



Verified Carbon Standard

GROUPED PROJECTS FOR LAOS IMPROVED COOKSTOVE

Document Prepared by:

Sustainability Investment Promotion and Development

Joint Stock Company

(SIPCO)

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

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1 PROJECT DETAILS

1.1 Summary Description of the 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 600,000 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.

PP signed distribution contract with Lao Red Cross (LRC) on 27/10/2022. Lao Red Cross is a social organization of Lao PDR that conducts humanitarian work independently under the Constitution of Lao PDR. Its role is to implement humanitarian work that engages participation of society, mainly in the areas of basic relief assistance, mobilization of blood donation and safe blood supply, primary health care promotion, first aid, emergency rescue, communication and fundraising and volunteer development, restoring family links, and international relations and cooperation, in collaboration with relevant organizations in order to develop and promote humanitarian values with no discrimination.

The distribution of ICSs in this grouped project is divided into 02 stages:

- Stage 1: From distribution signed date to December 2023, with the distribution of 300,000 ICSs.
- Stage 2: After the completion of Stage 1, with the distribution of 300,000 ICSs.

The estimates of annual average GHG emission reductions of the grouped project activity is 843,379 tCO₂e/year. The project proponent aims to disseminate 8,000 ICSs in the first project activity instance of this grouped project. The estimated annual emission reductions from project activity instance 1 is =11,721 tCO₂e/year.

As of now, there are three project developers operating in Laos involved in the distribution of improved cookstoves to local communities. In order to prevent duplication of efforts and ensure effective project implementation, the Department of Climate Change convened a coordination meeting on April 28, 2025, with the three entities—SIPCO, Bridge Carbon, and IceBerg to delineate their respective project areas and issued Decision No.0365/DCC dated 30 April 2025¹. Accordingly, SIPCO will carry out the retrieval of overlapping stoves in the areas overlapping with Bridge Carbon and Iceberg, following the procedure outlined below.

Overlapping ICSs retrieval procedure

The Project Proponent (PP) has established a structured procedure to retrieve all overlapping ICS units identified in the project database. The process is designed to ensure transparency, traceability, and accountability throughout the retrieval operation.

Step 1 – Identification of Overlapping Stoves

- Cross-check the project database against project VCS 2521 and GS12796.
- Generate a master list of 136,292 overlapping stoves with unique stove IDs, household information, and location data.
- Note these stoves in the database.

Step 2 – Field Notification and Coordination

- Local field staff notify identified households about the retrieval, explaining the reason (to avoid double counting) and confirming a collection schedule.
- Households are informed that retrieval does not affect their eligibility, as they already have a functioning stove under another project.
- If a household refuses to return the stove, the Project Proponent (PP) will notify Bridge Carbon and Iceberg so that they can take this into account when calculating emission reductions for their respective projects.

Step 3 – Physical Retrieval and Verification

- Field teams visit households to collect the stove.
- Each retrieval is documented with:

¹ https://drive.google.com/file/d/1XaMPmxB_PaqMDTzaJsJ7ItMPZiUsJ7mE/view?usp=sharing

- Stove ID
 - Name and address of households
 - Photographic evidence
 - Household acknowledgement (signature or fingerprint)
- The retrieved stove is securely transported to the nearest storage hub.

Step 4 – Database Update

- The database is updated to reflect household information
- All retrieved stoves are clearly “strikethrough” and removed from data base and permanently excluded from ER sheet

Step 5 – Reporting and Oversight

- A monthly retrieval report is prepared, summarizing the number of stoves collected, their status, and inventory levels.
- Reports are subject to internal audits to ensure consistency with field data and database records.

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.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	14 September 2023 (The registered date)	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	VCS	Ecolance Private Limited	0.75

	2024			
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1.3 Sectoral Scope and Project Type

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

1.4 Project Eligibility

1.4.1 General eligibility

Project activity involves in energy efficient cook stove distribution which falls under the category of efficiency improvements in thermal applications and reduces the use and demand of fossil fuel and non-renewable biomass that would have been used to cook meals. The baseline & monitoring methodology applied for this project is “Energy efficiency and fuel switch measures in cookstove”, version 1.0. The host country of the project is Laos. Therefore, project activity does not fall under the excluded list of projects as prescribed under the table 1 of section 2.1.3. of the VCS Standard version 04.7.

The project activity compliance with other general requirements below:

Para of VCS Standard, ver 4.7	Requirement	Justification
3.1.1	Projects shall meet all applicable rules and requirements set out under the VCS Program, including this document. Projects shall be guided by the principles set out in Section 2.2.1.	The project meets all applicable rules and requirements as set out under the VCS Program and is guided by the ISO 14064-2:2006 clause 3.
3.1.2	Projects shall apply methodologies eligible under the VCS Program. Methodologies shall be applied in full, including the full application of any tools or modules referred to by a methodology, noting the exception set out in Section 3.14.1.	The project applies approved methodology VM 0050 “Energy efficiency and fuel switch measures in cookstove”, Version 1.0 along with tools or modules as applicable. Refer to section 3.2 of the PD below for more details.
3.1.3	Projects shall apply the latest version of	The project applies the latest

² Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

	the applicable methodology in all cases unless a grace period applies to the project as set out in 3.22. Projects must update to the latest version of the methodology when reassessing the baseline and renewing a crediting period.	version of VM0050 “Energy efficiency and fuel switch measures in cookstove”. Refer to section 3.2 of the PD below for more details.
3.1.4	Projects and the implementation of project activities shall not lead to the violation of any applicable law, regardless of whether or not the law is enforced.	There is no mandatory law or requirement in Lao People's Democratic Republic to foster the dissemination of ICSs. The project and its instances shall remain in compliance with the applicable local laws. Detail in section 1.15 of this PD.
3.1.5	Where projects apply methodologies that permit the project proponent its own choice of model, such model shall meet with the requirements set out in the VCS Program document VCS Methodology Requirements and it shall be demonstrated at validation that the model is appropriate to the project circumstances (i.e., use of the model will lead to an appropriate quantification of GHG emission reductions or removals).	Not applicable. The applied methodology VM0050 “Energy efficiency and fuel switch measures in cookstove”, version 1.0 does not provide any such option.
3.1.6	Where projects apply methodologies that permit the project proponent to choose a third-party default factor or standard to ascertain GHG emission data and any supporting data for establishing baseline scenarios and demonstrating additionality, such default factor or standard shall meet with the requirements set out in the VCS Program document & VCS Methodology Requirements.	Not applicable. applied methodology VM0050 “Energy efficiency and fuel switch measures in cookstove”, version 1.0 does not provide any such choice.
3.1.7	Where the rules and requirements under an approved GHG program conflict with the rules and requirements of the VCS Program, the rules and requirements of the VCS Program shall	Not applicable. The methodology does not conflict with any VCS program requirements.

	take precedence.	
3.1.8	Where projects apply methodologies from approved GHG programs, they shall conform with any specified capacity limits and any other relevant requirements set out with respect to the application of the methodology and/or tools referenced by the methodology under those programs.	Not applicable. The project activity only applies VCS methodology i.e., VM 0050 version 1.0.
3.1.9	Where Verra issues new VCS Program rules, the effective dates of these requirements are set out in Appendix 3 Document History and Effective Dates or equivalent for other program documents, and are listed in a companion Summary of Effective Dates document which corresponds with each update.	The project will adhere to the new VCS Program rules, and the effective dates of these requirements set out in VCS standard ver 4.7.

1.4.2 AFOLU project eligibility

The project activity is not AFOLU projects, so this section is not applicable.

1.4.3 Transfer project eligibility

The project activity is not transfer projects and CPAs seeking registration, so this section is not applicable.

1.5 Project Design

- ☐ Single location or installation
- ☐ Multiple locations or project activity instances (but not a grouped project)
- ☒ Grouped project

1.5.1 Grouped project design

Eligibility Criteria

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

No.	Eligibility criterion - Category	How the new project activity instances to comply	Supporting evidence for inclusion
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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 from PA 1 to PA 30 meet all applicability condition of VM 0050, listed in section 3.2
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 all of PAS from PA 1 to PA 30 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 project activity instances (from PA 1 to PA 30) 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	These project activity instances from PA 1 to PA 30 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	All new project activity instances will use the activity method for	These project activities from PA 1 to PA 30 are

	additionality that are consistent with the initial instances for the specified project activity and geographic area.	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).	eligible and the PP provided the confirmation that the ICSs are distributed for free to the Users at community centers.
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	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:

		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	PA01: LAO-001-ICS-0001 to LAO-001-ICS-8000 PA002: LAO-002-ICS-00001 to LAO-002-ICS-12000. PA003: LAO-003-ICS-00001 to LAO-003-ICS-12000. PA004: LAO-004-ICS-00001 to LAO-004-ICS-12380. PA005: LAO-005-ICS-00001 to LAO-005-ICS-13029. PA006: LAO-006-ICS-00001 to LAO-006-ICS-12000. PA007: LAO-007-ICS-00001 to LAO-007-ICS-12000. PA008: LAO-008-ICS-00001 to LAO-008-ICS-12042. PA009: LAO-009-ICS-00001 to LAO-009-ICS-12000 PA010: LAO-010-ICS-00001 to LAO-010-ICS-12000 PA011: LAO-011-ICS-00001 to LAO-011-ICS-12000. PA012: LAO-012-ICS-00001 to LAO-012-ICS-12000.
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			PA013: LAO-013-ICS-00001 to LAO-013-ICS-12000. PA014: LAO-014-ICS-00001 to LAO-014-ICS-12000. PA015: LAO-015-ICS-00001 to LAO-015-ICS-10524 PA016: LAO-016-ICS-00001 to LAO-016-ICS-11330. PA017: LAO-017-ICS-00001 to LAO-017-ICS-09563. PA018: LAO-018-ICS-00001 to LAO-018-ICS-14555. PA019: LAO-019-ICS-00001 to LAO-019-ICS-17970. PA020: LAO-020-ICS-00001 to LAO-020-ICS-12273. PA021: LAO-021-ICS-00001 to LAO-021-ICS-14961. PA022: LAO-022-ICS-00001 to LAO-022-ICS-12228. PA023: LAO-023-ICS-00001 to LAO-023-ICS-11715. PA024: LAO-024-ICS-00001 to LAO-024-ICS-
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			09789. PA025: LAO-025-ICS-00001 to LAO-025-ICS-16405. PA026: LAO-026-ICS-00001 to LAO-026-ICS-16432. PA027: LAO-027-ICS-00001 to LAO-027-ICS-11321. PA028: LAO-028-ICS-00001 to LAO-028-ICS-14770. PA029: LAO-029-ICS-00001 to LAO-029-ICS-16792. PA030: LAO-030-ICS-00001 to LAO-030-ICS-17548.
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	The project activity instances apply Verra VCS methodology VMR0050 ver 1.0 for both “project” and “large project”. Hence, this is not applicable.

		kilometer of any other instance shall not be assigned to clusters. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit	
8	Target group	Each project instance will target end users which includes households who use traditional cookstove to cook meal.	These project activities from PA01 to PA30 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 project activities from PA01 to PA30 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.	These project activities from PA01 to PA30 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,	New Project Activity Instances must comprise monitoring plans that outline the technical, financial,	These project activities from PA01 to PA30 comprises a monitoring

	financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.	geographic and other relevant information to enable sampling by the validation/verification body.	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 these project activities from PA01 to PA 30 are on or 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	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	These project activities from PA01 to PA30 are eligible for crediting from the start date of the instance, 10 Mar 2023 to 09 Mar 2033 which is the end of project crediting period.

	crediting period		
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 project activity instances from PA01 to PA30 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	All PAs from PA 01 to PA 30 under the grouped project activity are located within a distance of more than 10 km from each other so this requirement is stratified.

1.6 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

1.7 Other Entities Involved in the Project

There are not any other entities involved in the development of the project other than SIPCO at validation period. So this section is not applicable.

1.8 Ownership

The Project Ownership is with “Sustainability Investment Promotion and Development Joint Stock Company.” who is also the Coordinating & Managing Entity of the grouped project, the ownership of carbon credits shall be demonstrated through following indicative information

- The Project ownership purchases equipment directly from the manufacturer Viet Charcoal Production Company Limited. The cookstove purchased contract shall be signed between the two parties for each project activity (project instance) in this grouped projects. Every contract will be attached with a statement or/and a beneficial agreement between the project owner (SIPCO) and the cookstove manufacturer, the statement or/and beneficial agreement is to confirm that all carbon credits right from the purchased cookstoves for the project activity shall be remained to the project owner without affected result with cookstove manufacturer.
- On the other hand, although ICS beneficiaries possess ownership of the equipment, before installation of each project instance, beneficiaries enter into a beneficiary agreement with SIPCO and prove that SIPCO’s proof of ownership of the credits, through the following declaration “Irrevocably transfer all rights to any Carbon Credits that may be generated by the operation of the improved cookstove to SIPCO, and to take all reasonable steps to affect such transfer; I irrevocably waive any rights to Carbon Credit in exchange for the free supply of the improved cookstove”.

1.9 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.

1.10 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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Start and end date of first or fixed crediting period

10 March 2023 to 09 March 2033

1.11 Project Scale and Estimated GHG Emission Reductions or Removals

☐ < 300,000 tCO₂e/year (project)

☒ ≥ 300,000 tCO₂e/year (large project)

The estimated volume of emission reduction from the grouped project is 843,379tCO₂e/year which is larger than 300,000 tonnes of CO₂e per year. Therefore, in accordance with the para 3.9.1 of the VCS Standard, v4.7 the scale of the project activity is under “Larger Project” category.

Calendar year of crediting period	Estimated GHG emission reductions or removals (tCO ₂ e)
2023 (10/03/2023 - 31/12/2023)	357,681
2024 (01/01/2024 - 31/12/2024)	879,147
2025 (01/01/2025 - 31/12/2025)	879,147
2026 (01/01/2026 - 31/12/2026)	879,147
2027 (01/01/2027 - 31/12/2027)	879,147
2028 (01/01/2028 - 31/12/2028)	879,147
2029 (01/01/2029 - 31/12/2029)	879,147
2030 (01/01/2030 - 31/12/2030)	879,147
2031 (01/01/2031 - 31/12/2031)	879,147
2032 (01/01/2032 - 31/12/2032)	879,147
2033 (01/01/2033- 09/03/2033)	163,787
Total estimated ERRs during the first or fixed crediting period	8,433,791
Total number of years	10
Average annual ERRs	843,379

1.12 Description of the Project Activity

The purpose of this project is the dissemination of improved cooking stoves (ICS) in Laos. The project activity help to reduce the woodfuel consumption of traditional stove users by distributing improved cook stoves to households. By reducing the consumption of woodfuel, it can contribute to improving public health problems. Furthermore, this project activity can contribute to Laos's climate change respond and sustainable development.

To reduce deforestation and the emission of greenhouse gas in Laos, ICSs that will lead to use less woodfuel, will be distributed to the households which mostly use traditional and/or conventional cookstoves with the woodfuel. In relation to the type of ICSs, which has at least 25% efficiency, will be distributed to a target group (Household). Over the long-term, this project activity is anticipated to reduce deforestation and the emission of greenhouse gas caused by using the burning of woodfuel.

In line with the applied methodology VM0050: Energy efficiency and fuel switch measures in cookstove”, version 1.0, it is assumed that in the absence of the project, the baseline scenario is the continued use of non – renewable wood fuel by target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity. Therefore, by reducing the total amount of fuel required for cooking, the replacement of traditional stoves by ICS reduces the amount of GHG emitted into the atmosphere. Emission Reductions are calculated following the methodology on the basis of the mass of non-renewable woody biomass saved by the ICSs.

In the previous version of the PDD, the Project Proponent (PP) intended to distribute improved cookstoves (ICS) across the entire territory of Lao PDR. However, as of 30 April 2025, the Department of Climate Change (DCC) of Lao PDR has issued an official decision (Document 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. Consequently, the project activity will implement the ICS distribution only within the areas allocated to the PP, as detailed in Section 1.13 of this PDD.

The deviation was required to comply with the regulatory guidance of the competent national authority. The adjustment ensures clear demarcation of project areas, prevents double counting of distributed stoves, and aligns the project implementation with the host country's decision.

The applicability of the applied methodology remains unaffected. The project activity continues to meet all conditions and requirements of the methodology. The deviation only relates to the geographic delineation of the project boundary.

This deviation results in a conservative reduction in the volume of emission reductions. At the same time, it strengthens the robustness of monitoring and reporting by eliminating any potential risk of overlap with other ICS distribution projects in Lao PDR. Accordingly, emission reductions will be quantified solely for the ICS distributed within the areas officially allocated to the project.

Technology

Emission reductions from the ICS units will be calculated using the latest approved methodology VM0050: Energy efficiency and fuel switch measures in cookstove”, version 1.0; hence falling under the Type II project activity – Energy efficiency improvement projects.

A typical project activity instance will replace traditional firewood stoves with higher efficiency ICS that are more efficient than traditional fire wood stoves as they reduce heat loss and improve heat transfer and/or combustion efficiency. The ICSs are fuel efficient, resulting in a decrease in fuel use in comparison to conventional pre-project stoves while also reducing particulate matter and carbon emissions. Design considerations have also streamlined assembly and construction to reduce cost and production times.

The ICS models are fuel efficient, resulting in a decrease in fuel use in comparison to conventional pre-project stoves while also reducing particulate matter and carbon emissions. Design considerations have also streamlined assembly and construction to reduce cost and production times.

These stoves deliver the same energy output as thermal energy supplied in the baseline scenario with traditional stone fire.

The ICSs are manufactured in Viet Nam. The manufacturer has had previous experience with the manufacture of cookstove and has a trained workforce for the production of the cookstove. The cookstove named Ecozen with characteristics below:

As per water boiling test conducted by GERES Biomass and Energy Laboratory (G-BEL), the thermal efficiency of the Ecozen ICS is projected to be 38.44%. The ICS has an expected lifespan of at least 10 years.

The Ecozen stove allows for significant savings of firewood compared to traditional stoves and is especially suitable for the cooking habits of the people in the target group. Its design ensures efficient combustion of fuel and cleaner fire and therefore uses considerably less fuel as compare to traditional stoves. This means speedy cooking, time and fuel savings, cleaner pans, kitchen walls and indoor atmosphere.



The Ecozen cookstove is being produced and planned for distribution for project activities instance in the grouped project. Other cookstove models will be added later if there are plans to distribute them.

The project promotes energy efficient improved cooking stove (ICS) which directly reduces fuelwood consumption, which are non-renewable biomass having higher emission factor. As an associated benefit, the project directly helps reducing the rate of deforestation in the host country.

1.13 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, Vidxaiy, Yortain, Yortpao.
		Sophao	All of Villages
		Viengxay	All of Villages
		Xamnua	All of Villages

2	Attapeu	Phouvoung	All of Villages
		Samakkeixay	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 (excepted Chomesi village)
		Tonpheung	All of villages
4	Bolikhamxay	Khamkher	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, Borthoun, Boungkouang, Done, Donexay, Hatxaiykhao, Houayhai, Houaylerk, Houayphet, Kengluang, Khonekhang, Khonexong, Naain, Nabone, Nabouay, Nahin, Nakheuanai, Nakheuanork, Nalieng, Nalouang, Namdeua, Namkhou, Namsang, Namthone, Nanam, Naphong, Nasang, Nongboua, Pakkadingneua, Pakkadingtai, Pakpang, Paksa, Pakthone, Pakxoun, Phonchalern, Phonsavang, Phonthong, Phonxay, Sensamlan, Somsanouk, Thakanthin, Thasaad, Thonghab, Thongnami, Thongnoy, Viengkham, Xonphanxay, Xort, Nakhou, Nakhueanok, Pakthone, Xonphanxay, Thongnoy, Nasang, Boungkouang, Nana, Phonethong, Nain, Viengkha, Khonesong, Namthone, Kengluang,

			Done, Nalieng, Naphong, Nasang, Xort, Thakanthin, Donexay, Borthuen, Nabone, Nakhueannai, Namduea, Pakkadingtai, Paksa, Nahin, Somsanouk, Nongboua, Naluang, khonekhuang, Thongnami, Paksoun
		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, Yawaiy
		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 vilaggess)
		Salavan	All of villages (excepted Bounsouy, buangyai, Dongkoc, Khanmakyod, Khonlat, Khokyai,

			Khodmome, 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	All of villages
		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 distribution areas shall be provided separately in KML file.

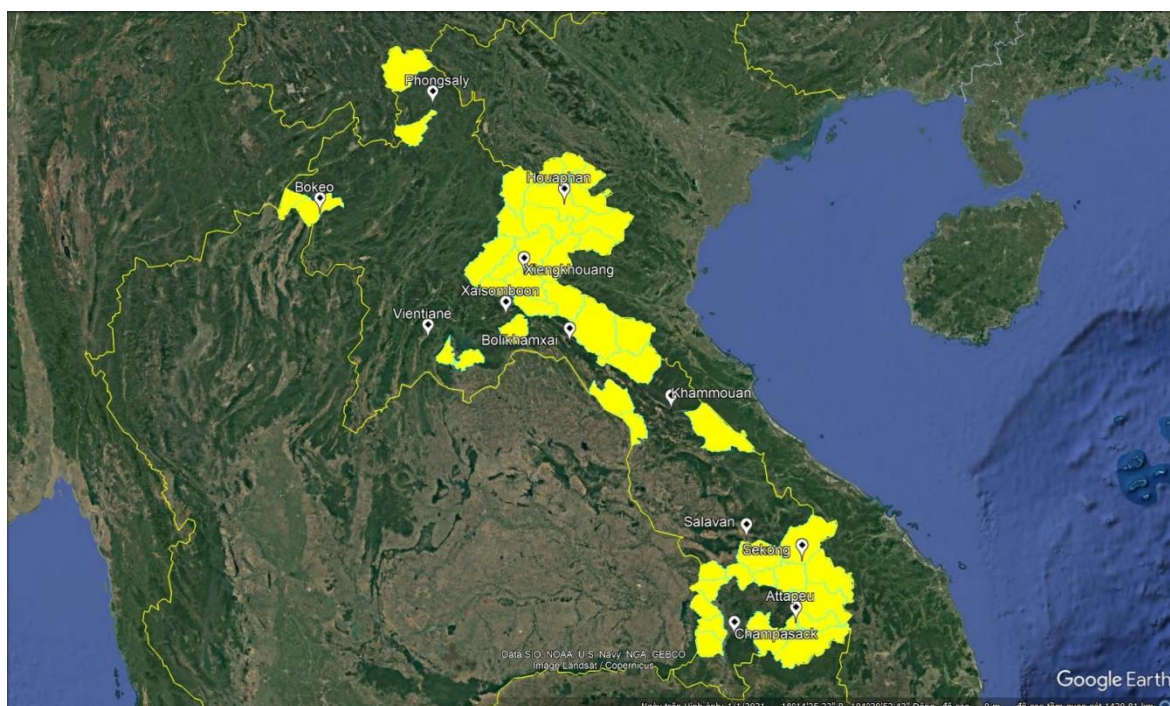


Figure 1: Map of distribution area

1.14 Conditions Prior to Project Initiation

The project reduces the use and demand for fossil fuels and non-renewable biomass that would have been used in the traditional stove to achieve the same output (i.e. cooking daily meals) with the ICS. This directly leads to reduced GHG emissions. Therefore, the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction. Prior to project initiation households are using traditional cooking stoves or three stone fires.

Laos 2025 population is estimated at 7,873,046 people according to UN data, in which the population in urban is 3,018,824 people and in rural is 4,854,224 people³. The high proportion

³ <https://www.worldometers.info/world-population/laos-population/>

of non-renewable biomass demonstrates that typical household cooking meal contributes to deforestation and threatens biodiversity. In Laos alone, 77.4% of rural households and 98%⁴ in the poorest quintile use firewood for cooking with significant portions of the population using unimproved cooking stoves – because the use of electric stove and LPG/cooking gas stoves is very limited that accounts for only 6.5%⁵ of households and among most common uses cookstove, none of them can meet requirements of an improved cookstoves. The use of wood for burning directly leads to reduced greenhouse gas emissions.

The wood collected or harvested to fire traditional stoves. According to the approved methodology, in the absence of the project activity, the baseline scenario would be the use of wood fuel for the community to meet its energy need. Therefore, by reducing non-renewable biomass consumption (i.e. fuel wood), the grouped project is reducing anthropogenic GHG emissions.

There was no overlapping or similar registered carbon project in the designated project boundary. The allocation of project areas by the Department of Climate Change of Lao PDR (Document No. 0365/DCC, dated 30 April 2025) was issued after the initial PD submission to ensure clear demarcation of project boundaries among different project developers.

Therefore, prior to the project initiation, the baseline situation was characterized by the exclusive use of traditional stoves, absence of ICS distribution under this grouped project, and lack of other carbon-financed ICS initiatives in the project areas.

1.15 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project activities under the grouped project are voluntarily coordinated action Sustainability Investment Promotion and Development Joint Stock Company. There is no mandatory law or requirement in Lao People's Democratic Republic to foster the dissemination of ICSs.

Further to mention that in terms of local laws, statutes and regulatory frameworks etc. specific to the project type, there is no specific laws/policies available for cookstove projects. The distribution and implementation of ICS technology is not subject to any environmental impact assessment in accordance with the EIA (Environmental Impact Assessment) Guidelines - MONRE of Laos⁶. Category 2 in Appendix 1 of this guideline lists activities/projects that must

⁴ The Lao Social Indicator Survey II in 2017 by Lao Statistics Bureau, Table TC.4.2: Primary reliance on solid fuel for cooking

⁵ The Lao Social Indicator Survey II in 2017 by Lao Statistics Bureau, Table TC.4.1: Primary reliance on clean fuels and technologies for cooking, page 187.

⁶ Environmental Impact Assessment Guidelines, prepared by Environmental Management Support Programme (EMSP), Oct.2012, available from:
http://monre.mynapcloud.com/2017/emsp/images/doc/eia_guidelines20121001.pdf

prepare the environmental report. Thus, the distribution of ICS in households is not included in the list.

Thus, it can be concluded that there is no applicable local or regional law and regulatory framework in the host country with relation to cookstove projects.

At the time of project initiation, there were no legal or regulatory barriers preventing the implementation of improved cookstove (ICS) distribution in the project areas.

Subsequently, the Department of Climate Change (DCC) of Lao PDR issued an official decision (Document No. 0365/DCC, dated 30 April 2025), which established a formal allocation of geographic areas among three project developers (SIPCO, Bridge Carbon, and IceBerg) to avoid overlap in ICS distribution. The project proponent has aligned with this decision and will distribute ICS exclusively within the areas officially allocated to the project, as detailed in Section 1.13 of this PD.

There are no other new national or local laws or regulations that materially impact the design, implementation, or operation of the project activity. The project remains fully consistent with the applicable regulatory framework and host country requirements.

1.16 Double Counting and Participation under Other GHG Programs

1.16.1 No Double Issuance

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

☐ Yes ☒ No

1.16.2 Registration in Other GHG Programs

Has the project registered under any other GHG programs?

☐ Yes ☒ No

Is the project active under the other program?

☐ Yes ☒ No

1.16.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

☐ Yes ☒ No

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

1.17.1 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

1.17.2 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

1.17.3 Supply Chain (Scope 3) Emissions

Do the project activities specified in Section 1.12 affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☒ Yes ☐ No

If yes:

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

☒ Yes ☒ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, “Carbon credits may be issued through Verified Carbon Standard project ID 2924 for the greenhouse gas emission reductions or removals associated with Ecozen Cookstove, manufactured by Viet Charcoal Production Company Limited in Di Su Commune, My Hao District, Hung Yen Province, Vietnam, distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) under their project activity titled “Grouped projects for Laos Improved Cookstove”

☒ Yes ☐ No

Detail in Appendix 2 in this report.

1.18 Sustainable Development Contributions

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

A) Environment well-being:

- The project activity will contribute to the reduction in GHG emission due to reduction in use of non-renewable biomass and it can ensure natural recovery of forests and/or reforestation.
- The project activity will lead to reduction in indoor air pollutants from wood smoke and avoid smoke related health disorders.
- The reduction in non-renewable biomass consumption for cooking and boiling water through efficient use leads to improved ecological balance.
- The project activity will support fire prevention in the household kitchen.

B) Socio and Economic Benefits:

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

C) Technological benefit

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

1.19 Additional Information Relevant to the Project

1.19.1 Leakage Management

Not applicable, as project activity has been design to include only new improve cookstoves. No used improved cookstoves will be transferred or deployed from outside the geographical project boundary to the project activity.

Additionally, the project activity applies Methodology VM0050: Energy efficiency and fuel switch measures in cookstove”, version 1.0. According to the section 8.3 of the methodology, the default net to gross adjustment factor of 0.95 has been applied to account.

1.19.2 Commercially Sensitive Information

Not Applicable.

1.19.3 Further Information

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 un-quantifiable 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. - Women Union 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

Date of stakeholder consultation	18 August 2022
Stakeholder engagement process	An invitation letter was sent to related local stakeholders including agencies, Lao Red Cross, Ministries and NGOs, project developers, manufacturers, local vendors and households in 8 th August 2022

	in order to inform about the local stakeholder consultation meeting conducting in 18th August 2022 at the meeting room in Vientiane. We also send email and made the phone call to all invited local stakeholders for clearer clarification on the project and getting the confirmation of the meeting attendance. Stakeholders were identified as those whose activities directly or indirectly impact the project, and those who were to be impacted by the project activities. The invitations were welcoming written comments as well as physical attendance.
Consultation outcome	In the meeting, Ms. Phonedavanh Sanbounleuxay, Deputy Head of International Relations Devision, introduced the participants of the stakeholders meeting “Grouped Projects for Laos Improved Cookstove”. Ms HO THI QUY, the representative of the sponsor entity, made a presentation on SIPCO, the strong relationship between Vietnam and Laos. Ms. Ho Thi Quy appreciated the presence and support of Lao Red Cross as well as Ministries of Laos and other associations, and looked forward to further cooperation between Parites. Ms. Ho Thi Quy also mentioned the economic, social and environmental impacts of the Project to the local community. The project goal is free distribution of improved cookstoves (ICSs) to households using traditional cookstoves in Laos. Each attendee was handed out feedback form, project description presentation therefore, their comment could be collected directly in the meeting or in other hand sent to CME via email within 15 days after the date of the local stakeholder meeting. Currently, the project received all supportive comments from local stakeholders without any negative one. Consultation will continue throughout the project lifetime, and will continue to influence project design. Adaptations will be made if deemed necessary
Ongoing communication	SIPCO engages with Lao Red Cross through annual reports, records and SIPCO’s social media communication. Lao Red Cross are large organizations at all administrative levels (Commune, District, Province, State). Annual Reports includes information about the operation throughout the year. Lao Red Cross member at commune and ward levels regularly come to exchange information with Beneficiaries and report to the District's level and the District's level will report it province's level. The province's

	Red Cross has responsibly for summarizing and reporting to SIPCO. If these Beneficiaries have any comment in using cookstove, the Red Cross will report immediately to SIPCO. - Records will send to project donors about 2 times a year. The records include updates on current projects, community stories to share, fund raising appeals and much more. - Social media communications are crucial to stay engaged with a variety of stakeholders. Below mentioned mechanism will be used by stakeholders to communicate their grievances with the Project owner: - Communication via email info@carbonvietnam.com - By informing Red Cross at levels. - SIPCO will continue to implement these informal ongoing consultation procedures, alongside formalized consultation via annual our survey.
Stakeholder input	During this consultation, there is no negative comment received from stakeholder for the water purifiers quality and design

2.1.3 Free Prior and Informed Consent

Obtaining 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

Development process	The grievance mechanism process could be illustrated as below:
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- **Receive Grievance**

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

- **Record**

All formal grievances will be 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 will be 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 will be acknowledged, the grievance owner, within two working days of a grievance being submitted. Communication will be made either verbally or in written form.

The acknowledgement of a grievance should include a summary of the grievance, method that will be taken to resolve the grievance and an estimated timeframe in which the grievance will be 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 analysed and will 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 will use 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 will then formally advise the external stakeholder via their preferred method of contact. • Follow up and close out The grievance owner will 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 will be 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.
Grievance redress procedure	The details on procedure for grievance/feedback will be made public on website of the project participant and local representative as applicable, which will be accessible to all project stakeholders.

2.1.5 Public Comments

The project activity received 03 comments during the public comment period from 22 April 2022 to 21 May 2022. Detail below:

Comments received	Actions taken
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Comment 1

Date: 01/05/2022

Comment

Please provide a Certificate for the thermal efficiency of the Ecozen ICS is 38.44%. The Certificate for that ICS has an expected lifespan of at least 10 years. The product cannot have at least 10 years lifespan and thermal efficiency is 38,44%. This is a scam. Request Laos Government Agencies/MONRE of Laos to check the quality carefully

The efficiency test for the Ecozen model introduced in the grouped projects are 38.44%, the efficiency were conducted by a thermal efficiency specialized Laboratory, GERES Biomass and Energy Laboratory (G-BEL), recommended by the Clean Cooking Alliance⁷ (United Nations run organization), the full test report and certification have been provided to the VVB for verifying.

The lifespan of the Ecozen cookstove model have been confirmed by the manufacturer as the lifespan test report provided to VVB which is compliance with the applied methodology.

For the registered number of WIPO for the products, the ECOZEN cookstove has been certified for its exclusive industrial design by the Intellectual Property Office of Vietnam No. 33069 dated 01/07/2021, the certificate has been provided to the VVB (The Intellectual Property Office of Vietnam is a member of WIPO⁸).

On other hand, for the cross check with recently listing cookstove projects for comparison of efficiency and lifespan, the following results have been found:

No.	Registry ID	Host country	Cookstove Model	Efficiency	Life time	Type of cookstove
1	2533	India	Green Jumbo	38%	7 years	Steel stove
2	2505	South Africa	Zama Zama Rocket stove	38.3%	5 years	Steel stove
3	2473	India	Agneekaa Eco Mini Stove	32.19%	7 years	Steel stove
4	2523	Viet Nam	Kuniokoa	48%	10 years	Steel stove
5	2409	Cambodia	SSM-S32-13	38.5%	10 years	Steel stove

Conclusion: The lifetime and thermal efficiency Ecozen cookstoves which are used in the grouped project are reasonable.

Comment 2

Date: 03/05/2022

The grouped project is related to the distribution of cookstoves so section 1.14 has been revised accordingly.

⁷ <https://cleancooking.org/sector-directory/geres-biomass-energy-lab-g-bel>

⁸ <https://ipvietnam.gov.vn/wipo-ip-hub>

Comment: Dear Verra Registry, The grouped project is related to the distribution of cookstoves, however, section 1.14 refers to water project.	
Comment 3 Date: 03/05/2022 Comment: Provide LSC report which is organized with the participation of local authorities, households, NGOs, related parties, and representatives of Laos government agencies to ensure the project is allowed to operate in accordance with the laws of Laos Government. How comments are considered and evaluated?	In 18th April 2022 at meeting room in Vientiane city, the representatives of the sponsor entity of Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) together with the project implementation support partner – Lao Red Cross (LSC) holds a meeting with the stakeholders to collect their comments on the economic, social and environmental impacts of projects “Grouped projects for Laos Improved Cookstove”. The meeting with participation of the representatives of agencies, Ministries such as Lao Red Cross, Ministry of Natural Resource and Environment, Ministry of Foreign Affairs, Ministry of Labor, Invalids and Social Affairs, NGOs including Swiss Red Cross, Gender Development Association (GDA)...and households. All of them strongly advocated for the construction of the project with the contents as presented by the Sponsor. All comments received are supportive of the project and hope the project will be implemented soon. The detail about LSC report and list of participants has been provided to VVB for verifying.

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

	Risks identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' well-being	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 wook smoke and improve the air quality indoor.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified ⁹	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.
Equal pay for equal 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
Gender equity in labor and work	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

⁹ 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.

		employees, is not permitted. All employees shall treat one another with respect, dignity and common courtesy.
Forced labor	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
Child labor	No risk identified	As part of our commitment to having a diverse and inclusive workplace, we have zero tolerance for harassment and bullying.
Human trafficking	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

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The contractor, synonymous with implementing partner, enters into an independent contractor agreement with SIPCO. The agreement contains details of SIPCO's and the contractor's compliance according to Laos

	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

Process used to design the benefit sharing plan	The project activity has not any the benefit sharing plan so this section is not applicable
Summary of the benefit sharing plan	The project activity has not any the benefit sharing plan so this section is not applicable

Approval and dissemination of benefit sharing plan	The project activity has not any the benefit sharing plan so this section is not applicable
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2.4 Ecosystem Health

	Risks identified	Mitigation or preventative measure(s) taken
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 consumption and hence greenhouse gas emissions, mainly CO2, when the combusted biomass
Soil degradation and soil erosion	No risk identified	
Water consumption and stress	No risk identified	

		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

Is the project located in or adjacent to habitats for rare, threatened, or endangered species?

☐ Yes ☒ No

	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 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VM0050	Energy efficiency and fuel-switch	1.0

		measures in cookstoves	
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 Methodological Tool	33	Default values for common parameters	03.0

3.2 Applicability of Methodology

Methodology ID	Applicability condition	Justification of compliance
VM 0050	The project activity corresponds to: a) <i>Replacement of non-renewable biomass (e.g., firewood, charcoal)-fired cookstoves with any of the following:</i> i) More efficient project devices that use the same fuel as in the baseline; ii) Efficient project devices fired by renewable biomass or bioethanol; iii) Efficient project devices fired by liquefied petroleum gas (LPG); or iv) Electric-powered project devices b) <i>Replacement of solid or liquid fossil fuel (e.g., coal, kerosene)-fired cookstoves with any of the following:</i> i) Efficient project devices fired by renewable biomass or	a) The proposed project involves replacement of non-renewable biomass (firewood) fired cookstove by more efficient cookstove that use the same fuel as in the baseline to reduce the necessary amount for thermal efficiency improvement.

	bioethanol; ii) Efficient project devices fired by LPG; or iii) Electric-powered project devices	
VM 0050	Project devices are used in households, communities, institutions, or small or medium enterprises (SMEs), collectively referred to in this methodology as the “target population.”	The project devices are used in households
VM0050	Where renewable biomass is used, it is exclusively renewables and qualifies as one of the following: a) A by-product, residue, or waste stream from agriculture, forestry, and related industries; or b) Originating from dedicated plantations that comply with all relevant applicability conditions in the most recent version of CDM TOOL16.	The proposed project involves replacement of non-renewable biomass (firewood) fired cookstove by more efficient cookstove so this section is not applicable.
VM0050	Where biomass residues are used, they would have been left to decay or burned without energy recovery before implementation of the project activity, and their use does not involve a decrease in carbon pools – in particular of dead wood, litter, or soil organic carbon – on the land areas from which the biomass residues originate.	The proposed project involves replacement of non-renewable biomass (firewood) fired cookstove by more efficient cookstove so this section is not applicable.
VM0050	Where biomass residues from a production process are used, project implementation does not result in an increase in the	The proposed project involves replacement of non-renewable biomass (firewood) fired cookstove by more efficient cookstove so this section is

	processing capacity of raw input or any other substantial changes (e.g., product change) in this process.	not applicable.
VM0050	Where more than one type of renewable biomass is used, each of the biomass types used complies with the applicability conditions.	The proposed project involves replacement of non-renewable biomass (firewood) fired cookstove by more efficient cookstove so this section is not applicable.
VM0050	Where project activities introduce renewable biomass as charcoal, it is renewable charcoal produced by efficient charcoal production processes (e.g., retort sedentary kilns, improved sedentary kilns, Casamance kilns). Methane produced during the charcoaling process is captured and destroyed or combusted for energy purposes.	The proposed project involves replacement of non-renewable biomass (firewood) fired cookstove by more efficient cookstove so this section is not applicable.
VM 0050	Project devices using renewable biomass (fuel-switch) or non-renewable biomass (improved efficiency) are single-pot, multi-pot portable, or in-situ cookstoves with an initial thermal efficiency of at least 25%.	These Ecozen stoves planned to be installed under this project are single pot that have an efficiency of 38.44% as per the manufacturer's specification.
VM 0050	Project devices using LPG or bioethanol are single-pot, multi-pot portable, or in-situ cookstoves with an initial thermal efficiency of at least 30%	The project activity does not use LPG or bioethanol so this section is not applicable
VM 0050	Electric project devices meet the maximum risk factor score of 15 on the Cookstove Durability Protocol and have the following minimum thermal efficiency: a) Hot plates and electric hobs:	The project activity does not use electric project devices so this section is not applicable

	40% b) Induction stoves and other electric stoves: 70%	
VM 0050	Project devices using LPG comply with all of the following conditions: a) The baseline fuel either includes non-renewable biomass or is a more carbon intensive fossil fuel (demonstrated by the baseline survey, see Section 6.2); b) The project has a provision for metering LPG supplied to each consumer at the LPG filling station, in order to determine household LPG consumption; and c) The project does not seek to issue any carbon credits for periods after 31 December 2045.	The project activity does not use LPG so this section is not applicable
VM0050	Electric project devices use the following electricity sources: a) Decentralized renewable energy systems: Decentralized energy systems using fossil fuels are not eligible, except for backup generators that supply less than 1% of the annual electricity of the decentralized renewable energy system. b) Self-generated renewable electricity (with a maximum of 20% electricity from non-renewable sources for backup); or c) National or regional electricity grid.	The project activity does not use electric project devices so this section is not applicable
VM 0050	The project proponent designs	The project proponent provides

	incentive mechanisms to reduce the use of inefficient baseline devices and practices that can be replaced by the project devices and describes these mechanisms in the project description.	improved cookstoves (ICS) free to households with the support of the Lao Red Cross
VM 0050	Where a project device has ended its technical life, the project proponent either replaces it with a comparable or better project device or retrofits its essential components to continue meeting the minimum service level requirements, otherwise no further emission reductions may be claimed for the project device	The project proponent conducts continuous monitoring of improved cookstoves (ICS) to assess their condition. When repairs are needed, we provide maintenance services; otherwise, we will distribute new cookstoves to ensure optimal performance and sustainability.
VM 0050	Project proponents implement a method for the distribution and identification of project devices that avoids double counting of emission reductions by other mitigation actions and includes unique product identification on the stove itself at the time of distribution/sale (e.g., program logo, alpha/numeric ID, and end-user location, such as geographic coordinates, complete address information)	Each ICS in this project will be identified by a unique combination of customer name and geographical location, as well as a serial number. The serial number will be a unique number which will allow for a clear distinction between the stoves. No individual serial number can be repeated within the project, thus ensuring that each stove is counted only once in the proposed project. In addition, the project has been cross-checked against other CDM project activity operating in the country using the UNFCCC, the Gold Standard, and other relevant voluntary carbon schemes to ensure that the ICS is not included in any other CDM project activity or voluntary project activity. All users of ICSs sign a Beneficiary Agreement that cedes all rights to VRs to the project proponent. Therefore, only the project proponent is able to

		claim credit for emissions reductions from the project devices.
VM 0050	The project complies with any national, sub-national, or local regulations or guidance for the installation, commercialization, distribution, and use of improved cookstoves and/or fuel supply and use for the target population. National, regional, and local regulatory frameworks for the provision of the type of thermal energy services provided by the project activity must be documented	Projects and the implementation of project activities shall not lead to the violation of any applicable law, regardless of whether or not the law is enforced. The project proponents have reviewed the relevant national and local legal framework of Lao PDR, including but not limited to environmental, forestry, energy, labor, and climate-related regulations. No violations of applicable laws have been identified. Where required, the project has obtained confirmation and authorization from competent authorities. In particular, the allocation of project areas by the Department of Climate Change of Lao PDR (Document No. 0365/DCC, dated 30 April 2025) provides an official confirmation of compliance with national regulatory requirements and avoids any overlap with other project developers. Therefore, the project is in compliance with all applicable laws and regulations in Lao PDR.
VM 0050	Where project activities reduce emissions from non-renewable biomass, including firewood and charcoal, the risk of double counting is assessed on a national basis by evaluating at validation and crediting period renewal whether there are REDD+ projects or jurisdictional REDD+ programs whose project boundary overlaps with the expected fuel source area of the	Not applicable. The project activities do not overlap with any REDD+ projects or jurisdictional REDD+ programs, and the expected fuel source area of the project is not in conflict with such initiatives. Therefore, the risk of double counting is not relevant in this case

	project. The project proponent must report on the findings of this assessment for informational purposes in the project description	
TOOL33	This tool shall be applied in conjunction with the methodologies which refer to this tool to source the default values to estimate the baseline emissions (e.g. from the use of diesel for off-grid power generation, from the use of kerosene for lighting, from the use of woody biomass for cooking).	Complies. The project activity used default value in tool (e.g Fraction of non-renewable biomass OR efficiency of pre-project cooking device) to calculate emission reduction.
TOOL33	The default values, as contained in section 5 of this tool, are valid up to 10 March 2025. Notwithstanding the provisions on the validity of new, revised and previous versions of methodologies and methodological tools in the " Procedure: Development, revision and clarification of baseline and monitoring methodologies and methodological tools", there will be no grace period for the application of this tool and the validity of the default values after this date, including in cases where further default values are added to this tool through revisions of this tool before this date.	Complies. The value in section 5 of this Tool is latest values and were used to calculate emission reduction of the project activity.
Sampling Guideline	This document describes common types of sampling	Complies. Representative sampling will be undertaken that is designed in line

	approaches and includes a recommended outline for a sampling plan, recommended practices for unbiased estimates of sampled parameters and recommended evaluation criteria for designated operational entity (DOE) validation besides several best-practice examples covering large and small-scale project activities and PoAs. It also provides examples for checking the reliability of data collected through sample surveys	with the requirements of the applied methodology to measure monitoring parameters including proportion of commissioned project device, fuel used per baseline device and project device).
Sampling Guideline	Furthermore, it covers the following items: (a) Methods, if any, to deal with missed reliability targets without compromising conservative estimates for emission reduction (b) Best-practice examples for DOE validation/verification for sampling and surveys.	Complies. The single sampling plan covering a grouped project is undertaken applying 95/10 confidence/precision for the sample size calculation
Sampling Standard	This document specifies the reliability requirements and describes appropriate sampling methods and what is expected to be provided in a sampling plan. The general requirements shall be applicable to both small-scale and large-scale CDM project activities and PoAs, with any requirements specified in the applied methodologies taking precedence. This document also provides sampling-related requirements pertaining to validation and verification, including the sampling approach to be	Complies. Representative sampling will be undertaken that is designed in line with the requirements of the applied methodology to monitor parameter.

undertaken by the
validating/verifying DOEs.

3.3 Project Boundary

Source		Gas	Included?	Justification/Explanation
Baseline	Thermal energy generation	CO ₂	Yes	Major emission source
		CH ₄	Yes	Minor emission source
		N ₂ O	Yes	Minor emission source
	Production of charcoal fuel	CO ₂	No	Minor emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
Project	Thermal energy generation	CO ₂	Yes	Major emission source
		CH ₄	Yes	Minor emission source
		N ₂ O	Yes	Minor emission source
	Transport of fuel	CO ₂	No	Minor emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
	Production of fuel	CO ₂	No	Minor emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
	Self-generated electricity (non-renewable energy for backup)	CO ₂	No	Minor emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
	Grid electricity generation and distribution	CO ₂	No	Minor emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source

A representation of baseline boundary and project boundary are given as below:

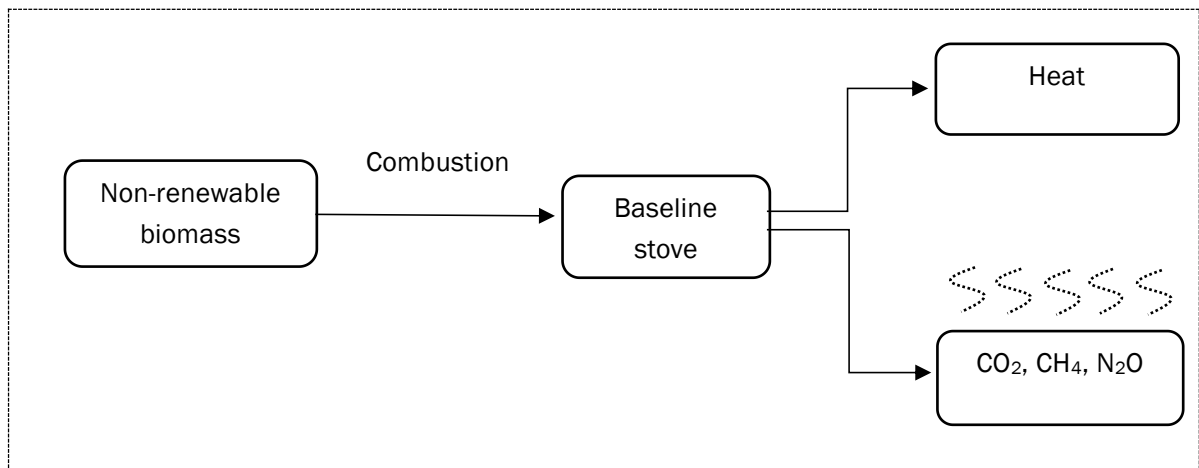


Figure 1: Baseline Boundary

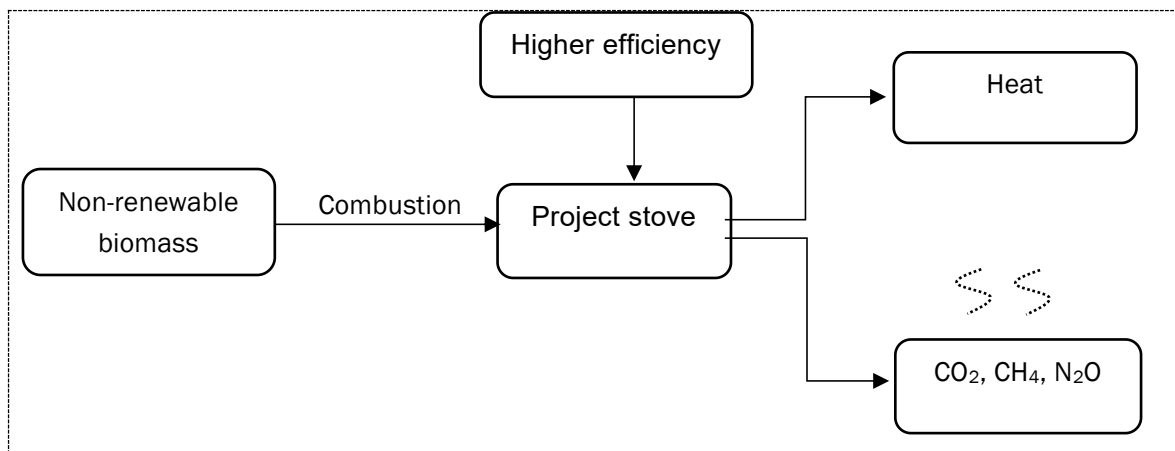


Figure 2: Project boundary

3.4 Baseline Scenario

1. Selection and Justification of the Baseline Scenario

Step 1: Identify alternatives baseline scenarios

The alternative baseline scenarios of project activity include:

Scenario 1: Target households use the baseline cookstove to meet similar thermal energy needs. The baseline cookstoves are traditional cookstoves or three stone fires using firewood or conventional device with no improved combustion air supply or gas.

Scenario 2: Target households use fossil fuels for cooking daily. However, this cooking method requires additional monthly costs.

Scenario 3: Target households use the improved cookstove (project stove) to meet similar thermal energy needs. The improved cookstoves are stoves using firewood are single pot, multi pot or in situ cookstove with an initial thermal efficiency of at least 25%.

Step 2: Consider existing and forthcoming government policies and legal requirement

These baseline alternatives that are consistent with existing and forthcoming mandatory legal or regulatory requirements in Laos.

Step 3: Assess financial, institutional, and information barrier

Scenario 1: The using fuel wood for cooking daily is suitable for poor and near poor households because fuel wood is free of cost

Scenario 2: Target households of the project activity are poor and near-poor households who have very low incomes. The using fossil fuels daily requires monthly cost. Hence, this alternative scenario is not suitable.

Scenario 3: Target households of the project activity are poor and near-poor households who have very low incomes. Although improved stoves eliminate the need to buy fuel every month, they still require an initial investment to purchase. As a result, many people cannot afford to buy them.

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

A baseline survey was conducted before distributing ICSs by SIPCO and Lao Red Cross at all level to confirm the type of baseline cookstove in January 2022 and baseline KPT test in January 2025 to assess the type & quantity of fuels consumed and the cooking technologies in use in the baseline scenario. The number of samples is calculated based on Guidelines for sampling and surveys for CDM project activities and programs of activities, v.04.0 and Standard Sampling and surveys for CDM project activities and programs of activities, v.09.0, detail description in section 5.3. Applying the simple random sampling technical, the household numbers are randomly chosen from the required sample size as calculated by the PP. To ensure the survey result is representative of the entire population, the dissimilarity (such as village, individuals...) chosen randomly such that each element (or unit) of the population has the same probability of being selected. These samples will be drawn by using the random number generator. The survey method has been used by project proponent include:

- Hard-copy questionnaires
- Face to face interview
- Telephone Interview

The result as below:

Type of fuel

The survey team use the questionnaire of using fuel in the households. All of households use woods as the main fuel for cooking. Among 430 households being surveyed, none of them use gas, coal. oil and electric for cooking. 100% of households use wood fuel for cooking.

Moreover, before starting the distribution of improved cookstove in a new area, PP conducts a feasibility check (through baseline survey) through which the proportion of using traditional cookstove is being confirmed. In case that the proportion of other cookstove is significant, the area will be discarded. At the time of distribution, households are checked for eligibility. Households indicating as their baseline stove anything else than traditional stove are ineligible for the carbon programme. This shall be ensured before household receiving the cookstove as the households have to commit and sign the beneficiary agreement with SIPCO.

Source of fuel

All interviewed households reported that they collected firewood from nearby forests or their own gardens. None of the households had to purchase firewood for cooking.

Baseline technology

As the result of the survey, 95.58% of the households (411 households) being interviewed are using traditional 3 stones cookstoves only for cooking, 4.42% (19 households) are using two types of cookstoves (traditional cookstove and other cookstove such as improved cookstove), no household answer that they are using other stoves only. Survey results show that all selected households are using traditional stoves with 15% efficiency for cooking meal.

2. Baseline survey /KPT**Household Selection Criteria**

In addition to proving the baseline above, the project proponent will also include additional safeguards to ensure that this baseline is maintained through the lifetime of the project activity through the implementation of a Household Selection Criteria.

The objective of the household selection criteria is to guarantee that households receiving the ICSs use firewood as their primary cooking fuel, hence being applicable under the baseline scenario. The selection criteria will take the form of a questionnaire at the start of the ICS distribution, and will include binomial questions (yes/no answers) to assess the household's primary method of cooking fuel as follows:

- 1) Do you cook any meals in the house without using firewood?
- 2) Do you use charcoal for cooking in your household?
- 3) Do you use electric cooking in your household?
- 4) Do you use LPG for cooking in your household?

If any of the responses to these questions indicate that firewood is not the main fuel used in the household for cooking, this household will not be selected to participate in the project activity. These questions may be amended and improved upon with each ICS distribution cycle.

Established Controlled Households

As per VM0050 v1.0, Section 6.2 and Correction 1, follow-up baseline surveys must be conducted every five years in controlled households that do not participate in the project. These control households must be established prior to validation and must be shown to be statistically equivalent to the pre-project conditions of project households regarding baseline fuel type(s) and percentage of use by the target population, source(s) of each baseline fuel, and baseline technologies for cooking.

The control households are identified and recorded in a separate control database, which is maintained independently from the project database, due to practical on-the-ground operational concerns that could pose risks to the long-term sustainability of the project. Information on control households is discreetly collected through local authorities without directly informing the households themselves, in order to avoid any misunderstanding that they might soon receive improved cookstoves.

The control households are defined as households that are using traditional cookstoves. The control households are identified within the provinces of Xieng Khoang, Houaphanh, Xaysomboul, Bolikhamxay, Salavan, XeKong, Atapeu, Bokeo and Champasack, all of which fall within the project boundary. Based on official census data, each of these villages has a statistically sufficient number of households and population to be considered valid control groups

The project proponent will ensure that no ICSs are distributed to these households throughout the lifetime of the project activity. This approach ensures that the control group represents baseline cooking practices and fuel consumption patterns that are not influenced by project interventions.

Identification of Controlled Households in the Future

In order to maintain compliance with VM0050 v1.0, Section 6.2 and Correction 1, the identification of controlled households in future survey rounds will follow a standardized and transparent procedure:

Control household selection: For each follow-up baseline survey cycle (every 5 years), the identification of control households will follow the same approach as applied in the initial monitoring. The project team will collaborate with local authorities to discreetly obtain updated household information from village-level records in the selected control areas. Households that

continue to use traditional cookstoves for daily cooking and have not received any improved cookstoves from this or any other project will be shortlisted.

Census cross-checking: Official census data and/or local authority household listings will be used to confirm the number of households and demographic characteristics of the selected control villages.

Household randomization: Within the control database, households to be surveyed will be randomly selected using random number generation from the census or village household list, ensuring that the sample remains statistically representative of the baseline population.

Validation of equivalence: Each selected household will be checked to ensure equivalence with project households in terms of baseline fuel type, percentage of use, sources of fuels, and cooking technologies.

Database tagging: The control households will be recorded in a separate control database maintained independently from the main project database to avoid any potential confusion or expectations among the households. Field teams will not directly inform the selected households about their inclusion in the control group to prevent any misunderstanding that they might receive project cookstoves in the future.

Community communication: Field teams will work with village leaders and local authorities to clearly explain the role of control households, thereby minimizing the risk of miscommunication or expectation of future ICS distribution.

This approach ensures that controlled households are transparently identified in future monitoring periods, while minimizing social risks and maintaining the statistical validity of baseline surveys.

Result

Average household size and woody consumption per household

The KPT test was conducted on 16 control baseline households in January 2025, with the following results:

Household size					Baseline dry woody consumption (kg)				Woody consumption per adult per year	Note
Children 0-14 years	Females > 14 years	Male 15-59 years	Male >59 years	Average	Day 1	Day 2	Day 3	Average		
2	1	2	0	3.8	8.98	8.56	9.05	8.863	0.851	
3	1	1	1	4.1	9.52	9.25	10.02	9.6	0.855	
0	2	2	0	3.6	8.22	7.85	7.68	7.92	0.803	Excluded as a lower outlier
1	2	2	1	4.9	10.52	10.14	10.34	10.33	0.769	
2	2	2	0	4.6	10.22	10.08	10.26	10.19	0.809	
1	2	2	0	4.1	8.96	9.25	9.86	9.36	0.833	
1	2	2	0	4.1	8.84	9.26	8.65	8.92	0.794	
2	2	1	1	4.4	9.48	9.81	10.52	9.94	0.825	
2	2	2	0	4.6	9.85	10.46	10.02	10.11	0.802	
3	2	2	0	5.1	10.84	11.65	12.25	11.58	0.829	Excluded as a upper outlier
2	2	2	0	4.6	10.05	10.88	11.22	10.72	0.851	
2	2	1	1	4.4	10.15	10.88	10.42	10.48	0.869	
2	1	1	1	3.6	8.65	9.04	9.26	8.98	0.910	
1	2	2	0	4.1	9.38	9.15	9.35	9.29	0.827	
2	1	2	1	4.6	10.66	10.72	9.53	10.3	0.817	
1	2	2	1	4.9	10.82	10.65	10.08	10.52	0.784	
The value before excluded outliers				4.34				9.819	0.827	
The value after excluded outliers				4.34				9.829	0.828	

Since two households have mean values identified as outliers, so the PP has excluded these two households from the calculation. Detail about calculation in ER sheet.

Detail about baseline questionnaire is provided in Appendix 3

Comparison with country data

The Laos Material Resources¹⁰, indicates that the consumption of woodfuel in Lao in 2024 is approximately 4.772tonnes/HH/year. Therefore, the applied baseline fuel consumption value of 3.584 tonnes per household per year by PP is 24.8% lower than the government literature's value, making it the most conservative. On the other hand, according to the UN data¹¹, the fuelwood consumption by household in Laos in 2021 is 3.531 tons/year, equivalent to the woody consumption by project activity. Therefore, in this comparison, aligned with country data, ensures that the baseline fuel consumption value is conservative.

3.5 Additionality

3.5.1 Regulatory Surplus

Is the project located in an UNFCCC Annex 1 or Non-Annex 1 country?

☐ Annex 1 country

☒ Non-Annex 1 country

Are the project activities mandated by any law, statute, or other regulatory framework?

☐ Yes

☒ No

If the project is located inside a Non-Annex 1 country and the project activities are mandated by a law, statute, or other regulatory framework, are such laws, statutes, or regulatory frameworks systematically enforced?

☐ Yes

☒ No

3.5.2 Additionality Methods

Methodology VM0050 uses activity method for the 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 domestic fuel-efficient cookstoves. The project is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework. Households may only participate voluntarily in this project. It is hereby confirmed that the proposed project is a voluntary coordinated action by SIPCO.

Step 2: Positive List

¹⁰ <https://www.ceicdata.com/en/laos/environmental-material-resources-by-material-groups-non-oecd-member-annual/material-resources-domestic-extraction-used-biomass-wood>

¹¹ <https://data.un.org/Data.aspx?d=EDATA&f=cmID%3AFW>

As per Section 3.2, the project meets the applicability conditions of the methodology which represent the positive list.

1. The project activity introduces these efficient - biomass fired cookstove that replace inefficient biomass-fired cookstove.
2. The project distributes stoves at zero cost to the end-user and has no other source of revenue other than the sale of GHG credits. The distribution of ICS require capital. The proposed project will distribute ICSs free of cost to users which means no money shall be charged to users for the distribution of ICSs; hence there is no financial return from the project other than revenue from the sale of GHG credits. As each ICS has costs associated with the purchase and operation of the equipment, this project will not occur in the absence of GHG credits revenue. The action is not financially viable without the support of revenues from the sale of GHG credits.

The grouped project will distribute 600,000 ICS free of cost to users i.e. households, hence there is no financial return from the programme other than revenue from sale of GHG credits. As each ICS has costs associated with the purchase and distribution of the ICSs, this grouped will not occur in absence of the GHG credits revenue. The action is not financially viable without the support of revenues from the sale of GHG credit. As the end-user doesn't benefit from a direct financial return and procuring ICSs requires capital, which is a barrier to rural consumers due to difficulties in accessing capital, a wide dissemination of ICSs in the Host Country is unlikely. The significant costs for this project activity, including ICS purchase cost, have been demonstrated to VVB.

3. The project is not implemented as part of government schemes or supported by multilateral funds.

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).

Conclusion: The grouped project is deemed as meeting steps above of the activity method and therefore. it is deemed additional. All new project activity instances will use the activity method for demonstration of additionally in monitoring period.

3.6 Methodology Deviations

Not applicable

4 QUANTIFICATION OF ESTIMATED GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

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

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

The methodology does not account for baseline emissions separately, but instead quantifies net emission reductions achieved by the project. Please refer to Section 4.4

SIPCO coordinated with the Lao Red Cross to conduct baseline surveys for grouped projects in Laos. From the list of households selected by the Lao Red Cross, the PP calculates the sample size by establishing a 10% of error and confidence level up to 95% to determine the number of people used traditional cookstove, number of cookstove in each household, fuel in baseline.... The result of sample size is 384, we expected the response rate from the sampled households to be 90% then we would need to scale up this number accordingly. Thus we would decide to sample $384/0.9 = 430$ households. Applying the simple random sampling technical, the household numbers are randomly chosen from the required sample size as calculated by the PPs. To ensure the survey result is representative of the entire population, the dissimilarity (such as village, individuals...) chosen randomly such that each element (or unit) of the population has the same probability of being selected

Moreover, before starting the distribution of improved cookstove in a new area, PP conducts a feasibility check (through baseline survey) through which the proportion of using traditional cookstove is being confirmed. In case that the proportion of other cookstove is significant, the area will be discarded. At the time of distribution, households are checked for eligibility. Households indicating as their baseline stove anything else than traditional stove are ineligible for the carbon programme. This shall be ensured before household receiving the cookstove as the households have to commit and sign the beneficiary agreement with SIPCO.

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)

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

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 each parameter $BC_{b,i,y}$ (mean parameter) was 16.

Procedures followed for Conducting KPT:

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

- Have the person who is primarily responsible for cooking available for visits once a day for the next 4 days;

- Not have any events scheduled that would disrupt normal cooking practices during this time (e.g Weddings, community events);
- Primarily cook on wood

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

- Avoid a measurement campaign during special occasions, holidays, or any day when cooking is not normal and be aware of local events like market days that may involve above-average fuel consumption. Be aware that 3 days of testing involves 4 days in contact with the family—the first day is spent briefing families.
- To explain the purpose of the test to the family members and arrange to measure their fuel consumption.
- Stress to household members that their cooking practices should remain as close to normal as possible for the duration of the test.
- Explain to family members that the surveyor will visit the respondent daily to collect the information.
- Ask the family to define an inventory area to store the fuel during the test. Record the weight and moisture content of the initial stock of fuels and if the family is going to collect or purchase fuel during the days of the test, ask them to keep newly collected or purchased fuel separate from fuel that has already been tested for moisture and weighed.
- Visit each household at roughly the same time each day, without being intrusive.
- Record fuel consumption by weighing the remaining fuel. Record the weight and moisture content of newly collected fuel before it is added to the family's stock.

KPT results

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

$BC_{ex-ante,b,i} = 0.828 \times 4.34 = 3.594 \text{ tonnes/year.}$

Therefore, $EC_{i,y} = 3.594 \times 0.156 = 0.0561 \text{ (tones)}$

Cross check of $EC_{i,y}$

Project proponents must address stove stacking (continued use of pre-project devices in project households) by comparing the quantity of baseline energy consumption determined by both options above ($EC_{i,y}$) to energy used in the project scenario ($EC_{p,y}$) using back-calculation as below:

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

Where:

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

Where the results indicate that baseline consumption ($EC_{i,y}$) is higher than that indicated by back calculation from the project scenario ($EC_{est,y}$) then stove stacking is occurring (as $EC_{p,y}$ is unable to completely capture household energy consumption from cooking due to the presence/use of pre-project devices). The back-calculation results ($EC_{est,y}$) must be applied to calculate the baseline emission as a conservative.

Determination of fraction of woody biomass $F_{nr,y}$

To determine the fraction of woody biomass, one of the following sources must be used:

- 1) The most recent national default value(s) published by UNFCCC
- 2) Calculated based on CDM Tool 30 and applying an uncertainty discount of 26%
- 3) Default value of the most recent version of CDM Tool 33

For this project activity, option (3): Default value of the most recent version of CDM Tool 33. This value is 0.47 for Laos as per methodological tool: Tool33: Default values for common parameters”, version 03 of UNFCCC.

The baseline calculation is follows as:

Vintage	$EC_{i,y}$	$N_{j,k,y}$	$n_{j,k,y}$	Equivalent year	BE_y
2023 (10/03/2023 - 31/12/2023)	0.0561	300,000	0.9	0.8	764,930
2024 (01/01/2024 - 31/12/2024)	0.0561	600,000	0.9	1.0	1,880,131
2025 (01/01/2025 - 31/12/2025)	0.0561	600,000	0.9	1.0	1,880,131
2026 (01/01/2026 - 31/12/2026)	0.0561	600,000	0.9	1.0	1,880,131
2027 (01/01/2027 - 31/12/2027)	0.0561	600,000	0.9	1.0	1,880,131
2028 (01/01/2028 - 31/12/2028)	0.0561	600,000	0.9	1.0	1,880,131

2029 (01/01/2029 - 31/12/2029)	0.0561	600,000	0.9	1.0	1,880,131
2030 (01/01/2030 - 31/12/2030)	0.0561	600,000	0.9	1.0	1,880,131
2031 (01/01/2031 - 31/12/2031)	0.0561	600,000	0.9	1.0	1,880,131
2032 (01/01/2032 - 31/12/2032)	0.0561	600,000	0.9	1.0	1,880,131
2033 (01/01/2033- 09/03/2033)	0.0561	600,000	0.9	0.2	350,271
Total					18,036,380

4.2 Project Emissions

The project emissions are calculated as follows:

$$PE_y = PE_{energy,y} + PE_{others,y}$$

Where:

PE_y = Project emissions during year y (t CO₂e)

$PE_{energy,y}$ = Project emissions from energy consumption of project devices in year y (t CO₂e)

$PE_{Other,y}$ = Project emissions from other sources in year y (t CO₂e)

The project activity only involves the emission from energy consumption of project devices so

$$PE_y = PE_{energy,y}$$

Project emissions from energy consumption of project devices using biomass, fossil fuels, or bioethanol in year y are calculated as follows:

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

Where:

EF_{p,j,CO_2} = CO₂ emission factor for fuel used by project device type j in the project scenario (t CO₂/TJ)

$EF_{p,j,nonCO_2}$ = Non-CO₂ emission factor for fuel used by project device type j (t CO₂e/TJ)

$BC_{p,j,k,y}$ is assumed as 5 kg/device/day, equivalent 1.825 tonnes/device/year. This value will be monitor at each verification.

The result of calculation for project emission as follows:

Year	$BC_{p,i,y}$	NCV_{wo} od fuel	$N_{j,k,y}$	$n_{j,k,y}$	Equi valent year	PE_y
2023 (10/03/2023 - 31/12/2023)	1.8250	0.0156	300,000	0.9	0.8	388,424

2024 (01/01/2024 - 31/12/2024)	1.8250	0.0156	600,000	0.9	1.0	954,713
2025 (01/01/2025 - 31/12/2025)	1.8250	0.0156	600,000	0.9	1.0	954,713
2026 (01/01/2026 - 31/12/2026)	1.8250	0.0156	600,000	0.9	1.0	954,713
2027 (01/01/2027 - 31/12/2027)	1.8250	0.0156	600,000	0.9	1.0	954,713
2028 (01/01/2028 - 31/12/2028)	1.8250	0.0156	600,000	0.9	1.0	954,713
2029 (01/01/2029 - 31/12/2029)	1.8250	0.0156	600,000	0.9	1.0	954,713
2030 (01/01/2030 - 31/12/2030)	1.8250	0.0156	600,000	0.9	1.0	954,713
2031 (01/01/2031 - 31/12/2031)	1.8250	0.0156	600,000	0.9	1.0	954,713
2032 (01/01/2032 - 31/12/2032)	1.8250	0.0156	600,000	0.9	1.0	954,713
2033 (01/01/2033- 09/03/2033)	1.8250	0.0156	600,000	0.9	0.2	177,864
Total						9,158,705

4.3 Leakage Emissions

As detailed in section 8.3 of the methodology VM 0050, Version 1.0, leakage shall be considered as default 0.95.

4.4 Estimated GHG Emission Reductions and Carbon Dioxide Removals

The improved cookstove is introduced as energy efficiency measure in the project, therefore equations 11 of the methodology will be applied to calculate the net GHG emission reductions.

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. Therefore, the emission reductions of project activity is calculate as below

Year	BE _y	PE _y	LE _{RB,y}	ER _y
2023 (10/03/2023 - 31/12/2023)	764,930	388,424	-	357,681
2024 (01/01/2024 - 31/12/2024)	1,880,131	954,713	-	879,147
2025 (01/01/2025 - 31/12/2025)	1,880,131	954,713	-	879,147
2026 (01/01/2026 - 31/12/2026)	1,880,131	954,713	-	879,147
2027 (01/01/2027 - 31/12/2027)	1,880,131	954,713	-	879,147
2028 (01/01/2028 - 31/12/2028)	1,880,131	954,713	-	879,147
2029 (01/01/2029 - 31/12/2029)	1,880,131	954,713	-	879,147
2030 (01/01/2030 - 31/12/2030)	1,880,131	954,713	-	879,147
2031 (01/01/2031 - 31/12/2031)	1,880,131	954,713	-	879,147
2032 (01/01/2032 - 31/12/2032)	1,880,131	954,713	-	879,147
2033 (01/01/2033- 09/03/2033)	350,271	177,864	-	163,787
Total				8,433,791
Average				843,379

Annual emission reduction is estimated to be (emission reductions) 843,379tCO₂e/annum.

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCU (tCO ₂ e)	Estimated removal VCU (tCO ₂ e)	Estimated total VCU (tCO ₂ e)
2023 (10/03/2023 - 31/12/2023)	764,930	388,424	-	357,681	0	357,681
2024 (01/01/2024 - 31/12/2024)	1,880,131	954,713	-	879,147	0	879,147
2025 (01/01/2025 - 31/12/2025)	1,880,131	954,713	-	879,147	0	879,147
2026 (01/01/2026 - 31/12/2026)	1,880,131	954,713	-	879,147	0	879,147
2027 (01/01/2027 - 31/12/2027)	1,880,131	954,713	-	879,147	0	879,147

2028 (01/01/2028 - 31/12/2028)	1,880,131	954,713	-	879,147	0	879,147
2029 (01/01/2029 - 31/12/2029)	1,880,131	954,713	-	879,147	0	879,147
2030 (01/01/2030 - 31/12/2030)	1,880,131	954,713	-	879,147	0	879,147
2031 (01/01/2031 - 31/12/2031)	1,880,131	954,713	-	879,147	0	879,147
2032 (01/01/2032 - 31/12/2032)	1,880,131	954,713	-	879,147	0	879,147
2033 (01/01/2033-09/03/2033)	350,271	177,864	-	163,787	0	163,787
Total	18,036,380	9,158,705	-	8,433,791	-	8,433,791

5 MONITORING

5.1 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	The survey revealed that the average wood consumption of baseline in the Laos is 0.828 tonnes/person/day. This result is

and procedures applied	scaled appropriately using the average household size (Hhi) as follows: $BC_{ex-ante,b,i} = BC_{ex-ante,b,l} \text{ (tonnes/person/year)} \times \text{Equivalent standard male adults (Hhi) obtained from baseline KPT}$ $BC_{ex-ante,b,i} = 0.828 \times 4.34 = 3.594 \text{ tonnes/year}$. 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	tCO2/TJ
Description	CO2 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	tCO2/TJ
Description	Non-CO2 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

5.2 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	The following data must be recorded during project activity implementation:

applied	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	600,000
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	-
Purpose of data	Calculation of baseline emissions
Calculation method	
Comments	The number of project devices must be recorded in a database, sales record, or similar to ensure transparency

Data / Parameter	$n_{j,k,l}$
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: Based on an adoption rate determined by a survey according to the most recent version of the CDM Standard for Sampling and Surveys for Project Activities and Programmes of Activities and achieving 90/10 confidence precision for the proportion of devices in operation. The lower end of the 90% confidence interval must be used to ensure conservativeness. The adoption survey must include: a) Kitchen observation (which includes visual and physical checks of the stove and its components), including photographic evidence; and b) Interview with the primary cook.

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	For projects employing surveys, the usage rate is capped at 90% where all of the following customer support actions are undertaken across the entire target population and demonstrated at verification. - Selection of technologies and fuels that fully meet the cooking needs of the target population, demonstrated by citing robust research or conducting an investigation of cooking practices and attitudes. - Implementation of support activities to assist the target population in effectively operating and maintaining their cookstoves. These may include providing materials (print, in-person, or video) on how to operate the cookstove to prepare common local foods, how to troubleshoot common operational issues, and how to make minor repairs (including obtaining necessary replacement parts). All such communications and materials must be provided in local language(s) commonly used in the project area. - Provision of a commonly used, toll-free communications channel through which the target population can contact the project proponent to access support (e.g., maintenance and repair services) For projects employing surveys and that do not implement all of these customer support actions across the entire target population, the usage rate is capped at 75%.
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 border="1"> <thead> <tr> <th>Year (y)</th><th>$\eta_{new, ave, y}$</th></tr> </thead> <tbody> <tr> <td>1</td><td>0.3777</td></tr> <tr> <td>2</td><td>0.3642</td></tr> <tr> <td>3</td><td>0.3508</td></tr> </tbody> </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								

		4	0.3374	
		5	0.3239	
		6	0.3105	
		7	0.2970	
		8	0.2836	
		9	0.2702	
		10	0.2567	
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: 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. The measurement campaign 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.
Frequency of monitoring/recording	Every five years

Value applied	3.594																																																			
Monitoring equipment	Weighing scale <table border="1"> <thead> <tr> <th></th> <th>Weighing scale 1</th> <th>Weighing scale 2</th> </tr> </thead> <tbody> <tr> <td>Type</td> <td>AM491</td> <td>AM492</td> </tr> <tr> <td>Manufactured</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Max</td> <td>30kg</td> <td>30kg</td> </tr> <tr> <td>Resolution</td> <td>0.01 kg</td> <td>0.01 kg</td> </tr> <tr> <td>Certificate No</td> <td>25-042443</td> <td>25-042444</td> </tr> <tr> <td>Sample code</td> <td>25-17998-001</td> <td>25-17998-002</td> </tr> <tr> <td>Date of calibration</td> <td>22 November 2024</td> <td>22 November 2024</td> </tr> <tr> <td>Until</td> <td>21 November 2025</td> <td>21 November 2025</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th></th> <th>Moisture meter 1</th> <th>Moisture meter 2</th> </tr> </thead> <tbody> <tr> <td>Type</td> <td>Laser liner</td> <td>Laser liner</td> </tr> <tr> <td>Manufactured</td> <td>Dampfinder compact</td> <td>Dampfinder compact</td> </tr> <tr> <td>Accuracy class:</td> <td>0.1%</td> <td>0.1%</td> </tr> <tr> <td>Serial Number</td> <td>18042923</td> <td>20142410</td> </tr> <tr> <td>Certificate No</td> <td>V06.CN5.177.24</td> <td>V06.CN5.177.25</td> </tr> <tr> <td>Date of calibration</td> <td>15 April 2024</td> <td>15 April 2024</td> </tr> <tr> <td>Until</td> <td>30 April 2025</td> <td>30 April 2025</td> </tr> </tbody> </table> Moisture meter		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	22 November 2024	Until	21 November 2025	21 November 2025		Moisture meter 1	Moisture meter 2	Type	Laser liner	Laser liner	Manufactured	Dampfinder compact	Dampfinder compact	Accuracy class:	0.1%	0.1%	Serial Number	18042923	20142410	Certificate No	V06.CN5.177.24	V06.CN5.177.25	Date of calibration	15 April 2024	15 April 2024	Until	30 April 2025	30 April 2025
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Until	30 April 2025	30 April 2025																																																		
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: $BC_{b,i,y} = BC_{b,i,y} \text{ (tonnes/person/year)} \times \text{Equivalent standard male adults (Hhi) obtained from baseline KPT}$ $BC_{b,i,y} = 0.828 \times 4.34 = 3.594 \text{ tonnes/year.}$ 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.
Comments	The result must be scaled appropriately using the average household size to obtain the value of $BC_{b,i,y}$.

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 at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent.
Frequency of monitoring/recording	Annually
Value applied	For ex-ante calculation, the value is assumed as 5kg/device/day or equal to 1.825 tonnes/device/year.
Monitoring equipment	Monitoring survey

QA/QC procedures to be applied	-
Purpose of data	Calculation of project emissions
Calculation method	
Comments	The result must be scaled appropriately using the average household size to obtain the value of $BC_{p,j,k,y}$

5.3 Monitoring Plan

Data recording

The project proponent must compile data on each device that is derived from the total sales record, with project technologies differentiated by different project scenarios. These data must be differentiated into sections based on the results of the applicable monitoring studies for each project scenario, so that emission reductions can be calculated appropriately, section by section.

The information captured for each project device included in the project activity must include, at a minimum:

- 1) Date of sale;
- 2) Geographic area of sale;
- 3) Model/type of project technology sold/distributed
- 4) Name, telephone number (where available), and address of recipient; and
- 5) Unique alpha/numeric ID for each device that is sold/distributed.

Sampling

Representative sampling will be 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	Proportion/ annually	Visits to the premises, visual inspection and interview with ICS end-

	being used regularly in year y.		user.
$BC_{b,i,y}$	<i>Fuel used per baseline device type i during year y</i>	Mean value/ every five years	Visits to the premises, inspection, measurement by kitchen performance test
$BC_{p,j,k,y}$	Average quantity of fuel used by project device type j from batch k during year y	Mean value/ annually	Visits to the premises, inspection, measurement by kitchen performance test

To monitor the required parameters data will be collected from a statistically valid sample of ICS in the database for the monitoring period, as per this sampling plan. The method of collecting data will be field surveys and the frequency of data collection is as per the frequency defined for each parameter in the above section. Data will be collected from the field surveys, entered in the database and included in the monitoring report.

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

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

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

As per 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 will be followed:

In case a single sampling plan for more than one instance is used, “parameter values shall be estimated by sampling in accordance with the requirements in the applied methodology separately and independently for each of the instance project activity included in the grouped project except when a single sampling plan covering a grouped project is undertaken applying 95/10 confidence/precision for the sample size calculation”.

(a) Sample Frame

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

(i) Target Population

The overall target population is the ICS distributed. The ICS to be sampled will be drawn from the list of individual ICS serial ID numbers contained in the sales record database, which is maintained by the distributor

(ii) Sampling method

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

The improved cookstoves (ICSs) were selected randomly after arranging them in chronological order of date of distribution and assigning a sampling number to each ICS in each strata (each project activity instance). 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, vintage and project region in which they are operating) among the strata’s will be taken into account in the sample size calculation. The ICS of same type, vintage and project region in which they are operating will be grouped in the same strata.

(iii) Sample size

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

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

In order to calculate the required sample size estimates, values for the proportions, mean values, and standard deviations are required. As per Guidelines for Sampling and surveys for CDM project activities and programmes of activities (version 04.0) Appendix 1 paragraph 5, there are different ways available to obtain the estimates of the parameter of interest:

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

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

- (a) A percentage –retention rate of improved cookstoves and continued-use rate of displaced traditional cookstoves; or
- (b) A numeric value –the mean value.

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

For baseline survey

For a percentage value

The calculation of the required sample size for parameter $n_{j,k,y}$ in the baseline survey is illustrated below for a 95/10 level of confidence and precision at grouped project level. As per Guideline “Sampling and surveys for CDM project activities and programmes of activities”, for the use of a single sampling plan covering a group of PAs, provided the homogeneity of population can be demonstrated, or differences are taken into account in the sample size calculation, a 95/10 confidence/precision is applied for annual sampling. To estimate the sample size for parameters $n_{j,k,y}$, the following equation is used.

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

Where,

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

The project activity is distribution of ICSs to households in Laos, the number of stoves expected to be distributed in this grouped project is 600,000 stoves. Hence, population size, N, is taken as 600,000 households. It is expected is 0.5, hence the expected proportion p for $N_{y,i,j}$ is taken as 0.5.

The calculation of the required sample size for each parameter in the survey is illustrated below for a 95/10 level of confidence and precision. In all cases a conservative approach is taken, however if for any parameter the required 95/10 confidence/precision is not met then the CME will randomly select an additional sample and collect further data from this sample to ensure the pooled data meet or exceed the required thresholds.

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

$$n \geq \frac{1.96^2 \times 600,000 \times 0.5(1-0.5)}{(600,000-1) \times 0.1^2 \times 0.5^2 + 1.96^2 \times 0.5(1-0.5)}$$

Which comes out to be

$$n \geq 383.9$$

$$n = 384$$

Therefore, the required sample size is at least 384 households. We expect the response rate from the sampled households to be 90%. Thus, we would decide to sample $384/0.9 = 430$ samples.

For mean value - Fuel used per baseline device

PPs chosen 1,000 control households with statistically equivalent to the pre-project conditions of project households regarding baseline fuel type(s) and percentage of use by the target population, source(s) of each baseline fuel, and baseline technologies for cooking. The surveys conducted in Laos where project devices are distributed.

For fuel used baseline 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:

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

Where:

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

n = Sample size

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

Mean= Expected mean of ICS thermal efficiency in first year.

SD = Expected standard deviation

1.96 = Represents the 95% confidence required

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

0.1 = Represents the 10% relative precision

The expected mean of ICS thermal efficiency in first year is 0.3844 and its standard deviation is 0.03844.

Based on the above assumptions, the sample size calculation for a 95/10 confidence/precision would be

$$n \geq \frac{1.96^2 \times 1,000 \times (0.03844/0.3844)^2}{(1,000 - 1) \times 0.1^2 + 1.96^2 \times (0.03844/0.3844)}$$

Using above values, the sample size comes out to be 3.84 or 4.

As the calculated sample size (for parameter of interest is a numeric mean value) is less than 30 samples, since $BC_{p,i,y}$ is numeric mean value, the Student's t-distribution will be used to calculate the sample size (in accordance with paragraph 14 of standard: sampling and survey for CDM project activities and programmes of activities (version 09.0)).

Following the application of the Student's t-distribution, 07 iterations were generated for sample size adjustment. For conservative purposes, we selected iteration 1, which provided the largest sample size of 11. Therefore, in this case a sample size of 11 is to be sampled.

Monitoring parameter(s)		Woody consumption for Baseline stove				
Sampling frame(s)		Given stove model, region and age population				
Sampling approach		Simple random sampling across stove model				
Region	Type of stove	Age	Stove population	Expected Mean	Expected Standard Deviation	Calculated Sample Size (n)
Laos	Baseline stove	0	1,000	0.3844	0.0384	11
Sample size determination						
Mean					0.3844	
Standard Deviation (SD)					0.038	
$V_{\text{mean}} = (SD/\text{mean})^2$					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		

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. The sample size shown above will be adjusted upwards to account for non-responses, project proponent shall determine the appropriate non-responses rate based on previous experience.

(iv) Survey and Data collection Method

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

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

Training

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

Data Collection

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

Data entry and storage

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

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

Data Analysis

The data will be analysed for consolidation of findings.

The data from the survey will be analyzed.

- Determine the mean value of quantity of woody biomass used by project devices in first monitoring period.
- To determine number of project ICS that are still in operation

Report generation.

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

Quality Assurance/Quality Control:

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

During the survey, in order to anticipate any low response rate and answers bias, 10% will be applied over the determined sample size. The survey team will ensure that all questionnaires are. To remedy the incomplete questionnaires, additional households/users will be drawn randomly until the required number is met at per the sample size determined. There might be changes of getting outliers while sampling. The following approach will be used to identify and

address outliers for the samples during monitoring. Outliers will be defined as those data points with values greater than three standard deviations from the mean of the sample.

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

Analysis

The data from the survey will be analyzed

Determine the mean value of the efficiency of the ICS that are still operating in first monitoring period.

To determine number of project ICS that are still in operation

Implementation plan

Survey Implementation Schedule:

The survey for collecting the details of the number of ICS in operation will be conducted at least every 2 years and will be scheduled during the last month of the monitoring period.

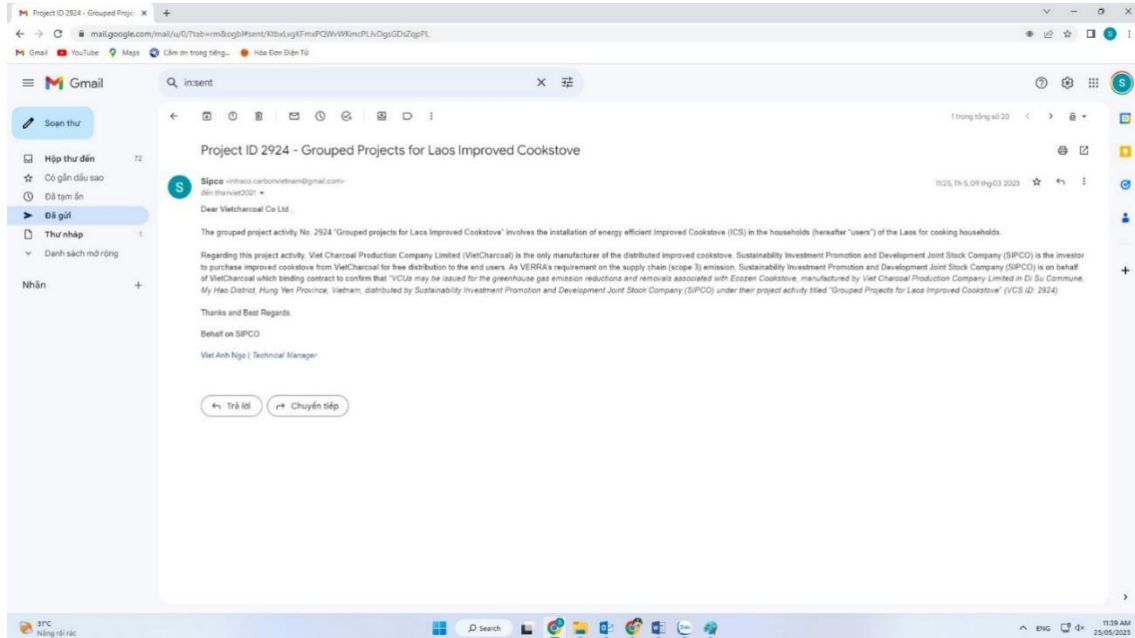
The overall monitoring and the implementation of the sampling will be co-ordinated by the project proponent and the management staff. They will ensure successful monitoring of the emission reductions of the proposed project during its crediting period. Furthermore, the survey of the representative sample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

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Section	Information	Justification
N/A	N/A	N/A

APPENDIX 2: SUPPLY CHAIN

1. Email SIPCO sent to Viet Charcoal about supply chain Scope 3



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

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



APPENDIX 2: BASELINE QUESTIONNAIRE

ແບບຟອມສຳຫລວດການນຳໃຊ້ເຕົາໄຟປະຢັດຂອງໂຄງການ/Baseline survey

1.1 ຂໍ້ມູນທົ່ວໄປ/General information

ຊື່ຂອງໂຄງການ/Title of project activity	Grouped project for Laos Improved Cookstove – VCS 2924
ຊື່ຜູ້ສຳຫລວດ/Name of surveyor	
ວັນທີສຳຫລວດ/Date of survey	
ວິທີການສຳຫລວດ/ Survey method	ສຳຫລວດແບບໜ້າຕໍ່ໜ້າ/ທາງໂກ/ໂທລະສັບ /Face to face/remote/telephone

1.2 ຂໍ້ມູນຂອງຄົວເຮືອນ/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	
- ເດັກນ້ອຍ (Children) (0-14 years old)	
ປະເພດພື້ນທີ່ (ຕົວເມືອງ/ຊົນນະບົດ) Type of area (urban/rural)	
ທີ່ຢູ່ (Address)	
ເບີໂທລະສັບ (ຖ້າມີ) (phone number)	

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

ຜູ້ຍິງ/Women	
ຜູ້ຊາຍ/Men	
ທັງສອງ/Both	

1.4 ຄຸນລັກສະນະຂອງເຕົາໄຟທີ່ກຳລັງນຳໃຊ້/Stove description prior to the project implementation

ເຕົາໄຟແບບດັ້ງເດີມ (ເຕົາຄຽງສາມຂາ)/A three – stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or chimney”	
ເຕົາຖ່ານພື້ນຖານ / Basic charcoal stove	
ເຕົາດັ້ງພື້ນແບບປະດິດ / Improved woodfuel cookstove	
ເຕົາດັ້ງຖ່ານແບບປະດິດ / Improved charcoal cookstove	
ເຕົາແກ້ດ / LPG cookstove	
ເຄື່ອງໄຟຟ້າ / Electric cookstove	
ເຕົາປະເພດອື່ນ/Any other type of stove	

1.5 ຮູບແບບການນຳໃຊ້ເຕົາໄຟຂອງທ່ານກ່ອນການໄດ້ຮັບເຕົາໄຟຂອງໂຄງການ/Household fuel consumption pattern prior to project implementation

ເຈົ້າແຕ່ງກິນຈັກຄັ້ງຕໍ່ມື້?/How many meals do you cook a day?	Meals/ day
ປະລິມານການໃຊ້ປົກກະຕິບໍ່ ? / Is this a typical value? ຖ້າຄຳຕອບແມ່ນ “ບໍ່”, ແມ່ນເຈົ້າປຸງແຕ່ງອາຫານຈັກຄັ້ງຕໍ່ມື້ ?If the answer is “No”, how many meals are prepared in a typical day	Yes/No Meals/ day
ມີຄວາມແຕກຕ່າງຫຍັງກັບການແຕ່ງກິນຂອງທ່ານຈາກເມື່ອກ່ອນບໍ່ ? / Is there any difference with the amount of meals prepared during a typical day?	
ອະທິບາຍວິທີໃຊ້ເຕົາໄຟຂອງທ່ານໃນອາທິດທີ່ຜ່ານມາ (ຕົ້ມນ້ຳດື່ມ, ຕົ້ມນ້ຳເພື່ອທຳຄວາມສະອາດຕ່າງໆ, ດັ່ງຝັງເພື່ອໃຫ້ເກີດຄວາມອຸ່ນ/ Describe any other ways in which you used your stove last week (eg. Water boiling for drinking, water boiling for hydiene, space heating)	

1.6. ອຸປະກອນການໃນປຸງແຕ່ງອາຫານ/Fuel used for cooking and fuel sources

	ແມ່ນ/ບໍ່ Yes/No	ປະລິມານການໃຊ້ /Quantity of usage	ຊອກຫາເອງ/ຊື້ Collected/Purchased	ແຫລ່ງທີ່ມາ/ Source or location of fuel
ຖ່ານໄມ້/Charcoal				
ໄມ້/Wood				
ເຕົາແກັດ/LPG				
ນໍ້າມັນເຊື້ອໄຟ/ Kerosene				
ຖ່ານຫີນ/Coal				
ເຄື່ອງໄຟຟ້າElectricity				
ພະລັດຕະພັນອື່ນOther fuels				

ທ່ານນຳໃຊ້ຫີນເທົາໃດເມື່ອໃຊ້ເຕົາໄຟປະຍັດຂອງໂຄງການເພື່ອປຸງແຕ່ງ?	Day 1	Day 2	Day 3
How much firewood you used on baseline stove for cooking?			