!4m6!3m5!1s0x314032a88d882403:0x4388095d0854f755!8m2!3d15.5767446!4d107.0067031!16zL20vMDJqM24y?entry=ttu
PA 17	Salavan	15.9119°N 105.0015°E
PA 18		

PA 19		https://www.google.com.hk/maps/place/Salavan+Province,+Laos/@15.9119172,105.0014889,9z/data=!3m1!4b1!4m6!3m5!1s0x311558d39704508b:0x3d025666be56beb0!8m2!3d15.8171073!4d106.2522143!16zL20vMDJqM3Fk?entry=ttu
PA 20	Atapeu	14.8123°N 106.5509° E
PA 21		https://www.google.com.hk/maps/place/Attapeu+Province,+Laos/@14.8123618,106.5509038,10z/data=!3m1!4b1!4m6!3m5!1s0x316b3d45dfe29267:0x2e5e8abd4d1c1b3f!8m2!3d14.93634!4d107.1011931!16zL20vMDJqMnlz?entry=ttu
PA 22	Champasak	14.6937°N 104.7682° E
PA 24		https://www.google.com.hk/maps/place/Champasak+Province,+Laos/@14.6937575,104.7682991,9z/data=!3m1!4b1!4m6!3m5!1s0x31130b47b68cfeeb:0xe0f3dddad7c051c0!8m2!3d14.6578664!4d105.9699878!16zL20vMDFjExm?entry=ttu
PA 26		
PA 27		
PA 29	Bokeo	20.3074°N 100.3465° E
PA 30		https://www.google.com.hk/maps/place/Bokeo+Province,+Laos/@20.3074437,100.3465538,10z/data=!3m1!4b1!4m6!3m5!1s0x3128320af2bfb607:0xb72079c271e9e8f2!8m2!3d20.2872662!4d100.7097867!16zL20vMDFjX3Ru?entry=ttu
PA 31	Phongsaly	21.6669°N 101.6115° E https://www.google.com.hk/maps/place/Phongsaly+Province,+Laos/@21.6669058,101.6115574,9z/data=!3m1!4b1!4m6!3m5!1s0x312b4b8a60bbc255:0x871e6a176c151e4b!8m2!3d21.5919377!4d102.2547919!16zL20vMDJqZm01?entry=ttu&g_ep=EgoyMDI2MDEwNy4wKXMDSoKLDEwMDc5MjA3MUgBUAM%3D
PA 32	Viengchan	8.6154°N ,101.4828° E https://www.google.com.hk/maps/place/Vientiane+Province,+Laos/@18.6154213,101.4828023,9z/data=!3m1!4b1!4m6!3m5!1s0x312459542c120441:0x924ec13a9f33122c!8m2!3d18.9686447!4d102.2547919!16zL20vMDJqZz

		Vn?entry=tту&g_ep=EgoyMDI2MDEwNy4wIKXMDSoKLDEwMDc5MjA3MUgBUAM%3D
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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
CDM Standard	CDM Standard	Sampling and surveys for CDM project activities and programme of activities	09.0
CDM Guideline	CDM Guideline	Sampling and surveys of CDM project activities and programmes of activities	04.0
CDM Tool	Tool 33	Default values for common parameters	03

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, “VCUs may be issued for the greenhouse gas emission reductions and removals associated with Ecozen Cookstove, manufactured by Viet Charcoal Production Company Limited in Di Su Commune, My Hao District, Hung Yen Province, Vietnam, distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) under their project activity titled “Grouped projects for Laos Improved Cookstove” (VCS ID: 2924)”.

☒ Yes ☐ No

Detail in Appendix 2 in this report.

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 through efficient use leads to improved ecological balance.

- The project activity 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 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.

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

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	Project specific indicator: Increase of proportion population living in households with access to basic services. Net benefit = Number of project ICS * Usage rate	Implemented activities to increase	Provide 268,069 families in this monitoring period with greater access to basic services in the form of clean cooking technology	The project allowed 297,856 households access to clean cooking technology until end of 4 th monitoring period
2)	3.9	Project specific indicator: Number of individuals experiencing health benefits due to reduced exposure to indoor air pollution.	Implemented activities to increase	Reduce Household Air Pollution (HAP) due to cooking by using 268,069 improved cookstove in these households in this monitoring period.	The project lead to reduction in Household Air Pollution (HAP) for 297,856 households until end of 4 th monitoring period thereby resulting in improved health conditions of women and children

3)	5.4	Project specific indicator: Decrease of time spent on unpaid domestic and care work, by sex, age and location	Implemented activities to decrease	Under the project scenario, women will see a massive reduction in both the amount of fuelwood required for cook meal, and the amount of time taken to cook meal. Conducting sample surveys of end user, the results show that these households can save time for cooking meals and collecting wood fuel. This frees up time for other economically productive activities or personal care.	Women 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 time for collecting wood fuel and cooking. They would also have time to engage in other employment opportunities.
4)	7.1	Project specific indicator: Increase population with primary reliance on clean fuels and technology	Implemented activities to increase	With the installation of 268,069 ICSs in the project activity to replace traditional stove, the project improved energy efficiency in beneficiary homes and greater access to basic services in the form of clean cooking technology	The project allowed 297,856 households to gain access to clean cooking technology until end of 4 th monitoring period

5)	8.3	Project specific indicator Increase informal employment in total employment, by sector and sex Net benefit = ES_{project} – ES_{baseline} <table><tr><th>Parameter</th><th>Description</th></tr><tr><td>ES_{project}</td><td>Gainfully employed staff in project scenario.</td></tr><tr><td>ES_{baseline}</td><td>Gainfully employed staff in baseline. A value of 0 shall be considered as in absence of project activity no employment opportunities would have been created.</td></tr></table>	Parameter	Description	ES _{project}	Gainfully employed staff in project scenario.	ES _{baseline}	Gainfully employed staff in baseline. A value of 0 shall be considered as in absence of project activity no employment opportunities would have been created.	Implemented activities to increase	The project generate around 12 employment opportunities of host country for assembling, distribution post-sale operation & Maintenance of ICSs.	The project generated total of 30 employment opportunities until end of 4 th monitoring period.
Parameter	Description										
ES _{project}	Gainfully employed staff in project scenario.										
ES _{baseline}	Gainfully employed staff in baseline. A value of 0 shall be considered as in absence of project activity no employment opportunities would have been created.										
6)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	Reduce the total fuelwood usage in the project area to generate approximately 354,926 tCO ₂ e of emission reductions	The project generated the GHG emission reduction is 1,492,565tCO ₂ e until end of 4 th monitoring period						
7)	15.2.1	Amount of woody biomass	Implemented activities to increase	By replacing inefficient open cooking fires with 268,069 stoves in this monitoring period and performing energy efficiency improvements in improved cookstoves, the project activity saved of 338,499 tons woody fuel in this monitoring period.	By distributing 297,856 improved cookstove instead of traditional cookstove, the project help reduction in demand for firewood. Contribute an estimated reduction in removal of woody fuel of 1,987,549 tons from forests surrounding the communities until end of 4 th monitoring period						

1.13 Commercially Sensitive Information

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

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification

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

Stakeholders can be defined by three steps approach as following:

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

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

- Project Initiation: stakeholders include self-help groups such as Lao Red Cross who can assist the project initiator in understanding the project benefits and potential impediments, making ingress within the community...

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

	stakeholders' diversity and therefore have no real impact on their opinion during the monitoring period. - ICS user: there has been an unquantifiable improvement in their health, livelihood, well-being, and income as per exchange during onsite survey. - Lao Red Cross: No change in structure & functionality or any organization values. - Local vender: Various local businesses supply wood in the project area. Project activity helps save wood in cooking so influence consumption of these products and could thus negatively affect vendor livelihoods. - Manufacturer: More jobs for their employee in manufacturing, transportation and maintenance ICSs. Other governmental authority and NGOs: No change was observed in structure & functionality.
Expected changes in well-being	- The project activity is contributing to the reduction in GHG emission due to reduction in use of non-renewable biomass and it can ensure natural recovery of forests and/or reforestation. - Community health issues such as chronic lung diseases, acute respiratory infections, cataracts, blindness, and adverse effects on pregnancy are decreasing due to improvement of indoor air quality. - The introduction of locally manufactured technology with improved energy efficiency helps in technological self-reliance in the area
Location of stakeholders	All the stakeholders are operating and living in the area of project activity which is in the geographical boundary of Laos country.
Location of resources	Have no change in location of resource during the monitoring period. - ICS user: they still freely access to local forest around their household to collect wood fuel. - Local vender: They still can supply wood in the project area.

- Red Cross and local NGOs and government: They have no change in structure & functionality, they are still operating in Laos and access to the same resources

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	The PP is maintaining ongoing communication with stakeholders through different measures. 1) During the monitoring survey, project has taken the chance to update information to different stakeholders, and collected comments through interviews, surveys, direct observations, group discussions. The PP also conducts and reports the monitoring result from the random sampling of to all stakeholders on annually basis. 2) Staff of SIPCO and Red Cross of the villages communicates & collects end-users' comments through regular visits and phone interviews to household at least 1 time per year. 3) Through monitoring survey trip, the field team managers also actively organize and conducts group discussions with different stakeholders The data from these interactions is compiled into annual reports and updated to the Red Cross & local governmental authority. Through the ongoing communication process, all the implementation information, such as the results of monitoring, the risks, costs and benefits the project and the plan of site visit from verification body has been updated timely to the stakeholders. In addition, the PP also updates workers on relevant law and applicable regulation (if any) and conduct additional educational services as requested by the beneficiary.
Date(s) of stakeholder consultation	• 18 August 2022, the date of initial stakeholder consultation meeting for grouped project. • 20 October to 18 November 2025, the date to conduct ongoing consultation & conduct sampling survey at the same time • 26 November 2025, the date of record for ongoing communication of stakeholders.

Communication of monitored results	The monitored results have been shared with Lao Red Cross & relevant stakeholders through annual reports include the information of 1) The list of households has been selected for survey 2) The summarize of the result of SIPCO's representative sample conduct survey.
Consultation records	All formal consultation has been logged in the consultation forms. Forms has been saved for record of correspondence
Stakeholder input	During this ongoing communication, some household hope the manufacture can increase the size of project stove to cook more thing, And the manufacturer has taken note and research the way to design the cookstove accordingly. However, the change of size of project stove is not suitable at this time due to cost issue.

2.1.3 Free, Prior, and Informed Consent

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

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
There is no the grievance raised during this monitoring period.	Not Applicable.

The grievance mechanism process could be illustrated as below:



- **Receive Grievance**

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

- **Record**

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

- **Screen**

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

- **Acknowledge**

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

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

- **Investigate**

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

in determining how the grievance is handled and what steps need to be taken in order to resolve the grievance.

- **Act**

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

- **Follow up and close out**

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

Minutes of the meeting is recorded and saved.

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

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

2.1.5 Public Comments

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

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

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

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	The project activity involves distribution of improved cookstove 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 well-being.
Risks to stakeholder participation	No risk identified	The project activity involves distribution of improved cookstove 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
Working conditions	No risk identified	Project activities create jobs for local people, help them from unemployed to employed. All of working condition such as working hour, clothes, environment... as per Viet Nam's and Lao's Labor Law. therefore, no any risk identified to working condition
Safety of women and girls	No risk identified	The project activity help reduce the proportion of time rural women spend on unpaid domestic work related to collection of firewood, Therefore, no any risk identified relate to safety of women and girls.
Safety of minority and marginalized groups, including children	No risk identified	The project alleviates the work burden of children and minority and marginalized grouped as they have to spend less time to collect firewood for cooking. Therefore, no any risk identified relate to safety of minority and marginalized grouped
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	The project activity involves distribution of improved cookstove to individual household. The project activity reduce air pollutants from cooking smoke and improve the air quality indoor.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Risks identified ⁵		Mitigation or preventative measure(s) taken
Discrimination	No risk identified	The project participants do not discriminate based on gender and ensure that an equal number of women and members of other underrepresented groups have the opportunity to apply
Sexual harassment	No risk identified	As part of our commitment to having a diverse and inclusive workplace, we have zero tolerance for harassment and bullying.
Gender equity in labor and work	No risk identified	The project also encourages women in the local communities to take up employment as per their skills, and provide training to all staff regardless of gender. The company as per its human resource policy ensures fair opportunity and equal pay for equal work done to both men and women. Furthermore, the project activity provides more opportunities to women through self-help groups, thus helping in overall women empowerment
Forced labor	No risk identified	SIPCO does not tolerate child labor or forced, involuntary or trafficked labor in any form. Victimization at work, such as recurring negative actions directed against individual employees, is not permitted. All employees shall treat one another with respect, dignity and common courtesy.
Child labor	No risk identified	
Human trafficking	No risk identified	

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
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⁵ 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.

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

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

2.3.4 Property Rights

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

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	The project activity has not any the benefit sharing plan so this section is not applicable
Benefit sharing during the monitoring period	The project activity has not any the benefit sharing so this section is not applicable

2.4 Ecosystem Health

Risk identified		Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	The implementation of the grouped project does not impose any severe impacts on the ecological system in the surrounding areas. This project activity helps in reducing the consumption of fuel wood by efficient fuel combustion thereby reducing deforestation and reducing indoor air pollution. The use of efficient Cooking Stove technology reduce adverse environmental and social impacts associated with the use of non-renewable biomass. The reduced consumption of the stated baseline fuel has sustainable benefit for all household's traditional cook stoves users included in the project activity. The implementation of the project reduce workloads involved in fuel collection, and by reducing indoor air pollution, reduce the risk of respiratory diseases, especially for women and children. Efficient or improved Cooking stoves also contribute to environment protection by reducing biomass
Soil degradation and soil erosion	No risk identified	
Water consumption and stress	No risk identified	

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

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

2.4.2 Introduction of species

It is not applicable since project not introduce any species

2.4.3 Ecosystem conversion

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

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity aims to distribute ICSs in provinces of Lao and during this monitoring period all 434,148 ICSs under project activity were distributed. All ICSs were transported and gathered in local district's temporary warehouses one week before the start distribution date. From 10 – March - 2023, SIPCO in conjunction with the local partner (Lao Red Cross) organized mass distributions in all villages within the district. Lao Red Cross has affiliates in every village in all over Lao, they can quickly identify the households who are using traditional cookstove to cook meal daily and they can select the households that meet the project criteria. The representative of households whose names were on the demand registration list which have been predetermined to be eligible to participate in the project were invited to the distribution's points to attend the communication session and receive ICS. All 434,148 ICSs under this grouped project were distributed during more than 01 years from 10 – March – 2023 to 14 May 2025.

Due to there are some overlapping distribution areas among the cookstove developers (SIPCO, Bridge Carbon, Iceberg) which has led to duplicated distribution efforts. Therefore, SIPCO carried the survey households affected by overlapping distribution among the projects from 21/04/2025 to 14/05/2025 and the results are as follows:

Number of households affected by overlap between SIPCO with Bridge Carbon and Iceberg is 136,292 households. Specifically, SIPCO overlaps with:

- Iceberg: 7,320 households
- Bridge Carbon: 128,972 households.

Detail for each PA as following:

Table 02: Timeline of project activities (PAs)

Project activity	Steps	Timeline
Grouped project	Registration date	14/09/2023
PA 1	Start date of fourth monitoring period	01/02/2025
	Inclusion date	14/09/2023
	Project start date (the first equipment distributed)	10/03/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	• 7,965 ICSs were distributed from March to June 2023
	Total of ICSs have been calculated emission reduction as on 31/10/2025	7,965 ICSs
	Start date of fourth monitoring period	01/02/2025

PA 2	Inclusion date	• 04/04/2024
	Project start date (the first equipment distributed)	03/04/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	• 11,461 ICSs were distributed in April 2023
	Total of ICSs have been calculated emission reduction as on 31/10/2025	11,461 ICSs
PA 3	Start date of fourth monitoring period	01/02/2025
	Inclusion date	• 04/04/2024
	Project start date (the first equipment distributed)	06/04/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	• 11,151 ICSs were distributed from April to May 2023
	Total of ICSs have been calculated emission reduction as on 31/10/2025	11,151 ICSs
PA 4	Start date of fourth monitoring period	01/02/2025
	Inclusion date	• 04/04/2024
	Project start date (the first equipment distributed)	08/04/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	• 12,380 ICSs were distributed from April to May 2023 • Removed 3,727 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	• 8,653 ICSs
PA 5	Start date of fourth monitoring period	• 01/02/2025
	Inclusion date	• 04/04/2024
	Project start date (the first equipment distributed)	• 03/05/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	• 13,029 ICSs were distributed from May to June 2023

		Removed 4,307 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	8,722 ICS
PA 6	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	08/06/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	10,149 ICSs were distributed in June 2023 1,402 ICSs were distributed in February 2025
	Total of ICSs have been calculated emission reduction as on 31/10/2025	10,149 ICS
PA 7	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	03/07/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	7,270 ICSs were distributed in July 2023 - Removed 4,444 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	2,826 ICSs
PA 8	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	05/07/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	12,042 ICSs were distributed in July 2023 - Removed 2,591 ICSs from the project activity due to overlapping

	Total of ICSs have been calculated emission reduction as on 31/10/2025	8,451 ICS
PA 9	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	01/08/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	2,632 ICSs were distributed in August 2023 8,123 ICSs were distributed in February 2024 - Removed 5,839 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	4,916 ICSs
PA 10	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	03/08/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	4,526 ICSs were distributed in August 2023 7,320 ICSs were distributed in February 2024 - Removed 7,346 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	4,500 ICSs
PA 11	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	04/09/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	11,319 ICSs were distributed in September 2023

		- Removed 3,618 ICSs from the project activity due to overlapping 01 ICS of LAO-011-ICS-03202 has not been operated.
	Total of ICSs have been calculated emission reduction as on 31/10/2025	7,701 ICSs
PA12	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	07/08/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	9,342 ICSs were distributed in August 2023 2,278 ICSs were distributed in September 2023 - Removed 8,098 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	3,522 ICSs
PA13	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024
	Project start date (the first equipment distributed)	03/09/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	11,482 ICSs were distributed in September 2023 - Removed 9,950 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	1,532 ICS
	Start date of fourth monitoring period	01/02/2025
	Inclusion date	04/04/2024

PA14	Project start date (the first equipment distributed)	07/09/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	9,355 ICSs were distributed in September 2023 - Removed 6,606 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	2,749 ICSs
PA 15	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	02/10/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	10,524 ICSs were distributed from 02 to 05 October 2024
	Total of ICSs have been calculated emission reduction as on 31/10/2025	10,524
PA 16	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	06/10/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	11,330 ICSs were distributed from 06 to 10 October
	Total of ICSs have been calculated emission reduction as on 31/10/2025	11,330 ICSs
PA 17	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	01/11/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	9,563 ICSs were distributed from 01 to 03 November 2023

	Total of ICSs have been calculated emission reduction as on 31/10/2025	9,563 ICSs
PA 18	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	06/11/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	14,555 ICSs were distributed from 06 to 10 November 2023 - Removed 1,631 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	12,924 ICSs
PA 19	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	02/01/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	17,970 ICSs were distributed from 02 to 09 January 2024 - Removed 790 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	17,180 ICSs
PA 20	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	01/03/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	12,273 ICSs were distributed from 01 to 06 March 2024 - Removed 4,753 ICSs from the project activity due to overlapping

	Total of ICSs have been calculated emission reduction as on 31/10/2025	7,520 ICSs
PA 21	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	02/04/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	14,961 ICSs were distributed from 02 to 10 April 2024 - Removed 4,101 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	10,860 ICSs
PA 22	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	01/12/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	12,228 ICSs were distributed from 01 to 05 December 2023.
	Total of ICSs have been calculated emission reduction as on 31/10/2025	12,228 ICSs
PA 23	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	07/12/2023
	Implementation status as on 31/10/2025 (number of ICSs distributed)	11,715 ICSs were distributed from 07 to 12 December 2023 - Remove all of 11,715 ICSs from the project activity due to overlapping

	Total of ICSs have been calculated emission reduction as on 31/10/2025	0 ICSs
PA 24	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	10/01/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	9,789 ICSs were distributed from 10 to 12 January 2024
	Total of ICSs have been calculated emission reduction as on 31/10/2025	9,789 ICSs
PA 25	Start date of fourth monitoring period	01/10/2023
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	07/03/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	16,405 ICSs were distributed from 07 to 13 March 2024 - Remove all of 16,405 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	0 ICSs
PA 26	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	15/04/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	16,432 ICSs were distributed from 15 to 19 April 2024
	Total of ICSs have been calculated emission reduction as on 31/10/2025	16,432 ICSs
	Start date of fourth monitoring period	01/02/2025

PA 27	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	01/05/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	11,321 ICSs were distributed from 01 to 06 May 2024
	Total of ICSs have been calculated emission reduction as on 31/10/2025	11,321 ICSs
PA 28	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	03/06/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	14,770 ICSs were distributed from 03 to 07 June 2024 - Remove all of 14,770 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	0 ICSs
PA 29	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024
	Project start date (the first equipment distributed)	07/05/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	16,792 ICSs were distributed from 07 to 14 May 2024 - Remove 2,856 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	13,936 ICSs
	Start date of fourth monitoring period	01/02/2025
	Inclusion date	03/10/2024

PA 30	Project start date (the first equipment distributed)	10/06/2024
	Implementation status as on 31/10/2025 (number of ICSs distributed)	17,548 ICSs were distributed from 10 to 17 June 2024 4,193 ICSs were distributed from 21 to 24 February 2025 14,732 ICSs were distributed from 05 to 14 March 2025. - Remove 11,668 ICSs from the project activity due to overlapping
	Total of ICSs have been calculated emission reduction as on 31/10/2025	24,805 ICSs
PA 31	Start date of fourth monitoring period	01/02/2025
	Inclusion date	To be included in this monitoring period
	Project start date (the first equipment distributed)	04 April 2025
	Implementation status as on 31/10/2025 (number of ICSs distributed)	16,997 ICSs were distributed from 04 to 17 April 2025 4,559 ICSs were distributed from 01 to 02 May 2025. - Remove 10,077 ICSs from the project activity due to overlapping
PA 032	Total of ICSs have been calculated emission reduction as on 31/10/2025	11,479 ICSs
	Start date of fourth monitoring period	01/02/2025
	Inclusion date	To be included in this monitoring period
	Project start date (the first equipment distributed)	06 May 2025
PA 032	Implementation status as on 31/10/2025 (number of ICSs distributed)	13,627 ICSs were distributed from 06 to 14 May 2025.

	Total of ICSs have been calculated emission reduction as on 31/10/2025	13,627 ICSs
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Only one cookstove model (Ecozen) was distributed in the project.

Until the end of this monitoring period, a total of 434,148 ICSs were distributed as part of the project activity. However, due to overlapping, there are 136,292 ICSs has been completely removed from the project activity. Therefore, there are total of 297,856 ICSs is calculated in emission reduction in project activity in this monitoring period.

In third monitoring period, the PP has updated new methodology VM 0050 for the project activity.

During the current monitoring period, there are 02 ICS was not operation, there are 96.67% of cookstove are operating that could affect GHG emissions reduction and approved monitoring plan. However, for the actual ER claims, a 90% operational rate has been conservatively applied in accordance with the requirements of the applied methodology.

3.2 Deviations

3.2.1 Methodology Deviations

Not Applicable

3.2.2 Project Description Deviations

Not Applicable

3.3 Grouped Projects

No.	Eligibility criterion - Category	How the new project activity instances to comply	Supporting evidence for inclusion
1	Meet the applicability conditions set out in the methodology applied to the project.	The new project activity instance will meet all applicability conditions of VM0050: Energy efficiency and fuel switch measures in cookstove", version 1.0	These project activities in PA31 and PA32 meet all applicability condition of VM 0050, listed in section 3.2 of registered PD

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 cookstoves which is conventional firewood stove for fire biomass with the efficiency is 38.44% to be adopted in PA31 and PA32 under 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 Ecozen cookstove with efficiency improvements in thermal applications of non-renewable biomass. The Ecozen cookstove have a thermal efficiency of 38.44%	The Ecozen Cookstove with efficiency of 38.44% were included in the PA31 and PA32 of the grouped project and they will replace traditional cookstoves in household.
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 villages/Districts/provinces in Laos as per official decision No. 0365/DCC assigning specific geographic areas of stove distribution to three project developers (SIPCO, Bridge Carbon, and IceBerg) in order to avoid overlaps in project boundaries and subject to the same baseline scenario determined in section 3.4 of registered PD.	The new project activity instances of PA31 and PA32 were be implemented in the households in villages/Districts/provinces in Laos as per official decision No. 0365/DCC assigning specific geographic areas of stove distribution for SIPCO.

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 both following conditions to qualify for the positive list: 1. The project activity introduces the efficient biomass-fired cookstoves that replace inefficient biomass-fired cookstoves; 2. The project activity installs or distributes improved cookstoves at zero cost to the end user and has no revenue source other than from the sale of verified carbon units (VCUs). Step 3: Project method This step is not applicable under project activity because the stoves are provided at zero cost to the households (end user).	The new project activities of PA 31 and PA 32 are eligible and the PP provided the confirmation that the ICSs are distributed for free to the Users at community centers.
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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 PP 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 PP as part of the Carbon Rights Waiver within the Beneficiary agreement	Each ICS in project activity is uniquely identifiable and not part of any other CDM registered project or CPA of other PoA. The ICS carry unique IDs comprised of the project instance number, ICS number and household subscribed to each ICS. The labels are below: PA031: LAO-031-ICS-00001 to LAO-031-ICS-18000. PA032: LAO-032-ICS-00001 to LAO-032-ICS-18000.
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7	Capacity limit	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity 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	The project activity instances apply Verra VCS methodology VMR0050 ver 1.0 for both “project” and “large project”. Hence, this is not applicable.
8	Target group	Each project instance will target end users which includes households who use traditional cookstove to cook meal.	The new project activities of PA 31 and PA 32 satisfies the criteria. Each household in the project activity must sign a beneficiary agreement to commit that they are using traditional cookstove to cook meal.

9	Occur within one of the designated geographic areas specified in the project description	These ICSs are distributed within the boundaries in villages/ Districts/ Provinces in the Lao as per official decision No. 0365/DCC assigning specific geographic areas of stove distribution to three project developers (SIPCO, Bridge Carbon, and IceBerg) in order to avoid overlaps in project boundaries.	The new project activities of PA31 and PA32 were implemented in the households of Lao country.
10	Conform 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 with the full set of eligibility criteria for the inclusion of new project activity instances in this table.	The new project activities of PA31 and PA32 complies the full set of applicable eligibility criteria for the inclusion of new project activity instances in criteria No.1 to 8 above
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.	The new project activities of PA31 and PA32 comprises a monitoring plan that outlines the technical, financial, geographic and other relevant information to enable sampling by the validation/ verification body

12	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 must demonstrate ownership by the project participant, from the start date of the project activity instance.	A default Beneficiary Agreement for end users including the provision that emission reductions generated by the stove are owned by the project proponent were provided for project activity.
13	Have a start date that is the same as or later than the grouped project start date.	New Project Activity Instances must provide evidence that only ICSs distributed into the field after the Group Project start date are accounted for.	The start date of the new project activities instances is below: PA 31: 04 April 2025 PA 32: 06 May 2025 The start date is after 10 Mar 2023 which is start date of grouped project.
14	Only be eligible for crediting from the later of start date of the project activity instance or the start of the verification period in which they were added to the grouped project, through to the end of the total project crediting period	New Project Activity Instances must be eligible for crediting from the start date of the instance through to the end of the project crediting period	The new project activities of PA31 and PA32 are eligible for crediting is below: PA 31: From the 16 April 2025 to 09 Mar 2033 PA 32: From the 15 May 2025 to 09 Mar 2033

15	Not be or have been enrolled in another VCS project	These cookstoves in the new project activity instances have not been enrolled in another VCS project.	The cookstoves in the new project activities of PA31 and PA32 have been enrolled in the grouped project activity only.
16	The project proponent shall include in a singular project all project activity instance within 10km of another instance of the same project activity and with the same project proponent	The distance of project instances in the same grouped project is more than to 10 km	The new project activities of PA31 and PA32 under the grouped project activity are located within a distance of more than 10 km from each other so this requirement is satisfied.

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	$\eta_{old,avg}$
Data unit	Fraction
Description	Weighted average efficiency of baseline devices that are replaced by project devices
Source of data	Default value as per applied methodology
Value applied	0.15
Justification of choice of data or description of measurement methods and procedures applied	The default value of 0.15 is used as the replaced system is a three stone fire using firewood or a cookstove with no improved combustion air supply or flue gas ventilation.

Purpose of Data	Calculation of baseline emission
Comments	The value is fixed ex - ante

Data / Parameter	NCV _{b,wood fuel} NCV _{p,wood fuel}
Data unit	TJ/Tonne
Description	Net calorific value of baseline and project fuel used by baseline device and project devices
Source of data	Option 3: Default value from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	IPCC Default value
Purpose of data	Calculation of baseline and project emissions
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	BC _{ex-ante,b,i}
Data unit	tonnes
Description	Ex-ante annual average quantity of fuel used per baseline device type i.
Source of data	Option 1: Kitchen Performance Test 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.
Value applied	3.594

Justification of choice of data or description of measurement methods and procedures applied	The survey revealed that the average wood consumption of baseline in the Laos is 0.828 tonnes/person/day. This result is scaled appropriately using the average household size (Hhi) as follows: $BC_{ex-ante,b,i} = BC_{ex-ante,b,i} \text{ (tonnes/person/year)} \times \text{Equivalent standard male adults (Hhi) obtained from baseline KPT}$ $BC_{ex-ante,b,i} = 0.828 \times 4.34 = 3.594$ tonnes/year. The details of the baseline KPTs including target population, sample size sampling method, precision/confidence achieved has been added in section 3.4 of the PD
Purpose of data	Calculation of baseline emission
Comments	The result must be scaled appropriately using the average household size to obtain the value of $BC_{ex-ante,b,i}$.

Data / Parameter	$EF_{b,i,CO2}$ $EF_{p,j,CO2}$
Data unit	tCO ₂ /TJ
Description	CO ₂ emission factor for fuel used by baseline and project device type I in the baseline and project 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	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Comments	This parameter is fixed for the monitoring periods

Data / Parameter	$EF_{b,i,nonCO2}$ $EF_{p,j,nonCO2}$
Data unit	tCO ₂ /TJ
Description	Non-CO ₂ emission factor for fuel used by baseline and project devices in baseline and project 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	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	Hh_i
Data unit	Equivalent standard male adults
Description	Average household size of the target population using device type i
Source of data	Baseline survey
Value applied	4.34
Justification of choice of data or description of measurement methods and procedures applied	Survey
Purpose of data	- Estimation of average energy consumption when applying baseline survey - Cross-checking energy and fuel consumption values
Comments	This parameter shall remain fixed for the monitoring periods

4.2 Data and Parameters Monitored

Data / Parameter	$N_{j,k,l}$
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 activity (e.g., name, address, phone number). 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	297,855
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	
Purpose of data	Calculation of baseline emissions
Calculation method	-
Comments	There are 136,292 ICSs excluded from emission reduction calculation due to overlaps with other parties in this monitoring period and 01 ICSs of LAO-011-ICS-03202 was found to be non-operational during third monitoring period. Therefore, the total number of ICSs confirmed as commissioned in the fourth monitoring period is 297,855 ICSs.

Data / Parameter	$\eta_{j,k,i}$
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: Measured 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. 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.
Frequency of monitoring/recording	Annually
Value applied	0.9
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	-
Purpose of data	Calculation of baseline and project emissions
Calculation method	
Comments	The project activity applies sampling surveys with the following customer support action following are taken: - The project activity applies clean technologies and fuels that fully meet the cooking needs of the target population, help reduce fuel consumption and cooking-related dust. - Before the distribution of the cookstoves, the Red Cross received training on the benefits of cookstoves and their role in the reduction of the pressure on forests. They will also be trained in how to use the improved stove. - Prior to the distribution, the Red Cross with the help of the SIPCO, organized an awareness raising campaign as well as a demonstration session in the targeted community to raise awareness on climate change, the importance of clean cooking device and demonstrate how to use the device. - Once the households have received their cookstoves, two to three times a year, the area manager, working closely with the Red Cross will visit the households, monitor their use of the stoves and organize training session on how to improve their use of the cookstoves and raise awareness on climate change. - During the whole project duration, the Red Cross will be the intermediary between the project and the beneficiaries, answering the end-users' questions when possible or notifying the area manager for further action when needed.

	Therefore, the usage rate is capped at 90% for calculate emission reduction.
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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	Default values of the most recent version of CDM TOOL33, version 03
Value applied	47
Justification of choice of data or description of measurement methods and procedures applied	Option 3 "Default value of the most recent version of CDM TOOL33"
Purpose of data	Calculation of baseline and project emissions
Comments	

Data / Parameter	$\eta_{new, ave, y}$
Data unit	Fraction
Description	Weighted average efficiency of project devices in year y
Source of data	Monitoring
Description of measurement methods and procedures to be applied	The efficiency must be established using option 3 as following: Option 3: 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, as presented below. ii) 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	For ex ante calculation, the value below is applied <table> <tr> <th>Year (y)</th><th>$\eta_{new, ave, y}$</th></tr> <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> </table>	Year (y)	$\eta_{new, ave, y}$	1	0.3777	2	0.3642	3	0.3508
Year (y)	$\eta_{new, ave, y}$								
1	0.3777								
2	0.3642								
3	0.3508								
Monitoring equipment	NA								
QA/QC procedures to be applied	NA								
Purpose of data	Calculation of baseline and projects emissions								
Calculation method	NA								
Comments	NA								

Data / Parameter	$BC_{b,i,y}$
Data unit	Tonnes
Description	Fuel used per baseline device type i during year y
Source of data	Option 1: Kitchen performance Test A measurement campaign following the Kitchen Performance Test Protocol 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 every five years 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.

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QA/QC procedures to be applied	-
Purpose of data	Calculation of baseline emissions
Calculation method	The survey revealed that the average wood consumption of baseline in the Laos is 0.828 tonnes/person/day. This result is scaled appropriately using the average household size (Hhi) as follows: $BC_{b,i,y} = BC_{b,i,y} \text{ (tonnes/person/year)} \times \text{Equivalent standard male adults (Hhi) obtained from baseline KPT}$ $BC_{b,i,y} = 0.828 \times 4.34 = 3.594 \text{ tonnes/year.}$
Comments	The result must be scaled appropriately using the average household size to obtain the value of $BC_{b,i,y}$. The parameter has not been updated in the current monitoring period in line with requirement of methodology.

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	Option 1: Kitchen Performance Test (KPT) 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 95/10 for the target parameter of average daily fuel consumption per adult equivalent.								
Frequency of monitoring/recording	Continuous and aggregated annually								
Value applied	<table border="1"> <thead> <tr> <th>Year (y)</th><th>$BC_{p,j,k,y}$</th></tr> </thead> <tbody> <tr> <td>1</td><td>1.493</td></tr> <tr> <td>2</td><td>1.575</td></tr> <tr> <td>3</td><td>1.656</td></tr> </tbody> </table>	Year (y)	$BC_{p,j,k,y}$	1	1.493	2	1.575	3	1.656
Year (y)	$BC_{p,j,k,y}$								
1	1.493								
2	1.575								
3	1.656								

Monitoring equipment	Weighing scale		
		Weighing scale 1	Weighing scale 2
	Type	AM491	AM492
	Manufactured	N/A	N/A
	Max	30kg	30kg
	Resolution	0.01 kg	0.01 kg
	Certificate No	25-042443	25-042444
	Sample code	25-17998-001	25-17998-002
	Date of calibration	22 November 2024	21 November 2024
	Until	21 November 2025	20 November 2025
	Moisture meter		
		Moisture meter 1	Moisture meter 2
	Type	Laser liner	Laser liner
	Manufactured	Dampfinder compact	Dampfinder compact
	Accuracy class:	0.1%	0.1%
	Serial Number	N/A	N/A
	Certificate No	25050904	25050905
	Date of calibration	09 May 2025	09 May 2025
	Until	09 May 2026	09 May 2026
QA/QC procedures to be applied	-		
Purpose of data	Calculation of project emissions		
Calculation method	The survey revealed that the average wood consumption of project in the Laos is 0.344 tonnes/person/day for cookstove age =1, 0.363 tonnes/person/day for cookstove age =2 and 0.381		

	tonnes/person/day for cookstove age =3. This result is scaled appropriately using the average household size (Hhi) as follows: $BC_{p,j,k,y} = BC_{p,j,k,y} \text{ (tonnes/person/year)} \times \text{Equivalent standard male adults (Hhi) obtained from baseline KPT.}$ $BC_{p,j,k,1} = 0.344 \times 4.34 = 1.493 \text{ tonnes}$ $BC_{p,j,k,2} = 0.363 \times 4.34 = 1.575 \text{ tonnes}$ $BC_{p,j,k,3} = 0.381 \times 4.34 = 1.656 \text{ tonnes}$
Comments	The result must be scaled appropriately using the average household size to obtain the value of $BC_{p,j,k,y}$

4.3 Monitoring Plan

(a) Sampling Methodology

Representative sampling was undertaken that is designed in line with the requirements of the VM0050 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
$n_{j,k,i}$	Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y.	Proportion/annually	Visits 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/annually	Visits to the premises, inspection, measurement by kitchen performance test

To monitor the required parameters data was 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 was field surveys and the frequency of data collection is as per the frequency defined for each

parameter in the above section. Data was 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.”

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”.

Additional requirement for grouped project as per sampling standard, version 09, para 21 to 23, EB 110 is 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.

(c) Target Population

The target population is total ICS population served under the project instance in the monitoring database. The ICS to be sampled was drawn from the list of individual ICS serial ID numbers contained in the sales record database, which is maintained by the distributor

(d) Sampling method

Sampling was 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.

(e) Sample size

The sample size was 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 is used, depends on the type of parameter of interest, that is either:

- (a) A percentage –retention rate of improved cookstoves
- (b) A numeric value –the mean value of operating efficiency of improved cookstoves.

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.

Parameter $n_{j,k,l}$

Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y, the equation below is used:

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

Where:

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

During the previous survey for this parameter, the value was 0.9. Therefore, based on previous experience, the PP has applied an expected operational rate of 0.9 from the last monitoring period to the current monitoring period.

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

Monitoring parameter(s)			Stove Operating Fraction for determination of n _{j,k,y}			
Sampling frame(s)			Given stove model, region and age population			
Sampling approach			Stratified random sampling across stove model, region and age			
Region	Type of stove	Age	Stove population	Expected operational proportion	Calculated Sample Size (n)	Actual Monitored sample size
Houaphanh	Ecozen	3	47,952	0.9	6	7
Bolikhamxay	Ecozen	3	21,426	0.9	3	4
Xaysomboun	Ecozen	3	2,632	0.9	1	2
Khammounan	Ecozen	3	4,500	0.9	1	2
Xiengkhoang	Ecozen	3	15,503	0.9	2	3
XeKong	Ecozen	3	21,854	0.9	3	4
Xaysomboun	Ecozen	2	2,284	0.9	1	2
Salavan	Ecozen	2	39,667	0.9	6	7
Atapeu	Ecozen	2	18,380	0.9	2	3

Champasack	Ecozen	2	49,770	0.9	7	9
Bokeo	Ecozen	2	19,895	0.9	2	3
Bolikhamxay	Ecozen	1	1,402	0.9	1	2
XeKong	Ecozen	1	6,870	0.9	1	2
Bokeo	Ecozen	1	20,614	0.9	3	4
Phongsaly	Ecozen	1	11,479	0.9	2	3
Vieng Chan	Ecozen	1	13,627	0.9	2	3
Sample size determination						
Estimated Operation (p)					0.9000	
Voperation= p(1-p)/p2					0.111	
Sample Size required (SOF)					43	
Total actual Monitored sample size					60	

Additionally, as per registered sampling plan, it's recommended that the PP may choose to use the same samples to monitor more than one parameter, where parameters have same units. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs. At the same time this approach ensures the random selection of samples for every parameter. Also, oversampling is strongly encouraged, not only to compensate for any attrition, outliers or nonresponse associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved and additional sampling efforts would be required. We expect the response rate from the sampled households to be by 80% and ensure that each strata also have at least 01 sample. Thus, we would decide to sample 60 samples as per table above.

Therefore the sample size for parameters, $n_{j,k,i}$ is 60 samples.

The improved cookstoves (ICSs) were selected randomly after arranging them in chronological order of date of distribution (age of ICS) and assigning a sampling number to each ICS in each strata (each project region). To ensure a random selection of ICS, samples will be drawn by using the random number generator. The populations of each strata will be combined together, the sample size is determined, and a single survey will be undertaken across the project activities to collect data. To ensure the survey result is representative of the entire population, the dissimilarity (such as ICS type, ICS age, project region) among the strata's will be taken into account in the sample size calculation. The ICS of same type, ICS age and project region in which they are operating will be grouped in the same strata.

Parameter $BC_{p,i,y}$

For fuel used project devices type i during year y . This is a numeric value –the mean value of operating efficiency of improved cookstoves for monitoring period, the equation that will be used is:

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

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

Where:

n : Sample size

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

1.96 : Represents the 95% confidence required

0.1 : Represents the 10% relative precision

Mean : Expected mean of ICS thermal efficiency

SD : Our expected standard deviation

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

For the parameter $BC_{p,i,y}$, this parameter directly related to the efficiency of the stove efficiency. Therefore, we applied the expected mean value derived from the efficiencies of 3-year-old, 2-year-old, and 1-year-old stoves. The expected standard deviation has been assumed to be 10% of the expected mean, based on experience from previous projects.

Monitoring parameter(s)			Woody consumption for project stove				
Sampling frame(s)			Given stove model, region and age population				
Sampling approach			Stratified random sampling across stove model, region and age				
Region	Type of stove	Age	Stove population	Expected Mean	Expected Standard Deviation	Calculated Sample Size (n)	Actual Monitored sample size
Houaphanh	Ecozen	3	47,952	0.3508	0.0351	2	2
Bolikhamxay	Ecozen	3	21,426	0.3508	0.0351	1	2
Xaysomboun	Ecozen	3	2,632	0.3508	0.0351	1	1

Khammouna n	Ecozen	3	4,500	0.3508	0.0351	1	2
Xiengkhoang	Ecozen	3	15,503	0.3508	0.0351	1	1
XeKong	Ecozen	3	21,854	0.3508	0.0351	1	2
Xaysomboun	Ecozen	2	2,284	0.3642	0.0364	1	2
Salavan	Ecozen	2	39,667	0.3642	0.0364	2	3
Atapeu	Ecozen	2	18,380	0.3642	0.0364	1	2
Champasack	Ecozen	2	49,770	0.3642	0.0364	2	3
Bokeo	Ecozen	2	19,895	0.3642	0.0364	1	2
Bolikhamxay	Ecozen	1	1,402	0.3777	0.0378	1	2
XeKong	Ecozen	1	6,870	0.3777	0.0378	1	1
Bokeo	Ecozen	1	20,614	0.3777	0.0378	1	1
Phongsaly	Ecozen	1	11,479	0.3777	0.0378	1	1
Vieng Chan	Ecozen	1	13,627	0.3777	0.0378	1	2
Sample size determination							
Mean					0.3615		
Standard Deviation (SD)					0.036		
V _{mean} = (SD/mean) ²					0.010		
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		
Total actual monitored sample size					29		

Following the application of the Student's t-distribution, 06 iterations were generated for sample size adjustment. For conservative purposes, we selected iteration 1, which provided the largest sample size of 11. Also, oversampling is strongly encouraged, not only to compensate for any attrition, outliers or non-response 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 70% and ensure that each strata also have at least 01 sample. Thus, we would decide to sample 29 samples as per table above.

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

Analysis of the data monitored through sampling revealed the following results

Parameter $n_{j,k,l}$

ANALYSIS for parameter $n_{j,k,l}$	
Samples Monitored	60
Survey result	0.9667
Standard Error of operation	0.023
Upper Boundary Level	101.21%
Lower Boundary Level	92.13%
Relative precision (Margin of error)	4.48%
Check precision	4.69%
Result	Ok, reliability level met
Lower Bound confidence value	Not applicable

Parameter and $BC_{p,i,y}$

ANALYSIS for parameter $BC_{p,i,3}$	
Samples Monitored	11
Mean value	4.309
Standard deviation	0.314
Upper boundary level	4.494
Lower boundary level	4.123
check precision	4.30%
Lower outlier limit	3.838
Upper outlier limit	4.779

ANALYSIS for parameter $BC_{p,i,2}$	
Samples Monitored	10

Mean value	4.106
Standard deviation	0.292
Upper boundary level	4.383
Lower boundary level	3.829
check precision	6.75%
Lower outlier limit	3.668
Upper outlier limit	4.544

ANALYSIS for parameter $BC_{p,i,1}$	
Samples Monitored	8
Mean value	3.857
Standard deviation	0.115
Upper boundary level	3.898
Lower boundary level	3.816
check precision	1.05%
Lower outlier limit	3.684
Upper outlier limit	4.030

(b) Implementation plan

Survey Implementation Schedule:

The survey for collecting the details of monitoring parameters was conducted from 20 October to 18 November 2025 for this monitoring period.

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

The survey method has been used by project proponent include:

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

All sampling efforts was conducted by qualified personnel who have undergone training on 11 September 2025 for conduct survey as part of the grouped project. All samplers required to speak the native language(s) in which improved cookstoves have been implemented, allowing for full understanding of any responses given by users, and any questions therein.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline emission is calculated as follows:

$$BE_y = \sum_{i,j,k} EC_{i,y} \times N_{j,k,y} \times n_{j,k,y} \times (EF_{b,i,CO2} \times f_{NRB,y} + EF_{b,i,nonCO2})$$

Where:

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)
$EF_{b,i,CO2}$	=	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)
$EF_{b,i,nonCO2}$	=	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

The average energy consumption of baseline device type i is calculated as follows:

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

Where

$BC_{b,i,y}$ = Fuel used per baseline device type i during year y (tonnes)

NCV_{b,j} = Net calorific value of baseline fuel for baseline device type *i*

PP conducted the Kitchen Performance Test in line with the applied methodology VM0050, ver 1.0 and KPT protocol in third monitoring period, 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 16.

According to the methodology, the BC_{b,i,y} parameter is required to be measured once every five years. Therefore, conducting the measurement for this parameter in the current monitoring period is not required. The BC_{b,i,y} value measured during the previous monitoring period has been applied for this monitoring period. The survey revealed that the average wood consumption of baseline in the Laos is 0.828 tonnes/person/day. This result is scaled appropriately using the average household size (Hhi) as follows:

BC_{b,i,y} = BC_{b,i,y} (tonnes/person/year) x Equivalent standard male adults (Hhi) obtained from baseline KPT

BC_{b,i,y} = 0.828 x 4.34 = 3.594 tonnes/year.

Therefore,

EC_{i,y} = 3.594 x 0.0156 = 0.0561 TJ/tonne

Cross check of EC_{i,y}

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

For cookstove with age = 1, EC_{est,1} = 1.493 x 0.0156 x 37.77/15 = 0.0587 (TJ)

For cookstove with age = 2, EC_{est,2} = 1.575 x 0.0156 x 36.42/15 = 0.0597 (TJ)

For cookstove with age = 3, EC_{est,2} = 1.656 x 0.0156 x 36.42/15 = 0.0603 (TJ)

Due to EC_{est,1}, EC_{est,2} and EC_{est,3} are higher than EC_{i,y} so the EC_{i,y} is applied to calculated emission reduction.

5.2 Project Emissions

Project emissions from energy consumption of project devices using wood fuel in year *y* are calculated as follows:

$$PE_{energy,y} = \sum_j \sum_k BC_{p,j,k,y} \times N_{j,k,y} \times NCV_{p,j} \times n_{j,k,y} \times (EF_{p,j,CO2} \times f_{NRB,y} + EF_{p,j,nonCO2})$$

Where:

EF_{p,j,CO2} = CO2 emission factor for fuel used by project device type *j* in the project scenario (t CO2/TJ)

EF_{p,j,nonCO2} = Non-CO2 emission factor for fuel used by project device type *j* (t CO2e/TJ)

PP has conducted the Kitchen Performance Test 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 parameter $BC_{p,i,y}$ (mean parameter) was 29. The parameter was within the 95/10 confidence/precision which can be checked in the table below:

Age	Household size					Project dry woody consumption (kg)				Woody consumption per adult per year	Woody consumption per adult per year per age of stove
	Children 0-14 years	Females > 14 years	Male 15-59 years	Male > 59 years	Average	Day 1	Day 2	Day 3	Average		
3	2	1	1	1	3.6	3.88	4.02	3.83	3.91	0.396	0.381
3	3	1	1	1	4.1	4.34	4.46	4.22	4.340	0.386	
3	1	2	1	1	3.9	4.02	4.26	4.05	4.11	0.385	
3	2	2	1	1	4.4	4.45	4.66	4.52	4.543	0.377	
3	3	1	1	1	4.1	4.28	4.32	4.16	4.253	0.379	
3	1	2	1	1	3.9	4.24	4.18	4.06	4.16	0.389	
3	2	1	2	0	3.8	4.16	4.02	4.05	4.077	0.392	
3	2	2	2	0	4.6	4.64	4.75	4.62	4.67	0.371	
3	3	2	1	1	4.9	4.72	4.85	4.78	4.783	0.356	
3	2	1	2	1	4.6	4.75	4.64	4.58	4.657	0.370	
3	2	2	1	0	3.6	3.86	3.98	3.84	3.893	0.395	
2	2	2	2	0	4.6	4.42	4.55	4.38	4.450	0.353	0.363
2	2	2	1	1	4.4	4.46	4.33	4.27	4.353	0.361	
2	3	2	1	0	4.1	4.15	3.98	4.26	4.13	0.368	
2	1	2	1	1	3.9	3.84	4.12	3.55	3.837	0.359	
2	2	1	1	1	3.6	3.72	3.84	3.65	3.737	0.379	
2	3	2	1	1	4.9	4.55	4.60	4.48	4.543	0.338	
2	2	1	2	0	3.8	3.92	4.05	3.78	3.917	0.376	
2	2	2	1	1	4.4	4.25	4.31	4.24	4.267	0.354	
2	1	2	2	0	4.1	4.15	4.16	3.92	4.077	0.363	
2	2	2	1	0	3.6	3.78	3.82	3.65	3.75	0.380	
1	1	1	2	1	4.1	3.81	3.92	3.75	3.827	0.341	0.344
1	2	2	1	0	3.6	3.75	3.72	3.68	3.717	0.377	
1	1	2	2	0	4.1	3.95	3.80	3.78	3.843	0.342	

1	3	1	1	1	4.1	3.86	3.98	3.81	3.883	0.346
1	2	2	1	1	4.4	4.08	3.92	3.95	3.983	0.330
1	2	1	2	1	4.6	3.95	4.08	4.01	4.013	0.318
1	2	2	1	0	3.6	3.61	3.75	3.70	3.687	0.374
1	2	2	1	1	4.4	3.94	3.82	3.95	3.903	0.324

The survey revealed that the average wood consumption of project in the Laos is 0.344 tonnes/person/day for cookstove age =1; 0.363 tonnes/person/day for cookstove age =2 and 0.381 tonnes/person/day for cookstove age =3. This result is scaled appropriately using the average household size (Hhi) as follows:

$BC_{p,j,k,y} = BC_{p,j,k,y}$ (tonnes/person/year) x Equivalent standard male adults (Hhi) obtained from baseline KPT.

$$BC_{p,j,k,1} = 0.344 \times 4.34 = 1.493 \text{ tonnes}$$

$$BC_{p,j,k,2} = 0.363 \times 4.34 = 1.575 \text{ tonnes}$$

$$BC_{p,j,k,3} = 0.381 \times 4.34 = 1.656 \text{ tonnes}$$

Detail about project survey questionnaire is provided in Appendix 3

5.3 Leakage Emissions

As detailed in section 8.3 of the methodology VMR0050, Version 1.0, the adjustment factor to account for leakage is applied using the default value of 0.95.

5.4 GHG Emission Reductions and Carbon Dioxide Removals

The net GHG emission reductions are calculated as:

$$ER_y = (BE_y - PE_y) \times 0.95 - LE_{RB,y}$$

Where:

ER_y = Emission reductions during year y (t CO₂e)

$LE_{RB,y}$ = Leakage emissions associated with use of renewable biomass during year y (t CO₂e)

The project activity does not use renewable biomass so leakage emissions from renewable biomass is zero.

Example for PA001,

- Total 7,965 Ecozen stoves are commissioned in this monitoring period. The proportion of operational stoves is 0.9 as per applied methodology.

The 4th monitoring period is from 01 February 2025 to 31 October 2025 so the equivalent operational year of this monitoring period is 0.7479

The baseline emission of PA001 is calculated as below:

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

$$BE_y = 0.0556 \times 7,965 \times 0.9 \times (112 \times 0.47 + 9.46) \times 0.7479 = 18,677 \text{ tCO}_2$$

The project emission of PA 1 is calculated as below:

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

The age of stoves in PA 1 is 3 years olds

$$BC_{p,j,k,y} = 1.656 \text{ tonne/year}$$

$$PE_y = 1.656 \times 7,965 \times 0.0156 \times 0.9 \times (112 \times 0.47 + 9.46) \times 0.7479 = 8,590 \text{ tCO}_2$$

Therefore, the emission reduction of PA1 is calculated as

$$ER_y = (BE_y - PE_y) \times 0.95 - LE_{RB,y}$$

$$ER_y = (18,677 - 8,590) \times 0.95 - 0 = 9,583 \text{ tCO}_2$$

Detail below (refer to ER sheet)

Name of CPA	Age	Distribution quantity	Operational Quantity	Start date of improved cookstove in a month	End date of distribution improved cookstove in a month	Vintage 2025 (01/02/2025 - 31/10/2025)					
						Start date of vintage	End date of Vintage	Equivalent Operational year	BE	PE	ER
PA 001	3	7,965	7,168	10-Mar-23	6-Jun-23	1-Feb-25	31-Oct-25	0.7479	18,677	8,590	9,583
PA 002	3	11,461	10,314	3-Apr-23	5-Apr-23	1-Feb-25	31-Oct-25	0.7479	26,875	12,360	13,789
PA 003	3	11,151	10,036	6-Apr-23	9-May-23	1-Feb-25	31-Oct-25	0.7479	26,150	12,027	13,417
PA 004	3	8,653	7,788	8-Apr-23	6-May-23	1-Feb-25	31-Oct-25	0.7479	20,293	9,333	10,412
PA 005	3	8,722	7,850	3-May-23	2-Jun-23	1-Feb-25	31-Oct-25	0.7479	20,454	9,407	10,495
PA 006	3	10,149	9,134	8-Jun-23	10-Jun-23	1-Feb-25	31-Oct-25	0.7479	23,800	10,946	12,211
PA 006	1	1,402	1,262	14-Feb-25	14-Feb-25	15-Feb-25	31-Oct-25	0.7096	3,119	1,296	1,732
PA 007	3	2,826	2,543	3-Jul-23	4-Jul-23	1-Feb-25	31-Oct-25	0.7479	6,626	3,047	3,400
PA 008	3	8,451	7,606	5-Jul-23	7-Jul-23	1-Feb-25	31-Oct-25	0.7479	19,818	9,115	10,168
PA 009	3	2,632	2,369	1-Aug-23	1-Aug-23	1-Feb-25	31-Oct-25	0.7479	6,172	2,839	3,166
PA 009	2	2,284	2,056	1-Feb-24	5-Feb-24	1-Feb-25	31-Oct-25	0.7479	5,357	2,349	2,858
PA 010	3	4,500	4,050	3-Aug-23	3-Aug-23	1-Feb-25	31-Oct-25	0.7479	10,553	4,853	5,415
PA 011	3	7,700	6,930	4-Aug-23	6-Aug-23	1-Feb-25	31-Oct-25	0.7479	18,057	8,305	9,264
PA 012	3	3,522	3,170	7-Aug-23	2-Sep-23	1-Feb-25	31-Oct-25	0.7479	8,260	3,799	4,238
PA 013	3	1,532	1,379	3-Sep-23	6-Sep-23	1-Feb-25	31-Oct-25	0.7479	3,593	1,653	1,843
PA 014	3	2,749	2,474	7-Sep-23	10-Sep-23	1-Feb-25	31-Oct-25	0.7479	6,446	2,965	3,307
PA 015	3	10,524	9,472	2-Oct-23	5-Oct-23	1-Feb-25	31-Oct-25	0.7479	24,681	11,351	12,664
PA 015	1	223	201	17-Feb-25	17-Feb-25	18-Feb-25	31-Oct-25	0.7014	491	204	273
PA 016	3	11,330	10,197	6-Oct-23	10-Oct-23	1-Feb-25	31-Oct-25	0.7479	26,570	12,220	13,633
PA 016	1	6,647	5,982	17-Feb-25	18-Feb-25	19-Feb-25	31-Oct-25	0.6986	14,559	6,047	8,086
PA 017	2	9,563	8,607	1-Nov-23	3-Nov-23	1-Feb-25	31-Oct-25	0.7479	22,427	9,834	11,963
PA 018	2	12,924	11,632	6-Nov-23	10-Nov-23	1-Feb-25	31-Oct-25	0.7479	30,309	13,291	16,167
PA 019	2	17,180	15,462	2-Jan-24	9-Jan-24	1-Feb-25	31-Oct-25	0.7479	40,289	17,667	21,491

PA 020	2	7,520	6,768	1-Mar-24	6-Mar-24	1-Feb-25	31-Oct-25	0.7479	17,635	7,733	9,407
PA 021	2	10,860	9,774	2-Apr-24	10-Apr-24	1-Feb-25	31-Oct-25	0.7479	25,468	11,168	13,585
PA 022	2	12,228	11,005	1-Dec-23	5-Dec-23	1-Feb-25	31-Oct-25	0.7479	28,675	12,574	15,296
PA 024	2	9,789	8,810	10-Jan-24	12-Jan-24	1-Feb-25	31-Oct-25	0.7479	22,956	10,066	12,246
PA 026	2	16,432	14,789	15-Apr-24	19-Apr-24	1-Feb-25	31-Oct-25	0.7479	38,535	16,898	20,555
PA 027	2	11,321	10,189	1-May-24	6-May-24	1-Feb-25	31-Oct-25	0.7479	26,549	11,642	14,162
PA 029	2	13,936	12,542	7-May-24	14-May-24	1-Feb-25	31-Oct-25	0.7479	32,680	14,331	17,432
PA 029	1	1,768	1,591	20-Feb-25	20-Feb-25	21-Feb-25	31-Oct-25	0.6932	3,841	1,596	2,133
PA 030	2	5,959	5,363	10-Jun-24	17-Jun-24	1-Feb-25	31-Oct-25	0.7479	13,974	6,128	7,454
PA 030	1	4,193	3,773	21-Feb-25	24-Feb-25	25-Feb-25	31-Oct-25	0.6822	8,967	3,724	4,981
PA 030	1	14,653	13,188	5-Mar-25	14-Mar-25	15-Mar-25	31-Oct-25	0.6329	29,077	12,077	16,150
PA 031	1	11,479	10,331	4-Apr-25	15-Apr-25	16-Apr-25	31-Oct-25	0.5452	19,622	8,150	10,898
PA 032	1	13,627	12,264	6-May-25	14-May-25	15-May-25	31-Oct-25	0.4658	19,899	8,265	11,052
Total		297,855	268,069						671,454	297,850	354,926

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	671,454	297,850	0	354,926	0	354,926
Total	671,454	297,850	0	354,926	0	354,926

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01 Feb 2025 to 31 Oct 2025	630,801	354,926	-43.73%	- The number of stoves distributed in many months, not fully distributed on the first day of distribution. - The project activity has not having fully been implemented and ICSs distribution is still ongoing. Total 434,148 ICSs were distributed till end of this monitoring period and there are 136,292 ICSs have excluded in calculation emission reduction of project activity. There are 297,856 ICSs have used to calculate ER which lower than of 50.35% compare with 600,000 ICSs will distributed in registered PD in whole of lifetime of grouped project.
Total	630,801	354,926	-43.73%	

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification
N/A	N/A	The project involves distribution ICSs to individual households, there are no commercially sensitive information so this section is not applicable.

APPENDIX 2: SUPPLY CHAIN

<https://carbonvietnam.com/public-announcement-on-grouped-projects-for-laos-improved-cookstove-vcs-project-id-2924/>

Public statement has been posted on SIPCO's website.



APPENDIX 3: PROJECT QUESTIONNAIRE

ແບບຟອມສຳຫວັດການນຳໃຊ້ເຕັກໂນໂລຢີຂອງໂຄງການ/Monitoring survey

1.1 ຂໍ້ມູນທົ່ວໄປ/General information

ຊື່ຂອງໂຄງການ/Title of project activity	Grouped project for Laos Improved Cookstove – VCS 2924
ຊື່ຜູ້ສຳຫວັດ/Name of surveyor	
ວັນທີສຳຫວັດ/Date of survey	
ໄລຍະການສຳຫວັດ/ Survey method	Face to face/remote/telephone

1.2 ຂໍ້ມູນຂອງຄົນເຮືອນ/Household profile

ຊື່ (ຜູ້ຕາງໜ້າຄອບຄົວ) (name of HH representative)	
ຈຳນວນຄົນໃນຄອບຄົວ (HH size)	
- ຜູ້ໃຫຍ່ (Adult)	
ຜູ້ຍິງ/Female > 14 years old	
ຜູ້ຊາຍ/Male 15-59 years old	
ຜູ້ຊາຍ/Male > 59 years old	
- ຄົກນ້ອຍ (Children) (0-14 years old)	
Type of area (urban/rural)	
ທີ່ຢູ່ (Address)	
ເບີໂທລະສັບ (ຖ້າມີ) (phone number)	

1.3 ເຮືອນຂອງຈຳແນ່ໃຜເປັນຜູ້ແຕ່ງກິນຫຸ້ນ?/Who takes care off the cooking in your family?

ຜູ້ຍິງ/Women	
ຜູ້ຊາຍ/Men	
ທັງສອງ/Both	

1.4 ລາຍລະອຽດຂອງການນຳໃຊ້ເຊື້ອເຜິງໃນຄົວເຮືອນພາຍຫຼັງໄດ້ຮັບເຕົາໄຟປະຢັດຂອງໂຄງການ/ Household fuel consumption pattern post the project implementation

ອຸປະກອນການແຕ່ງຢູ່ຄົວກິນ/Cooking device	
ຮູບແບບ/ຈຳນວນ/model name/number	
ເລກລະຫັດຂອງເຕົາ/Unique ID	
ວັນທີຕັດຕັ້ງ/Date of installation	
ທ່ານໄດ້ໃຊ້ເຕົາໄຟປະຢັດຂອງໂຄງການບໍ່?/Do you use the project cookstove?	
- ຖ້າມີ, ທ່ານໄດ້ນຳໃຊ້ເຕົາໄຟປະຢັດຂອງໂຄງການແຕ່ມີທີ່ໄດ້ຮັບເຕົາບໍ່ ? If yes, have you used the stove regularly since you installed it?	
- ຖ້າມີ, ເຕົາໄຟເຮືອນທ່ານຍັງນຳໃຊ້ດີຢູ່ບໍ່? If yes, is your stove in good condition?	
- ຖ້າບໍ່ມີ, ເປັນຫຍັງທ່ານຢຸດນຳໃຊ້ເຕົາໄຟປະຢັດຂອງໂຄງການ ? If No, why did you stop using the stove?	
- ທ່ານນຳໃຊ້ເຕົາໄຟປະຢັດຂອງໂຄງການຈັກຄັ້ງຕໍ່ 1 ອາທິດໃນການແຕ່ງກິນ? How many days did you prepare using project cookstove per week?	
ທ່ານໄດ້ນຳໃຊ້ເຕົາໄຟແບບດັ້ງເດີມ (ເຕົາຄຽງ 3 ຂາ) ບໍ່ ? Do you use your traditional (baseline) cookstove also?	
- ຖ້າມີ, ທ່ານໄດ້ນຳໃຊ້ເຕົາໄຟແບບດັ້ງເດີມໃນການປຸງແຕ່ງບໍ່? If yes, do you use the traditional stove for cooking?	
- ຖ້າມີ, ທ່ານນຳໃຊ້ເຕົາໄຟແບບດັ້ງເດີມຈັກຄັ້ງຕໍ່ 1 ອາທິດໃນການແຕ່ງກິນ? How many days did you prepare using traditional (baseline) cookstove per week?	
- ທ່ານໄດ້ນຳໃຊ້ເຕົາໄຟແບບອື່ນບໍ່? (ເຕົາໄວ...) Do you use any other stove? (ICS...)	
- ຖ້າມີ, ຮູບແບບ ແລະ ຈຳນວນ ບັນດາປະເພດເຕົາທ່ານກຳລັງນຳໃຊ້? If yes, list the types and number of the non-project stoves	
- ທ່ານນຳໃຊ້ເຕົາໄຟປະເພດດັ່ງກ່າວຈັກຄັ້ງຕໍ່ 1 ອາທິດໃນການແຕ່ງກິນ? How many times a week do you use the non- project stoves?	
- ທ່ານຮັບເງິນໃຊ້ເຕົາໄຟ (ເຊື້ອເຜິງ) ເທົ່າໃດເມື່ອທ່ານປຸງແຕ່ງດ້ວຍເຕົາປະເພດນີ້? How much do you spend on fuel for cooking/type of cooking device in a week/month?	
ປະລິມານຜົນ (ເຊື້ອເຜິງ) ທີ່ນຳໃຊ້ມີການປ່ຽນແປງຕາມລະດູບໍ່ ? Is there seasonal variation on firewood use?	

1.5. ເຊື້ອເຜິງທີ່ນຳໃຊ້ເຜິງປຸງແຕ່ງ/ Fuel use for cooking

ທ່ານນຳໃຊ້ຜົນເທົ່າໃດເມື່ອໃຊ້ເຕົາໄຟປະຢັດຂອງໂຄງການເຜິງປຸງແຕ່ງ? How much firewood you used on project stove for cooking?	Day 1	Day 2	Day 3