



**Verified Carbon
Standard**

GROUPED PROJECTS FOR LAOS IMPROVED COOKSTOVE

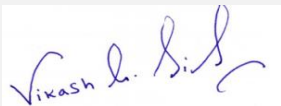


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Carbon Check (India) Private Ltd

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Summary:

Sustainability Investment Promotion and Development Joint Stock Company has appointed Carbon Check (India) Private Ltd., to carry out the validation of the project "Grouped Projects for Laos Improved Cookstove", with regards to the relevant requirements of VCS Standard Version 4.4 (dated 17/01/2023).

The goal of the grouped project activity is to install energy-efficient Improved Cooking Stoves (ICS) in the households (hereafter "users") of the Lao People's Democratic Republic (hereafter "Laos") for cooking. As a result, the proposed project activity aims to reduce traditional stove users' wood fuel consumption by distributing ICS to households. It is possible to help improve public health by reducing the use of wood fuel. Furthermore, the proposed project can help Laos respond to climate change and develop sustainably.

The group project will provide 600,000 ICSs for free to households that use traditional cookstoves to cook meals. All of the project instances that will be included in this grouped project will be from Laos. The annual average GHG emission reductions of the grouped project activity are estimated to be 3,588,237tCO₂e/annum. The project proponent aims to disseminate 8,000 ICSs in the first project activity instances of the grouped project. The expected annual emission reduction from project activity instance 1 is 50,532 tCO₂e/annum.

The purpose of the validation is to have a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, in particular, the

project's baseline, monitoring plan and compliance with the relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions. Carbon Check's objective is to perform a thorough, independent assessment of the validation of the project activity.

Validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria and guidance documents provided by VCS which include the following: VCS Program Guide (v4.3, dated 17/01/2023), VCS Standard (v4.4, dated 17/01/2023), Program Definitions (v4.3, dated 21/12/2022), Registration & Issuance Process (v4.3, dated 17/01/2023) VCS Validation and Verification Manual (v3.2, dated 19/10/2016) applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring VCS methodology VMR0006: Methodology for installation of high-efficiency firewood cookstoves, also assess the claims and assumptions made in the PD without limitation on the information provided by the project participants.

The method and criteria used for validation

The validation consists of the following four phases:

- I. A desk review of the project description documents
 - A review of data and information.
 - Cross checks between information provided in PD and information from sources with all necessary means without limitations to the information provided by the project proponent.
- II. Interviews with project stakeholders
 - Interviews with relevant stakeholders in the host country with personnel having knowledge of the project development via telephone, email or direct on-site visits.
 - Cross-checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent.
- III. Reference to available information relating to projects or technologies similar to project under validation and review based on the approved methodology being applied for the appropriateness of formulae and accuracy of calculations.
- IV. The resolution of outstanding issues and the issuance of the final validation report and opinion.

The number of findings raised during validation

During the course of validation, a total of 19 findings were raised, which include:

13 Corrective Action Requests (CARs);

06 Clarification Requests (CLs);

00 Forward Action requests (FARs).

All the raised findings have been successfully closed by the Project Proponent.

Any uncertainties associated with the validation

There are no uncertainties associated with the validation of the project activity. The validation has been done with a reasonable level of assurance.

Summary of the validation conclusion

Carbon Check (India) Private Ltd. concludes the validation with a positive opinion that the VCS Grouped Project "Grouped projects for Laos Improved cookstove" as described in the PD (version 04, dated 18/01/2023) /01/, meets all applicable VCS requirements, including those specified in the VCS Standard (v4.4, dated 17/01/2022), relevant methodology, tools and guidelines.

The selected baseline and monitoring methodology (VMR0006: Methodology for installation of high-efficiency firewood cookstove (Version 1.1), is applicable to the project and correctly applied. Carbon Check (India) Private Ltd., therefore, requests the registration of the project as a VCS-grouped project, with a reasonable level of assurance.

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1 INTRODUCTION

1.1 Objective

Sustainability Investment Promotion and Development Joint Stock Company has appointed the VVB, Carbon Check (India) Private Ltd. to perform a validation of the VCS Grouped Project “Grouped Projects for Laos Improved Cookstove”. This report summarizes the findings of validation of the project, performed on the basis of the VCS Program Guide (v4.3, dated 17/01/2023), VCS Standard (v4.4, dated 17/01/2023), Program Definitions (v4.3, dated 21/12/2022), Registration & Issuance Process (v4.3, dated 17/01/2023), VCS Validation and Verification Manual (v 3.2, dated 19/10/2016). Validation is required for all VCS project activities intending to register a grouped project under the VCS program. This report contains the findings and resolutions from the validation of the grouped project.

The purpose of a validation is to have a thorough and independent assessment of the proposed grouped project against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions, VCU

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the Project Description (PD), project design, the project's baseline study and monitoring plan and other relevant documents. The PD is reviewed against the relevant criteria and decisions by the VCS Program, and against the approved baseline and monitoring methodology. Carbon Check has employed a risk-based approach in the validation, focusing on the identification of significant risks and the reliability of project monitoring and generation of emission reductions.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The validation is carried out on the basis of the following requirements, applicable for this grouped project:

- VCS Program Guide (v4.3, dated 17/01/2023)
- VCS Standard (v4.4, dated 17/01/2023)
- Program Definitions (v4.3, dated 21/12/2022)
- Registration & Issuance Process (v4.3, dated 17/01/2023)

- VCS Validation and Verification Manual (v 3.2, dated 19/10/2016)
- VCS Methodology: VMR0006: Methodology for installation of high efficiency firewood cookstoves. (Version 1.1).
- Other relevant rules, including the host country legislation

1.3 Reasonableness of Assumptions

The approach used by VVB for validation of the project activity is built on a thorough understanding of the risk associated with reporting data on GHG emissions and the controls used to mitigate them. VVB conducted the validation by reviewing and substantiating all the evidence and other relevant information and explanations from sources to provide reasonable assurance that estimated GHG emissions reductions are fairly reported. Validation team checked the criteria of VCS Program guide/B01/ & VCS standards/B01/, criteria of applied methodology and compliances with relevant laws and regulations. The validation is planned and performed by obtaining evidence and other information and explanations that validation team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated and in compliance with the standards and guidelines of VERRA.

Reasonable level of assurance is met in-during site visit being conducted by using credible and reliable alternate means of validation (explained in detail in section 2.4 below). All documentary evidence was checked, and a physical site visit was conducted with PP representatives, site personnel and consultants to arrive at a validation conclusion by the assessment team. Validation is carried out in conformity of all above-mentioned details and it is confirmed that information provided by project developer is accurate and estimated GHG emissions reductions are calculated appropriately on the basis of the approved baseline and monitoring methodology/B02/ and VCS standard version 4.4/B01/

1.4 Summary Description of the Project

The project “Grouped Projects for Laos Improved Cookstove”, is a grouped project which employs of the VCS methodology; VMR0006: Methodology for installation of high-efficiency firewood cookstoves (Version 1.1). /B02/. The grouped project involves the installation of energy efficient Improved Cooking Stove (ICS) in the households (hereafter “users”) of Laos People's Democratic Republic (hear after “Laos”) for cooking households. The project activity targets households with no previous ICS access. The geographical boundary is in Laos. 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, /13/

The grouped project activity reduces emissions from the traditional fuel. In the 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. This directly leads to reduced greenhouse gas emissions.

As per the VCS PD /01/, the Project activity will promote the dissemination of energy-efficient ICS namely Ecozen. The Improved cookstoves /04/ to be implemented under the grouped project, deliver the verified thermal energy of 38.44%. which is more than 25% and confirms the applicability criteria as per the second applicability criteria mentioned in the methodology VMR0006 (Version 1.1) /B02/.

As per the VCS PD and interviews with the representative of the project proponent, each ICS under the project is uniquely identifiable /10/ and would be assured that it is not part of any other VCS registered project. Each project activity instance is uniquely identifiable. After review of the template end user agreement /05/ reveals that it will include the name of the customer, address, contact number, date of sale and signature by the end-user. The information from these end-users' agreements /05/ will be entered by the Project Proponent into their stove distribution database where a unique identification number for each individual stove will be assigned /10/. The unique numbering system to be used in this grouped project is "LAO-001-ICS-XXXX" (where, LAO = Grouped projects for Laos in Laos; ICS = Improved cookstove project instance; 001= Number Project Instance / XXXX = continuous number of User starting from 0001 to 8,000 for each project instance).

For example: LAO – 001 - ICS - 0001, the CME and PA implementer is controlling this through a project data base, therefore each User has a unique number.

This identification number of each ICS is then recorded on the sales contract. Thus, it is VVB's opinion that this system proposed by PP will ensure that each ICS is uniquely identifiable through their individual unique numbers and thus double counting will be avoided. The project proponent for the project activity is Sustainability Investment Promotion and Development Joint Stock Company, owns the rights to VERs /05/

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 project proponent aims to disseminate 600,000 ICSs under this grouped project. The total estimated GHG emission reductions expected from the grouped project are 35,882,374 tCO_{2e} for the ten-year fixed crediting period and an average of 3,588,237tCO_{2e}/year.

2 VALIDATION PROCESS

2.1 Method and Criteria

Sustainability Investment Promotion and Development Joint Stock Company has appointed the VVB, Carbon Check (India) Private Ltd., to carry out the validation of the project “Grouped Projects for Laos Improved Cookstove”, with regards to the relevant requirements of VCS Standard (v4.4 dated 17/01/2023)/B01-1/.

The validation includes a thorough and independent assessment of the proposed grouped project against the applicable VCS requirements, the project's baseline, additionality, monitoring plan and the project's compliance with relevant VCS and host party criteria. The validation involves assessment of the project and to confirm that the project meets the applicability conditions of the selected methodology, VMR0006: Methodology for installation of high-efficiency firewood cookstoves (Version 1.1). /B02/ and also assess the claims and assumptions made in the PD /01/ without limitation on the information provided by the project participants.

The validation team of the DOE has applied a sampling approach, acceptance sampling for the interviews as part of validation in accordance with the paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programmes of activities, (Version 09.0). In accordance with the paragraph 28 of the sampling standard, acceptance sampling has been chosen by the validation team and accordingly steps listed in paragraphs 29 and 39 of the sampling standards shall be followed.

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques including but not limited to document reviews and interviews, review of the applicable/applied methodology and its underlying formulae and calculations to assess the quality of information provided.

This report contains the findings and resolutions from the validation and a validation opinion on the proposed grouped project thus confirming the project design as document is sound and reasonable and meets the stated requirements and identified criteria.

The VCS project description, emission reduction calculation spread sheet and supporting documents related to the project design and baseline were reviewed as per VCS standard version 04.4 /B01/ requirements. The desk review included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS standard version 04.4 requirements.
- A review of the project description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and baseline and additionality related requirements.
- A review of the monitoring plan and the project's compliance with relevant VCS criteria.

Furthermore, the validation team used additional documentation by third parties like host-party legislation, technical reports referring to the project design or to the basic conditions and technical data.

The VCS PD version 05 dated 30/03/2023 /01/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents. The documents reviewed by CCIPL are listed below in Appendix 1. Through the process of validation, the revised VCS PD and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the validation team.

The table in Appendix 1 outlines the documentation reviewed during the validation

2.3 Interviews

The table below describes the on-site interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description /01/ and any supporting documents.

Table 1 List of people interviewed.

S.No.	Date	Name	Organization	Topic
1.	04/10/2022	Dr. Sing	Lao Red Cross	Project Implementation, Project Distribution, Beneficiary Engagement
2.	04/10/2022	Dr. Kuiphone	Lao Red Cross	Project Implementation, Project Distribution, Beneficiary Engagement
3.	04/10/2022	Ms Phonedavanh	Lao Red Cross	Project Implementation, Project Distribution, Beneficiary Engagement
4.	04/10/2022	Ngo Thi Viet Anh	SIPCO	Project Implementation, Project Distribution,

				Beneficiary Engagement
5.	04/10/2022	Phung Nguyet Phuong	SIPCO	Project Implementation, Project Distribution, Beneficiary Engagement
6.	04/10/2022	Ms Phetsaxhone	SIPCO	Project Implementation, Project Distribution, Beneficiary Engagement
7.	05/10/2022	Bouelivan Sivixai	End User	Verification of baseline survey
8.	05/10/2022	Xungchan Inthuong	End user	Verification of baseline survey
9.	05/10/2022	Xiengsai Intachuk	End User	Verification of baseline survey
10.	05/10/2022	Tungkham Sivixai	End User	Verification of baseline survey
11.	05/10/2022	Bounthan Sounthavong	End User	Verification of baseline survey
12.	05/10/2022	Maihoun	End User	Verification of baseline survey
13.	05/10/2022	Bounyom	End User	Verification of baseline survey
14.	05/10/2022	Thuii	End User	Verification of baseline survey
15.	05/10/2022	Khamlkeo	End User	Verification of baseline survey
16.	05/10/2022	Yorn	End User	Verification of baseline survey

17.	05/10/2022	Xonkton	End User	Verification of baseline survey
18.	05/10/2022	Somchit Xayyasana	Head of Ban Nathorn	Project Design, Monitoring Plan, Local Stakeholder Consultation and Baseline Survey
19.	05/10/2022	Sanya Thammavongsa	Head of BanNaxoang	Project Design, Monitoring Plan, Local Stakeholder Consultation and Baseline Survey

2.4 Site Visits

During the onsite visit from October 4th to October 5th, 2022, the following site(s) were visited:

- Ban Natharn, Mahaxai District, Khammoun Province
- Laos Red Cross office
- End-User Residences

CCIPL conducted interviews with relevant stakeholders and potential end users of ICS during such on-site visits, as well as an assessment of project-related documents provided by project participants. Members of the validation team also interviewed Social Organizations - Red Cross, which are also ICS distribution partners, to confirm selected information and resolve issues identified during the desk review of documents. As per the Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 9 (para 39)/20/, VVB has considered both Producer and Consumer Risk as 10% whereas Acceptable quality level (AQL) and Unacceptable quality level (UQL) was kept at 0.5% and 20% respectively, from which the sample size was taken as 11 with 0 acceptance number. All the 11 end-users were taken randomly from the PP's baseline survey database to verify the details of the baseline considered for the project. The acceptance sampling allowed the validation team to confirm the baseline scenario reported by project developer.

The following are the main topics discussed during the interviews:

Project overview

Project design and adopted technology

Demonstration of baseline and additionality

Project implementation timeline and any risk of delay

GHG emission reduction calculations

Application of the monitoring methodology as well as expected design and application of the monitoring and managing plan

Local Stakeholder Consultation process

Assessment of environmental impacts, environmental licensing and legal compliance of the project and baseline scenario with applicable regional and national legislation.

Calculation of Fraction of Non-Renewable Biomass ($f_{NRB,y}$)

Table 1 shows the names of those interviewed during the validation process. The project's start date is 10/03/2023, and CCIPL conducted a site visit for the VCS 2924: Grouped projects for Laos Improved cookstove.

2.5 Resolution of Findings

This section summarizes the findings from the validation of the project activity. In this section the findings from the document review, assessments and remote interviews are provided.

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

Corrective action requests (CARs) are issued, where:

- i. Mistakes have been made with a direct influence on project results requiring adjustment of the VERs/VCUs monitoring report.
- ii. Applicable methodological specific requirements have not been met.

A Clarification request (CL) may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A total 13 CAR, and 06 CLs had been raised and successfully closed. Please refer to Appendix 4 below for the details of the CARs/CLs and their closure.

2.5.1 Forward Action Requests

NA

3 VALIDATION FINDINGS

3.1 Project Details

The project “Grouped projects for Laos Improved cookstove”, is a grouped project which employs baseline and monitoring methodology; VMRO006: Methodology for installation of high-efficiency firewood cookstoves (Version 1.1)/B02/. To achieve the initial targeted volume of emission reductions, the project proponent aims to disseminate 600,000 ICSs under this grouped project. The project results in reducing the amount of non-renewable biomass used for cooking. Through the reduction in non-renewable biomass consumption, the programme will decrease greenhouse gas emissions. By reducing the consumption of fuel, it can contribute to improving public health problems. Section 1.1. of the VCS PD contains a clear summary description of the projects. The completeness and accuracy of the project description were validated through on-site interviews.

The project proponent is Sustainability Investment Promotion and Development Joint Stock Company which will be holding the carbon credits generated from the project activity/05/.

The start date for the grouped project is 10/03/2023. /03/which is the date of installation of the first stove under this grouped project activity. The same has been cross-checked by the VVB on the basis of the review of the first beneficiary agreement signed./03//12/

The crediting period starts on 10/03/2023 /03/, which coincides with the starting date of the project activity, and lasts for 10 years, fixed. This is in accordance with paragraph 3.8.1 of the VCS standard version 4.4 /B01/ for non-AFOLU projects.

The indication of the project activity instance location and the geographic boundaries is provided in section 1.12. of the VCS PD. They are in accordance with paragraph 3.10.1 of the VCS Standard and can confirm that the project activity boundary is uniquely defined. The grouped project location and geographic boundaries of the project are those of Laos. This is in accordance with paragraph 3.5.8 of the VCS standard version 4.4 /B01/, which requires grouped projects to have one or more clearly defined geographic areas within which new project activity instances may be developed.

As per VCS Standard v 4.4/B01/, the project type of this project activity falls under Type II – Energy Efficiency Improvement Projects with Sectoral Scope 03 – Energy Demand. The VCS PD clearly indicates the project scope, which is scope 3: Energy demand, and more specifically demand-side energy efficiency project. Also, for the project activity Vietcharcoal is the only manufacturer of the distributed cookstoves. SIPLCO is the only investor to purchase the ICS and distribute the same to the households free of cost. SIPCO is on behalf of the VietCharcoal which binding contract to confirm that the VCUs will be used for the GHG reduction and removals associated with Ecozen Cookstove, manufactured by Vietcharcoal and distributed by SIPCO for the project activity. Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) have posted the public statement on their website and the link is provided in Appendix 1 of the PD. Moreover, the Have the producer(s) or retailer(s) of the impacted good or service been notified of the project and the potential risk of Scope 3 emissions double claiming via email as

provided in appendix 1 of the PD. The above information is in line with the Verra's requirements of the on the Supply Chain Scope 3 emissions.

The estimated annual emission reductions for the project activity are 3,588,237tCO₂e per year which is greater than 300,000 tCO₂e per year. Hence, the category is applicable under 'Large Project'. The project is a large scale project. The project is a grouped project, this is indicated in section 1.2. of the VCS PD.

The proposed grouped project is an energy efficiency project activity and is located in a non-Annex I country. Therefore, the ER generated would not be part of an emission trading program, nor it is located in a jurisdiction or sector with binding limits. The project proponent intends to claim carbon credits under the VCS programme only for the emission reductions achieved. The PP states in the VCS PD that the emission reductions generated by this project will not be used for compliance with an emission-trading program or to fulfil binding commitments. In fact, at the time of validation, no binding targets have been set by Laos under the Kyoto protocol, as indicated in the UNFCCC website /B04/.

The project proponent has declared that the project is not in registration under any other GHG program. The validation team has checked the UNFCCC database of registered projects or projects under validation and was able to confirm that the listed projects are not the proposed project activity. Moreover, PP will directly post information and public on scope 3 emissions on their website as the manufacturer of the cookstove, Viet Charcoal Production Company Limited in Di Su Commune, My Hao District, Hung Yen Province, Vietnam, does not post this information on their website.

PP has notified the producer of Cookstove i.e Viet Charcoal Production Company Limited regarding the potential risk of Scope 3 emissions double claiming via email.

The proposed project activity instances do not generate another form of environmental credit. The project proponent indicates in the VCS PD that the project does not intend to generate any other form of GHG related environmental credit other than those claimed under this VCS project.

ICS reduces non-renewable consumption and emissions savings but also has many other benefits for the household. It contributes to sustainable development in Laos through:

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.

To validate the appropriateness of the parameters, validation team has used the acceptance sampling approach.

In accordance with the paragraph 28 of the sampling standard (Version 09), acceptance sampling has been chosen by the validation team and accordingly steps listed in paragraph 29 and 39 of the sampling standards shall be followed.

Validation team has opted for AQL of 0.5 % and UQL of 20 %; producer risk of 10 % and consumer risk of 10 % in determining the DOE's sample size. Accordingly, the sample size to be interviewed for the above-mentioned parameters are 11, with acceptance number (c) as 0.

Validation team has conducted on site visit and interviewed sample households; validation team inquire for the below mentioned points.

1. Household size
2. Who takes care off the cooking in the family
3. Type of baseline stove use
4. Household fuel consumption pattern prior to the project implementation
5. Usage of cooking

6. Type of fuel used and from where they collect/buy fuel.

On the basis of the information provided by household representatives, validation team confirms that the information data shared by the PP matched with the information provided by the household representatives.

This grouped project would achieve a total emission reduction of 35,882,374 tCO₂e in the 10-year crediting period and an average of 3,588,237tCO₂e per year as indicated in the final VCS PD /01/ and also in the ER spread sheet /02.

In terms of Sustainable development, the project will provide the environmental well-being, socio economic benefit and technological benefits as described in section 1.17 of the PD/01/. Also, the project activity involves the reduction of the GHG emission reduction by the use of improved technology thus also improving the air quality and will be improved as the programme reduces pressure on remaining forest reserves in Laos. No negative impacts can be identified. The validation team reviewed the PD and interview with the PP and confirms the same.

On the basis of review of the supporting documents/22/ validation team confirms that there is no applicable local or regional law and regulatory framework in the host country with relation to cook stove projects.

During the review of PD, validation team observed PP has calculated $f_{NRB,y}$, “Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass”, which is fixed for monitoring periods. It is confirmed by validation team that the value applied by PP is calculated as per Tool 30 “Calculation of fraction of non-renewable biomass” version 04.0. and is deemed acceptable.

The eligibility criteria for the inclusion of new projects are discussed below

S. No	Eligibility criteria for the inclusion of new project activity instances	How the new project activity instances to comply	VVB Assessment
1	Meet the applicability conditions set out in the methodology applied to the project.	The new project activity instance will meet all applicability conditions of VMR0006: “Methodology for installation of high efficiency firewood cookstoves”, version 1.1	The validation team has reviewed the PD and the ER Sheet and is of the opinion that all the applicability conditions have been appropriately set out and applied. Please refer section 3.3.2 of this report for details.

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.	The validation team has reviewed the technical specifications of the cookstove by the and the ER Sheet and is of the opinion that all the applicability conditions have been appropriately set out and applied. Please refer section 3.3.2 of this report for details.
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 validation team has reviewed the thermal efficiency certificate/12/ and is of the opinion that all it aligns with the value mentioned in the PD.
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 Laos only and subject to the same baseline scenario determined in section 3.4	Baseline scenario is confirmed as the three stone cookstove from the baseline survey report submitted by PP/12/. Remote audit and interviews conducted by validation team/10/ further confirms the same baseline scenario. For detailed assessment, please refer section 3.3.4 of this report.
5	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	All new project activity instances will use the activity method for demonstration of additionality. Step 1: Regulatory Surplus There is no mandated government programme or policy in host	The project is concluded to be additional since there are no laws which could be identified in the host country which mandate

		country of this project ensuring the distribution of new project activity instances. Step 2: Positive List The inclusion of new project activity instances will comply with positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology. Step 3: Project method This step is not applicable under project activity because the stoves are provided at zero cost to the households (end user).	distribution or usage of improved cookstoves such as part of this project. Additionally, the ICS are found to be distributed free of cost to the end-users as part of this project. For detailed additionality assessment, please refer section 3.3.5 of this report.
6	Conditions that avoid double counting of emission reductions.	The new project activity instances will: 1. Apply a unique system (i.e. conformity letter) for ICS in each project instance, assigning a unique ID to each ICS and allowing to clearly identify each ICS and to which project instance it belongs. 2. Each ICS installed will include project instance assignment and will have corresponding end user details (i.e. name, address). This data will be recorded as part of the beneficiary agreement and Project database. The CME has an agreement in place with residents who use ICS in the project instance in which the owner transfers the rights to the emissions reductions exclusively to the CME as part of the Carbon Rights Waiver within the Beneficiary agreement.	The validation team has reviewed the declaration by PP for the avoidance of double counting/16/, ICS have a unique number and is of the opinion that there is no scope for double counting.
7	Capacity limit	Where a capacity limit applies to a project activity	On the basis of review of the PD, ER sheet

		included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: 1) Each project activity instance that exceeds one percent of the capacity limit shall be identified. 2) Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit.	and interview with the PP, validation team confirms that the project activity 1 in Laos, has met the eligibility criteria.
8	Target group	Each project instance will target end users which includes households who use traditional cookstove to cook meal.	Validation team on the basis of review of the beneficiary agreement template to be signed at the time of distribution, interview with the PP and interview with the end-users confirms that the end-users are using traditional cookstove to cook meals. Thus, the eligibility criteria have been met

			for the (project activity 1) under this group project.
9	Occur within one of the designated geographic areas specified in the project description.	New project activity instances will be located within the geographic boundaries of Laos. The new project instances' geographic location will be defined in the monitoring reports.	Project activity has been located within the designated geographic area mentioned in PD.
10	Comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial compliance with multiple sets of eligibility criteria is insufficient	New project activity instances must comply set of eligibility criteria for the inclusion of new project activity instances in the table	PP in the section 1.3 and 1.4 of the PD complies set of eligibility criteria for the inclusion of new project activity. Thus, the eligibility criteria have been met.
11	Be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body	New Project Activity Instances must comprise monitoring plans that outline the technical, financial, geographic and other relevant information to enable sampling by the validation/verification body	The monitoring plan as stated in the PD, comprises monitoring plans that outline the technical, financial, geographic and other relevant information. Thus, this criteria have been met.

Conditions prior to project initiation:

The project activity involves the distribution and installation of improved cookstoves for use in household cooking in Laos. The distributed cookstoves will reduce the amount of nonrenewable fuel used for cooking as well as the emissions produced by wood burning. These project stoves will replace the baseline's inefficient, conventional open fire cooker. In the absence of this project activity, the target population would have continued to use the traditional three-stone fire, which would have ensured continuous use of non-renewable fuelwood to meet similar energy requirements as that of project stoves.

Conditions prior to the project initiation has been validated by the end users interview during the validation audit. The Same has been cross verified by the baseline survey /07/ conducted by PP before distributing ICSs by SIPCO and Women Union at all levels to confirm the type of baseline cookstove. Survey results presented the following –

Total 384 household were surveyed with an average 4.7 members per household. All household interviewed were using traditional cookstove or three stone cookstoves consuming on an average

3.538 tons/household/year of wood fuel.. All selected households are using traditional stoves with 10% efficiency for cooking meal/07/. Baseline conditions and baseline survey details have been mentioned in the section 3.5, 4.1 and 5.3 of the PD.

3.2 Safeguards

3.2.1 No Net Harm

As identified by PP project has no negative impact. The potential negative environmental and socio-economic impacts identified by the project proponent and have been listed in section 2.1 of the PD.

Every additional project activity instance to be added to this Grouped Project will summarize any potential negative environmental and socio-economic impacts and the steps taken to mitigate them.

The validation team confirms that for the project does not pose any potential negative environmental and socio-economic impacts. A local stakeholders meeting was conducted for the project and there was no negative feedback.

3.2.2 Local Stakeholder Consultation

The local stakeholder consultation meetings were held on 18/08/2022 at a meeting room in Vientiane. and have been provided in the section of 2.2 of the joint PD /01/. The local stakeholders for the project were carried out grouped project level, which was verified by the VVB. The key comments made by the local stakeholders were all answered during the local stakeholder consultation meetings and have also been provided in the section of 2.2 the PD/01/.

No comments were received during the meeting. Project proponent through Lao Red Cross jointly distribute ICS to households. 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.

VVB confirms the engagement procedure and method, as well as the method for documenting the outcomes of local stakeholders' consultations and taking into account all inputs received. VVB confirms that all input/feedback received during the monitoring process (positive or negative) has been compiled in the survey results spreadsheet/08/ and has been checked by the verification team during on-site inspection interviews. As a result, VVB deemed that ongoing communication with local stakeholders was appropriate.

3.2.3 Environmental Impact

No negative environmental impacts have been identified from the project and environmental impact assessment (EIA) is not required for the project as per EIA (Environmental Impact

Assessment) Guidelines MONRE of Laos Category 2 in Appendix 1 of this guideline¹ lists activities/projects that must prepare the environmental report. Thus, the distribution of ICS in households is not included in the list.

3.2.4 Public Comments

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

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.

Response by Project Participant 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 Alliance⁶ (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 WIPO⁷). In 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

¹ Environmental Impact Assessment Guidelines, prepared by Environmental Management Support Programme (EMSP), Oct.2012, available from: http://monre.myqnapcloud.com/2017/emsp/images/doc/eia_guidelines20121001.pdf

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

Comment:

Dear Verra Registry,

The grouped project is related to the distribution of cookstoves, however, section 1.14 refers to water project.

Response by Project Participant

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

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?

Response by project participant

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.

VVB confirms that the project proponent has taken due account of comments, and has provided response to every comment in the section 2.4 of the PD/01/

3.2.5 AFOLU-Specific Safeguards

Not Applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

The Grouped Project provides for projects that use one of the VCS approved methodologies: VMR0006: Methodology for installation of high-efficiency firewood cookstoves (Version 1.1)

The associated methodology, standard, tools and guideline documents in the Grouped Project include:

TOOL 30: Calculation of the fraction of non-renewable biomass”; (Version 04)

“Standard: Sampling and surveys for CDM project activities and programme of activities”. (Version 09)

CDM Guideline “Sampling and surveys of CDM project activities and programmes of activities” version 04.0

3.3.2 Applicability

All applicability conditions of the updated version of the methodology (VMR0006 version 1.1) /B02/ are met. Thus, the methodology is deemed fully applicable for the new crediting period and no request for deviation with regard to the applicability of the methodology is required. All applicability conditions are completely and correctly included in the revised VCS PD/6/. The assessment of the applicability conditions is presented in the table below:

Sl. No.	Applicability	Assessment by the validation team
1.	Project activities shall be implemented in domestic premises or in community-based kitchen	The Validation team through document review and onsite interviews can confirm that the ICS Ecozen stoves will only be distributed in the households thereby confirming the methodology applicability condition.

2.	The project stove shall have specified high power thermal efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass and can be single pot or multi-pot;	The validation team reviewed the stove efficiency test performed by GERES Biomass and Energy Laboratory (G-BEL), dated 05/03/2022 on the Ecozen stove/11/ and also the manufacturer specification/04/ which confirms that the ICS distributed to the end users has 38.44% thermal efficiency. This is deemed appropriate to the Validation team. Thus, the eligibility criteria has been met for the this group project
3.	Both 'Projects' and 'Large Projects' can use the methodology.	The Validation team through document review and remote interviews can confirm that ECOzen stoves will only be distributed in the households and each ICS distributed under this grouped project will be considered as project activity instance. The average annual GHG emission reduction for the grouped project is more than 300,000 tCO ₂ e and hence the project is Large Project as per VCS.
4.	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	The validation team reviewed the FOA Global Forest Resources Assessment 2015 Country Reports, which demonstrates the use of Non-renewable biomass since 1990 in Laos. This is deemed appropriate to the Validation team. Thus, the eligibility criteria have been met for the new project activity instances under this group project
5.	For the specific case of biomass residues processed as a fuel (e.g. briquettes, wood chips), it shall be demonstrated that: (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g., shredding and compacting in the case of briquetting) may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded.	Not Applicable
6.	The PD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission	The validation team by means of Onsite audit interviews and desk review confirms that the proposed method for distribution of project devices includes the method to avoid double

	reductions such as unique identifications of product and end user locations (e.g. programme logo).	counting of emission reductions such as unique identifications of product, end user details (name, address etc) and unique GPS referenced location (if available). Therefore, the validation team confirms that the record-keeping system will eliminate double counting.
7.	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.	The validation team by means of on site audit interviews and the review of sample beneficiary (end-user) undertaking /05/ confirms that the proposed procedures prevent double counting of emission reductions.

3.3.3 Project Boundary

The Grouped Project boundary is defined as per the methodology VMR0006: “Methodology for installation of high efficiency firewood cookstoves” (version 1.1)

The sources of greenhouse gas identified in the PD/01/ are deemed to be appropriate and assessed below:

The project boundary for the grouped Project consists of the physical, geographical locations of the distributed ICSs limited to within Laos.

Source		Gas	Included?	Justification/Explanation
Baseline	Emission from use of non-renewable biomass/fossil fuel	CO ₂	Yes	Major emission source
		CH ₄	Yes	Minor emission source
		N ₂ O	Yes	Minor emission source
		Other	No	No other source identified
	Production & Transport of fuel	CO ₂	No	Minor emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
		Other	No	No other source identified
Project	Emission from use of non-renewable biomass.	CO ₂	Yes	Major emission source
		CH ₄	Yes	Minor emission source
		N ₂ O	Yes	Minor emission source
		Other	No	Minor emission source
	Production & Transport of fuel	CO ₂	No	No other source identified
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
		Other	No	Minor emission source

3.3.4 Baseline Scenario

The project activity will use methodology VMR0006: “Methodology for installation of high efficiency firewood cookstoves” (version 1.1) This is the most recent valid version available on the VERRA site at the time of validation. Since the project activity applies the indicative simplified and standardized approach. It is assumed that the non-renewable wood fuel (firewood) is used for cooking purposes in the absence of project activity.

The baseline described in the PD complies with the requirements of the methodology, as baseline emissions do not account separately, but instead quantify emission reductions as a function of the reduction in the amount of non-renewable biomass fuel consumption in the efficient project stoves as compared to baseline stoves. The baseline cookstoves are traditional cookstoves or three stone fires using firewood or conventional device with no improved combustion air supply or gas ventilation.

PP conducted surveys of 384 households in accordance with the guidance in Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities Ver. 4.0, which was found to be appropriately applied for sample size determination of baseline surveys. The baseline scenario, according to section 6 of the applied methodology, is the continuous use of inefficient non-renewable wood fuel (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in the absence of project activity. This is clearly demonstrated by the results of the baseline survey conducted by the PP/07/. As a result, the baseline was established.

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 validation team based on the review of the VCS PD/01/ and baseline survey /07/ as mentioned in section 3.4 of the VCS PD /01/ confirms that the documentary evidence used in determining the above baseline scenarios are relevant, and correctly quoted and interpreted in the project description. The baseline scenarios for the applied methodology were also confirmed through on-site interviews with the end users of technologies and representatives of PP.

The validation team confirms that the baseline scenario opted for by the project activity is in accordance with the requirements of the applied methodology/B02/ and is justified.

3.3.5 Additionality

The additionality of the grouped project has been demonstrated by the PP as per the methodology section 7. As per the methodology under this grouped project, the additionality of the project activity is demonstrated by activity method.

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

As per Section 3.2, the project meets the applicability conditions of the methodology which represent the positive list. The distribution of ICS requires 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. The VVB has cross verified the same by interviewing the end user and by review of the declaration made by the PP for free distribution of the cookstoves. /12/. 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 DOE.

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

Step 3: Project method

For any project activity where stoves are not provided at zero cost to the end-user or has any other source of revenues other than the sale of GHG credits, then the project activity shall apply investment analysis method set out in the CDM Tool for the Demonstration and Assessment of Additionality included in AMS-II.G to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible

This step is not applicable under project activity because the stoves are provided at zero cost to the households (end user).

In accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard and it can be confirmed that 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.

Furthermore, the grouped project meets all the applicability conditions of the applied methodology “VMR0006: Methodology for installation of high efficiency firewood cookstoves” (version 1.1) and distributes ICSs at zero cost to the end-users and has no other source of revenue other than the sale of GHG credits.

Therefore, the validation team confirms that the grouped project is additional, and all the project activity instances that will be included in the grouped project will meet the eligibility criteria. Distribution/installation of energy efficient Improved cookstoves in Laos is additional – the emission reductions achieved by the project would be below those that would have occurred without the implementation of the project.

3.3.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the PD/01/. The emission reductions of the project instances of the grouped project would be calculated using the formulae mentioned in the applied methodology; VMR0006 (version 1.1)/B02/.

Validation team based on the review of the PD /01-/, confirms that the formulae are correctly presented for the determination of emissions reductions at project activity 1. The parameters and equations presented in the PD/01/, as well as other applicable documents, have been compared with the information and requirements presented in the methodology respectively. An equation comparison has also been made to ensure consistency between all the formulae presented in the PD/01/ and ER spreadsheet/02/ and methodology; VMR0006 (version 1.1)/B02/.

According to applied methodology; VMR0006 (version 1.1)/B02/. the emissions are calculated as below:

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

Where,

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

Since the project activity instance involves the deployment of improved cookstove, the following equation is applicable as per VMRO006, Version 1.1:

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO_2} + EF_{wf,non\ CO_2}) \times N_{y,i,j} \times 0.95$$

Where:

$B_{y,savings,i,j}$	Quantity of woody biomass that is saved in tonnes per improved cookstove of type i and batch j during year y
$f_{NRB,y}$	Fraction of woody biomass that can be established as non-renewable biomass ($f_{NRB,y}$)
$NCV_{woodfuel}$	Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)
EF_{wf, CO_2}	CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO ₂ /TJ)
$EF_{wf,nonCO_2}$	Non CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO ₂ /TJ)
$N_{y,i,j}$	Number of improved cookstoves of type i and batch j operating during year y.
0.95	Discount factor to account for leakage.

$B_{y,savings,i,j}$ is calculated using the following formula in accordance with equation 4 of the approved methodology VMRO006 Version 1.1:

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

Where:

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

Alternatively, efficiency may be determined using equation 5 of methodology.

Determination of efficiency of ICS during year y

$$\eta_{new,y,i,j} = \eta_p \times (DF_n)^{y-1} \times 0.94$$

where:

η_p Efficiency of project stove(fraction) at start of project activity

$(DF_n)^{y-1}$ Discount factor to account for efficiency loss of project cookstove per year of operation (fraction). This value may be based on actual monitoring or based on manufacturer's declaration on expected loss in efficiency or through publicly available literature on relevant industry standards. Alternatively, the default value of 0.99 efficiency loss per year can be considered.

0.94 Adjustment factor to account for uncertainty related to project cookstove efficiency test.

$$\eta_p = 0.3844$$

$$DF_n = 0.99$$

Efficiency of ICS during year y is as below:

Year(y)	$\eta_{new,i,j}$
1	0.3613
2	0.3577
3	0.3541
4	0.3506
5	0.3471
6	0.3436

7	0.3402
8	0.3368
9	0.3334
10	0.3301

Determination of quantity of woody biomass that is saved in tonnes per ICS during year y.

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

$B_{y=1,new,i,survey}$ is assumed as 5 kg/device/day, equivalent 1.825 tonnes/device/year

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

Example calculation:

If $y = 2$

$$B_{y,savings,i,j} = 1.825 \times [(0.3577/0.1) - 1] = 4.7034 \text{ tonnes}$$

Year	$\eta_{new,i,j}$	η_{old}	$B_{y=1, new,i,survey}$	$B_{y,savings,i,j}$
1	0.3613	10%	1.825	4.7694
2	0.3577	10%	1.825	4.7034
3	0.3541	10%	1.825	4.6382
4	0.3506	10%	1.825	4.5735
5	0.3471	10%	1.825	4.5095
6	0.3436	10%	1.825	4.4462
7	0.3402	10%	1.825	4.3835
8	0.3368	10%	1.825	4.3214
9	0.3334	10%	1.825	4.2599
10	0.3301	10%	1.825	4.1991

Determination of emission reduction by ICS of year 1 during year y for the first project activity under this grouped project

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO_2} + EF_{wf,non\ CO_2}) \times N_{y,i,j} \times 0.95$$

Where

$$N_{y,i,j} = 600,000$$

$$NCV_{\text{Wood fuel}} = 0.0156 \text{ TJ/tonne}$$

$$f_{\text{NRB},y} = 0.6882$$

$$EF_{\text{wf}, \text{CO}_2} + EF_{\text{wf}, \text{non CO}_2} = 112 + 26.23 = 138.23 \text{ tCO}_2/\text{TJ}$$

Year	$B_{y,\text{savings},i,j}$	NCV_{woodfuel}	$f_{\text{NRB},y}$	$EF_{\text{wf}, \text{CO}_2} + EF_{\text{wf}, \text{non CO}_2}$	$N_{y,i,j}$	Ly	$ER_{y,i,j}$
1	4.7694	0.0156	0.6882	138.23	300,000	0.95	2,017,198
2	4.7034	0.0156	0.6882	138.23	600,000	0.95	3,978,615
3	4.6382	0.0156	0.6882	138.23	600,000	0.95	3,923,391
4	4.5735	0.0156	0.6882	138.23	600,000	0.95	3,868,719
5	4.5095	0.0156	0.6882	138.23	600,000	0.95	3,814,595
6	4.4462	0.0156	0.6882	138.23	600,000	0.95	3,761,011
7	4.3835	0.0156	0.6882	138.23	600,000	0.95	3,707,963
8	4.3214	0.0156	0.6882	138.23	600,000	0.95	3,655,446
9	4.2599	0.0156	0.6882	138.23	600,000	0.95	3,603,454
10	4.1991	0.0156	0.6882	138.23	600,000	0.95	3,551,982
Total						35,882,374	
Number of crediting period						10	
Average annual ERs						3,588,237	

Annual emission reduction is estimated to be (emission reductions) 3,588,237tCO₂e/annum.

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
Year 1	2,017,198	0	0	2,017,198
Year 2	3,978,615	0	0	3,978,615
Year 3	3,923,391	0	0	3,923,391
Year 4	3,868,719	0	0	3,868,719
Year 5	3,814,595	0	0	3,814,595
Year 6	3,761,011	0	0	3,761,011
Year 7	3,707,963	0	0	3,707,963
Year 8	3,655,446	0	0	3,655,446
Year 9	3,603,454	0	0	3,603,454
Year 10	3,551,982	0	0	3,551,982
Total	35,882,374	0	0	35,882,374

3.3.7 Methodology Deviations

Not Applicable

3.3.8 Monitoring Plan

The grouped project employs baseline and monitoring methodology namely VMR0006 version 1.1/B02/. According to section 5.1 and 5.2 of PD/01/ the parameters determined ex-ante and those to be monitoring ex post as per the requirements of the methodology are given below.

Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.1 of the PD: The grouped project employs baseline and monitoring methodology namely VMR0006 version 1.1/B02/. According to sections 5.1 and 5.2 of PD/01/ the parameters determined ex-ante and those to be monitoring ex post as per the requirements of the methodology are given below.

Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.1 of the PD:.

S.No	Parameter	Unit	Value	Assessment
1	η_{old}	Percentage	10	Validation team on the basis of document review (baseline survey) and interview with the end users confirms the acceptability of the value.
2	$f_{NRB,y}$	%	0.6882	Validation team on the basis of document review, and $f_{NRB,y}$ calculation sheet, and report of $f_{NRB,y}$ from third party analyzer /18/ provided confirms that the value The value is calculated as 0.93, however the uncertainty deduction for fnrb of 0.26 is applied as per the latest version of methodology, So, the value of 0.6882 is applied for ER calculations as a conservative approach applied for ER calculations as a conservative approach which is deemed acceptable.

5	NCV_{woodfuel}	TJ/Tonne	0.0156	2006 IPCC default for wood fuel
4	$EF_{\text{wf},\text{CO}_2}$	$t\text{CO}_2/\text{TJ}$	112	2006 IPCC default value
5	$EF_{\text{wf},\text{nonCO}_2}$	$t\text{CO}_2/\text{TJ}$	26.23	2006 IPCC default value
6	η_p	Fraction	0.3844	Manufacturer's speciation.

Assessment of $f_{\text{NRB},y}$

PP has contracted an independent party “C4Ecosolutions” for a study and calculation of $f_{\text{NRB},y}$ as per CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v4.0). Validation team confirms that it has checked $f_{\text{NRB},y}$ calculation report/spread sheet /11/ prepared by C4Ecosolutions. As per the applied methodological tool, In the case of ex ante calculation of $f_{\text{NRB},y}$, the parameter $f_{\text{NRB},y}$ shall be estimated using the most recent historical year for which data is available. Review of $f_{\text{NRB},y}$ report /11/ prepared by C4Ecolution revealed that all the data used for the calculation is latest available data at the time of validation. Review of $f_{\text{NRB},y}$ calculation report/spread sheet /11/ prepared by C4Ecosolutions reveals that the estimation of non-domestic fuel consumption was derived from the FAO Forestry Production and Trade database. The non-domestic fuelwood consumption estimates provided by the FAO Forestry Production and Trade database have been conservatively applied, disregarding the additional deforestation likely occurring as a result of shifting agriculture and from informal or illegal harvesting. The total woody biomass consumption for Laos is as per the $f_{\text{NRB},y}$ report /18/ prepared by C4 Ecosolutions (Pty) Ltd. estimated to be 46,426,767 t/yr., which is deemed appropriate to the VVB. In Laos four ecological zone has been found i.e. tropical dry forest, tropical moist forest, tropical mountain system and Tropical Rainforest and the same was verified by referring the Global ecological zones for FAO forest reporting: 2010 Update. VVB has noted that in report /11/ geospatial data products for Laos were analysed in R22-26 to estimate Laos renewable biomass. The woody cover from all areas defined as “forest” (>10%) cover “other wooded land” (5-10% cover) as well as “other land” (<5% cover)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the IPCC, was used for the study, checked and confirmed by the VVB. The proportion of forest stand ages above and below 20 years old were estimated for each ecological zone by extrapolating the observed forest gain extents between 2000 and 2012 to a 20-year period. The resulting average MAI estimates for Laos are 1.72, 0.75, 0.33 and 1.35 t/ha/year for the tropical dry forest, tropical moist forest, tropical mountain system, and tropical rainforest. respectively. Table below provides the validated total, protected and remote forest cover extent, mean annual increment and renewable biomass by ecological zone for Laos.

Ecological Zone	Total Forest cover (ha)	Protected Cover (ha)	Remote Cover (ha)	MAI (t/ha/yr)	Renewable biomass (t/yr)
Tropical dry forest	1,59,162	178,098	843,461	1.72	941,570
Tropical moist forest	3,977,593	814,101	2,316,261	0.75	634,755
Tropical mountain system	3,047,209	715,011	1,453,412	0.33	286,891
Tropical rainforest	4,484,130	1,408,731	2,146,070	1.49	1,388,699
Total	13,078,094	3,115,941	6,759,204	-	3,251,916

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in Laos is, therefore, validated as 46,426,767t/yr. The fraction of non-renewable biomass is the quotient of the non-renewable and the total biomass. The fraction of non-renewable biomass for Laos is, therefore, validated as 0.93. however, the uncertainty deduction for fnrb of 0.26 is applied as per the latest version of methodology, So, the updated fnrb = $0.93 * (1 - 0.26) = 0.6882$ is applied for ER calculations as a conservative approach.

VVB has also reviewed the comparison on the value achieved and those reported and the assessment on the influence the factors mentioned could have in the value achieved of Fraction of non-renewable biomass with the help of review the “fnrb Lao_SIPCO_Assesment Report_28 Jul 2023_CDM Tool30 v4.0”/18/ submitted by the PP.

From the review of this report/spread sheet /11/ and interviews with the CME and C4 EcoSolutions (Pty) Ltd, validation team's confirms the following:

- The report has been prepared by an independent party (i.e., C4 EcoSolutions (Pty) Ltd.), who is experienced in conducting such study.
- The detailed methodology (including the calculation) of conducting the study has been provided in the report /spread sheet /11/.
- The study has been done in accordance with the CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v4.0) including the equation used and the data source as required by the tool.
- All the reference and data source used for the calculation/study has been listed and assessed by the VVB

It has also been observed by the VVB that the resulting value is higher than the expected fNRB values determined using the WISDOM method, as reported by Bailis et al., 2015 for the same region. While direct comparisons between the WISDOM and CDM methodologies are only sometimes appropriate, given the different approaches of the methodologies, the following factors can contribute to variations in the fNRB estimates between the two methods:

- 1) - More recent population statistics (2020) for Laos were used in the present study. The more recent data represents an increase in population numbers since the 2009 data utilized by Bailis et al., 2015.
- 2) - Updated 2019 FAO forest products statistics were used in the present study, whereas the study conducted by Bailis et al., 2015 used 2013 FAO forest products statistics.
- 3) - Different methods are used to determine the accessibility which can result in significant differences in the estimated renewable biomass and consequently the fNRB value.
- 4) - Mean annual increments (MAI) were calculated using a weighted average based on the forest area of three categories (i.e. primary forests, above 20-year secondary forest, below 20-year secondary forest). Data from the 2019 Refinement of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories for 'Above-ground biomass growth rates for different ecological zones' was utilised²⁸. As per the Bailis et al., 2015 study, MAI values were derived from a combination of field observations and IPCC values, followed by an estimation of growth rates as a percentage of standing stock. This approach often yields higher MAIs compared to using only IPCC values and may lead to lower estimations of non-renewable biomass (NRB).

On the basis of the review of the tool 30 version 4, and the fNRB report provided by the PP the above information is deemed acceptable. Thus, in the opinion of validation team, the calculation of fNRB_y is correct and in line with the CDM Methodological tool: Calculation of the fraction of non-renewable biomass (v4.0) and thus acceptable to the validation team.

Parameters monitored ex-post

Details of all the parameters monitored ex-post is stated in section 5.2 of the PD

Sl.No.	Parameters/01/	Unit	Assessment by the VVB
1	N _{y, i, j}	Number	The parameter describes Number of project devices of type i and batch j operating during year y. The value will be derived from monitoring surveys. The parameter sample for surveys will be collected from actual distributed ICS from database/07/ by applying 95/10 confidence precision to obtain a minimum sample size for random selection of the samples. This is found in line with Standard for sampling and surveys for CDM

			project activities and program of activities/B04/. For first project activity instance the ex-ante value for this parameter has been taken as 8,000 and the actual operational devices will be monitored ex-post. As per the VVB's opinion, the monitoring plan for this parameter stands justified and correct when cross-checked against provisions in the applied methodology VMR0006.
2	nnew,y,j	Fraction	The parameter establishes the Efficiency of the device of each type i and batch j implemented as part of the project activity. The value has been calculated on the basis of equation /04/. This is found applied in line with applied methodology. The efficiency of stoves has been confirmed as 38.44% from the manufacturer specifications. As per the VVB's opinion, the monitoring plan for this parameter stands justified and correct when cross checked against provisions in the applied methodology VMR0006.
3	B _{y=1,new,i,j,survey}	Tonnes	The parameter describes Quantity of woody biomass used by project devices in tonnes per device of type i. The value will be derived from monitoring surveys. The parameter sample for surveys will be collected from actual distributed ICS from database/07/ by applying 95/10 confidence precision to obtain a minimum sample size for random selection of the samples. This is found in line with Standard for sampling and surveys for CDM project activities and program of activities/B04/. For first project activity instance the ex-ante value for this parameter has been taken as and the actual operational devices will be monitored ex-post. As per the VVB's opinion, the monitoring plan for this parameter stands justified and correct when

			cross-checked against provisions in the applied methodology VMR0006.
4	Life Span	Number of years	The parameter establishes the life span of project device. The value has been derived on the basis of manufacturer's specifications/04/. This is found applied in line with applied methodology. The lifespan of stove has been confirmed as 10 years from the manufacturer specifications. As per the VVB's opinion, the monitoring plan for this parameter stands justified and correct when crosschecked against provisions in the applied methodology VMR0006.

In accordance with section 3.23.1 of the VCS Standard (version 4.4) /B01/ all documents and records will be kept in a secure and retrievable manner for at least two years after the end of the project crediting period. The data collecting and management methods as provided in section 5.3 of the VCS PD/01-b/ are acceptable to the validation team. The validation team interviewed representatives of PP and it was established that the database of all the project equipment distributed by PP is created and maintained. The entire database will be kept with protected by PP for a period of more than two years. In addition, a two samples of equipment invoices were studied and was found to contain information in compliance with the monitoring requirements of the methodology VMR0006, Version 1.1/B02/.

The validation team considers that the means of implementation of the monitoring plan, including the data management, monitoring equipment and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed grouped project therein can be reported ex post and verified.

Sampling Plan:

Sampling plan is made according to the CDM Standard Sampling and surveys for CDM project activities and programmes of activities, version 9/B04/ and CDM Guidelines: Sampling and Survey for CDM project activities and programmes of activities, version 4/B05/ to estimate monitored parameter values used in the ER calculations. Sampling is applicable to two monitored parameters as given below:

Parameter	Description	Parameter type, frequency
Ny, i, j	Number of project devices of type i and batch j operating during year y.	Proportional. Biennially

$B_{y=1,new,i,j,survey}$	Quantity of woody biomass used by project devices in tonnes per device of type I and batch	Mean value
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Validation team confirms that the overall monitoring plan complies with the requirements of the methodology VMR0006, Version 1.1 /B02/, the monitoring arrangements describes in the monitoring plan are feasible within the project design and the project proponents will be able to implement the described monitoring plan.

3.4 Non-Permanence Risk Analysis

This is not applicable to the project activity as the project is not an AFOUL (Agriculture, Forestry and other Land use) project.

4 VALIDATION OPINION

The Project Participant, Sustainability Investment Promotion and Development Joint Stock Company, has commissioned the VVB, Carbon Check (India) Private Ltd. to perform an independent validation of the VCS Project Activity “Grouped projects for Laos Improved cookstove”. This report summarizes the findings of the validation of the project, performed on the basis of VCS criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation process was performed on the basis of all guidance and criteria as provided in VCS Standard Version 4.4/B01/, VCS Program Guide version 4.3/B01-b/, VCS Validation and Verification Manual version 3.2/B01/ and Registration & Issuance Process version 4.3/B01/.

The project activity provides the information in PD/01/ as required by the VCS Standard /B01/ and Validation and Verification Manual /B01/ and in Carbon Check’s opinion meets the requirements of the applied baseline and monitoring methodology; VMR0006: Methodology for installation of high-efficiency firewood cookstoves (Version 1.1). /B02/and is likely to achieve the estimated emission reductions. The validation has been performed using a risk-based approach, as described above. The expected annual average emission reductions from the project activity are 3,588,237tCO_{2e}/year and the total for the crediting period is 35,882,374 tCO_{2e}.

Carbon Check (India) Private Ltd concludes the validation with a positive opinion that the VCS Project Activity “Grouped projects for Laos Improved cookstove”, in Laos as described in the PD

(version 06, dated 15/05/2023) /01/, meets all the applicable VCS requirements, including those specified in the Project Standard, relevant methodology, tools and guidelines.

Carbon Check (India) Private Ltd concludes the validation of the project activity has taken place in accordance with the ISO 14064-3:2019

The selected baseline and monitoring methodology VMR0006: Methodology for installation of high-efficiency firewood cookstoves (Version 1.1) is applicable to the project and correctly applied. Carbon Check (India) Private Ltd, therefore, requests the registration of the project as a VCS project activity.

CC IPL's validation opinion is purely based on the information made available to us by the project proponent during the course of validation and hence CC IPL cannot guarantee the accuracy or correctness of the information. Keeping this in mind, no party can hold CC IPL liable for any decisions made or not made in this report.

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 1 (10/03/2023 to 09/03/2024)	2,017,198
Year 2 (10/03-2024 to 09/03/2025)	3,978,615
Year 3 (10/03/2025 to 09/03/2026)	3,923,391
Year 4 (10/03/2026 to 09/03/2027)	3,868,719
Year 5 (10/03/2027 to 09/03/2028)	3,814,595
Year 6 (10/03/2028 to 09/03/2029)	3,761,011
Year 7 (10/03/2029 to 09/03/2030)	3,707,963
Year 8 (10/03/2030 to 09/03/2031)	3,655,446
Year 9 (10/03/2031 to 09/03/2032)	3,603,454
Year 10 (10/03/2032 to 09/03/2023)	3,551,982
Total estimated ERs	35,882,374

Total number of crediting years	10
Average annual ERs	3,588,237

APPENDIX 1: REFERENCES

S. No.	Document
/01/	Registered PD v6 dated: 15/05/2023
/02/	ER estimated spreadsheet correspond to /01/
/03/	Evidence for the start date of the grouped project
/04/	Technical specifications of the ICS from manufacturer including the life span.
/05/	Proof of right of relinquishment of VERs from the end users to the project proponent.
/06/	Beneficiary agreement confirming that the traditional improved cook stoves were used for cooking food the baseline situation.
/07/	Baseline survey records
/08/	Local stakeholders' consultation meeting records.
/09/	Project implementation schedule.
/10/	Evidence of unique identification system of the ICSs.
/11/	Thermal efficiency test conducted
/12/	Evidence to demonstrate Improved cook stoves as free of cost to the users.
/13/	Monitoring survey questionnaire template
/14/	ICSs distribution agreement
/15/	Training plan/ records of personnel appointed for surveys.
/16/	Declaration from the project proponent that the project is not creating any other form of environmental credit under any specific program.
/17/	Declaration from the project proponent that the project has not or shall not claim carbon credits on any other scheme after Registration of the project under VCS.
/18/	$f_{NRB,y}$ calculation report from a third party. fNRB Lao_SIPCO_Assesment Report_28 Jul 2023_CDM Tool30 v4.0
/19/	Evidence for the values used for the ex-ante VER estimation.
/20/	Equipment contract as evidence of cost for improved cook stoves.
/B01/	1. VCS Standard, version 04.4 2. VCS Program Guide version 04.3 3. VCS Validation and Verification Manual, version 03.2 4. Registration and Issuance Process v4.3 5. VCS Program Definitions version 04.3
/B02/	VMR0006: Methodology for installation of high efficiency firewood cookstoves v1.1
/B03/	AMS II G: Energy efficiency measures in thermal applications of non-renewable biomass v11.
/B04/	CDM, Standard for Sampling and surveys for CDM project activities and programmes of activities version 9.0

/B05/	CDM, Guideline for Sampling and surveys for CDM project activities and programmes of activities version 4.0
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APPENDIX 2: ABBREVIATIONS

CDM	Clean Development Mechanism
BE	Baseline Emission
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO₂	Carbon Dioxide
CO₂e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DPR	Detailed project report
DVR	Draft Validation Report
EB	CDM Executive Board
EPDK	Enerji Piyasası Duzenleme Kurumu
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Mega Watt
HPP	Hydro Power Plant
MWh	Mega Watt hour
NA	Not Applicable
OSV	On Site Visit
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
RCP	Renewal of Crediting Period
TR	Technical Review

UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
WVB	Validation Verification Body
WM	Validation and Verification Manual
VVS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Limited

Certificate of Competency

Ms. Aparna Choudhary

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	☐ CCB Expert
☐ Financial Expert	☒ Local Expert for India		

in the following Technical Areas:

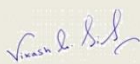
☐ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☐ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1			

Issue Date

1st January 2023

Expiry Date

31st December 2023



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.1_012023



Carbon Check (India) Private Limited

Certificate of Competency

Ms. Indumathi C

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|--|---|--|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☒ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | ☐ CCB Expert |
| ☒ Financial Expert | ☒ Local Expert for India and Sri Lanka | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|---|
| ☒ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☒ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date
1st January 2023

Expiry Date
31st December 2023


Mr. Vikash Kumar Singh
Compliance Officer


Mr. Amit Anand
CEO

APPENDIX 3: FINDINGS LOG

TABLE 1: CORRECTIVE ACTION REQUESTS (CARs) AND CLARIFICATION REQUESTS (CLs)

Finding	CL 01		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	PP is requested to revise the following as per the latest version: - PD v2 is given in the VCS PD v4.0 template, which has been revised and the latest template is version 4.1, thus, PP is requested to revise the PD as per the latest template. - In the given PD version 02, dated 18/04/2022, version 3 for tool 30 is used for the $f_{NRB,y}$ calculation instead of the latest version i.e. v4.0. - In section 1.8 of the given PD, VCS standard v4.1 is used instead of the latest version i.e., 4.3 Thus, PP is requested to review and revise the same.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp - The latest template version 4.1 has been updated in revised PD, version 03, dated 29/11/2022 - The latest version 4.0 of Tool 30 has been updated in revised PD, version 03, dated 29/11/2023 - The latest version of VCS Standard version 4.4 has been updated instead of version 4.1 in revised PD, version 03, dated 29/11/2023		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP have been found appropriate by the VVB. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CL 02		
Classification	☐ CAR	☒ CL	☐ FAR

Description of finding (VVB)	PP is requested to address the following findings regarding the “Population of Lao’s”: 1. In section 1.13 of the PD, the current population of Laos is mentioned as 7,430,781. PP is also requested to add the given year of the population. 2. Source link of the population given in PD is not working. 3. The Population number given in PD and the calculation sheet is not matching neither the sources.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp 1. The current population of Laos has been updated in revised PD, version 03, dated 29/11/2023. 2. Source link of the population has been updated in revised PD, version 03, dated 29/11/2023. 3. The population number given in revised PD has been revised to match with calculation sheet
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised the population number along with the sources and has maintained the consistency among MR and $f_{NRB,y}$ sheet. Finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 03		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	The start date of the project given in PD is 01/05/2022, while as per the supporting documents it is 01/11/2022. Thus, PP is requested to review and revise it accordingly. Furthermore, PP is requested to update the Crediting period of the project as per correct start date.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp The project has not started yet due to some reason related to distribution contract. The expected start date of project is 15/03/2023. This information has been provided in revised PD, ver 03, dated 29/11/2023.		

VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised the start date and have revised section accordingly. This finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 04
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (VVB)	Under section 1.1 PP is requested to clarify the number of distribution to be done during first project activity instance and the expected annual CER for project activity instance 1.
Corrective Action or clarification #1 (P.P shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp The number ICSs of distribution in first project activity instance and the expected annual CER for project activity instance 1 has been provided in section 1.1 of revised PD, version 03, dated 29/11/2022.
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised the section 1.1 in PD with number of distribution. Thus, this finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 05
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (VVB)	Under section 3.4 of the PD, PP is requested to clarify the type of stoves to be considered during the baseline scenario. Furthermore, PP is requested to provide the

	information about the baseline scenario for the new project activity instance.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp Type of baseline stove and information about the baseline scenario for the new project activity instance has been provided in section 3.4 of revised PD, version 03, dated 29/11/2022
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP have been found appropriate by the VVB. Thus, this finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 06		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB) PP is requested to provide the clarification on the sampling method applied for the parameter $N_{y,i,j}$ and $By=1.new,i,survey$. PP has mentioned that simple random sampling has been used, while the calculation method provided is not in line with the method of simple random sampling as per the CDM sampling standard version 09.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp The stratified random sampling method is applied for the parameter $N_{y,i,j}$ and $By=1.new,i,survey$. This information has been provided in updated PD, version 03, dated 29/11/2022.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised PD as per the raised finding. Thus, this finding is closed.		

Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed
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Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB) PP is requested to assess the following finding in ER sheet Version 01. 1. The number of VERs given in PD is not matching with the ER version 01. 2. Value of $N_{y,i,j}$ is not matching between ER sheet and PD. 3. In cell A33, $NCV_{woodfuel}$ is mentioned as $NCV_{biomass}$. PP is requested to kindly review and revise for the closure of the findings.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp 1. The VERs of grouped project is 4,848,969tCO ₂ e/year. The updated ER sheet, version 2 has been provided to DOE. 2. The value of $N_{y,i,j} = 600,000$ for grouped project. This value has been matched between ER sheet and PD. 3. Cell A33 of ER sheet has been corrected in updated ER sheet, version 02, dated 29/11/2022.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP have been found appropriate by the VVB. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 02		
Classification	☒ CAR	☐ CL	☐ FAR

Description of finding (VVB)	In the given PD version 2, under section 1.10 ERs 4,848,969, has no unit. Thus, PP is requested to revise it accordingly.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp The unit of emission reduction of grouped project activity has been added in revised PD, version 03, dated 29/11/2022
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP have been found appropriate by the VVB. Thus, this finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 03		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	PP is requested to revise the following: 1. PP is requested to revise section 2.2 & 2.3 as per the VCS PD template 4.1. 2. In the section 3.2 of the PD v2, "CDM Methodology Requirement" is mentioned instead of VCS methodology requirement. 3. Section 1.17 of the PD should be "Sustainable Development Contributions" and section 1.18 should be "Additional Information Relevant to the Project"		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp All of information has been updated according to VCS PD Template 4.1 in revised PD, version 03, dated 29/11/2022.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has made the necessary editorial corrections. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 04		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	Under section 1.12, coordinates of the host country is not provided by the PP. Moreover, as per the project standard v4.3, §3.10.1, PP is requested provide a KML file for the project location for grouped projects.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by pp The coordinates of LAOs has been provided in section 1.12 of revised PD, version 03, dated 29/11/2022 The KML file for the project location was provided to VERRA in listing period.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP have been found appropriate by the VVB. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding		CAR 05		
Classification	☒ CAR ☐ CL ☐ FAR			
Description of finding (VVB)	As per the Onsite visit observation, Red cross is the distribution partner for the ICS distribution. Thus, PP is requested to mention the same in the respective PD and provide the contract signed between the PP and Red cross.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The information about distribution partner for ICS distribution has been provided section 1.1 of the revised PD, version 03, dated 29/11/2022 The contract between the PP and Lao Red Cross has been provided to DOE for verifying			
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised section 1.1 and have provided contract between the PP and Lao Red Cross. Thus, this finding is closed.			
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed			

Finding		CAR 06		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	As the project is not implemented and distribution is not started yet, PP is requested to mention the information in future tense form to provide clarity about the plan. PP is requested to check this throughout the PD.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The project activity has not implemented yet. PP signed contract with Lao Red Cross on 27/10/2022. From signed date 2022 to 31 December 2024 in 02 stages: - Stage 1: From 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. This information has been provided in section 1.1 of revised PD, version 03, dated 29/11/2022			
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.			
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed			

Finding		CAR 07		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	Under section 2.2, PP is requested to provide the details of the Local stakeholder consultation and method of ongoing mechanism to be followed under the grouped project.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The details of the Local stakeholder consultation and method of ongoing mechanism has been provided in revised PD, version 03, dated 29/11/2022			

VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 08		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	PP is requested to provide the justification/information for why EIA is not required for the grouped project stating the requirement of the host country.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The justification/information for why EIA is not required in the host country has been provided in revised PD, ver 03, dated 29/11/2022.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 09		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	PP is requested to add the details of the Public comments received during the public comment period.		

Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs Details about the public comments received during public comment period and response by PP have been provided in section 2.4 of revised PD, version 03, dated 29/11/2022
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 10		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	Under section 3.2, PP has not included the applicability criteria of the Tool used under the grouped project. PP is requested to include the same.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The table about applicability of applied Tools has been provided in section 3.2 of revised PD, version 03, dated 29.11.22		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 11		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	Under section 3.5, PP has not provided any information about the step 3 of the additionality in line with the applied methodology. PP is requested to mention the same.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The step 3 of the additionally as per applied methodology has been provided in section 3.5 of revised PD, version 03, dated 29/11/2022.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 12		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	Under section 5.2, table for the parameter "Life Span" has been altered as the row for the "Description of measurement methods and procedures to be applied " is missing. PP is requested to rectify the same and provide the measurement method under the table.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs The row for the "Description of measurement methods and procedures to be applied" has been provided in table for the parameter "Life Span" of section 5.2 of revised PD, version 03, dated 29/11/2022		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 13		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	Under Section 5.3, PP is requested to mention the method to be used to get the value of the parameters. Moreover, for the parameter By=1.new,l,survey PP is requested to mention the frequency of the parameter under column 2.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Response by PPs Method to be applied and frequency of monitoring parameters has been provided to in section 5.3 of revised PD, version 03, dated 29/11/2022.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	Corrective actions taken by the PP has been found appropriate. Thus, this finding is closed.		

Conclusion

Tick the appropriate checkbox

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|--|
| ☐ To be checked during the next periodic verification |
| ☐ Outstanding finding (not closed) |
| ☒ The finding is closed |