



DISTRIBUTION OF ENERGY EFFICIENT COOKSTOVES IN INDIA - 2

Document Prepared By
Carbon Check (India) Private Ltd.



Project Title	Distribution of Energy efficient cookstoves in India - 2
Report Title	Distribution of Energy efficient cookstoves in India – 2 (VCS ID 3158)
Version	05.1
Report ID	CC IPL1446/VCS/VAL-VER/DEEC/20220808
Verification Period	01-April-2021 to 15-September-2022
Client	Greneity Infocom Service Pvt Ltd
Pages	71
Date of Issue	19-December-2022
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Summary:

- A brief description of the validation and verification of the project

Validation and Verification: Greneity Infocom Service Pvt Ltd has appointed Carbon Check (India) Private Ltd., to carry out the validation and verification of the grouped project “Distribution of Energy efficient cookstoves in India - 2”, with regards to the relevant requirements of VCS Standard Version 4.3 (dated 22/06/2022). The verification is based on the desk review of the VCS Joint PD & MR /01/and the corresponding supporting emission reduction calculation spread sheets /02/ /03/ and other relevant supporting documents made available to the verification team by the project proponent accompanied by onsite interviews. This verification involves the period of 01/04/2021 to 15/09/2022.

Project: The project “Distribution of Energy efficient cookstoves in India - 2”, is a grouped project which employs VCS methodology; VMR0006 version 1.1 /B02/. The project involves distribution of energy efficient cookstoves to the rural population of India. It is intended under this project high thermal efficient cookstoves will be distributed which will burn wood more efficiently thereby improving thermal transfer to pots, hence saving fuel wood. Apart from halting the progressing deforestation in India, this project will also reduce health hazards from indoor smoke pollution and time spent on collecting firewood.

- The purpose and scope of validation and verification

Purpose: The purpose of a validation is to have a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, particularly 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.

The purpose of the verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner. In particular, monitoring plan, monitoring report and the project's compliance with relevant VCS, UNFCCC and host party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented.

Scope: 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 (v4.2, dated 22/06/2022), VCS Standard (v4.3, dated 22/06/2022), Program Definitions (v4.2, dated 22/06/2022), Registration & Issuance Process (v4.2, dated 22/06/2022) 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 (version 1.1), also assess the claims

and assumptions made in the PD without limitation on the information provided by the project participants.

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered VCS JOINT PD & MR.
- To verify the implemented monitoring plan with the registered VCS JOINT PD & MR and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

- **The method and criteria used for validation and verification**

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. Onsite interviews with project stakeholders

- Interviews with relevant stakeholders in host country with personnel having knowledge with 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 method and criteria used for verification

(a) Desk review, involving:

- (i) Review of the data and information presented to verify their completeness;**

(ii) Review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;

(iii) Evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions;

(b) Onsite assessment involving:

(i) Assessment of the implementation and operation of the proposed VCS grouped project activity as per the registered VCS JOINT PD & MR;

(ii) Review of information flows for generating, aggregating and reporting the monitoring parameters;

(iii) Interview with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan in the VCS JOINT PD & MR;

(iv) A cross-check between information provided in the monitoring report and data from other sources such as inventories, purchase records, or similar data sources;

(v) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS JOINT PD & MR and the selected methodology;

(vi) Review of calculations and assumptions made in determining the GHG data and emission reductions;

(vii) Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

- **The number of findings raised during validation and verification**

A risk-based approach has been followed to perform this joint validation & verification. During the course of joint validation & verification, a total of 10 findings were raised, which includes:

02 Corrective Action Request (CAR); 08 Clarification Requests (CLs);

All the raised findings were successfully resolved by the PP.

- **Any uncertainties associated with the validation and verification**

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

The VCS Joint PD & MR /01/, emissions reduction calculations /02//04/ along with the supporting documents provided are in line with all the VCS requirements /B01/. The verification team has detected no further uncertainties or quality restriction.

- **Summary of the validation and verification conclusions**

Carbon Check (India) Private Ltd. concludes the validation with a positive opinion that the VCS Grouped Project “Distribution of Energy efficient cookstoves in India - 2” as described in the joint PD - MR (version 06, dated 17/12/2022) /01-d/, meets all applicable VCS requirements, including those specified in the VCS Standard (v4.3, dated 22/06/2022), relevant methodology, tools and guidelines.

The selected baseline and monitoring methodology (VMR0006 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.

In CCIPL's opinion, the emission reductions reported for the “Distribution of Energy efficient cookstoves in India - 2” in the monitoring report are fairly and correctly stated. CCIPL is therefore able to certify that the emission reductions from the “Distribution of Energy efficient cookstoves in India - 2” during the period from 01-April-2021 to 15-September-2022, is amount 243,104 tCO₂ equivalent.

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1 INTRODUCTION

1.1 Objective

The purpose of the validation and verification.

Greneity Infocom Service Pvt Ltd has appointed the VVB, Carbon Check (India) Private Ltd. to perform a joint validation and verification of the VCS Grouped Project “Distribution of Energy efficient cookstoves in India - 2”. This report summarizes the findings of validation of the project, performed based on the VCS Program Guide (v4.2, dated 22/06/2022), VCS Standard (v4.3, dated 22/06/2022), Program Definitions (v4.2, dated 22/06/2022), Registration & Issuance Process (v4.2, dated 22/06/2022), VCS Validation and Verification Manual (v 3.2, dated 19/10/2016). Validation is required for all VCS project activities intending to register grouped project under the VCS program. The purpose of a joint validation and verification 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 and monitoring report, as documented, is sound and reasonable and meets the identified criteria. Validation and verification are 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, VCUs.

Through this joint validation and verification activities, it is to be confirmed that:

- The project is implemented as described in the VCS Joint Project Description & Monitoring record document /01/;
- The monitoring system is implemented and fully functional to generate emission reductions without any double counting, and
- The data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reductions calculation.

The joint validation and verification followed the requirements of the current version of the VCS standard version 4.3 and VCS program guide (version 4.2)/B01/ to ensure the quality and consistency of the joint validation and verification work and the report.

1.2 Scope and Criteria

The scope and criteria of the validation and verification.

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 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 joint validation and verification of this project is based on the Joint PD & MR /01/ emission reduction calculation spreadsheets /02/, supporting documents made available to the verifier /02 – 18/ and information collected through performing onsite visit interviews. Furthermore, publicly available information was considered as far as available and required.

CCIPL has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The joint validation and verification are carried out on the basis of the following requirements, applicable for this grouped project:

- VCS Program Guide (v4.2, dated 22/06/2022)
- VCS Standard (v4.3, dated 22/06/2022)
- Program Definitions (v4.2, dated 22/06/2022)
- Registration & Issuance Process (v4.2, dated 22/06/2022)
- 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)/B02/.
- Other relevant rules, including the host country legislation

The scope of this joint validation and verification, by independent checking of objective evidence, is as follows:

- To verify that the project is implemented as described in the joint VCS Joint PD & MR.
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting.
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

The method and criteria used for verification consisted of the following phases:

1. Completeness check and desk review;
2. On site interviews with stakeholders;
3. Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation.

CCIPL conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification team VVBs not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

1.3 Level of Assurance

The joint validation and verification report is based on the Joint PD & MR /01/, supporting documents /02//18/ made available to the verifier and information collected through performing interviews.

The verification has been planned and organized to achieve a:

☒ Reasonable level of assurance as per VCS Standard (v4.3)

☐ Limited level of assurance

The threshold for quantitative materiality with respect to the aggregate of errors, omissions and misrepresentations, relative to the total reported GHG emission reductions and/or removals was limited to five percent, as required by section 4.1.8 of the VCS Standard version 4.3 /B01/.

1.4 Summary Description of the Project

The project “Distribution of Energy efficient cookstoves in India - 2”, is a grouped project which employs of the VCS methodology; VMR0006 version 1.1 /B02/. The grouped project involves distribution of energy efficient cookstoves to the rural population of Chhattisgarh, Bihar, West Bengal, Kerala, Karnataka & Odisha states of India. Presently the grouped project activity is planned to be included with distribution of 10,000 ICS/year each state over 5 year as per the project timeline provided in Joint PD & MR section 1.1/01-d/. The technology distributed under this group project is fuel efficient Dattu Chulah. PP has considered each ICS distributed as a project activity instance. The start date for the grouped project is 01/04/2021 /04/ which is the date of installation/registration of the first stove in the grouped project.

The project proponent for the project activity is Greneity Infocom Service Pvt Ltd., owns the rights to VERs /06//16/.

The project activity has been implemented as described in the VCS joint PD and MR /01/ and the emission reductions are calculated conservatively as per the applied methodologies /B02/. The ICS number has varied during the actual implementation and same has updated during verification activity. The average GHG emission reduction estimated is 201,800 tCO_{2e} and total 2,018,006 tCO_{2e} for the ICS group project activity over the entire crediting period.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

Greneity Infocom Service Pvt Ltd has appointed the VVB, Carbon Check (India) Private Ltd., to carry out the joint validation and verification of the project “Distribution of Energy efficient cookstoves in India - 2”, with regards to the relevant requirements of VCS Standard Version 4.3 /B01-a/.

The joint validation and verification includes a thorough and independent assessment of the proposed grouped project against the applicable VCS requirements/B01/, in particular, 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. version 1.1 /B02/ and assess the claims and assumptions made in the Joint PD & MR /01/ without limitation on the information provided by the project participants. The overall joint validation and verification was conducted using Carbon Check's internal procedures.

The Joint validation and verification consists of the following three phases:

1. Completeness check and desk review of the joint PD and MR, monitoring plan, monitoring methodology, applicable tools in particular attention to the frequency of measurements, quality of metering equipment including calibration requirements, QA/QC procedures and other relevant documents.
2. On site visit interviews (including follow-up interviews with project stakeholders, when deemed necessary). The onsite interviews include the following:
 - An assessment of implementation and operation of project activity with respect to joint PD and MR.
 - Review of information flows for generating, aggregating and reporting the monitoring parameters.
 - Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with the monitoring plan of the project.
 - Cross check of information and data provided in the monitoring report with purchase records or similar data sources.
 - Review of assumptions made in calculating the emission reductions (if any).
 - Implementation of QA/QC procedure in-line with the VCS joint PD & MR and methodology requirements.
3. Resolution of outstanding issues and the registration and issuance of the final joint validation and verification report and as applicable the VCS validation and verification Deed of Representation.

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- A review of data and information presented by the PP to verify their completeness

- A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The Joint PD and MR /01-a/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents /02/-/18/. The documents were reviewed by CCIPL. Through the process of the validation and verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the CCIPL team.

The list of documents referred during the course of this verification has been provided in Appendix-1.1.

2.3 Interviews

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

VVB has applied a sampling approach for the stakeholder's interview and for acceptance sampling in accordance with the paragraph 26 & 39 c of the Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 09.0. Accordingly, 11 samples based on AQL of 0.5% and UQL of 20%; producer risk of 10% and consumer risk of 10 % with acceptance number (c) as 0. No discrepant records were found during the on-site inspection.

SR. No.	Date	Name	Organisation	Topic	VVB Persons on site
/1/	12/09/2022	Shivani Garg	Director - Greneity Infocom Service Pvt Ltd	• Project Design • Project Implementation status • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality • Qualification and Training • Monitoring and reporting documentation	Pallavi Gedam

				• Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility	
/2/	12/09/2022	Arjun Sharma	Project Coordinator Greeneity Infocom Service Pvt Ltd	• Project Design • Project Implementation status • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality • Qualification and Training • Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility	Pallavi Gedam
/3/	12/09/2022	Sitaram Bias	Field Supervisor Greeneity Infocom Service Pvt Ltd	• Project Design • Project Implementation status • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality	Pallavi Gedam

				• Qualification and Training • Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility	
/4/	12/09/2022	Jyoti (Stove model :- Duttu Chullah stove id:- CH/SRJ/CST /7119) (duration:- 10 to 15 mins)	End User – (location: Chhattisgarh, district: surajpur)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/5/	12/09/2022	Sumitra (Stove model :- Duttu Chullah stove id:- CH/SRJ/CST /7251) (duration:- 10 to 15 mins)	End User– (location: Chhattisgarh, district: surajpur)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/6/	12/09/2022	Bhagmaniya (Stove model :- Duttu Chullah stove id:- CH/SRJ/CST /7301) (duration:- 10 to 15 mins)	End User– (location : Chhattisgarh, district: surajpur)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam

/7/	12/09/2022	Kesri (Stove model :- Duttu Chullah stove id:- CH/SRJ/CST /7688) (duration:- 10 to 15 mins)	End User- (location : Chhattisgarh district: surajpur)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/8/	12/09/2022	Dileshri (Stove model :- Duttu Chullah stove id:- CH/SRJ/CST /7720) (duration:- 10 to 15 mins)	End User- (location : Chhattisgarh, district: surajpur)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/9/	13/09/2022	Phulmet (Stove model :- Duttu Chullah stove id:- CH/SRJ/CST /8009) (duration:- 10 to 15 mins)	End User- (location: Chhattisgarh, district: surajpur)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/10 /	13/09/2022	Santosh Kumar (Stove model :- Duttu Chullah stove id:- BR/ARW/CS T/4233) (duration:- 10 to 15 mins)	End User - (location: Bihar, district: Arwal)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/11 /	13/09/2022	Rinki Devi (Stove model :- Duttu Chullah stove id:-	End User - (location: Bihar, district: Arwal)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam

		BR/ARW/CS T/5504) (duration:- 10 to 15 mins)			
/12 /	13/09/2022	Tulsi Singh (Stove model :- Duttu Chullah stove id:- BR/ARW/CS T/7189) (duration:- 10 to 15 mins)	End User - (location: Bihar, district: Arwal)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
/13 /	14/09/2022	Kameshwar Singh (Stove model :- Duttu Chullah stove id:- BR/ARW/CS T/7653) (duration:- 10 to 15 mins)	End User - (location: Bihar, district: Arwal)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam
14/	14/09/2022	Pavan Kumar (Stove model :- Duttu Chullah stove id:- BR/ARW/CS T/7755) (duration:- 10 to 15 mins)	End User - (location: Bihar, district: Arwal)	Local stakeholder consultation, monitoring survey of the project activity and grievance mechanism.	Pallavi Gedam

2.4 Site Inspections

Carbon Check has conducted an on-site inspection to confirm the implementation and operation status of the project activity. A reasonable level of assurance has been maintained through the on-site visit for the purpose of validation and verification as follows:

- An assessment of the implementation and operation of the project activity through onsite interviews with the representatives of project proponent and end users.

- Confirmation of the pre-project scenario
- Confirmation of the applicability of the methodology and monitoring and controlling instruments and operational arrangements.
- Confirm the data collection procedures are implemented in accordance with the MP
- Assessment of the project boundaries
- Assessment of the monitoring provisions by checking the monitoring arrangement.
- A review of information aggregating and reporting of the monitoring parameters
- A check of the observations of monitoring practices against the requirements of the VCS JOINT PD & MR and the applied monitoring methodologies
- A review of calculations and assumptions made in determining the GHG data and ERs, and
- An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters

2.5 Resolution of Findings

This section summarises the findings from the joint validation & verification of the project activity. In this section the findings from the document review, assessments and onsite interviews are provided. Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

- Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.
- Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

VVB has identified 02 CAR and 08 CLs. All CAR and CLs raised by Carbon Check during this joint validation & verification have been resolved. Please refer to Appendix 4 below for the details of the CARs/CLs and their closure. If this was not completed, the ERs cannot be certified and recommended for issuance to the VCS Registry.

2.5.1 Forward Action Requests

A **forward action request (FAR)** should be issued, where:

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the next verification period. FARs VVBs not relate to VCS requirements for issuance of ERs achieved during subject monitoring.

CCIPL has not raised any FAR during this joint validation and verification.

3 VALIDATION FINDINGS

3.1 Project Details

The project “Distribution of energy efficient cookstoves in India - 2”, is a grouped project which employs baseline and monitoring methodology; VRM0006 version 1.1 /B02/. The grouped project involves distribution of fuel-efficient improved cook stoves (ICS) model Duttu challah in Chhattisgarh and Bihar, India for this monitoring period. This grouped project comprises of 5 years and each year ICS will be distributed around 10,000 ICS in different states like Chhattisgarh, Bihar, West Bengal, Kerala, Karnataka & Odisha of India. The implementation schedule is given in the section 1.1 of the VCS Joint PD & MR. The project results in reducing the amount of non-renewable biomass used for cooking. Through reduction in non-renewable biomass consumption, the programme will decrease greenhouse gas emissions. The - natural draft ICS will burn the wood efficiently, which improves the thermal energy direct to the pot, so conserving nonrenewable biomass. Section 1.1. of the VCS Joint PD& MR contains a clear summary description of the projects. The completeness and accuracy of the project description was validated through onsite interviews.

The project proponent is Greneity Infocom Services Private Limited which will be holding the carbon credits generated from the project activity as per section 1.7 of VCS joint PD & MR /01/.

The start date for the grouped project is 01/04/2021 /04/ which is the date of installation of first stove under this project activity.

The crediting period starts on 01/04/2021 /04/, which coincides with the starting date of the project activity, and last for 10 years, fixed. This is in accordance with paragraph 3.8.1 of the VCS standard version 4.3/B01-a/ 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 Joint PD & MR. 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 Chhattisgarh and Bihar, India for this monitoring period. This is in accordance with paragraph 3.5.8 of the VCS standard version 4.3 /B01-a/, which requires grouped projects to have one or more clearly defined geographic areas within which new project activity instances may be developed.

The VCS Joint PD & MR clearly indicates the project scope, which is scope 3: Energy demand, and more specifically demand -side energy efficiency project. The project is a grouped project; this is indicated in section 1.4. of the VCS Joint PD & MR /01/.

The average annual GHG emission reduction for the group project activity is 201,800 tCO₂e and total 2,018,006 tCO₂e over the entire crediting period.

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 Joint PD & MR 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 India 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. VVB 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

The proposed project activity instances do not generate another form of environmental credit. The project proponent indicates in the VCS Joint PD & MR 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 nonrenewable consumption and emissions savings but also has many other benefits for the household. It contributes to sustainable development in India through:

- Reducing deforestation due to efficient fuel usage that occurs when using the ICS.
- Increase in disposable income due to reduced spending on fuels.
- Time savings for the person cooking: this is a highly valued benefit for the household as cooks now add productive time to their working day.
- Gender balance: as the persons cooking in the household are mainly women, their earning potential, confidence and general position strengthens.
- Improved health: cooking with ICS reduces indoor air pollution and helps reduce burn injuries and death, especially those caused by paraffin cook stoves.
- injuries and death, especially those caused by paraffin cookstoves.

Table 1:-Eligibility criteria of the grouped project activity

The eligibility criteria have been provided clearly in section 1.4 of the Joint PD & MR /01-d/ and then justification provided for inclusion of project activity instances for the VCS methodology.

Sl. No.	Eligibility criteria for the inclusion of new project activity instances	Applicability	Assessment by the validation team
1.	Meet the applicability conditions set out in the methodology applied to the project.	New project activity instances (will meet the applicability conditions set out in Section 3.2 where the target of the end-user is household and the ICS deployed is at least 25% of thermal efficiency.	VVB has reviewed the manufacturer specification/05/ which confirms that the ICS distributed to the end users has 31.8% thermal efficiency. This is deemed appropriate to the Validation team.

			Thus, the eligibility criteria has been met for the new project activity instances under this group project.
2.	Use the technologies or measures specified in the project description.	The technology used for project activity is energy efficient cook stoves. Only energy efficient cook stoves to be adopted in the project by replacing traditional cook stoves in rural household	VVB through document review and onsite visit confirms that PP will be using only Duttu challahs and no other stove model under this grouped project. This has also been mentioned in the Joint PD & MR. Thus, the eligibility criteria has been met for the new project activity instances under this group project.
3.	Apply the technologies or measures in the same manner as specified in the project description.	Only energy efficient cook stoves to be adopted in the project by replacing traditional cook stoves in rural households.	VVB through document review and onsite visit interviews confirms that PP will be using only energy efficient Dattu Challah's and no other stove model will replace the baseline traditional cookstoves in the household, under this grouped project. Which is also been mentioned in the joint PD & MR/01/. Thus, the eligibility criteria has been met for the new project activity instances under this group project.
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 India and subject to baseline scenario determined in Section 3.4 below.	VVB through document review and onsite visit interviews confirms that the baseline is demonstrated in the section 3.4 of the joint PD & MR/01/. PP will install only energy efficient cook stove Dattu chullah stove within the project boundary of India and will replace the baseline cookstoves. This has also been mentioned in the joint PD & MR. Thus, the eligibility criteria have been met for the new project activity instances under this group project.
5.	Have characteristics with respect to additionality that are	All new project activity instances will use the activity	VVB through document review and onsite visit interviews confirms that PP has demonstrated additionality

	consistent with the initial instances for the specified project activity and geographic area.	method for demonstration of additionality. Step 1: Regulatory Surplus There is no mandated government programme or policy in host country of this project ensuring the distribution of new project activity instances. Step 2: Positive List The inclusion of new project activity instances will comply with positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology.	as per the methodology VMR0006 version 1.1 section 7 which states that activity method to demonstrate the additionality. This has also been mentioned in the PD. PP has demonstrated regulatory surplus 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 project activity meets all the applicability conditions of the applied methodology VMR0006, version 1.1 and distributes stoves at zero cost to the end-users and has no other source of revenue other than the sale of GHG credits. Hence the project qualifies under positive list and deemed additional. Thus, the eligibility criteria have been met for the new project activity instances under this group project.
6.	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: 1) Each project activity instance that exceeds one percent of the capacity	No project activity instance shall exceed the applicable limit, which is 180 GWh_{th}/y. The expected annual energy saving for each project activity instance is approximately 0.01 GWh_{th}/y. As the annual energy saving is below 1% of the limit, therefore no project activity instance is identified and divided into clusters.	PP has considered each ICS as a project activity instance which is deemed acceptable as per the VCS Program Definitions and VCS Standard /B01/. Since the annual energy saving per ICS is approximately 0.01 GW_{th}/y the capacity of project activity instance is well below the 1% of the threshold limit. Therefore, it is not required to divide any project activity instance into clusters.

	limit shall be identified. 2) Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit.		This criterion is deemed appropriate, and it can be verified from the energy saving per ICS included in the grouped project.
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Based on the above assessment, VVB confirms that inclusion of project activity instances in the grouped project is valid.

3.2 Participation under Other GHG Programs

The project has applied only under VCS for registration. The grouped project is not participating under any other GHG programs. Each ICS is also physically marked with its unique identification number. Along with the serial number, end user name, end user ID no, address, commissioning date etc. VVB has cross verified the same during the onsite visit, had also been noted which were found to be consistent on ground. Further, the similar projects are yet not started, PP has ensured that districts under this group project activity, are not being repeated in the similar projects developed by the PP/19/.It has been confirmed through the description In Joint PD & MR /01/ and through interviews that the project activity

does not participate in any emission trading program or any other GHG program and has not sought or received any other form of environmental credit. VVB team has checked the publicly available sources to confirm that there are no other registered small-scale or an application to register another small-scale project activity under carbon credit mechanisms viz. CDM, VERRA-VCS, Gold standard etc. Further, the project activity is not rejected under any other GHG programs. PP has submitted an undertaking that the project activity is not registered/seeking registration under any other GHG programme/19/. Therefore, VVB concludes that the project activity is only applied in VERRA under VCS programme and ensures that no double counting will be associated with the project activity.

3.3 Safeguards

3.3.1 No Net Harm

As identified by PP in section 2.1 of the Joint PD & MR /01/, the project has no negative impact.

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.

VVB 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.

3.3.2 Local Stakeholder Consultation

The local stakeholder consultation meetings were held on on 30/06/2021 at Bithra village, Arwal District, Bihar and Korja village, Sarguja district, Chhattisgarh, and have been provided in the section of 2.2 of the joint PD & MR /01/. The local stakeholders for the project was carried out grouped project level which was validated by the validation and verification team.

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 joint PD & MR /01/.

Table 2: Grievances as received during this monitoring period are stated below;

Grievance Received	Action Taken
Need to become field officer.	End user wanted to be a part of the ground team. Resolution: A training has started for the end user to enrol and the volunteer for the programme.
Need two cook stoves.	End user wanted two stove to quickly prepare meal for large gathering. Resolution: As of now PP has planned to distribute only one stove per household. The same was explained to the end user.
Need training for the better usage of the cook stove.	End user need one more training for the cook stove. Resolution: End user training was provided to the user at the time of installation of the ICS. As per request, again field staff visited the user premises and explained the process again and user was very much satisfied.

PP has maintained monitoring service records; grievance register and operations logbook, the same was evidenced during the on-site inspection . There were a few entries were made in the grievance record viz. need two cook stoves, need training for the better usage of the cook stove, need to become field officer during the monitoring period. These comments were raised by the users; however, all the issues were resolved by the PP and the resolution details are checked and deemed appropriate to the VVB. The summary of the same is provided in the section 2.2 of the Joint PD and MR.

The ground team have the responsibility to take grievances regarding the project activity and same will be conveyed to PP during operation of project activity. Thus, ongoing communication of stakeholders is followed through grievance mechanism. The audit team has checked through on site inspection interviews with the end users few grievances are listed under section 2.2 of the joint PD & MR /01/ during the first monitoring period.

The Project Proponent has reported its feedback and grievance redressal procedure in Section 2.2 of the joint PD & MR /01/, and the policy is outlined in the document “Project Grievance Redress Mechanism” /17/. In the opinion of VVB, based on on site inspection interviews and observations, the grievance redressal procedure will address issues that may arise during project planning and implementation.

The grievance redressal process has been designed where beneficiaries and stakeholders have PP contact information and the understanding that they should contact the organization with any problems, questions, or grievances.

During the on-site interviews and based on document review /01/, /17/, it can be confirmed that grievance addressal procedure has been designed and is implemented according to section 2.2 of the Joint PD & MR /01/ and that it is effective in its aim.

VVB confirms on the procedure and method for engagement, method for documenting the outcomes of local stakeholders' consultation and account of all inputs received. VVB confirms that the project proponent has taken due account of all input/ feedback received during the monitoring process (positive or negative) have been compiled in the survey results spreadsheet/08/, this has been checked by the VVB during the on-site inspection interviews. Hence the VVB deemed the local stakeholders ongoing communication as appropriate.

3.3.3 Environmental Impact

No negative environmental impacts have been identified from the project and Environment Impact Assessment is not required for the project.

3.3.4 Public Comments

The public commenting period for the project was from 05/07/2022 to 04/08/2022. No public comments were received for the grouped project.

3.3.5 AFOLU-Specific Safeguards

This is a non-AFOLU project and hence this section is not applicable.

3.4 Application of Methodology

3.4.1 Title and Reference

The Grouped Project provides for projects that use one of the VCS approved methodology:

- VMR0006. "Methodology for Installation of High Efficiency Firewood Cookstoves, (Version 1.1)"

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

- CDM Guideline "Sampling and surveys of CDM project activities and programmes of activities" version 04.0
- CDM Standard "Sampling and surveys for CDM project activities and programmes of activities" version 09.0

3.4.2 Applicability

Table 3 The applicability of methodology is justified as below

Applicability criterion	How the project complies	Means of validation
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Project activities shall be implemented in domestic premises or in community-based kitchen	The proposed project involves deployment of ICS only in households i.e., domestic premises.	VVB through document review and onsite visit interviews confirm that the ICS Duttu Challahs will only be distributed in the households thereby confirming the methodology applicability condition.
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;	Energy Efficient stoves planned to be installed under this project are single pot wood based cook stoves that have an efficiency of 31.81% as per the Manufacturer's specification.	VVB has reviewed the manufacturer specification /05/ which confirms that the ICS distributed to the end users has 31.81% thermal efficiency. This is deemed appropriate to the VVB. Thus, the eligibility criteria has been met for the new project activity instances under this group project.
Both 'Projects' and 'Large Projects' can use the methodology	Estimated average annual emission reductions for the grouped project activity are lesser than 300,000 tonnes CO ₂ e per year. Therefore, proposed project qualifies the "Projects" criteria.	VVB through document review and onsite visit interviews confirm that the ICS Duttu Challah's 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 less than 300,000 tCO ₂ and hence the project is small project as per VCS.
Non-renewable biomass has been used in the project region since 31	Proof that biomass has been used in the project region, i.e., in the host country India since 31 December	VVB has reviewed the Report by National sample

December 1989, using survey methods or referring to published literature, official reports, or statistics;	1989 is available through widespread documentation. Report by National sample survey organization (NSSO), department of statistics, Government of India reveals that 79% of the rural households in India were dependent of firewood and chips in the year 1987-88¹. The same article reported 78% of rural households to be dependent on firewood and chips in the year 1993-94. National sample survey organization, Government of India reveals that 75% of the rural households in rural India were primarily dependent of fuelwood and chips². Fuel wood is the main source of energy in rural areas. Wood energy is mainly used as fuel for cooking at household. The above clearly shows that the rural areas in the host country are dependent on biomass since and before 1989 with not much change in the trend which clearly depicts the dependence of the people of the host country on woody biomass as fuel for meeting thermal energy requirement for cooking at households.	survey organization (NSSO), department of statistics, Government of India, which demonstrates the use of Non-renewable biomass since 1989 in India. This is deemed appropriate to the VVB. Thus, the eligibility criteria has been met for the new project activity instances under this group project.
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 c. Energy use for renewable biomass processing (e.g. shredding and compacting in the case of briquetting)	Not applicable as project activity uses non- renewable biomass as a fuel. The ICS is introduced as energy efficiency measure to replace baseline stoves and reduce the use of non-renewable biomass for combustion.	Not applicable

¹ http://mospi.nic.in/sites/default/files/publication_reports/410_2_part2_final.pdf
² http://mospi.nic.in/sites/default/files/publication_reports/511_final.pdf

The VCS JOINT PD & MR shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo) The above criteria is as per below VCS meth requirement and para 7 of latest version of meth AMS II.G version 12 is followed. (Additionally, applicability criteria numbers 8 and 9 set out in Section 2.2 of AMS II.G, version 11.1 shall apply)	Each ICS in this project will be identified by a unique combination of state, district and Unique identification number (UID). The UID will be a unique number which will allow for a clear distinction between the stoves. No individual UID can be repeated within the project, thus ensuring that each stove is counted only once in the proposed project. The Project Owner have provided the undertaking that no double counting of emission reductions occurred due to unique identifications of product and end-user location.	VVB by means of onsite visit audit interviews confirms that the proposed method for distribution of project devices includes the method to avoid double 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 VVB confirms that the record keeping system will eliminate double counting.
The VCS JOINT PD & MR shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices. The above criteria is as per below VCS meth requirement and para 8 of latest version of meth AMS II.G version 12 is followed. (Additionally, applicability criteria numbers 8 and 9 set out in Section 2.2 of AMS II.G, version 11.1 shall apply)	Manufacturers/ cook stove distributors undertaking to be provided that there is no double accounting for carbon emissions associated with ICS supplied to households under the project activity having Project Owner (Greneity Infocom Service Pvt Ltd.). Greneity will be owner of that carbon credits and Manufacturers/ cook stove distributors will not claim any credits for such cook stoves.	VVB by means of onsite visit audit interviews and the review of sample beneficiary (end-user) undertaking /06./13/ confirms that the proposed procedures prevent double counting of emission reductions.

3.4.3 Project Boundary

The Grouped Project boundary is defined as per VMR0006. "Methodology for Installation of High Efficiency Firewood Cookstoves, (Version 1.1)".

Table 4: The sources of greenhouse gas identified in the Joint PD & MR /01/ are deemed to be appropriate and assessed below:

Source		Gas	Included?	Justification/Explanation
Baseline	Emission from use of non-renewable biomass/Fossil fuel	CO ₂	Yes	Major source
		CH ₄	Yes	Major source
		N ₂ O	Yes	Major source
		Other	No	No other source identified
Project	Emission from use of non-renewable biomass	CO ₂	Yes	Major source
		CH ₄	Yes	Major source
		N ₂ O	Yes	Major source
Source		Gas	Included?	Justification/Explanation
		Other	No	No other source identified

The project boundary for the grouped Project consists of the physical, geographical locations of the distributed ICS limited to Chhattisgarh and Bihar. This includes: “The Nonrenewable biomass used by the project cooking system”.

3.4.4 Baseline Scenario

The project activity will use methodology VMR0006 version 1.1. This is the most recent valid version available on the VERRA site at the time of validation. Since the project activity that apply the indicative simplified methodology VMR0006 version 1.1, the baseline scenario for this project activity is the one indicated by this methodology, i.e. “*The baseline scenario is the continued use of non-renewable wood fuel (firewood/charcoal) or fossil fuel (coal/kerosene) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity.*”. The baseline described in the PD complies with the requirements of the methodology, as the energy baseline is the existing level of consumption of non-renewable biomass used by the cooking systems currently in use and which is used in the absence of the project activity.

VVB based on review of the VCS Joint PD & MR /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 scenario for the applied methodology were also confirmed through onsite interviews with the end users of technologies and representatives of PP.

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

3.4.5 Additionality

The additionality of the grouped project has been demonstrated by the PP as per the methodology section 7 /B02/. The methodology uses activity method for the demonstration of additionality. As per the methodology, the grouped project activity falls under the positive list of technologies and project activity types that are defined as automatically additional. PP has demonstrated regulatory surplus 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.

The project activity meets all the applicability conditions of the applied methodology VMR0006, version 1.1 and distributes stoves at zero cost to the end-users and has no other source of revenue other than the sale of GHG credits. Hence the project qualifies under positive list and deemed additional. Furthermore, VVB based on document review and on-site inspection confirms that the project is not implemented as part of government schemes or supported by multilateral funds. PP has provided conditions (both first and second) of positive list as available in the additionality section of the applied methodology ; and the same is deemed appropriate to the VVB. Hence, the project (and the future project instances if they meet eligibility criteria) is considered as additional as per the positive list of the methodology /B02/.

The additionality has also been included in the eligibility criteria in the PD. Each project activity instance shall meet the requirements of eligibility criteria in order to be included in the grouped project. As per the program definitions of VCS /B01-e/ Grouped Project is defined as, “A project to which additional instances of the project activity, which meet pre-established eligibility criteria, may be added subsequent to project validation” and Project Activity Instance (Instance) is defined as, “A particular set of implemented technologies and/or measures that constitute the minimum unit of activity necessary to comply with the criteria and procedures applicable to the project activity under the methodology applied to the project”. Therefore, each ICS is considered as a project activity instance.

Each ICS user/beneficiary involved in the project activity has entered into an end user agreement with Greneity Infocom Service Pvt Ltd to be part of the project activity and thereby transferring the carbon credit ownership rights to Greneity Infocom Service Pvt Ltd /16/. The Cook stove is disbursed free of cost to the beneficiaries, which is verified during the onsite interviews with the end users. Team also checked end user agreements /16/ and confirms that, project ownership and transfer rights are clearly defined and in place.

Therefore, VVB 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 of energy efficient cookstoves in India is additional – the emission reductions achieved by the project would be below those that would have occurred without the implementation of the project.

3.4.6 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 Joint PD & MR /01-d/. 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-a/.

VVB based on the review of the Joint PD & MR /01-d/, confirms that the formulae are correctly presented for the determination of emissions reductions at project instance level. The parameters and equations presented in the Joint PD & MR /01-d/, 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 Joint PD & MR/01-d/ and ER spreadsheet/02/ and methodology VMR0006 (version 1.1) /B02-a/.

The improved cookstove is introduced as energy efficiency measure in the project, therefore equations 1 and 2 of the methodology VMR0006 will be applied to calculate the net GHG emission reductions

Where

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

- i = Indices for the situation where more than one type/model of improved cookstove is introduced to replace three-stone fire.
- j = Indices for the situation where there is more than one batch of improved cookstove of type i .
- ER_y = Emission reductions during year y in t CO₂e
- $ER_{y,i,j}$ = Emission reductions by improved cookstove of type i and batch j during year y in t CO₂e

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO_2} + EF_{wf,non\ CO_2}) \times N_{y,i,j} \times 0.95 \quad \text{Equation (2)}$$

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})³
- $NCV_{wood\ fuel}$ = Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)⁴

³ Default values endorsed by designated national authorities and approved by the Board are available at <https://cdm.unfccc.int/DNA/fNRB/index.html>

⁴ 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction

$EF_{wf,CO2}$	=	CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO ₂ /TJ) ⁵
$EF_{wf,non\ CO2}$	=	Non-CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO ₂ /TJ) ⁶
$N_{y,i,j}$	=	Number of improved cookstoves of type i and batch j operating during year y
0.95	=	Discount factor to account for leakage

PP has submitted the detailed calculation sheet with respect to fNRB /03/. The project proponent has calculated the fNRB using the CDM TOOL30: "Calculation of the fraction of non-renewable biomass"-Version 03.0 /03/, which was the latest version available during the time of submission to VERRA. PP has used values from different reports viz. Forest Survey of India report 2011/03/, Forest Survey of India report 2019 and Ministry of Environment & Forests Government of India report 2019, i.e. different vintages of data is used for the calculation of fNRB. As per the CDM tool 30, mentions that where data for one single vintage is not available for all parameters, different vintages may be used for parameters, as long as it can be justified. The PP has sources the value for the parameter annual wood fuel consumption in household sector from Forest Survey of India report 2011, which is the only source of data available and the same is being used by all similar kind of projects in various standards. Hence, the same is accepted by the VVB.

The quantify of woody biomass saved due to implementation of improved cookstoves to be estimated using equation below

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times \left(\frac{\eta_{new,y,i,j}}{\eta_{old}} - 1 \right) \quad \text{Equation (3)}$$

Where,

η_{old}	=	Efficiency of baseline cookstove
$\eta_{new,y,i,j}$	=	Efficiency of the improved cookstove type i and batch j efficiency be determined using Equation 5.
$B_{y=1,new,i,j,survey}$	=	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.

⁵ 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

⁶ 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

$$\eta_{new,y,i,j} = \eta_p \times (DF_n)^{y-1} \times 0.94 \quad \text{Equation (4)}$$

Where,

- η_p = Efficiency of project stove (fraction) at the start of project activity.
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 default value of 0.99 efficiency loss per year can be considered.
- $(DF_n)^{y-1}$ =
- 0.94 = Adjustment factor to account for uncertainty related to project cookstove efficiency test.

This grouped project would achieve an estimated total emission reduction of 2,018,006 tCO₂e in the 10-year crediting period and an average of 201,800 tCO₂e per year, during this monitoring period 01/04/2021 to 15/09/2022 the total emission reduction achieved is 243,104 tCO₂ as indicated in the VCS Joint PD & MR /01-d/ and also in the ER spread sheet /02/.

In conclusion, all values used in the VCS Joint PD & MR to calculate emission reductions are considered reasonable in the context of the proposed grouped project "Distribution of energy efficient cookstove in India -2" and calculation approach is correct.

3.4.7 Methodology Deviations

No methodology deviations have been applied to the project activity.

3.4.8 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 Joint PD & MR /01-d/ the parameters determined ex-ante and those to be monitoring ex post as per the requirements of the methodology are given below.

Table 5 Parameters Determined ex-ante

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

Parameter	Unit	Value	Assessment
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$f_{NRB,y}$	Fraction	Chhatisgarh:92% Bihar: 99% Bengal: 99% Odisha: 91% Karnataka: 92% Kerala:92%	-Fixed ex-ante The value is calculated in line with the applicable methodological CDM Tool 30, version 3.0. and forest surevy of India
$NCV_{wood\ fuel}$	TJ/tonne	0.0156	- Fixed ex-ante - Default values from the 2006 IPCC Guidelines have been used.
$EF_{wf,CO2}$	tCO ₂ /TJ	112	- Fixed ex-ante - Default values from the 2006 IPCC Guidelines have been used.
$EF_{wf,non\ CO2}$	tCO ₂ /TJ	26.23	- Fixed ex-ante - Default values from the 2006 IPCC Guidelines have been used.
η_{old}	Fraction	0.1	- Fixed ex-ante - Default values from the methodology.
η_p	Fraction	0.3181	- Fixed ex-ante -Manufacturers specification.

Assessment of $f_{NRB,y}$

Assessment of f_{NRB} Chhattisgarh

PP has calculation of f_{NRB} as per CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v03.0). Validation team confirms that it has checked f_{NRB} calculation report/spread sheet /02/ prepared by PP.

As per the applied methodological tool, PP has calculated the f_{NRB} parameter using the most recent historical data from Forest Survey of India report 2011 year for which data is available.

As per Forest Survey of India report 2011, annual wood fuel consumption in household sector for the state of Chhattisgarh = 7,693,00 (Ton/year)

As per Forest Survey of India report 2011, non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture) for the state of Chhattisgarh = 14,807,040 (ton/year)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the Ministry of Environment and Forest, Govt. of India, checked and confirmed by the VVB. The resulting average MAI estimates for Chhattisgarh 0.5, t/ha/year.

As per paragraph 13 of the Tool 30 version 03.0,

“If the fNRB value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CCIPL based on review of fNRB calculation /02/ and confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of fNRB calculation /02/ is as below:

fNRB Calculations for Chhattisgarh		
Parameter	Value	Units
Annual wood fuel consumption in household sector	7,693,000	Tonne
Non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture)	14,807,040	Tonnes
Annual Increment of woody biomass growth per hectare in subcategory i of forest areas	0.5	Tonne/ha
Extent of forest in sub-category i	2,239,000	ha
Renewable biomass	1,119,500	Tonnes
Non-Renewable Biomass, NRB	21,380,540	Tonnes
fNRB	0.9200000	

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in Chhattisgarh is, therefore, validated as 21,380,540 t/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 Chhattisgarh is, therefore, validated as 0.92.

Assessment of f_{NRB} Bihar

PP has calculation of f_{NRB} as per CDM Methodological Tool: “Calculation of fraction of non-renewable biomass” (v03.0). Validation team confirms that it has checked f_{NRB} calculation report/spread sheet /02/ prepared by PP.

As per the applied methodological tool, PP has calculated the f_{NRB} parameter using the most recent historical data from Forest Survey of India report 2011 year for which data is available.

As per Forest Survey of India report 2011, annual wood fuel consumption in household sector for the state of Bihar = 11,940,000 (Ton/year)

As per Forest Survey of India report 2011, non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture) for the state of Bihar = 30,156,330 (ton/year)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the Ministry of Environment and Forest, Govt. of India, checked and confirmed by the VVB. The resulting average MAI estimates for Bihar 0.5, t/ha/year.

As per paragraph 13 of the Tool 30 version 03.0,

“If the f_{NRB} value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CCIPL based on review of f_{NRB} calculation /02/ and confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of f_{NRB} calculation /02/ is as below:

f_{NRB} Calculations for Bihar State		
Parameter	Value	Units
Annual wood fuel consumption in household sector	11,940,000	Tonne
Non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture)	30,165,330	Tonnes

Annual Increment of woody biomass growth per hectare in subcategory i of forest areas	0.5	Tonne/ha
Extent of forest in sub-category i	622,000	ha
Renewable biomass	311,000	Tonnes
Non-Renewable Biomass, NRB	41,794,330	Tonnes
f_{NRB}	0.9926138	

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in Bihar is, therefore, validated as 41,794,330 t/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 Chhattisgarh is, therefore, validated as 0.99.

Assessment of f_{NRB} Odhisha

PP has calculation of f_{NRB} as per CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v03.0). Validation team confirms that it has checked f_{NRB} calculation report/spread sheet /02/ prepared by PP.

As per the applied methodological tool, PP has calculated the f_{NRB} parameter using the most recent historical data from Forest Survey of India report 2011 year for which data is available.

As per Forest Survey of India report 2011, annual wood fuel consumption in household sector for the state of Odisha = 11,865,000 (Ton/year)

As per Forest Survey of India report 2011, non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture) for the state of Odisha = 21,164,620 (ton/year)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the Ministry of Environment and Forest, Govt. of India, checked and confirmed by the VVB. The resulting average MAI estimates for Odisha 0.5, t/ha/year.

As per paragraph 13 of the Tool 30 version 03.0,

“If the f_{NRB} value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CC IPL based on review of f_{NRB} calculation /02/ and confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of f_{NRB} calculation /02/ is as below:

f _{NRB} Calculations for Odisha State		
Parameter	Value	Units
Annual wood fuel consumption in household sector	11,865,000	Tonne
Non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture)	21,164,620	Tonnes
Annual Increment of woody biomass growth per hectare in subcategory i of forest areas	0.5	Tonne/ha
Extent of forest in sub-category i	5,814,000	ha
Renewable biomass	2,907,000	Tonnes
Non-Renewable Biomass, NRB	30,122,620	Tonnes
f _{NRB}	0.9119881	

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in odisha is, therefore, validated as 30,122,620 t/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 Odisha is, therefore, validated as 0.91.

Assessment of f_{NRB} West Bengal State

PP has calculation of f_{NRB} as per CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v03.0). Validation team confirms that it has checked f_{NRB} calculation report/spread sheet /02/ prepared by PP.

As per the applied methodological tool, PP has calculated the f_{NRB} parameter using the most recent historical data from Forest Survey of India report 2011 year for which data is available.

As per Forest Survey of India report 2011, annual wood fuel consumption in household sector for the state of West Bengal = 20,519,000 (Ton/year)

As per Forest Survey of India report 2011, non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture) for the state of West Bengal = 46,218,980 (ton/year)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the Ministry of Environment and Forest, Govt. of India, checked and confirmed by the VVB. The resulting average MAI estimates for West Bengal 0.5, t/ha/year.

As per paragraph 13 of the Tool 30 version 03.0,

“If the fNRB value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CC IPL based on review of fNRB calculation /02/ and confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of fNRB calculation /02/ is as below:

f _{NRB} Calculations for West Bengal State		
Parameter	Value	Units
Annual wood fuel consumption in household sector	20,519,000	Tonne
Non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture)	46,218,980	Tonnes
Annual Increment of woody biomass growth per hectare in subcategory i of forest areas	0.5	Tonne/ha
Extent of forest in sub-category i	1,173,000	ha
Renewable biomass	586,500	Tonnes
Non-Renewable Biomass, NRB	66,151,480	Tonnes
f _{NRB}	0.9912119	

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in West Bengal is, therefore, validated as 66,151,480 t/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 West Bengal is, therefore, validated as 0.99.

Assessment of f_{NRB} Kerala State

PP has calculation of f_{NRB} as per CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v03.0). Validation team confirms that it has checked f_{NRB} calculation report/spread sheet /02/ prepared by PP.

As per the applied methodological tool, PP has calculated the f_{NRB} parameter using the most recent historical data from Forest Survey of India report 2011 year for which data is available.

As per Forest Survey of India report 2011, annual wood fuel consumption in household sector for the state of Kerala = 6,962,859 (Ton/year)

As per Forest Survey of India report 2011, non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture) for the state of Kerala = 44,642,840 (ton/year)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the Ministry of Environment and Forest, Govt. of India, checked and confirmed by the VVB. The resulting average MAI estimates for Kerala 0.5, t/ha/year.

As per paragraph 13 of the Tool 30 version 03.0,

“If the f_{NRB} value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CCIPL based on review of f_{NRB} calculation /02/ and confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of f_{NRB} calculation /02/ is as below:

f_{NRB} Calculations for Kerala State		
Parameter	Value	Units
Annual wood fuel consumption in household sector	6,962,859	Tonne
Non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture)	44,642,840	Tonnes
Annual Increment of woody biomass growth per hectare in subcategory i of forest areas	0.5	Tonne/ha
Extent of forest in sub-category i	1,081,000	ha
Renewable biomass	540,500	Tonnes
Non-Renewable Biomass, NRB	51,065,199	Tonnes
f_{NRB}	0.9200000	

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in Kerala is, therefore, validated as 51,065,199 t/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 Kerala is, therefore, validated as 0.92.

Assessment of f_{NRB} Karnataka State

PP has calculation of f_{NRB} as per CDM Methodological Tool: “Calculation of fraction of non-renewable biomass” (v03.0). Validation team confirms that it has checked f_{NRB} calculation report/spread sheet /02/ prepared by PP.

As per the applied methodological tool, PP has calculated the f_{NRB} parameter using the most recent historical data from Forest Survey of India report 2011 year for which data is available.

As per Forest Survey of India report 2011, annual wood fuel consumption in household sector for the state of Karnataka = 6,923,071 (Ton/year)

As per Forest Survey of India report 2011, non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture) for the state of Karnataka = 54,118,960 (ton/year)

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the Ministry of Environment and Forest, Govt. of India, checked and confirmed by the VVB. The resulting average MAI estimates for Karnataka 0.5, t/ha/year.

As per paragraph 13 of the Tool 30 version 03.0,

“If the f_{NRB} value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CCIPL based on review of f_{NRB} calculation /02/ and confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of f_{NRB} calculation /02/ is as below:

f_{NRB} Calculations for Karnataka State		
Parameter	Value	Units
Annual wood fuel consumption in household sector	6,323,071	Tonne

Non-domestic wood consumption (Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture)	54,118,960	Tonnes
Annual Increment of woody biomass growth per hectare in subcategory i of forest areas	0.5	Tonne/ha
Extent of forest in sub-category i	3,073,000	ha
Renewable biomass	1,536,500	Tonnes
Non-Renewable Biomass, NRB	58,905,531	Tonnes
f_{NRB}	0.9200000	

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in Karnataka is, therefore, validated as 5,89,05,531 t/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 Karnataka is, therefore, validated as 0.92.

VVB further confirms that the data used for the determination of all the parameters for calculation of $f_{NRB,y}$ is the most recently available information in the host country.

From the review of this report/spread sheet /02/ and interviews with the CME , validation team's confirms the following:

- The detailed methodology (including the calculation) of conducting the study has been provided in the spread sheet /02/.
- The study has been done in accordance with the CDM Methodological Tool: "Calculation of fraction of non- renewable biomass" (v03.0) including the equitation used and the data source as required by the tool.
- All the reference and data source used for the calculation has been listed and assessed by the VVB.

In the opinion of validation and verification team, the calculation of f_{NRB} is correct and in line with the CDM Methodological tool: Calculation of the fraction of non-renewable biomass (v03.0) and thus acceptable to the validation and verification team.

Table 6: Parameters monitored ex-post

Sl.No.	Parameters/01/	Description/01/
1	$N_{y,i,j}$	Number of project devices of type I and batch j operating during year y.
2	$\eta_{new,y,i,j}$	Efficiency of the improved cookstove type i and batch j efficiency be determined using Equation 5.

3	$B_{y=1,new,i,j,survey}$	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.
4	Life Span	The operating lifetime of the project device. The life span should be reported if the methodology equation 5 is adopted to determine the project stove efficiency

In accordance with section 3.21.1 of the VCS Standard (version 4.3) /B01-a/ 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 Joint PD & MR /01/ are acceptable to the VVB. VVB 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, samples of equipment invoices were reviewed and was found to contain information in compliance with the monitoring requirements of the methodology VMR0006 (version 1.1) /B02-a/.

VVB 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. In addition, the sampling plan meets the requirements of the monitoring methodology VMR0006 (version 1.1) /B02-a/ and the Standard of Sampling and Surveys of CDM project activities and Programme of Activities (version 09.0) /B04-a/ and Guidelines for sampling and surveys for CDM project activities and Programme of Activities (version 04) /B04-b /. All data monitored and required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of VCUs for the project activity, whichever is later. The same is found in compliance. VVB has checked the internal audit plan for ensuring the compliance of the monitoring of the project activity. The same is found appropriate; and during the onsite interviews, VVB has checked the awareness of the internal audit process; and same found acceptable.

VVB confirms that the overall monitoring plan complies with the requirements of the methodology VMR0006 (version 1.1) /B02-a/, 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.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The grouped project, “Distribution of energy efficient cookstoves in India - 2” is submitted to VERRA as a VCS project on (VCS Project ID 3158) applying the VCS methodology VMR0006 version 1.1 /B02/ “Methodology for Installation of High Efficiency Firewood Cookstoves”.

This is the first joint Project description & Monitoring report for the project “Distribution of energy efficient cookstoves in India - 2”, which is a grouped project and employs the VCS methodology; VMR0006 version 1.1 /B02/. The grouped project involves distribution of fuel-efficient improved cook stoves (ICS) in India. The project will disseminate 10,000 fuel efficient natural draft ICS Dattu chullah through 5 years and each year consist of 10,000 ICS, total ICS during this monitoring period is 30,000. The natural draft mechanism ICS Dattu Chullah will reduces the amount of non-renewable biomass used for cooking. PP has considered each ICS distributed as a project activity instance. The start date for the grouped project is 01-April-2021 /15/ which is the date of installation/registration of the first stove in the grouped project.

VVB confirms that VCS Joint PD and MR /01/ and in line with the actual scenario at site. This has been confirmed based on the review of sales records /15/, conducting interviews with representatives of PP as well as by carrying out onsite interviews with end users. Thus, the VVB concludes all the physical features of the VCS grouped project in line with VCS Joint PD & MR /01/.

VVB confirms that during the current monitoring period (01-April-2021 to 15-September-2022) the VCS grouped project has disseminated 30,000 ICS. This was confirmed based on the review of sales records /15/ and further based on interviews with representatives of PP through onsite interviews.

During the onsite interviews verification, QA/QC procedures were identified which demonstrate that: operational and management system of the grouped project is in place; data were centralized; monitoring data were crosscheck with the sales records stored and confirmation that all operational staff were trained before taking up positions. VVB thus confirms that the monitoring of the project activity has been implemented in accordance with the monitoring plan in the VCS joint PD & MR /01/.

The VCS Joint PD & MR /01/ clearly describes the monitoring and responsibility of monitoring is done by PP. During the onsite interviews, monitoring, data collection and reporting procedures were confirmed with the relevant staff and through document review of samples of all relevant records.

VVB confirms that the monitoring plan is in accordance with VCS approved methodologies VMR0006 version 1.1 /B02/. All data are collected and archived in accordance with the applied methodologies and included in the monitoring plan. This was confirmed based on the onsite interviews with representatives of PP and upon further review of samples of all relevant records.

All the ex-ante parameters which are used in the calculation of emission reductions are consistent with the VCS Joint PD & MR /01/. It is confirmed that ex-ante parameters mentioned in ex- ante estimation sheet /02/ /03/are in line with the parameters mentioned in section 4.4 of the VCS joint PD & MR /01/.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the Joint PD & MR /01/. The emission reductions of the project instances of the grouped project

and project activity instance are calculated using the formulae mentioned in the applied methodologies; VMR0006 version 1.1/B02/. The verification team has reviewed the emission reduction spread sheets (ER sheets) and checked all the formulae and found they are correct and are in accordance with the monitoring plan of the PD and the applied monitoring methodology.

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

Baseline Emission

$$ER_y = \sum_i \sum_j ER_{y,i,j} \quad \text{Equation (1)}$$

Where:

- i = Indices for the situation where more than one type/model of improved cookstove is introduced to replace three-stone fire
- j = Indices for the situation where there is more than one batch of improved cookstove of type i
- ER_y = Emission reductions during year y in t CO₂e
- $ER_{y,i,j}$ = Emission reductions by improved cookstove of type i and batch j during year y in t CO₂e

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO_2} + EF_{wf,non\ CO_2}) \times N_{y,i,j} \times 0.95 \quad \text{Equation (2)}$$

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 (fNRB)
- $NCV_{wood\ fuel}$ = 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} = CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO₂/TJ)
- $EF_{wf,non\ CO_2}$ = Non-CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO₂/TJ)
- $N_{y,i,j}$ = Number of improved cookstoves of type i and batch j operating during year y

0.95 = Discount factor to account for leakage

The quantify of woody biomass saved due to implementation of improved cookstoves to be estimated using equation below:

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times \left(\frac{\eta_{new,y,i,j}}{\eta_{old}} - 1 \right) \quad \text{Equation (3)}$$

Where

η_{old} = Efficiency of baseline cookstove

$\eta_{new,y,i,j}$ = Efficiency of the improved cookstove type i and batch j efficiency be determined using Equation 5.

$B_{y=1,new,i,j,survey}$ = 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.

$$\eta_{new,y,i,j} = \eta_p \times (DF_n)^{y-1} \times 0.94 \quad \text{Equation (4)}$$

Where

η_p = Efficiency of project stove (fraction) at the 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 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.

Sampling approach:-

As assessed in this section, emission reductions for the project "Distribution of energy efficient cookstoves in India - 2" has being claimed for this monitoring period and the total population of the stoves for this monitoring period (01-April-2021 to 15- September-2022) is 30,000 ICS.

The sampling plan implemented by the PP is in accordance with the applied approved monitoring methodology /B02/ and the VCS Joint PD & MR /01/. The PP has appropriately performed Simple random sampling procedure, reliability levels were set at 90% confidence and 10% precision in line with the

applied methodology VMR 0006 version 1.1/B02/. As the VCS Joint PD & MR /01/ mentions the option for Simple random sampling procedure, it is acceptable to the validation and verification team.

The sampling surveys have been carried out by the well-trained personnel /13/. Monitoring parameters $N_{y,j}$ and $B_{y=1,new,i,j,survey}$ are monitored through monitoring sample surveys. Monitoring of the parameters ensures compliance with the applied methodology VMR0006, version 1.1 /B02/. VVB has checked the survey records /08/ and sample size calculation/12/. Parameter $N_{y,j}$ monitors the number of stove in operation and the parameters $B_{y=1,new,i,j,survey}$ are used to calculate Quantity of woody biomass used by improved cookstoves.

PP has applied sampling for the current monitoring period. A confidence/precision level of 90/10 has been used by the PP for all the monitoring parameters determined through applying simple random sampling. Survey has been carried out. The sample size calculations for each of the monitoring parameters monitored through the sampling have been provided in the table below. As the calculated sample size were less than 30, in accordance with the §14 of the sampling standard version 9 /B04/, a minimum sample size of 30 has been chosen when the parameter of interest is a proportion ($N_{y,j}$) and Student's t-distribution has been used if the resulting sample size is less than 45 for the mean parameters ($B_{y=1,new,i,j,survey}$). PP has chosen 45 responded samples for both the monitoring parameter.

PP has provided the detailed sample size calculation under section 4.3 of the MR /01/

Definition	Value	Justification
The population size N is	30,000	Number of stoves registered in database
The expected proportion p for $n_{y,i}$ is	0.90	90% is applied for sample size calculation.
Sample size	30.04	Calculated
Sample size (Rounded up)	31	Calculated

The above table mentions the sample size calculated applying the formula;

$$n \geq \frac{1.645^2 N \times p \times (1 - p)}{(N - 1) \times 0.1^2 \times p^2 + 1.645^2 p \times (1 - p)}$$

The resultant applied sample size by the PP are summarized below:

Parameters	$N_{y,i,j}$	$B_{y=1,new,i,j,survey}$
Sample size	31	31

Precision achieved	0.00%	6.93%
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VVB has used sampling during verification for checking the operational status in the households. The sampling done by VVB reflects the population of the project activity. Applying paragraph 39 (c) of the sampling standard, version 09 /B04/, a sample size of 11 households was chosen (with no discrepant records) for both the monitoring parameters ($N_{y,j,j}$ and $B_{y=1,new,i,j,survey}$). A sample size of 11 was determined, based on an AQL of 0.5% and UQL of 20%, producer risk 10% and consumer risk 10%. Acceptance number (c) thus determined for the sample is 0. VVB interviewed 11 sample from monitoring survey. It was observed that out of the 11 samples, all the 11 stoves were found to be operational and this matched with the PP's records and hence no discrepant records were observed with the Joint PD & MR /01/ and ER sheet /02/ and thus $c=0$. Thus, PP's set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/. Verification team has cross verified these sample documents.

The monitoring parameters to be monitored through the sampling plan are:

1. Number of project devices operating during year y ($N_{y,j,j}$)
2. Quantity of woody biomass used by improved cookstoves ($B_{y=1,new,i,j,survey}$)

Simple random sampling was applied by the PP for selection of the monitoring samples with 90/10 confidence/precision for determining the sampling for all the parameters which is deemed acceptable as per the VCS PD /15/.

On site inspection of Monitoring parameters (namely $B_{y=1,new,i,j,survey}$ and $N_{y,i,j}$) was conducted based on following two methods:

- Confirmation with the household/end user whether or not the PP has performed monitoring/measurement campaign (for parameter $B_{y=1,new,i,j,survey}$) and survey on stove operation (for the parameter $N_{y,i,j}$).
- Assessment of Competence of personnel involved in conducting standardized tests viz., $B_{y=1,new,i,j,survey}$ and surveys: Verification team has reviewed the abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the $B_{y=1,new,i,j,survey}$. VVB based on on site inspection interviews confirms that the team was qualified to carry out the $B_{y=1,new,i,j,survey}$ in line with the methodology.

PP has explained the process of conducting measurement campaign. As PP, field staff asked the user to make a pile for the total wood required for cooking in a day for all the stoves available in the house and weighted with the calibrated weigh scale /09/. Further user was asked to extract and make the piles for the wood required for the project stove 1 and project stove 2 separately from that pile and weigh both the piles. Same has been recorded in the survey forms and in the spreadsheet. Therefore, firewood consumed for each project stove and baseline stove can be distinguished clearly. The calibration records /09/ of the weighing scale used for measuring the fuel wood was checked by the VVB and deemed acceptable.

During the onsite interviews with PP's representative, VVB was able to understand the process in line with the methodology VMR 0006 version 1.1/B02/ and the PP monitoring procedure in line with the VCS Joint PD & MR /01/.

It is worth to note here that PP has selected the same households for both parameters above and for the same reason, VVB's sample for acceptance sampling was the same for both the parameters. VVB could verify the original survey forms /08/ and data/information flow to sampling sheet and ER spread sheet/02/. No discrepancy was found in the data/information flow. As per the section 2.3 above the end users were not interviewed in a single day. Moreover, PP has conducted the monitoring survey/01/ from 10-March-2022 to 28-March-2022. Hence, the survey process deemed acceptable to the verification team.

Furthermore, the database /10/ and sample sales invoice /15/ was also checked/cross verified to confirm the number cookstove for the parameter $N_{y,i,j}$.

As per paragraph 25 of the Sampling Standard, version 09 /B04/, the verification team has to verify whether the project participants entity have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

- (a) Whether the required confidence/precision has been met.
- (b) Whether the selected sample was representative of the population.

As per the applied methodology VMR0006 version 01.1 section 9.2 /B01/. The necessary confidence / precision of 90/10 each of the parameters are met. This has been cross verified by the verification team from the supporting documents submitted/12/.

Emission reductions have been calculated in accordance with the applied methodology VMR0006 version 1.1 /B02/. The PP has used monitored data and ex-ante fixed data including default values as mandated/permitted by the applied methodology. The values used for calculation of GHG emission reductions have been thoroughly checked by the verification team and was found appropriate and correct.

The Parameters Determined ex-ante is listed in the table 3 of this Joint validation and verification report above section 3.4.8

The spread sheet submitted by the PP clearly and transparently mentions values of the data parameters used for calculation of emission reductions. The input values have been verified from the reliable and authentic sources including monitoring records (distribution records) /10/, VCS Joint PD & MR /01/, and applied methodology /B01/. The emission reductions calculated were compared with the emission reduction spread sheet /02/ and found to be correct. No significant reporting risks have been identified for the data reported.

The details of monitoring parameters used for calculation of emission reductions are provided below:

Table 7:Parameters monitored ex-post

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
----------------------------------	------------------------------------

Data / Parameter: (as in monitoring plan of VCS JOINT PD & MR):	Number of project devices of type i and batch j operating during year y ($N_{y,i,j}$)
Measuring frequency/Time Interval:	once every two years
Reporting frequency:	once every two years
Reported value:	30,000 in Chhattisgarh and Bihar
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Value obtained from monitoring survey of samples /07/ and data base/10/.
Is accuracy of the monitoring equipment as stated in the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in VCS Joint PD & MR /01/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in Joint PD & MR /01/ has been compared with monitoring survey records /09/ and the ER sheet /02/. The total number of cook-stove has

	been cross checked with the database /10/ and commissioning certificate /04/ as provided by the PP. VVB confirms here that onsite assessment of Monitoring parameter $N_{y,i,j}$ was conducted based on following two methods: ➤ Confirmation with the household/end user whether or not the PP has performed monitoring/measurement campaign, survey on stove operation (for the parameter $N_{y,i,j}$). ➤ Assessment of Competence of personnel involved in conducting the survey/13/		
How were the values in the monitoring report verified?	NA		
VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.		
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA		
Monitoring Parameter Requirement	Assessment/ Observation by the VVB		
Data / Parameter: (as in monitoring plan of VCS JOINT PD & MR):	Efficiency of the improved cookstove type i and batch j during year y ($\eta_{new,y,i,j}$)		
Measuring frequency/Time Interval:	Annually		
Reporting frequency:	Annually		
Reported value:	Year (y)	$\eta_{new,y,i,j}$	
	1	29.90%	
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes		
Details of monitoring equipment:	Value is calculated in the ER spread sheet /02/		

Is accuracy of the monitoring equipment as stated in the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with VCS Joint PD & MR /01/
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the ER sheet /02/.
How were the values in the monitoring report verified?	NA
VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VCS JOINT PD & MR):	Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j (By=1,new,i,j,survey)
Measuring frequency/Time Interval:	In the first year of project implementation
Reporting frequency:	In the first year of project implementation
Reported value:	It was found during survey firewood usage was 5kg/day which is For estimation of ER, 5 kg/device/day or equal to 1.8250 tonnes/device/year (Only these states are covered in this monitoring period, 01-04-2021 to 15-09-2022
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Value obtained from monitoring survey of samples /09/ Weighing scale used is Bulfyss Electronics.
Is accuracy of the monitoring equipment as stated in the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise?	Calibrated weighing scales used for measuring the fuel wood was done in house before start using on site. QA/QC procedures stated in MR comply with registered VCS Joint PD & MR /01/
Company performing the calibration(internal or external calibration):	NA

Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR/01/ has been compared with the ER sheet /02/. VVB during the onsite assessment of Monitoring parameters By=1,new,i,j,survey was conducted based on following two methods: ➤ Confirmation with the household/end user whether or not the PP has performed monitoring/measurement campaign (or parameter By=1,new,i,j,survey) and survey on stove operation (for the parameter N,y,i,j). 1) ➤ Assessment of Competence of personnel involved in conducting standardized tests viz., By=1,new,i,j,survey and surveys: Verification team has reviewed the abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the By=1,new,i,j,survey. The verification team based on onsite interviews confirms that the team was qualified to carry out the By=1,new,i,j,survey and Usage survey in line with the methodology. PP has also detailed the calculation method under section 4.2 of the MR.
How were the values in the monitoring report verified?	NA
VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data from monitoring survey /08/ and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VCS JOINT PD & MR):	The operating lifetime of the project device. (Life Span)
Measuring frequency/Time Interval:	Once at the time of project stove installation
Reporting frequency:	Once at the time of project stove installation
Reported value:	5
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Value obtained from Manufacturer specification /05/
Is accuracy of the monitoring equipment as stated in the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VCS JOINT PD & MR? If the VCS JOINT PD & MR VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with VCS Joint PD & MR /01/
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the ER sheet /02//03/.

How were the values in the monitoring report verified?	NA
VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data from monitoring survey /08/ and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

VVB confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae from registered VCS Joint PD & MR /01/. The total number of emission reductions for the monitoring period (01-April - 2021 to 15- September- 2022) is 243,104 tCO₂e.

VVB has checked and confirmed the calculations in the spreadsheet and found to be accurate. The monitoring report is supported by emission reduction spreadsheet. The consistency and formula were verified and found to be accurate.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

When verifying the report emission reduction, CCIPL ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown above.

When assessing the audit trails, CCIPL also examined:

1. whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. the source and nature of the evidence

3. if comparable information was available from sources other than that used in the monitoring report, CCIPL cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix 1 below.

CC IPL also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

Proper data management inclusive of data acquisition and aggregation, data management system is being followed for the project activity.

The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy.

5 VALIDATION AND VERIFICATION CONCLUSION

The Project Participant, Greneity Infocom Service Pvt Ltd, has commissioned the VVB, Carbon Check (India) Private Ltd. to perform a Joint validation and verification of the VCS Project Activity “Distribution of Energy efficient cookstoves in India - 2”. This report summarizes the findings of the validation and verification 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 and verification process was performed on the basis of all guidance and criteria as provided in VCS Standard version 4.3 /B01-a/, VCS Program Guide version 4.2 /B01-b/, VCS Validation and Verification Manual version 3.2/B01-c/ and Registration & Issuance Process version 4.2/B01-d/.

The project activity provides the information in Joint PD & MR /01/ as required by the VCS Standard /B01-a/ and Validation and Verification Manual /B01-c/ and in VVB’s opinion meets the requirements of the applied baseline and monitoring methodology, VMR0006 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 201,800 tCO₂e and the total for the crediting period is 2,018,006 tCO₂e.

Carbon Check (India) Private Ltd concludes the validation with a positive opinion that the VCS Project Activity “Distribution of Energy efficient cookstoves in India - 2”, as described in the VCS Joint PD & MR (version 06, dated 17/12/2022) /01-d/, meets all the applicable VCS requirements, including those specified in the Project Standard, relevant methodology, tools and guidelines.

The selected baseline and monitoring methodology (VMR0006, Version 1.1) is applicable to the project and correctly applied.

VVB confirms that the project has been implemented in accordance with the Joint project description & Monitoring report /01/.

Verification period: From [01-April-2021] to [15-September-2022]

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01-April-2021 to 31-December-2021	97,394	0	0	97,394
01-January-2022 to 15-September-2022	145,710	0	0	145,710
Total	243,104	0	0	243,104

VVB is of the opinion that the project has been implemented in accordance with the project description, the MP with complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct.

Therefore, CCIPL hereby certifies, and requests the issuance of, the reported ERs during the monitoring period of 01-April-2021 to 15-September-2022 amounting to 243,104 tCO₂e to the VCS Registry.

APPENDIX 1.1: REFERENCE DOCUMENTS

Ref	Document
/01/	Joint Project description and Monitoring Report titled: a) Distribution of energy efficient cookstove in India -2 (version 02; dated:17/02/2022) b) Distribution of energy efficient cookstove in India -2 (version 04; dated: 30/09/2022) c) Distribution of energy efficient cookstove in India -2 (version 05; dated: 02/12/2022) d) Distribution of energy efficient cookstove in India -2 (version 06; dated: 17/12/2022)
/02/	• ER calculation spread sheet correspond /01-a/ • ER calculation spread sheet correspond /01-b/ • ER calculation spread sheet correspond /01-c//01-d/
/03/	• Ex ante estimations sheet /01-a/ • Ex ante estimations sheet /01-b/ • Ex ante estimations sheet /01-c//01-d/
/04/	Evidence for the start date of the grouped project (commissioning certificate)
/05/	Technical specifications of the ICS Duttu Chulah including the life span.
/06/	Proof of right of VERs.
/07/	Monitoring survey questionnaire template
/08/	Survey records for the monitoring period
/09/	Calibration records for the monitoring equipment used during the monitoring period
/10/	Database for the ICS distributed and sales records for the monitoring period
/11/	Evidence for unique identification of each of the ICS
/12/	Sample size and precision level achieved calculator for the monitoring period
/13/	Training records
/14/	Evidence for the random sample selection for the parameters opted for monitoring survey
/15/	Sample sales records/warranty cards for the stove
/16/	End user consent/Carbon Credit waiver
/17/	• Grievance Redress Policy • Grievance register • <u>monitoring service records</u> • <u>operations logbook</u>
/18/	Joint Validation and verification contract in between CCIPL and “Greneity Infocom Services Private Limited”.
/19/	• Declaration from the project proponent that the project has not or shall not claim carbon credits any other scheme after Registration of the project under VCS. • Declaration from the project proponent that the project is not creating any other form of environmental credit under any specific program. • Declaration on no double counting, target group, geographical boundaries and distribution mechanism

APPENDIX 1.2: BACKGROUND DOCUMENTS

Ref	Document
/B01/	VCS Requirements - VCS Standard (v4.3, dated 22/06/2022) - VCS Program Guide (v4.2, dated 22/06/2022) - VCS Validation and Verification Manual version (v3.2, dated 19/10/2016) - Registration & Issuance Process (v4.2, dated 22/06/2022) - VCS Program Definitions version (v4.2, dated 22/06/2022) - VCS MR template version 4.1 (dated 20/01/2022)
/B02/	Applied baseline and monitoring methodology VMR0006. version 1.1, "Methodology for Installation of High Efficiency Firewood Cookstoves"
/B03/	Methodological Tool CDM Tool 30 "Calculation of the fraction of non-renewable biomass" Version 03.0
/B04/	"Standard for sampling and surveys for CDM project activities and programme of activities" (version 09.0) - Guidelines for sampling and surveys for CDM project activities and Programme of Activities (version 04)
/B05/	Website and links: - IPCC (http://www.ipcc-nggip.iges.or.jp) http://cdm.unfccc.int http://www.v-c-s.org

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
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DPR	Detailed project report
DVR	Draft Validation Report
EB	CDM Executive Board
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
MWh	Mega Watt Hour
NA	Not Applicable
OSV	On Site Visit
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVB	Validation Verification Body
VVM	Validation and Verification Manual
VVS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Ltd.

Ms. Pallavi Gedam

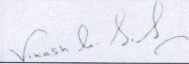
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

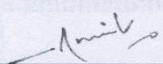
Validator	☒	Team Leader	☒	Technical reviewer	☐
Verifier	☒	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☐	TA 4.1	☐	TA 9.1	☐	TA 13.1	☐
TA 1.2	☒	TA 5.1	☐	TA 9.2	☐	TA 13.2	☐
TA 3.1	☒	TA 5.2	☐	TA 10.1	☐	TA 14.1	☐



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
29/11/2021

Valid Till
28/11/2022

Revision History of the Document

01/03/2020² 01/09/2020 24/12/2020 29/11/2021	Interim Revision for office address change Interim Revision for CCIPL logo change Annual Revision Revision in response to qualification as Team Leader and Technical Expert
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¹ India

² Please refer to previous version of competency certificates for the revision history.

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Carbon Check (India) Private Ltd.

Vikash Kumar Singh

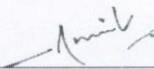
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator ☒ Team Leader ☒ Technical reviewer ☒
 Verifier ☒ Technical Expert ☒ Local Assessor¹ ☒

In the following Technical Areas:

TA 1.1 ☒ TA 4.1 ☒ TA 9.1 ☐ TA 13.1 ☒
 TA 1.2 ☒ TA 5.1 ☐ TA 9.2 ☐ TA 13.2 ☒
 TA 3.1 ☒ TA 5.2 ☐ TA 10.1 ☐ TA 14.1 ☒



Mr. Amit Anand
CEO

Date of Approval
13/04/2022

Valid Till
12/04/2023

Revision History of the Document

01/09/2020 ²	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision
13/04/2022	Revision in response to qualification of technical area 14.1.

¹ India, South Africa, Spanish speaking countries

² Please refer to previous version of competency certificates for the revision history.

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APPENDIX 4: FINDINGS LOG

Table 1. CARs from this Join validation and verification

Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	In accordance with the requirement of § 3.7 of VCS standard, version 04.3, The project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or removals. Projects shall complete validation within specific timeframes from the project start date. In section 1.8 of the PD start date and document provided for the start date is inconsistent. PP need to clarify the same In section 1.9 of the PD crediting period is taken from 05/06/2021 which is the start date of the project activity and incorrect as per the document provided. Crediting period would change accordingly considering ten years fixed crediting period.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has corrected the start date as 01/04/2021 in accordance with the date on which the project began generating GHG emission reductions or removals. Projects shall complete validation within specific timeframes from the project start date. Section 1.8 and section 1.9 has been revised and made consistent.		
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 provided the revised PD, which is now inline with the VCS standard version 4.3. This has been checked and verified by the VVB. Hence the CAR 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 section 4.4 of the joint Project description & Monitoring report, the np value taken is incorrect. PP needs to check and clarify the same.		

Finding	CAR 02
	PP need to clarify for the parameter By, savings,l,j for all the states.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has revised the section 4.4 parameter np value and By savings is also mentioned.
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 joined PD and MR. Revisions found acceptable. This has been checked and verified by the VVB. Hence the CAR is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Table 2. CLs from this validation

Finding	CL 01
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (VVB)	PP has calculated the $f_{NRB,y}$, only mentions about one state. PP to clarify on the fNRB for the other states and their calculation and reliability of the value taken.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has now mentioned the details of Both the states in the fNRBy calculation details.
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 provided the revised PD and this is been checked and verified by the VVB. Hence CL 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 to clearly define the geographic boundaries of the project.

Finding	CL 02
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has now clearly defined the geographic boundaries of the project.
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 provided the revised PD and this is been checked and verified by the VVB. Hence CL 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)	PP to clearly mention the monitoring period for this project activity.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has now clearly define the monitoring period of the project.
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 provided the revised PD and this has been checked and verified by the VVB. Hence CL 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)	PP needs to apply the latest version of the VCS standard and other relevant requirements.

Finding	CL 04
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has revised the PD and latest version of the VCS standard and other relevant requirements are now mentioned.
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 provided the revised PD in line with latest version of the VCS standard and other relevant requirements, this has been checked and verified by the VVB. Hence CL 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)	The life span of the cookstove is not inline with the manufacturer specification. PP to clarify on the same.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The PD has revised and now life span of the cookstove is made inline the manufacturer specification.
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 provided the revised PD and this is been checked and verified by the VVB. Hence CL 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 07
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (VVB)	As per the §3.17.9 of the VCS standard version 4.3 "The project proponent shall take due account of any and all comments received during the consultation, which means it will need to either update the project design or demonstrate the insignificance or irrelevance of the comment. It shall demonstrate to the validation/verification body what action it has taken." PP to provide the public comments if received any during the public commenting period.

Finding	CL 07
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Section 2.2 of PD elaborates the stakeholder consultation process and, evaluation forms are attached in the appendix of the PD. Project documents were open for public comments for period of 30 days and no comments were received during this 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.	PP has provided the revised PD and this has been checked and verified by the VVB. Hence CL 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 08
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (VVB)	As per the §3.5.9 of the VCS standard version 4.3 “Determination of baseline scenario and demonstration of additionality are based upon the initial project activity instances. The initial project activity instances are those that are included in the project description at validation and shall include all project activity instances currently implemented on the issue date of the project description. The initial project activity instances may also include any planned instances of the project activity that have been planned and developed to a sufficient level of detail to enable their assessment at validation. Geographic areas with no initial project activity instances shall not be included in the project unless it can be demonstrated that such areas are subject to the same (or at least as conservative) baseline scenario and rationale for the demonstration of additionality as a geographic area that does include initial project activity instances.” PP to clearly state the baseline scenario as per the VCS standard.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	PP has now made clear about the project instances in the revised PD and baseline scenario.
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 provided the revised PD and this is been checked and verified by the VVB. Hence CL is closed

Finding	CL 08
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed