THE CLEAN ENERGY COOKING INITIATIVE

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Summary:

LGAI Technological Center (hereinafter referred to as Applus+ Certification) is contracted by M/s EKI Energy Services Limited to conduct the joint validation and verification of the project "The Clean Energy Cooking Initiative", VCS ID 3030 against VCS standard version 4.4/7(b)/

The project's design description, baseline, monitoring plan, and compliance with applicable VCS and host party criteria are all confirmed as part of the joint validation and verification process. The monitoring plan of the Joint PD and MR (Project ID 3030) is also implemented, and the monitoring methodology is used in accordance with the VCS methodology VMR0006 "Methodology for Installation of High Efficiency Firewood Cookstoves", Version 1.1/6/ of the methodology. An on-site visit was performed to confirm the information provided by PP/9/.

The main purpose of the project is the distribution of fuel-efficient improved cook stoves (ICS) in the India, presently distributed in Madhya Pradesh, state of India. The Improved cookstove stoves distributed through this project have replaced the low-efficient traditional cookstoves. Through this project, the distribution, and installation of high thermal efficient improved cook stoves (ICS) has been undertaken for households. The ICS burns wood more efficiently thereby improving thermal energy transfer to pots, hence saving fuel wood and greenhouse gases. This will not only lead to reduce deforestation but will also reduce health hazards from indoor air (smoke) pollution, decrease in time spent by women and children for collecting the firewood.

The first crediting period's expected annual average emission reductions over a seven-year period are 139,906 tCO_2e/year and 979,346 tCO_2e will be reduced during the course of the seven years of the crediting period. During the 1st monitoring period from 20-November-2022 to 30-April-2023 (inclusive of both days), 57,966 tCO_2e GHG emissions were reduced.

Applus+ certification now has enough proof to confirm that the stated criteria, as per VCS requirements and applied methodology, have been met after reviewing the joint Project Description and Monitoring report (Joint PD & MR) and additional documents pertaining to baseline and monitoring methodology, as well as after conducting background research, conducting on-site visit and follow-up interviews and speaking with stakeholders/9/.

In particular, the project's baseline, monitoring plan, and compliance with pertinent VCS and host party criteria was thoroughly and independently evaluated against the appropriate VCS requirements as part of the validation process. These are verified to ensure that the project design is legitimate, reasonable, and fits the specified requirements. All VCS initiatives must undergo validation, which is regarded vital to assure stakeholders of the project's quality and the expected generation of emission reductions. The goal of Applus+ certification is to carry out a thorough, impartial evaluation of the project activity's validation & verification.

A review of the Joint PD & MR that is impartial and unbiased is what is meant by the validation scope. The VCS Program Guide (v4.3), VCS Standard (v4.4), Program Definitions (v4.3), Registration & Issuance Process (v4.3) applicable at the time are compared to the Joint PD & MR to ensure that the project complies with the requirements of the applied baseline and monitoring methodology, namely VMR0006, Version 1.1/6/.

Reviewing the Joint VCS PD & MR for the monitoring results and confirming that the monitoring methodology was applied in accordance with the monitoring plan and monitoring parameters which

are the main goals of the verification. After reviewing the ER sheet, it was confirmed that the reductions due to the anthropogenic emissions by sources are sufficient, conclusive, and presented in a clear and understandable way. In order to establish that the project has been implemented in line with design and conservative assumptions, as specified, the monitoring plan, Joint PD & MR, ER sheet, and the project's compliance with relevant VCS, and host party criteria were specifically checked.

Verification of project implementation and operation with regard to the Joint PD & MR, implemented monitoring plan with the Joint PD & MR, and applied baseline & monitoring methodology were all included in the scope of the verification. It was also verified that the actual monitoring systems and procedures are adhered to, as per the monitoring systems and procedures outlined in the monitoring plan. Identification of any substantial inaccuracies in the stated GHG emission reduction estimations and articulating a conclusion with a fair degree of assurance was part of the assessment. It is confirmed by the assessment team that the stated GHG emission data is appropriately supported by evidence.

This joint validation and verification has been carried out using a risk-based methodology. 04 Corrective Action Requests (CARs) and 04 Clarification Requests (CRs) were raised during joint validation and verification and successfully closed. NO FAR was raised for the current period.

The project has successfully been validated, verified, and further certified for emission reductions under VCS as it meets the criteria outlined by the Joint PD & MR template version 4.2, the VCS Standard version 4.4, and the applied methodology VMR0006, Version 1.1. The project is recommended for registration and issue after further confirmation of a combined positive validation and verification opinion showing the project complies with the relevant VCS requirements.

Our view refers to the projects' claimed GHG emissions, GHG emission reductions as a result, and to the project's legitimate baseline, monitoring, and supporting papers. Based on the information viewed and assessed, we confirm that the project activity "The Clean Energy Cooking Initiative" reduced emissions by 57,966 tCO_2e from 20-November-2022 to 30-April-2023 (including both days).

CONTENTS

1 INTRODUCTION

1.1 Objective

Applus+ Certification has been contracted by M/s EKI Energy Services Limited (project proponent), to undertake the joint validation and verification of the project titled "The Clean Energy Cooking Initiative". The assessment team have reviewed the GHG data collected for the monitoring period from 20-November-2022 to 30-April-2023 (both days included) covered in this verification. The objective of the joint validation and verification is to have an independent third-party assessment of the Joint PD & MR/1/ and supporting documentation to ensure compliance with the rules, regulations and guidelines by VCS requirements. In particular;

- The project's baseline is assessed against "VMR0006 - Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1"/6/
- The project's monitoring plan is assessed against "VMR0006 - Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1"/6/
- The project's additionality justification is assessed against "VMR0006 - Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1" /6/
- The projects compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS standard version 4.4 /7(b)/
- VCS standard version 4.4 /7(b)/
- VCS program guide version 4.3 /7(a)/

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 verified carbon units (VCUs). This report contains the findings and resolutions from the validation and verification of the project activity.

1.2 Scope and Criteria

For Validation:

The validation scope is given as an independent and objective review of the project design, the project's baseline study and monitoring plan (VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1)/6/ which are included in the VCS joint PD & MR/1/ and other relevant supporting documents. The scope of work covered in the validation is described as below:

- To validate whether the project activity meets the requirements of VCS Standard (v4.4) and VCS program guide (v4.3) including additionality, proof of title and compliance with local laws.
- To evaluate whether the baseline and monitoring plan are in conformance with the applied methodology from the VCS approved GHG program.
- To confirm that the information presented are completed, consistent, transparent and free of omission or material error.
- Background investigation and follow up interviews.
- Issuance of draft validation report with CARs, CLs & FARs, if any
- Final validation opinion.

The information in the VCS joint PD & MR is reviewed against the criteria of VCS Standard (v4.4); the VCS program guide (v4.3).

Applus+ Certification has performed validation based on a risk-based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate Verified Carbon Units (VCUs).

For Verification:

The scope of the verification was the independent and objective review and ex-post determination of the monitored reductions in GHG emissions from "The Clean Energy Cooking Initiative". The verification of this project was based on the validated VCS joint project description & monitoring report and supporting documents submitted by the project proponent to the verification team. The documents were reviewed against the following guidance and protocols:

- VCS Program Guide (v4.3)/7(a)/
- VCS Standard (v4.4)/7(b)/
- VCS Program Definitions (v4.3)/7(c)/
- VCS Registration & Issuance Process (v4.3)/7(d)/
- VCS approved methodology VMR0006 (version 1.1, dated 22/07/2021)/6/)

The validation & verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Reasonableness of Assumptions and Level of Assurance

The validation conclusion is based on reasonableness of the assumptions, limitations, and methods that support the statement about the outcome potentially achieved by the activities

during operation and monitoring, provided that they may change during the mentioned stages of the project's development and operations.

The verification has been done with a reasonable level of assurance as selected by the PP about whether the reported GHG emissions reduction data is free from material misstatement.

During the validation process, VVB has ensured the reasonableness of all the assumptions/parameters by using random Sampling methods in line with Standard for Sampling and surveys for CDM project activities and programmes of activities, version 9/18/.

The verification strategy used by Applus+ Certification is based on an understanding of the risks involved in reporting GHG emission data and the mitigation measures put in place. The joint validation and verification team validated/verified the monitoring data on sample basis for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. More details on sampling are provided in section 2.1 of this report.

1.4 Summary Description of the Project

The project presently implemented in Madhya Pradesh, states of India. As the target populations are unable to afford these stoves (ICS), project promoters have distributed ICS free of cost.

The end-user has been informed in advance that the use of ICS generates carbon finance which in turn is used to cover the price of ICS and for recovering project implementation costs. EKI identified the potential locations where the majority of the population is using the traditional cookstoves, based on previous experiences in other projects, or available information or baseline survey, for the distribution of improved cookstoves. EKI prioritized the appointment of a local implementation partner for the delivery of ICS and local men's and women's teams were deployed and trained for the implementation of ICS. This creates more employment opportunities and increases the income of local agents. Awareness about the implementation of ICS will be provided to the local community through awareness programs.

The project locations for initial Project Activity Instances are in Madhya Pradesh, states of India and may expand further to other parts of India. EKI has distributed 30,000 ICS in Madhya Pradesh as confirmed based on the submitted monitoring database.

PP has decided to distribute one cookstove to each end user replacing existing non efficiency firewood based three-stone cookstove for this grouped project activity. The first improved Cookstove (ICS) was implemented on 20-November-2022 under this grouped project activity. Till date, 30,000 Improved Cookstoves (ICS) have been implemented as a part of this project activity.

PP may adopt the modified stove models with improves efficiency for future distribution under the current grouped project activity.

Above mentioned technical details are checked with the Manufacturer's Technical specification, and found correct. Same is confirmed during the onsite assessment.

The first crediting period's expected annual average emission reductions over a seven-year period are 139,906 tCO_2e per year and 979,346 tCO_2e over the course of the seven-year crediting period.

For current first monitoring period from 20-November-2022 to 30-April-2023, the project has reduced 57,966 tCO_2e of GHG emissions.

Based on an examination of the Joint PD & MR/01/, ER estimation and verification spreadsheet/02/, and ICS database/03/, the estimated emission reductions were validated and actual emission reductions were verified.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

Joint validation and verification was conducted using Applus+ Certification's procedures in line with the requirements specified in the VCS standard Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The proposed implementation and operation of the project activity, as well as the measures employed to report emission reductions, must be evaluated and decided to meet with the criteria and pertinent recommendations provided by the VCS. The validation and verification process consists of the following three phases;

- A desk review of the Joint PD and MR.
- A physical site visit and follow-up interviews with project stakeholders.
- Findings were raised and resolved.
- The resolution of outstanding issues and issuance of the final report and opinion.

Since the project requires sampling, based on the provisions of CDM Standard: Sampling and surveys for CDM project activities and programmes of activities, version 9.0/18/, VVB has undertaken the following sampling plan with respect to the project validation and verification.

Para 30 and 31 of the above stated CDM standard states:

In order to determine the sample size, the DOE should specify in advance, using its own professional judgement:

(a) **Acceptable quality level (AQL) or the level of assurance**, that is the proportion of acceptable discrepancies between the project participants' or the coordinating/managing entity's sample records and the DOE sample records (i.e. DOE field/on-site inspection results) (e.g. 1 per cent);

(b) **Unacceptable quality level (UQL),** that is the proportion of unacceptable discrepancies between the project participants' or the coordinating/managing entity's sample records and the DOE sample records, e.g. 20 per cent.

Para 31 says, the maximum errors associated with the determination indicated in paragraph 30 above should remain at levels indicated below:

(a) A 10 per cent chance that the DOE will wrongly reject the project participants' or the coordinating/managing entity's records (i.e. reject a set of records of acceptable quality);

(b) A 10 per cent chance that the DOE will wrongly accept the project participants' or the coordinating/managing entity's records (i.e. accept a set of records which is unacceptable).

As per para 39, A DOE may select a different sample size than the one indicated in paragraph 32 above, either by choosing a different value for the consumer risk and producer risk (e.g. 20 per cent for the consumer risk) when applying acceptance sampling or by using another approach, if any of the following conditions apply:

(a) The estimated volume of annual GHG emission reductions of the project activity or the PoA being verified is equal to or less than 100,000 t CO_2 eq.;

(b) The security conditions in the project region prevents inspection of many samples (e.g. conflict zones); or

(c) The project activity or the PoA is located in a least developed country or a host Party with 10 or fewer registered CDM project activities at the end of the monitoring period being verified.

Since, for the current project activity the estimated annual GHG emissions are less than 100,000 tCO_2e, VVB has selected different sample size. For the same, VVB has considered following values from table 2 of CDM Sampling standard, version 09.0.

AQL: 1%
UQL: 20%
Producer risk: 10%
Consumer risk: 20%

With above criteria and with acceptance number as '0', VVB has selected sample size as '8' numbers.

Based on the above allowance given by the sampling standard, VVB selected 18 randomised households from each state for acceptance surveying based on PP's database. households already surveyed by the PD. The choice of 18 households is the minimum allowed number of samples as per the sampling standard with 1 acceptance number. Since this is an acceptance sampling, no oversampling was attempted by VVB, as it would go against the sampling guidance.

The identified beneficiaries based on the above criteria chosen randomly from the samples of beneficiary database by PP.

Table: List of Beneficiaries randomly selected using random generators and Interviewed:

NAME	ICS SR. NO.	VILLAGE	PO/TEHSIL/BLOCK	DISTRICT
BASANTIBAI	GHG-22/L2/0584518	PADIYAL	KUKSHI	DHAR
THARABAI	GHG-22/L1/0554339	LONGSTI	LONGSARI	DHAR
REMSINGH JAMRE	GHG-23/L3/0673262	KADWALYA	KADWALYA	BARWANI
KESHARBAI	GHG-22/L1/0554125	KHARGONE	KUKSHI	DHAR
JHINA	GHG-23/L3/0672458	ATARSUMBHA	ATARSUMBHA	BARWANI
CHHITA	GHG-22/L3/0602379	LUNHERA	MANAWAR	DHAR
SURPAL	GHG-23/L3/0672954	THENGCHA	THAN	BARWANI
KALI BAI	GHG-22/L2/0564951	BHESLAI	KUKSHI	DHAR
DHANU	GHG-22/L3/0553696	BHAGYAPUR	MANAWAR	DHAR
KANIYA	GHG-22/L2/0593386	DERWALIYA	PATI	BARWANI
SUNITA VASUNIYA	GHG-22/L3/0602297	LOHARI	KUKSHI	DHAR
SAWABAI BHAGEL	GHG-22/L3/0560358	SULGAON	KUKSHI	DHAR
KAMLABAI	GHG-22/L2/0565002	SALKHEDA	KUKSHI	DHAR
GYANA	GHG-22/L3/0553230	KARONDIYA	MANAWAR	DHAR
NANLU GILDAR	GHG-23/L2/0616342	TAPAR	PATI	BARWANI
BHURIBAI	GHG-23/L3/0564061	SUSTIPURA	KUKSHI	DHAR
SALLU	GHG-23/L2/0690562	KALAKHET	KALAKHET	BARWANI

All the randomly selected stakeholders / end users were interviewed by VVB audit team during the on-site visit.

Validation and Verification schedule:

Sr. No.	Description	Date
1	Desk review of the documents	01-June-2023 to 03-June-2023
2	Onsite visit	05-June-2023 to 06-June-2023
3	Release of Findings	07-June-2023

The on-site interviews were conducted with the end users and following questions were asked to them:

1. General information of households
   a. Interviewee Name
   b. ID No.
   c. Age, Gender
   d. Household location
2. Old cookstoves situation
   a. Are you the main user of the Old Cookstove at home?
   a. How many people are there in your household?
   b. What type and number of Stoves did you use? Three-stone fire, Self-built low efficient clay stove, Traditional low efficient stove or Others. If others, the type and number of stoves are
   c. What kind of fuel did you use for the stove(s)? Charcoal, Firewood, or Others. If others, the kind of fuel is
   d. Do you think the Cookstove will generate smokes and cause respiratory or itching issues?
3. Project cookstoves using situation
   a. Are you the main user of the Project Cookstove at home?
   b. When did you buy the Project Cookstove?
   c. Do you know you have waived ownership of ERs before used the Cookstove?
   d. What document do you sign or what information do you provide when you were distributed the Project Cookstove?
   e. When did you start using the Project Cookstove?
   f. Does your Project Cookstove have unique serial No.? if yes, the No. is
   g. After using the Project Cookstove, did the distributor come to your home to check the use of the Project Cookstove?
   h. Please specify the using frequency and cooking times.
   i. What kind of fuel do you use for project stove? Charcoal, Firewood, or Others. If others, the kind of fuel is
   j. What type and number of Project Stove are you using? If others, the type and number is
   k. Are you still using old/other cookstove(s) after buying the Project Cookstove?
   l. Do you think the Project Cookstove is cleaner than the old stove? If yes, the reason is Less smoke, less respiratory issues, less itching issues or others. If others, please specify.
   m. Do you think using a Project Cookstove saves money or time compared to using the old stove?
   n. Is there any difference in usage of project cookstove between dry and wet seasons?

2.2 Document Review

The joint PD & MR and other related documents were reviewed as a part of the joint validation and verification process, which is described in detail in appendix 1 of this document. The assessment team uses a standard protocol to do the assessment of both validation and verification. The comparison of data from Joint PD & MR with data from additional sources, if available, the team's sectoral or local experience, and, if necessary, independent background investigations.

2.3 Interviews

The assessment team visited the site between 05-June-2023 to 06-June-2023, PP representatives and end users were questioned. The table includes information on the interviewees from PP side. ICS Users interviewed List is mentioned in the section 2.1 of this document.

Sr. No.	Name	Role	Organization
1.	Mr. Vinod Yadav	Stove Distributer, Kukshi	Aransh Agro
2.	Mr. Rakesh Yadav	Stove Distributer, Kukshi	Aransh Agro
3.	Mr. Ravi Vishwakarma	Deputy Manager, EKI (Project Consultant)	EKI Energy Services Limited
4.	Mr. Monil Shrivastava	EKI, (Project consultant)	EKI Energy Services Limited

The topics discussed during the interview range from the project's general characteristics and implementation to its technical details, including design and technical specifications, project implementation status, project start date, location, baseline identification, monitoring survey, data recording and archiving procedures, and baseline stove use. The evaluation was created using the interview input together with the paperwork and observations.

2.4 Site Visits

Total 18 samples were visited as part of the site visit.

The assessment team visited the site between 05-June-2023 to 06-June-2023 to perform the following tasks:

- A review of information flows for generating, aggregating, and reporting the monitoring parameters;
- Interviews with relevant personnel to ascertain whether the operational and data collection procedures are carried out in accordance with the monitoring plan in the Joint PD and MR;
- A cross check of the information collected during the above-mentioned processes;
- A comparison of the ICS functioning, observations of monitoring practices, applied methodology, including relevant tool(s), and, if appropriate, the applied standardized baseline, to the Joint PD and MR standards;
- A review of the calculations and presumptions used to calculate the GHG data and emission reductions;

- A determination of the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters;
- A check of thermal efficiency test performed by an independent third party.

In order to decrease audit risk to an acceptable low level and to obtain a fair degree of certainty for the current joint validation and verification, the assessment team has verified adequate appropriate audit evidences.

2.5 Resolution of Findings

The goal of this step is to identify, discuss, and draw conclusions about any problems that may affect the project activity's ability to reduce emissions or have an impact on the recording, monitoring, and reporting of those reductions. These problems may be related to the project description, technical specifications, baseline and additionality, monitoring parameters and monitoring plans, implementation status, or operations of the project activity. Based on the desk review and site evaluation, this was carried out. The assessment team creates and/or maintains a validation and verification procedures (internal document) that documents conformities and non-conformities, which may include the following kinds of issues:

Corrective Action Request (CAR) is raised if one of the following occurs:

Non-compliance with the project description, applicability of monitoring methodology and its tools, additionality tools and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;

Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;

Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;

Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if:

Information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

Forward Action Requests (FARs) is raised if:

Information is not available during the present validation or verification process, which would need to be verified in subsequent verification or monitoring period.

04 Corrective Action Requests (CARs) and 04 Clarification Requests (CLs) were raised and successfully closed during the current joint validation and verification.

Appendix 3 of this document contains all of the findings that are brought forward and shared with project participants during the assessment. The section also covers the project participants' responses, if any, and the assessment team's evaluation subsequently for any open findings.

2.5.1 Forward Action Requests

The project activity is undergoing Joint Validation and Verification under VCS, and no FAR issues have been raised.

3 VALIDATION FINDINGS

3.1 Project Details

Promoting improved cooking stoves (ICS) to residents of socially disadvantaged communities in India is the main focus of this project activity. In order to replace the traditional cooking stoves in the kitchen with stoves that are more efficient, the initiative aims to provide households with clean cooking alternatives. By substituting traditional cooking stoves with ICS, the project will reduce deforestation through less consumption of firewood. And, family members—particularly women—will be exposed to less indoor air pollution, saving money on health-related expenses.

The project is promoted by EKI Energy Services Limited in the Madhya Pradesh state of India and EKI Energy Services Limited is a carbon project developer also acting as point of contact for the current project activity. The project ownership is with EKI Energy Services Limited.

There are no legal requirements, laws in India which mandates the distribution, use of ICS. Also, use of firewood as a fuel is in compliance of existing practice of cooking in the project area.

In absence of the project activity, the end users i. e. households were using firewood as a fuel which is non-renewable biomass in the mud cookstoves which an inefficient cook stove which is established based on the baseline survey conducted by project proponent.

The project activity started on 20-November-2022, which is also the date that the first beneficiary households sign the end user agreement, marking the beginning of the first batch distribution. Therefore, the ICS's commissioning occurs when it is delivered to the beneficiary household and put into service (i.e. start cooking). As a result, the project's commercial functioning begins on the same day that ICS is delivered to the beneficiary family.

A 07 year crediting period is expected to result in annual emission reductions of 139,906 tCO_2e and 979,346 tCO_2e over the seven-year crediting period, which runs from 20-November-2022 to 19-November-2029 (inclusive of both the dates).

With annual average emission reductions of 139,906 tCO_2e, the project qualifies as ‘project’ under VERRA.

Details of the PP

Organization name	EKI Energy Services Limited
Contact person	Manish Dabkara
Title	Managing Director & Chief Executive Officer
Address	Office No 201, Plot No 48, Scheme 78, Vijay Nagar Part- II, Indore 452010, India
Telephone	+91 99075 34900
Email	manish@enkingint.org and registry@enkingint.org

VVB team verified the details about the project proponent form the project web page of the registry and found the data consistent.

Oher entities involved in the project is as follows:

Organization name	Aransh Agro Tech
Role in the project	Distributor
Contact person	Pavan Patel
Title	Owner/ Partner
Address	Plot No. 392, Tripuri Ward garh, Jabalpur, MP
Telephone	8821930305
Email	aranshgroup@gmail.com

Organization name	GHG Reduction Technologies Pvt LTD
Role in the project	Manufacturing
Contact person	Mr. Soumitra Kulkarni
Title	Director
Address	A-11/2/3, Nagargoje Industries PVT LTD, SUmmet Compound Ambad, Nashik Maharashtra – 422010
Telephone	+91 982287213

Email	Soumitra.kulkarni@enkingint.org

Assessment team has verified the ownership of the cookstoves with the help of the End user agreement and found that it lies with the end-users. Moreover, Ownerships of carbon rights is with the PP (EKI energy Services Ltd. which was also confirmed with the help of end-user agreements. This was also crosschecked during the onsite assessment interviews with the end users and PP. Same is mentioned in the joint PD and MR, Hence, accepted.

The project will reduce 57,966 tCO_2e GHG emissions during the first monitoring period, which is from 20-November-2022 to 30-April-2023 (inclusive of both the dates).

Each ICS will reduce emissions by approximately 5.47 tCO_2e in Madhya Pradesh, (based on total emissions projected by the total number of cookstoves), according to the computation in the section (net of leakage and continued use of the baseline stoves). The project proponent has commissioned 30,000 ICS during current monitoring period as confirmed based on ICS database and random visits during the on-site visits.

The ICS technical specifications are provided below which were checked against the submitted manufacturer's declaration and also during the on-site visit.

TECHNICAL DETAILS			
A)	Cook Stove Type/Category	AGNEEKAA ECO MINI STOVE MODEL4 SE	
		Natural Draft	
B)	Secondary Air Supply	Through Natural Draft	
C)	Stove Material Used	Body	Galvanized Iron Sheet
		Body Material Thickness	0.6mm
		Combustion Chamber	Stainless Steel SS 202 grade
		Combustion Chamber Material Thickness	1 mm SS 202/201 2B grade
		Insulating Material	Ceramic Thermal Wool
		Insulating Material Thickness	6 to 8mm
		Top Plate	Stainless Steel SS 202/201 Mat/ Mirror grade
		Top Plate Material Thickness	1 mm

D)	Physical Structure	External Dimension	Length: - 260mm
			Width: - 260mm
			Height: - 248mm
		Combustion Chamber Dimension	Diameter: - 125mm
E)	Grate Thickness	2 mm Material HR sheet	
F)	Wight Of the Stove	3.36 Kg	
G)	Type of Fuel Wood	Firewood 30 to 50 mm diameter	
H)	Feeding Process	Continuous Feeding Front Loading	
I)	Expected life of the stove	7 Years	
J)	Guarantee /Warranty Period	1 Year	
K)	Box Dimension	Outer Side Box Dimension	Length: - 300mm
			Width: - 300mm
			Height: - 270mm
L)	Thermal Efficiency	36.42% Thermal efficiency is determined by the Indian Institute of Technology Delhi	

VVB confirmed that the project cookstove has a lifetime of 7 years thus, a ICS distributed will be replaced after 7 years of installation by the PP.

The current initiative is a voluntary endeavour by the project proponent because there is no mandatory rule or regulation in the host country – India mandating the implementation of ICS. The project complies with all applicable statutes, laws, and regulatory frameworks. No Indian regulations, ordinances, or other regulatory frameworks are violated by the project.

VVB has further confirmed that the project is not registered/ rejected by other GHG registries based on database available at Clean Development Mechanism (CDM), GS4GG (Gold Standard for Global Goals), Global Carbon Council (GCC) and there is no legal binding on the project promoter.

As per clarification 1 of Clarification to VCS Program Rules And Requirements, scope 3 emission double claiming provisions are delayed and will be applicable from 01-January-2024. Hence, same are considered and discussed here.

CL 01, CL 02, CL 04 were raised & successfully closed. Kindly refer to Appendix 4 for further details.

Baseline scenario:

The baseline scenario that existed prior to the implementation of the project activity instances involves the use of conventional biomass fuel and inefficient cook stoves which use more firewood and are with poor ventilation, which causes excessive indoor air pollution (IAP) and poses a serious health risk to women and children who spend a lot of time in the kitchen.

The baseline for this project is located in the same area where a similar project has already been implemented. Accordingly, the baseline for this project is the ongoing use of non-renewable wood fuel in traditional cookstoves or three-stone fire stove within a specific region. Additionally, a baseline survey is carried out at the project site to ensure the baseline situation. Based on the survey it is confirmed that a traditional three-stone fire stove is being used in project location.

As per applied methodology, 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.

As confirmed by the assessment team, in the absence of project activity the baseline scenario would have been continued use of non-renewable wood fuel – firewood by the end users to meet similar thermal energy needs and hence, it adheres to the applied methodology.

Assessment team further confirmed that:

Project activities are implemented in domestic premises at the household level as checked and confirmed during on-site audit;

Project participants have confirmed that there is no commercially sensitive information in the submitted documents.

With annual average ex-ante emission reductions of 139,906 tCO_2e , the project qualifies as 'project' under VERRA.

The project stoves have high-power thermal efficiency of 36.42% as confirmed based on the manufacturer's specifications and as verified from the third party assessment report provided by Indian Institute of Technology, Delhi. VVB further confirmed based on these documents that provided/distributed ICS exclusively use woody biomass (fuel wood/firewood) and are single pot

Since 31-December-1989, non-renewable biomass has been used in India, according to according to report by Forest survey of India in 1987[1/21/] chapter III, households in India depend on forests for firewood. Thus confirming that firewood, a now renewable biomass is being used in pre 1989 period too.

The project has been implemented, in order to generate less GHG emissions from the baseline for later removal, reduction, or destruction.

The application for VCS registration by the project or any of its components has been confirmed in the Joint PD & MR[/1/]and up to this point, it has not been registered under any GHG programme which is confirmed based on database available at Clean Development Mechanism (CDM), GS4GG (Gold Standard for Global Goals), Global Carbon Council (GCC) and there is no legal

[1]https://fsi.nic.in/documents/sfr_1987_hindi.pdf

binding on the project promoter for project implementation. It is also confirmed based on the PP declaration that it will not claim any other form of credits.

As per clarification 1 of Clarification to VCS Program Rules And Requirements, scope 3 emission double claiming provisions are delayed and will be applicable from 01-January-2024. Hence, same are not considered and discussed here.

The assessment team affirms that the description provided in the Joint PD & MR[1] is accurate, complete, and provides an understanding of the nature of the project based on its evaluation through review of pertinent documentation (as cited above), and the project has been implemented as described in the Joint PD & MR[1].

For the inclusion of new project activity instances i.e., ICS, the project proponent ensures that it meets the eligibility criteria below:

No.	Criterion	How the new project activity instances comply	VVB assessment
1.	Meet the applicability conditions set out in the methodology applied to the project	The project activity instance is compliant with the applicability criteria of the methodology is established in the subsequent section (section 3.4.2) of the project documents. The compliance of the project activity instance includes 1. The project activity instance includes distribution of ICS in domestic premise. 2. The project activity instance includes ICS (single pot, portable woody biomass ICS) with operational efficiency of 36.42% (which is higher than minimal efficiency of 25%	PP has distributed ICS with an efficiency of 36.42% and since each ICS is treated as a new instance. Hence applicable and accepted

		proposed under the methodology). 3. Estimated emission reduction for the project activity instances is less than 300,000 tonnes of CO_{2e} per year hence "project". 4. Non -renewable biomass was used within the project boundary (elaborated in the subsequent section) The project activity instance does not use biomass residue is not used.	
2.	Use the technologies or measures specified in the project description.	The project activity instances include use of energy-efficient cookstoves the specification of which is elaborated in the project document.	PP has distributed only one model of ICS which is energy efficient (verified from 3rd part testing report (IIT Delhi)). Hence applicable and accepted.
3.	Apply the technologies or measures in the same manner as specified in the project description.	The project activity instances adopt energy-efficient cookstoves resulting in replacement of traditional cook stoves in households. Every ICS (project activity instances) distributed under the project activity possess	PP has distributed only one model of ICS which is energy efficient (verified from 3rd part testing report (IIT Delhi)). Also it was checked and confirmed by the VVB on the basis of the end user agreement/3/ and on site interviews of the end users that the ICS were distributed free of cost. Hence applicable and accepted.

		a unique serial number. For each ICS distributed (project activity instances), an agreement signed between the end user/beneficiary and the project proponent establishes the ownership of the project activity instances.	
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 are installed in Dhar and Barwani district of Madhya Pradesh in India and therefore subject to the same baseline scenario determined in Section 3.4.2 below.	All the cookstoves are distributed within India. Hence applicable and accepted.
5.	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	Step 1: Regulatory Surplus There is no mandated government programme or policy in the host country of this project ensuring the distribution of new energy efficient cook stoves / project activity instance and therefore all the project activity instances are voluntary.	Since each instance is within India and there is no mandated government programme in host country for distribution of cookstove. VVB noted that in year 2009, government of Inda had launched a "National Biomass Cook Stove Programme" but its end date was year 2017[2]. As of now, government of India is not running any programme/having a regulation for efficient cookstoves. Hence accepted and Applicable.

[2] https://policy.asiapacificenergy.org/node/3661

		Step 2: Positive List All the project activity instances comply to the applicability criteria of the methodology (elaborated under section 3.4.2 of this report. In addition, all the project activity instances comply to the following requirement towards compliance with the positive list. 1st condition- The project proponent has distributed ICS (project activity instances) to beneficiary at free of cost (evident from end user agreement) and the project proponent has no other source of income other than the sale of GHG credit. 2nd condition - The project activity is neither implemented as part of government schemes nor is supported by multilateral funds. Since all the project activity instances complies satisfies criterion 1 and 2 where it meets all the	The inclusion of new project activity instances complies with the positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology.

		applicability conditions of the methodology the project activity instances are deemed to be additional (positive list).	
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: Each project activity instance that exceeds one percent of the capacity limit shall be identified. 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. 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.	Since the project activity instances installed to date have the same model, hence expected annual energy saving for each instance is less than 0.0156 GWh_{th}/y which is less than 0.01% of the threshold limit. (Calculation sheet demonstrating adherence to this criterion to be submitted to VVB). As the annual energy saving is below 1% of the limit, therefore no project activity instance is identified and divided into clusters.	Since the project activity instances I have the same model and expected annual energy saving for each instance is less than 0.0135 GWh_{th}/y which is less than 0.01% of the threshold limit. As the annual energy saving is below 1% of the limit, therefore no project activity instance is identified and divided into clusters hence verified and accepted.

Sustainable development contributions:

As per submitted VCS PD MR, PP has selected following Sustainable development contributions:

Sr. No.	SDG Target	SDG Indicator	Current Project contribution
1.	1.1	1.1.1: Proportion of population below the international poverty line	The project activity has contributed to the employment generation for 415 persons in the stove manufacturing company and employment of 52 persons in the ICS distribution & monitoring agency.

			Employment of individual with monthly income in the range of INR 12,000 – 35,000, has helped in enhancing the daily income of individual below international poverty line and thereby improve the proportion of population living below international poverty line.
2.	3.9	3.9.1: Mortality rate attributed to household and ambient air pollution	30,000 households experiencing reduction in particulate matter emitted during cooking thereby improving overall health outcomes and reducing burdens of disease.
3.	4.7	4.7.1: Extent to which (ii) education for sustainable development are mainstreamed	All the project beneficiary households (30,000 households) were appraised/ sensitized about the impact of use of traditional cookstoves on human health, environment and gender equality and how use of ICS could foster sustainable development.
4.	5.4	5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location	Reduce drudgery of women and children in 30,000 households covered under the project activity. Use of ICS reduces the wood requirement in compared to the traditional cookstoves and also the cooking time due to proper heat transfer and therefore time is saved in terms of time spent for collecting of fuelwood and cooking.
5.	7.1	7.1.2: Proportion of population with primary reliance on clean fuels and technology	Increase access to clean cooking technology with ICS installations in 30,000 households under the project activity.

6.	8.5	8.5.1: Average hourly earnings of employees, by sex, age, occupation and persons with disabilities	The project activity has contributed to the employment generation for 415 persons (335 male and 80 female) in the stove manufacturing company and employment of 52 persons (30 male and 12 female) in the ICS distribution & monitoring agency. Employment of individual with monthly income in the range of INR 12,000 – 35,000, has helped in enhancing the daily income of individual below international poverty line and thereby improve the proportion of population living below international poverty line.
7.	9.3	9.3.1: Proportion of small-scale industries in total industry value added.	The project activity has supported the promotion of small-scale industries growth through sourcing/ procurement of 30,000 improved cookstoves from the MSME unit (GHG Reduction Technologies Pvt Ltd)
8.	13.2	13.2.2: Total greenhouse gas emissions per year	Contribute to greenhouse gas emission reduction of 57,966 tCO_2e
9.	15.3	15.3.1 Proportion of land that is degraded over total land area	Contribute in reduction of deforestation through reduction in consumption of 31,722 tonnes of fire wood.

VVB confirms that the description in the VCS PD MR is accurate, complete, and provides an understanding of the nature of the project. During on-site visit, based on desk review and interviews with stakeholders confirms that the project has been implemented as described in the VCS PD MR. Based on submitted ER calculations which are in line with applied methodology, VVB confirms that the project is likely to achieve estimated GHG emission reduction and the actual emission reductions are varying since the estimated ER were based on certain assumptions which are provided in the section 3.4.8 below, confirmed by VVB and are subject to change.

Findings: CAR 03 was raised and closed successfully. Kindly refer appendix 3 for more information.

3.2 Participation under Other GHG Programs

In order to receive carbon benefits during the project activity's crediting period, EKI Energy Services Limited has not registered for, nor is it pursuing registration under, any other GHG emission programme. This was confirmed from the undertaking letter/4/ and by checking other GHG project registries like Clean Development Mechanism (CDM) /22/, Global Carbon Council (GCC) /23/, Gold Standard for Global Goals (GS4GG) /24/ etc. Gold Standard for Global Goals (GS4GG) /24/ etc. The current project activity is thermal energy generation using clean technology, hence, is applicable to register under CDM, GS, GCC and VCS registry. VVB has also checked the CDM, GS, GCC registry registry and found that the project is not claiming any other form of environmental form of credit during then current monitoring period. . Also, PP has submitted declaration/Undertaking/4/ that the project is not registered under any other program. Thereafter accepted by the assessment team and thus, the project is eligible to participate under the VCS Program.

3.3 Safeguards

3.3.1 No Net Harm

The proposed project activity has not noted any potential detrimental effects on the environment or society. Because clean technology of cook stoves is installed and used. During the project activity 30,0000 cookstoves are distributed which result in reduction of greenhouse gas emissions that result due to the project activity, which supports socio-economic and environmental well-being.

The assessment team has determined that this complies with the standards of the VCS Standard (version 4.4) /7(b)/ and is therefore acceptable.

3.3.2 Local Stakeholder Consultation

The Joint PD & MR/01/'s section 2.2 contains a detailed explanation of the local stakeholder consultation process conducted. Stakeholders were defined as individuals who are impacted by project activities and those whose actions directly or indirectly affect the project.

The stakeholder consultation meeting details are as follows:

Date of Invitation – 21-October-2022
Date of Meeting – 20-November-2022
Location of Meeting – Aawali, Barwani, Madhya Pradesh

Village representatives like village heads, sarpanch, distributors and their representatives along with the local household owners that are end users were part of the meeting conducted. The purpose of the meeting was to explore any concerns that the stakeholders may have had about the project's environmental and social implications.

PP has noted feedback received during the meeting in the VCS PD MR. VVB noted that stakeholder inputs have no effect on the project design and no changes were necessary to project design. VVB further confirms that inputs received were appropriately addressed by the PP.

The assessment team conducted stakeholder interviews on-site/9/. The validation team confirmed by the stakeholder's responses that the stakeholder consultation process had been carried out in accordance with the joint PD & MR/01/. The stakeholder acknowledged that they received an invitation to attend the meeting. The invitation procedure specified in the joint PD & MR/01/ was determined to be consistent with this claim. It was further confirmed that the meeting scheduled was for combine meeting for all the districts under the project and stakeholders from target villages were invited by PP. When the assessment team asked stakeholders about the grievance reporting mechanism, they confirmed that they had been informed during the stakeholder consultation process. A copy of the grievance registry/15/ confirms that there were no complaints reported during the current monitoring period and medium of communication for grievance is mobile number/mail ID of the project implementation team which was confirmed by the stakeholders.

3.3.3 Environmental Impact

The validation team confirms that EIA is not mandatory as per the legal requirements due to the scale and distribution nature, and hence is not applicable for the present project activity. No negative environmental impacts have been identified from the project. Project activity supports various positive environmental impacts such as -

- Improves the local environment by reducing the rate of degradation of forests and deforestation in the project area.
- Reduce indoor pollution – ICS emits less smoke and reduces morbidity from respiratory diseases and other health hazards.
- Reduce global and local environmental pollution and environmental degradation by a reduction in the use of non-renewable biomass thus leading to a reduction in GHG emissions.
- Less water and effort are needed for cleaning vessels as the cooking process is relatively smoke-free.

3.3.4 Public Comments

The project was open for public comments from 02-June-2022 to 02-July-2022[3]. During the time for public comment, no comments were received.

3.3.5 AFOLU-Specific Safeguards

This project is not an AFOLU project. This section is not required for non-AFOLU project.

[3] Verra Search Page

3.4 Application of Methodology

3.4.1 Title and Reference

Title: Energy efficiency measures in thermal applications of non-renewable biomass
Type: Type II – Energy Efficiency Improved Projects
VCS Methodology: VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1
Sectoral scope 3
https://verra.org/wp-content/uploads/2021/07/VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1.pdf
This methodology also refers to the latest version of AMS II.G version 11.1 - Energy efficiency measures in thermal applications of non-renewable biomass
https://cdm.unfccc.int/methodologies/DB/GNFWB3Y6GM4WPXFRR2SXKS9XR908IO
For the calculation of the fraction of non-renewable biomass, the below tool is used "TOOL30 version 4.0: Calculation of the fraction of non-renewable biomass"

https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf

3.4.2 Applicability

The project activity uses VMR0006, Version 1.1/6/, of the VCS methodology[4].

The assessment team evaluated the applicability criteria for the baseline methodology through document review and interview. The project activity's compliance with the methodology's requirements is attested to by the assessment team.

S. N.	VMR0006, Version 1.1 Requirements	Project activity applicability	Means of verification
1.	Project activities shall be implemented in domestic premises or in community-based kitchen	The proposed project involves deployment of ICS only in households.	This was verified by the monitoring survey conducted by an independent third party during the annual ICS users' survey/13/

[4]https://verra.org/wp-content/uploads/2021/07/VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1.pdf

S. N.	VMR0006, Version 1.1 Requirements	Project activity applicability	Means of verification
2.	The project stove shall have specified high power thermal efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass (fuel wood) and can be single pot or multi-pot;	Energy Efficient stoves planned to be installed under this project are single-pot portable cook stoves that have an efficiency of more than 25%. For all project activity instances, ICS with an efficiency of 36.42% is planned to be installed. For future project activity instances, the manufacturer may change, and the cook stove efficiency that should be more than 25% as mentioned in the methodology based on manufacturer specification.	This was verified by the stove test certificate issued by credited laboratory (IIT Delhi) and submitted to the VVB for validation/5/.
	Both 'Projects' and 'Large Projects' can use the methodology	Estimated average annual emission reductions for the grouped project activity are lower than 300,000 tonnes of CO_2e per year. Therefore, the proposed project qualifies for the "Projects" criteria.	Same is verified by the assessment team from the emission reduction sheet and Joint PD and MR which is found correct Hence accepted.
3.	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics;	The non-renewable biomass has been used in the country since 31st Dec 1989. The information was derived from the literature survey.	This was verified using literature references presented by PP in Joint PD and MR.

S. N.	VMR0006, Version 1.1 Requirements	Project activity applicability	Means of verification
4	For the specific case of biomass residues processed as a fuel (e.g. briquettes, wood chips) (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g. shredding and compacting in the case of briquetting) may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded.	Not applicable. The ICS is introduced as energy efficiency measure to replace baseline stoves and reduce the use of non-renewable biomass for combustion.	Not applicable.
5	Monitoring approaches for $B_{savings,i,j}$and values for parameters f_{NRB} (when Option (a) in paragraph 48(c) is chosen) and the quantity of woody biomass (fuel wood) $B_{old,i,j}$ may be determined	Not applicable. The ICS is introduced as energy efficiency measure to replace baseline stoves and reduce the use of non-renewable biomass for combustion.	Not applicable.

S. N.	AMS II G Version 11.1 Requirements	Project activity applicability	Means of verification
1	The VCS PD 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	Each ICS in this project can be identified by a unique combination of customer name and geographical location, as well as a serial number. The serial number is a unique number which allows for a clear distinction between the stoves. No	This information verified from distribution records, ICS database and carbon waiver records.

S. N.	AMS II G Version 11.1 Requirements	Project activity applicability	Means of verification
	end-user locations (e.g.programme logo).	individual serial number can be repeated within the project, thus ensuring that each stove is counted only once in the proposed project. In addition, the project has been cross-checked against other CDM project activity operating in the country using the UNFCCC, the Gold Standard, and other relevant voluntary carbon schemes to ensure that the ICS is not included in any other CDM project activity or voluntary project activity	
2	The CDM-PDD or CDM-PoA-DD/CPA-DD 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.	Manufacturers/ cook stove distributors undertaking is provided that EKI is the owner of that carbon credits and Manufacturers/ cook stove distributors will not claim any credits for such cook stoves.	This information verified from declaration for the carbon waiver.

Applicability of Tool 30: Calculation of the fraction of non-renewable biomass (version 04)

Applicability criterion	How the project complies
This tool may be used by: (a) DNAs to submit region- or country-specific default f_{NRB} values, following the procedures for development, revision, clarification and update of standardized baselines (SB procedures); or (b) project participants to calculate project- or PoA-specific f_{NRB} values	The project participant has used this Tool to calculate project-specific f_{NRB} values.

CL 03 was raised & was successfully closed. Refer to Appendix 4 for further details.

3.4.3 Project Boundary

The project boundary is specified as "the physical, geographical site of the efficient devices that utilise biomass" in accordance with the applicable VCS methodology VMR0006 version 1.1 and CDM methodology AMS II G, version 13.0.

The Joint PD & MR /01/ accurately stated the information pertaining to the project boundary. PP has distributed cook stove in various parts of India. As a result, the project boundary for the proposed VCS project activity has taken into account the entirety of India.

The assessment team certifies that there are no sources of gases inside the project boundary for the project instances, which is based on the applied methodology/6/.

For the purpose of calculating project and baseline emissions for the project, the physical delineation of the project boundary and the description of the emission sources and GHGs that are included in the boundary are appropriate.

CAR 01, CAR 02 was raised & successfully closed. Kindly refer to Appendix 4 for further details.

3.4.4 Baseline Scenario

The project activity, known as the green field activity, entails installing new, improved cookstove systems in homes where, before the project activity was implemented, firewood was used for thermal energy requirements. During the on-site visit/9/, this was verified. The default scenario calls for increased use of firewood for home thermal energy requirements viz., for cooking purposes. As a result, it adheres to the requirements of the methodology.

The utilisation of non-renewable biomass serves as the actual baseline. According to Methodology VMR0006, Version 1.1, "The baseline scenario is the continuous use of non-renewable wood fuel by the target community to meet identical thermal energy needs as provided by project cookstoves in the absence of project activity" (firewood).

The initiative's targeted beneficiaries would continue using outdated, inefficient cooking stoves that used a lot of non-renewable biomasses if project activities weren't carried out.

As a result, the baseline scenario has been determined in accordance with the demands of the used methodology VMR0006, Version 1.1/6/, and it is accepted to be reasonable and justifiable.

The baseline for this project is located in the same area where a similar project has already been implemented. Accordingly, the baseline for this project is the ongoing use of non-renewable wood fuel in traditional cookstoves or three-stone fire stove within a specific region. Additionally, a baseline survey is carried out at the project site to ensure the baseline situation. Based on the survey it is confirmed by the PP and verified by the VVB during the onsite assessment interviews with the end users that the traditional cookstoves or three-stone fire stove were being used in project location.

3.4.5 Additionality

The project's additionality is shown by how well it adheres to the standards established in VMR0006, Version 1.1/6/.

Activity Approach

Step 01: Regulatory excess

The distribution of residential fuel-efficient cookstoves is not mandated by any government programme or policy in the country where this project is being implemented. The project is not required by any legislation, statute, regulatory framework, or for UNFCCC non-Annex I nations, any law, statute, or other regulatory structure that is consistently applied.

Only voluntary participation is allowed from households in this study. EKI Energy Services Limited declaration of the voluntary participation of the planned project was verified and found to be appropriate/19/.

Step 02: Positive List

The positive list is represented by the application requirements of this methodology. The project satisfies each of the requirements for applicability listed in Section 3.2. The project also follows the conditions stated below:

1. The project distributes or installs stoves at no cost to the end user and derives all of its funding from the sale of GHG credits.

2. Neither the initiative nor its activities are funded by multilateral agencies or government programmes. Therefore, the project is additional and voluntary.

Verification team checked the end user agreements and also confirmed form the end users during the on-site audit that the ICS were distributed at free of cost. Team also checked the national and the sated governments schemes portal to verify that the project is not implemented as a part of any government scheme. Based on the aforementioned data, the Validation Team draws the conclusion that the data in the joint PD and MR complies with methodology requirements.

3.4.6 Quantification of GHG Emission Reductions and Removals

In the Joint PD & MR /1/, the equations and choices specified in the applied methodology VMR0006, Version 1.1/6/, are accurately cited. The formulas listed in the applied methodology (06) are used to calculate the project's emission reductions.

The validation team certifies that the formulas are accurately stated for the determination of emissions reductions based on their review of the Joint PD & MR /1/. The facts and requirements supplied in the applied methodology/06/ have been compared with the parameters and equations presented in the Joint PD & MR /01/ and other pertinent papers. In order to establish compatibility between all the formulas contained in the Joint PD & MR/01/ and ER validation spreadsheet /02/ and the applied methodology /06/, an equation comparison has also been done.

PP has applied a value of ηo which is 0.1 for this project based on the usage of old traditional cookstoves in the baseline scenario as observed in similar projects of the pp. Also based on the survey it is confirmed that a traditional cookstoves or three-stone fire stove is being used in project location. This value corresponds with the guidelines stated in VMR0006 Version 1.1, which stipulates that a default value of 0.1 should be used for baseline devices that are either three-stone fires utilizing firewood (not charcoal), or conventional devices lacking an improved combustion air supply or flue gas ventilation and without a grate or chimney. Same has been assessed and found correct and conservative by the assessment team.

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

$$ER_y = \sum_i \sum_j ER_{y,i,j}$$ 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 tCO_2e

$ER_{y,i,j,}$ = Emission reductions by improved cookstove of type *i and* batch *j* during year *y* in tCO_2e

$$ER_{y,i,j} = B_{y,savings,i,j} * NCV_{woodfuel} * f_{NRB,y} * \left(EF_{wf,CO2} + EF_{wf,nonCO2}\right) * N_{y,i,j,} * 0.95$$ Equation (2)

Where

$B_{y,savings,i,j}$	=	Quantity of woody biomass (fuel wood) that is saved in tonnes per improved cookstove of type i and batch j during year y
$f_{NRB,y}$	=	Fraction of woody biomass (fuel wood) that can be established as non-renewable biomass (f_{NRB})
$NCV_{wood\ fuel}$	=	Net calorific value of the non-renewable woody biomass (fuel wood) that is substituted or reduced(IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried')
$EF_{wf,CO2}$	=	CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO_2/TJ)
$EF_{wf,non\ CO2}$	=	Non-CO2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO_2/TJ)
$N_{y,I,j}$	=	Number of improved cookstoves of type i and batch j operating during year y
0.95	=	Discount factor to account for leakage

Determination of $B_{y,savings,I,j}$

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

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

Where

η_{old} = Efficiency of baseline cookstove

$\eta_{new,y,i,j}$ = Efficiency of the improved cookstove type *i* and batch *j* determined through water boiling test (WBT) during year *y*

Alternatively, efficiency may be determined using Equation 4.

$B_{y=1,new,i,j,survey}$ = Annual quantity of woody biomass (fuel wood) 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.

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

For ex-ante calculation purpose, the assumption below is applied:

1) Installed 30,000 ICSs.
2) The life span of each ICS is 7 years; thus, the operational lifetime of each project activity instance is taken as 7 years.
3) Annual stove loss rate is estimated at 0%. This is assumed for estimation. During actual ER calculation, this value may change. This value is determined during actual verification based on survey results.
4) $B_{y=1,\ new,i,\ survey}$, is assumed as
    - Madhya Pradesh – 3.53 kg/device/day or equal to 1.29 tonnes/device/year.

    This value has been determined during the first monitoring period, based on survey results.

Determination of f_{NRB} value:

The assessment of f_{NRB} calculation conducted by PP in the submitted ER sheet was checked by VVB. The values considered for f_{NRB} calculation are based on 3rd party database, reports. The weblinks for the same are provided in the f_{NRB} calculation sheet which were checked and confirmed. The detailed calculation is presented below:

As per Tool 30, the fraction of woody biomass (fuel wood) that can be established as non-renewable is given by:

$$f_{NRB} = \frac{NRB}{NRB + RB}$$

Where:

f_{NRB} = Fraction of non-renewable biomass in the applicable area in the relevant period (fraction or %)

NRB = Quantity of non-renewable biomass consumed in the applicable area in the relevant period (tonnes)

RB = Quantity of renewable biomass that is available on a sustainable basis in the applicable area in the relevant period (tonnes)

Commercial use of woody biomass (fuel wood) for non-energy purposes (such as building or furniture) that is derived from forests or other land areas in the relevant area (tonnes)

NRB = H – RB

Where:

H = Total consumption of woody biomass (fuel wood) in the applicable area in the relevant period (tonnes)

The following equation accounts for all consumption within the relevant area to determine the overall consumption of woody biomass (fuel wood) (H).

H = HW × N + CE + NE

Where:

HW = Average consumption of wood fuel per household, including fuelwood and charcoal, in the applicable area in the relevant period (tonnes//household)

N = Number of households consuming wood fuel within the applicable area in the relevant period (number)

CE = Commercial woody biomass (fuel wood) consumption for energy applications (e.g. commercial, industrial or institutional uses of woody biomass (fuel wood) in ovens, boilers etc.) that are extracted from forests or other land areas in the applicable area in the relevant period (tonnes)

NE = Commercial woody biomass (fuel wood) consumption for non-energy applications (e.g. construction, furniture) that are extracted from forests or other land areas in the applicable area in the relevant period (tonnes)

As the parameters HW and N, disaggregated value is not provided, hence we will be using an aggregated value of (H × N) in the calculations.

	HW × N (million tonnes)	CE (Million tonnes)	NE (Million tonnes)	**H (Million tonnes)**
Madhya Pradesh	13.67	2.32	0	**15.1593**

Procedure to estimate the quantity of renewable biomass available (RB):

$$RB = \sum\left(MAI_{forest,i} \times \left(F_{forest,i} - P_{forest,i}\right)\right) + \sum\left(MAI_{other,i} \times \left(F_{other,i} - P_{other,i}\right)\right)$$

Where:

$MAI_{forest,i}$	=	Mean Annual Increment of woody biomass (fuel wood) growth per hectare in sub-category i of forest areas in the relevant period (tonnes/ha/yr)
$MAI_{other,i}$	=	Mean Annual Increment of woody biomass (fuel wood) growth per hectare in sub-category i of other land areas in the relevant period (tonnes/ha/yr)
$F_{forest,i}$	=	Extent of forest in sub-category i in the relevant period (ha)
$F_{other,i}$	=	Extent of other land in sub-category i in the relevant period (ha)
$P_{forest,i}$	=	Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (in sub-category i) in the relevant period (h
$P_{other,i}$	=	Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (in sub-category i) in the relevant period (ha)

$MAI_{forest,I}$ = = 0.5 m^3/hectare/year i. e. 0.33 tonnes/hectare/year[5] (calculation is presented in the fNRB sheet – renewable biomass which is checked and confirmed).

PP has used same value for $MAI_{other,i}$ as no country specific data is available. VVB further checked other registered projects from GS and VCS and noted that same value has been considered and hence found appropriate.

The reference project VCS 2983 has used a wood density of 0.5 tonnes/ha/yr using the government of India document as a source with $MAI_{0ther,j}$ value as '0'.

The reference project GS 11539 has used a wood density of 0.5 tonnes/ha/yr using the government of India document as a source with $MAI_{0ther,j}$ value as '0'.

The reference project GS 11427 which is located in the multiple states has used a wood density of 0.5 tonnes/ha/yr using the government of India document as a source with $MAI_{0ther,j}$ value as '0'.

Registry	Registry ID	Weblink	MAI values considered
VCS	2983	https://registry.verra.org/app/projectDet	$MAI_{forest,i}$ – 0.5

[5] https://www.forests.tn.gov.in/app/webroot/img/Yield%20table%20for%20few%20tree%20species%20grown%20in%20farm%20settings.pdf (the value is 0.5 m3/hectare/Year)

		ail/VCS/2983	$MAI_{other,i}$ – not considered
GS	11539	GSF Registry (goldstandard.org)	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – not considered
GS	11427	GSF Registry (goldstandard.org)	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – not considered

In view of the above, VVB noted that values considered for $MAI_{forest,i}$ and $MAI_{other,I}$ are the most appropriate and hence accepted.

Average Density of Major species – Forest = 0.654 t/m^3 (this is calculated value and calculations presented in the excel file – 'wood density' were checked and confirmed).

Average Density of Major species - Tree outside Forest (Rural + Urban) = 0.644 t/m^3 (this is calculated value and calculations presented in the excel file – 'wood density' were checked and confirmed).

Hence, based on these values:

$MAI_{forest,i}$ = 0.33 tonnes/hectare/year[6]

$MAI_{other,i}$ = 0.32 tonnes/hectare/year[7]

	$MAI_{forest,i}$ (tonnes/ hectare/ year)	$MAI_{other,i}$ (tonnes/ hectare/ year)	$F_{forest,i}$ (Million Ha)	$P_{forest,i}$(Million Ha)[8]	$F_{other,i}$(Million Ha)	**RB (million tonne)**
Madhya Pradesh	0.33	0.32	6.477	3.579[9]	2.077	**1.617**

VVB has checked and confirmed that the data source used for MAI value is nationally available data thus satisfying the requirements of tool 30 as it is as per option (d) of data/parameter table 5 of tool 30, version 4.0. The document reports data after the year 2015 which satisfies the requirement of the tool i.e. the data vintage shall not be before the year 2000 as mentioned in the table 5. As per QA/QC procedures of the table 5, *If national studies or government data or official statistics are used, compare values with FAO and IPCC defaults and provide justification of differences*. VVB noted that FAO database table 14[10] provides percentage distribution of forest types by country and no specific value is provided thus it is not comparable. Moreover, same was also observed in case of IPCC report because, the MAI values listed for above-ground biomass growth rates in the 2019 Refinement to the 2006 IPCC Guidelines

[6] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch04_Forest%20Land.pdf
[7] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch04_Forest%20Land.pdf
[8] https://fsi.nic.in/isfr-2021/chapter-13.pdf
[9] As demonstrated in the fNRB workbook, sheet – Renewable biomass; calculation of $P_{forest,i}$ value is demonstrated through both the ways - Option 1: Considering non-Accessible Area (VDF and MDF) for both Reserved Forest and Protected Forest and Option 2: Considering Reserved Forest (VDF, MDF, and OF) as total inaccessible and has treated Protected Forest as totally accessible (i.e. zero value). The lower of the value calculated i.e. 3.579 million hectares is chosen which is found appropriate.
[10] FAO Global Forest Resources Assessment 2000 by the FAO for "Distribution of total forest area by ecological zone" (Table 14)

for National Greenhouse Gas Inventories[11] (Above-ground biomass growth rates for different ecological zones) pertain to the Asia region as a whole, rather than specific to India. Hence, a direct comparison with the source document used is found inappropriate by the VVB.

Thus,the fraction of woody biomass (fuel wood) that can be established as non-renewable as below:

	H	RB	NRB	**fNRB**
Madhya Pradesh	15.16	1.62	13.54	**89.34%**

The values considered in above calculation for fNRB are based on 3rd party database/reports for which weblinks are provided by PP in the excel datasheet which were checked and confirmed.

An assessment of few parameters is presented below which is checked and confirmed based on submitted excel sheet and publicly available data:

Wood Consumption

The wood consumption is estimated as sum of fuel wood consumption and consumption of commercial wood.

Parameter	Value	VVB Assessment
Fuel Wood Consumption	13.67 million toone	VVB confirmed that the state of forest survey report from year 2011 for the state of Madhya Pradesh is the most recent data available for value of fuelwood usage. VVB acknowledge that the referred data is in accordance with paragraph 10 of tool 30, ver. 4.0. Since the value of fuel wood consumption in year 2022 would be different from the report in year 2011 which is appropriate and hence accepted. In view of the same, the value of fuel wood as per estimated value from MoEFF&CC for fuel wood is found more appropriate. The values and calculation presented in the excel sheet was checked and found appropriate. The value of fuel wood consumption as 13.67 million tonne as per https://fsi.nic.in/cover_2011/chapter7.pdf is found appropriate by the assessment team.
Commercial Wood Consumption	2.32 million tonne	The value of commercial wood consumption is taken as per the most recent available public data by PP as 2.32 million tonne. Since the state of forest survey, 2011 is the most recent data available for the state of

[11] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch04_Forest%20Land.pdf

		Madhya Pradesh to consider the value of the parameter and same is being used by PP for estimation of the parameter value , same is found appropriate.

Renewable Biomass-

Parameter	Value	VVB assessment
Mean Annual Increment of above ground biomass of Indian Forest	0.5 m^3/ha/year	PP has considered the mean annual increment of India Forest as published by Government of Tamil Nadu which also outlines the average value for India forest and hence accepted. Since the value considered is the publicly available national statistics, same is acceptable to VVB.
Area under Forest	6,477,299 ha	The value is obtained by PP based on the most recent State of Forest Report 2021 (chapter 13) published by Forest Survey of India, MoEF&CC, Govt of India. Since the most recent data is used for the value of the parameter, same is found acceptable.
Area under Non Forest Land	2,832,600 ha	PP has used the value related to area under non-forest land from latest State of Forest Report 2021 (chapter 13) published by Forest Survey of India, MoEF&CC, Govt of India. Since the most recent date is used for the value of the parameter, same is found acceptable.

VVB noted that based on the above values, PP has calculated fNRB value in the excel sheet in line with tool 30, ver. 4.0 and same is checked and found acceptable. The calculated value of fNRB is 89.34% for the state of Madhya Pradesh (geographical location of the project activity).

Since no published data is available to compare the calculated value, PP has compared this value with the registered projects and it was noted that the value considered for the current project is not the most conservative.

The registered project from the same geographical area and fNRB value for the same:

Project Reference	Geographic Area	f_{NRB}
Project ID- 2473 Project Title - Installation of High Efficient Cook Stoves by Enking International	Madhya Pradesh	Madhya Pradesh -0.9310
Project ID – 2754 Project title - Household Biogas Carbon Offset Project for Clean, Convenient and Efficient Cooking by INSEDA Engineers and Consultants Private Limited (INSEDA-Engg)	Madhya Pradesh	Madhya Pradesh - 0.9287
Project ID- 2533 Project Title-Improved Cookstove Programme by SDG13 in India	Madhya Pradesh	Madhya Pradesh -0.9010
Project ID – 2942	Madhya Pradesh	Madhya Pradesh – 0.8920

Clean Cooking - Cook Stove for Rural India		
Project ID – 2944 Clean Cookstoves for Rural India	Madhya Pradesh	Madhya Pradesh – 0.8920

VVB noted that the registered projects 2942 and 2944 used fNRB value as 0.8920 which is found to be more conservative than the calculated value for the current project i. e. 0.8934 and hence same is being used by PP now. VVB noted that this value is already used in the registered projects and is more conservative hence found appropriate.

$$\eta_{new,y,i,j} = \eta p * (DFn)^{(y-1)} * 0.94 \text{ ----------(4)}$$

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.

For ex-ante calculation purpose, the below assumptions were applied:

- Installed 30,000 improved cookstoves (ICS's).
- The life span of each ICS is 7 years; thus, the operational lifetime of each project activity instance is taken as 7 years.
- Annual stove loss rate is estimated at 0%. This is assumed for estimation. During actual ER calculation, this value may change. This value is determined during actual verification based on survey results.
- $B_{y=1,\ new,i,\ survey}$, is assumed as Madhya Pradesh – 3.53 kg/device/day or equal to 1.29 tonnes/device/year. This value has been determined during the first monitoring period, based on survey results.

Determination of efficiency of ICS during year y

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

Where

η_p = 36.42%

DF_n = 0.99

Example of calculation:

If y= 1

$\eta_{new,y,i,j}$ = 36.42% X $(0.99)1^{1-1}$ X 0.94

34.23%

Hence the efficiency of ICS during year y is as below:

Year (y)	$\eta_{new,y,i,j}$
1	34.23%
2	33.89%
3	33.55%
4	33.22%
5	32.89%
6	32.56%
7	32.23%

Determination of the quantity of woody biomass (fuel wood) that is saved in tonnes per ICS during year y

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

Example of calculation for Madhya Pradesh:

If y= 1,

$B_{y,savings,i,j}$= 1.29 X [(0.3423/0.1) -1]

= 3.1225 tonnes

Year (y)	$B_{y=1,new,i,survey}$	$\eta_{new,y,i,j}$	η_{old}	$B_{y,savings,i,j}$
1	1.29	34.23%	0.1	3.1225
2	1.29	33.89%	0.1	3.0784
3	1.29	33.55%	0.1	3.0348
4	1.29	33.22%	0.1	2.9915
5	1.29	32.89%	0.1	2.9487
6	1.29	32.56%	0.1	2.9064
7	1.29	32.23%	0.1	2.8644

Determination of emission reductions by ICS of year1 during year y

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

Where

$NCV_{wood\ fuel}$ = 0.0156 TJ/tonne

$f_{NRB,y}$ = 0.8920 (for Madhya Pradesh)

$EF_{wf,CO2} + EF_{wf,non\ CO2}$ = 112 + 26.23 = 138.23 tCO_2/TJ

Example of calculation for **Madhya Pradesh** ($N_{y,i,j}$= 30,000):

If y=1,

$ER_{y,i,j}$ = 3.1225 X 0.0156 X 0.8920 x 138.23 X 30,000 X 0.95

= 117,176 tCO_2e (round down value expected for the 1st year of operation)

Year	$B_{y,savings,i,j}$	$NCV_{wood\ fuel}$	$f_{NRB,y}$	$EF_{wf,CO2} + EF_{wf,non\ CO2}$	$N_{y,i,j}$	$ER_{y,i,j}$
1	3.1225	0.0156	0.892	138.23	30,000	171,176
2	3.0784	0.0156	0.892	138.23	30,000	160,320
3	3.0348	0.0156	0.892	138.23	30,000	149,727
4	2.9915	0.0156	0.892	138.23	30,000	139,395
5	2.9487	0.0156	0.892	138.23	30,000	129,318
6	2.9064	0.0156	0.892	138.23	30,000	119,493
7	2.8644	0.0156	0.892	138.23	30,000	109,917

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
20-November-2022 to 31-December -2022	19,697			19,697
01-January-2023 to 31-December-2023	169,927	0	0	169,927
01-January-2024 to 31-December-2024	159,101	0	0	159,101
01-January-2025 to 31-December-2025	148,538	0	0	148,538
01-January-2026 to 31-December-2026	138,235	0	0	138,235
01-January-2027 to 31-December-2027	128,188	0	0	128,188
01-January-2028 to 31-December-2028	118,391	0	0	118,391
01-January-2029 to 19-December-2029	97,269	0	0	97,269
Total		0	0	979,346
Total number of crediting years				7
Average annual ERs				139,906

The assessment team certifies that the relevant tools and the applied methodology were used correctly to determine baseline emissions and net GHG emission reductions during the project crediting period.

CAR 03 was raised & successfully closed. Kindly refer to Appendix 4 for further details.

3.4.7 Methodology Deviations

Not Applicable.

3.4.8 Monitoring Plan

The project uses VCS methodology, specifically VMR0006, Version 1.1, and in accordance with that approach, the following parameters shall be considered:

Parameters fixed ex-ante:

$f_{NRB,y}$	Fraction	Fraction of woody biomass that can be established as non-renewable biomass	PP has estimated the value in accordance to methods stipulated under Tool 30: Calculation of the fraction of non-renewable Biomass Version 04.0 as 89.20% which is already demonstrated in the above section and accepted.
NCV $_{wood\ fuel}$	TJ/tonne	The net calorific value of the non-renewable woody biomass that is substituted or reduced	The value 0.0156 TJ/tonne is considered based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction as asked by the applied methodology (Default as per applied approved methodology VMR0006 ver 1.1 Page number 11) and hence accepted.
$EF_{wf,CO2}$	tCO_2/TJ	CO_2 emission factor for the use of wood fuel in the baseline scenario	The value 112 tCO_2/TJ is based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion as asked by the applied methodology and hence accepted.
$EF_{wf,non\ CO2}$	tCO_2/TJ	Non CO_2 emission factor for the use of wood fuel in the baseline scenario	The value 26.23 tCO_2/TJ is based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion as asked by the applied methodology and hence accepted.
$\eta_{old,i,j}$	Fraction	The efficiency of baseline cookstove	Since the baseline fuel is established as a firewood and cook stove as three stone fired, a default value of 0.10 as

<table>
<tr><td></td><td></td><td></td><td>per the methodology is considered which is found appropriate.</td></tr>
<tr><td>η_p</td><td>%</td><td>The efficiency of the project stove at the start of the project activity.</td><td>The ICS was tested at Indian Institute of Technology, Delhi as per BIS protocol and the tested efficiency is assed to be 36.42% as confirmed based on the submitted test report.</td></tr>
<tr><td>DF_n</td><td>Fraction</td><td>Discount factor to account for efficiency loss of project cookstove per year of operation</td><td>PP has used methodological default factor as 0.99 which is found appropriate and accepted.</td></tr>
<tr><td>Life Span</td><td>Years</td><td>Operating lifetime of project device for projects opting Equation 5 for determining project stove efficiency</td><td>PP has submitted manufacturer's specification certificate/8/ on the basis of that VVB confirms the operating years of the cookstoves to be installed is 7 years and hence accepted.</td></tr>
<tr><td>$\eta_{new,y,i,j}$</td><td>Fraction</td><td>The efficiency of the improved cook stove type i and batch j determined as per equation 5 of methodology during year y</td><td>Based on the efficiency test report from a certified laboratory for 1st year than calculated using equation 5 of methodology, PP has fixed the values for 1st crediting period as below:
<table><tr><th>Year (y)</th><th>$\eta_{new,y,i,j}$</th></tr><tr><td>1</td><td>34.23%</td></tr><tr><td>2</td><td>33.89%</td></tr><tr><td>3</td><td>33.55%</td></tr><tr><td>4</td><td>33.22%</td></tr><tr><td>5</td><td>32.89%</td></tr><tr><td>6</td><td>32.56%</td></tr><tr><td>7</td><td>32.23%</td></tr></table>If, PP uses/adds new type of cookstove, the efficiency for the same would also be established ex-ante.</td></tr>
</table>

Parameters to be monitored ex-post are:

Parameter (s)	Units	Description	Source of monitoring data
$N_{y,i,j}$	Number	Number of project devices of type i and age a that are operating in year *y*	Measured directly or based on a representative sample. As per methodology, the minimum sample size will be determined in which case compliance with 90/10 confidence precision is not obligatory.
$B_{y=1,new,l,j,survey}$	Fraction	Annual quantity of woody biomass (fuel wood) used by improved cook stoves 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	Based on the monitoring survey,

The annual ICS survey shall be the source of the annual values of the monitoring parameter, as indicated in the Joint PD & MR. The annual survey data on functioning devices will be the foundation for the calculations of emission reductions. The evaluation team will examine it to confirm the results of the emission decrease.

The evaluation team affirms that thorough monitoring procedures, monitoring structure, management team, monitoring items, and monitoring functions have been amply proven based on the review of the Joint PD & MR/01/.

PP has mentioned quality control/quality assurance measures in the VCS PD&MR which were checked and found appropriate.

PP will archive all data electronically for the duration of the crediting period and 2 years post the last verification/issuance. CAR 04 was raised & successfully closed. Kindly refer to Appendix 4 for further details.

3.5 Non-Permanence Risk Analysis

Since the present project activity is a non-AFLOU project, this section is not applicable as per the guidance of VERRA.

4 VERIFICATION FINDINGS

4.1 Accuracy of GHG Emission Reduction and Removal Calculations

The following list includes the information and factors used to determine the removal and reduction of GHG emissions:

Ex-ante parameters (parameters having default values):

Sl No	Parameter	Description	Value	Unit	Source
1.	$f_{NRB,y}$	Fraction of woody biomass (fuel wood) saved by the project activity during year y that can be established as non-renewable biomass	For Madhya Pradesh – 89.20% (calculated as per meth tool)	%	Fraction of non-renewable biomass is calculated as per the f_{NRB} calculation TOOL30: Calculation of the fraction of non-renewable biomass/14/ in ER sheet tab "fNRB"/2/. Further sources used to calculate f_{NRB} in ER sheet have been verified from weblinks provided in the sheet and the evidences submitted. PP has referred State of Forest report (Forest Survey of India Ministry of Environment, Forest & Climate Change, GoI, 2019). Assessment team found that the report is publicly available and the reference have been checked and found correct. Hence accepted.
2.	$NCV_{wood\ fuel}$	Net calorific value of the non-renewable woody biomass (fuel wood) that is substituted or reduced	0.0156	TJ/tonne	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction
3.	$EF_{wf,CO2}$	CO_2 emission factor for the use of wood fuel in baseline scenario	112	tCO_2/TJ	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion
4.	$EF_{wf,non\ CO2}$	Non-CO_2 emission factor for the use of wood fuel in baseline scenario	26.23	tCO_2/TJ	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion
5.	$\eta_{old,i,j}$	The efficiency of baseline cookstove	0.1	Fraction	Methodology default value
6.	η_p	The efficiency of the project stove at the start of project activity	36.42%	Fraction	Manufacturer's specification, third party verified
7.	DF_n	Discount factor to account for	0.99	Fraction	Methodology default value

		efficiency loss of project cookstove per year of operation (fraction).			
8.	Life Span	Operating lifetime of project device for projects opting Equation 5 for determining project stove efficiency	7	Years	Manufacturer's specification. Which is verified by the technical specification certificates submitted by the PP and found correct.
9.	$\eta_{new,y,i,j}$	The efficiency of the improved cook stove type i and batch j determined as per equation 5 of methodology during year y		Fraction	Based on the efficiency test report from a certified laboratory for 1st year than calculated using equation 5 of methodology, PP has fixed the values for 1st crediting period as below: Year (y) / $\eta_{new,y,i,j}$ 1 / 34.23% 2 / 33.89% 3 / 33.55% 4 / 33.22% 5 / 32.89% 6 / 32.56% 7 / 32.23% If, PP uses/adds new type of cookstove, the efficiency for the same would also be established ex-ante.

As a part of monitoring plan, the assessment team found, checked and confirmed that following sustainable development goals are considered which are appropriate and are measurable.

Sr. No.	SDG Target	SDG Indicator	Current Project contribution	VVB assessment
1.	1.1	1.1.1: Proportion of population below the international poverty line	The project activity has contributed to the employment generation for 415 persons in the stove manufacturing company and employment of 52 persons in the ICS distribution & monitoring agency. Employment of individual with monthly income in the range of INR 12,000 – 35,000, has helped in enhancing the daily income of individual below international poverty line and thereby improve the proportion of population living below international poverty line.	During the desk review and as a part of on-site interviews, VVB discussed and confirmed that PP has provided employment to 415 individuals which include 335 male and 80 female from urban as well as rural area. The interviews and desk review of submitted document confirm that their income which is above the international poverty line[12].

[12] https://datatopics.worldbank.org/world-development-indicators/themes/poverty-and-inequality.html#:~:text=Poverty%20measured%20at%20the%20international,than%203%20percent%20by%202030.

2.	3.9	3.9.1: Mortality rate attributed to household and ambient air pollution	30,000 households experiencing reduction in particulate matter emitted during cooking thereby improving overall health outcomes and reducing burdens of disease.	During the desk review and as a part of on-site interviews, VVB discussed and confirmed that the end users which are using ICS daily and expressed that they have observed reduction is smoke which mainly contains harmful gases leading to health deterioration[13]. Thus improving overall health impact and reduction in diseases.
3.	4.7	4.7.1: Extent to which (ii) education for sustainable development are mainstreamed	All the project beneficiary households (30,000 households) were appraised/ sensitized about the impact of use of traditional cookstoves on human health, environment and gender equality and how use of ICS could foster sustainable development.	During the desk review and as a part of on-site interviews with PP representatives and end users, VVB discussed and confirmed that the end users were explained and have understood that the ICS provide them with sustainable solution due to reduction is use of firewood quantity and reduction is smoke and also saving in cooking time. The end users confirmed that, this was explained to them at the time of ICS distribution and on annual basis, PP representative calls them to re-affirm the same.

[13] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7014065/

4.	5.4	5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location	Reduce drudgery of women and children in 30,000 households covered under the project activity. Use of ICS reduces the wood requirement in compared to the traditional cookstoves and also the cooking time due to proper heat transfer and therefore time is saved in terms of time spent for collecting of fuelwood and cooking.	During the desk review and as a part of on-site interviews with end users, VVB discussed and confirmed that the end users are experiencing savings in time spent on firewood collection and food cooking.
5.	7.1	7.1.2: Proportion of population with primary reliance on clean fuels and technology	Increase access to clean cooking technology with ICS installations in 30,000 households under the project activity.	During the desk review and as a part of on-site interviews, VVB discussed and confirmed that the end users 30,000 households are availing cleaner technology of ICS on daily basis.

6.	8.5	8.5.1: Average hourly earnings of employees, by sex, age, occupation and persons with disabilities	The project activity has contributed to the employment generation for 415 persons (male and female) in the stove manufacturing company and employment of 52 persons (male and female) in the ICS distribution & monitoring agency. Employment of individual with monthly income in the range of INR 12,000 – 35,000, has helped in enhancing the daily income of individual below international poverty line and thereby improve the proportion of population living below international poverty line.	During the desk review/ and as a part of on-site interviews, VVB discussed and confirmed that PP has provided employment to 415 individuals with include both male (335) and female (80) from urban as well as rural area. The employment was further cross checked as a part of desk review based on employment records and sample salary slips submitted.

7.	9.3	9.3.1: Proportion of small-scale industries in total industry value added.	The project activity has supported the promotion of small-scale industries growth through sourcing/ procurement of 30,000 improved cookstoves from the MSME unit (GHG Reduction Technologies Pvt Ltd).	During the desk review and as a part of on-site interviews, VVB discussed and confirmed that as a part of project activity, manufacturing of ICS has got a boost leading to employment in a small scale industry manufacturing ICS.
8.	13.2	13.2.2: Total greenhouse gas emissions per year	Contribute to greenhouse gas emission reduction of 57,966 tCO_2e.	Based on submitted ER sheet and applied methodology, VVB confirmed that the project has led to emission reductions over the baseline scenario.
9.	15.3	15.3.1 Proportion of land that is degraded over total land area	Contribute in reduction of deforestation through reduction in consumption of 31,721 tonnes of fire wood.	Based on submitted ER sheet and desk review of the documents, VVB has confirmed that reduction in firewood usage led to savings of fuel wood. This was also confirmed by the end users during on-site interviews.

Parameter(s) monitored ex-post:

Parameter	$N_{y,i,j}$ (Number of project devices of type i and batch j are operating in year *y*)
Means of verification	

Criteria/Requirements	Assessment/Observation
Measuring /Reading /Recording frequency	At least once every two years. For current monitoring period it is measured through survey which is checked and confirmed.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the Joint PD & MR and monitoring methodology. This parameter is monitored once every two through ICS survey.
Monitoring equipment	Sample survey
Value applied	30,000 The value is checked and confirmed based on sample survey submitted.
How were the values in the monitoring report verified?	Measured directly or based on a 90-representative sample. PD has used CDM Standard for sampling standard, version 9 & CDM sampling guideline version 4, to determine the sample size to achieve 90/10 confidence precision. From each state, PP has randomly selected the ICS applying random sampling function in excel and accordingly the target ICS sample is determined for survey. Data collected: Questionnaire survey form used by third party surveyor and a detailed survey report has been provided. Since the relative margin of error obtained is less than 10% for the monitored parameter, relative precision of the data is statistically acceptable and

		deemed representative of the population. The submitted survey was checked and confirmed.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On-site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable. Assessment team verified operational ICS during the on-site visit from ICS survey report.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	$B_{y=1,new,I,j,survey}$ Annual quantity of woody biomass (fuel wood) used by improved cook stoves 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
Means of verification	

Criteria/Requirements	Assessment/Observation
Measuring /Reading /Recording frequency	Determined in the first year of project implementation through monitoring survey which is submitted, checked and confirmed.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the Joint PD & MR and monitoring methodology. This parameter is determined in the first year of project implementation.
Monitoring equipment	Weighing Scale.

			VVB noted that PP had purchased new weighing scale[20] prior to fuel measurement with serial number JHM-114531 which was pre-calibrated and acceptable. The weighing scale will be calibrated annually.
		Value applied	For Madhya Pradesh– 3.53 kg/device/day or equal to 1.29 tonnes/device/year.
		How were the values in the monitoring report verified?	PD has decided to conduct monitoring survey and the sample size was selected in line with the guidelines provided in methodology Section 8.4 option (b). Determined in the first year of the introduction of the devices (e.g., during the first year of the crediting period, y=1) through measurement campaigns at representative households and/or sample surveys. The conducted surveys were submitted and checked by the assessment team and found correct.
		Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On-site site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No findings were raised.		
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

The Joint PD & MR formulae for calculating emission reductions, as certified by the used methodology VMR0006 Version 1.1 have been examined and deemed to be accurate. The Joint PD & MR values and the ER verification sheet values have been compared. Additionally, the

formulas used in the ER spreadsheet were examined and confirmed to be in line. The assessment team certifies that all calculations are performed in accordance with the formulae specified in the applied methodology VMR0006 Version 1.1 and the monitoring plan requirements, that all parameters are used correctly, that all results are transparent and verifiable, and that all assumptions are described and supported by verifiable evidence.

For the monitoring period from 20-November-2022 to 30-April-2023 (inclusive of both the dates) PD has achieved to reduce 57,966 tCO_2e GHG emissions. The ER sheet was used to verify the emission calculation, which was confirmed to be accurate and accepted.

Year	Baseline emissions or removals (tCO_2e)[14]	Project emissions or removals (tCO_2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2022 (20-November-2022 to 31-December-2022)	5,704	-	-	5,704
Year 2023 (01-January-2023 to 30-April-2023)	52,262			52,262
Total	**57,966**	**-**	**-**	**57,966**

4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

To define and calculate values used for GHG emission determination, PP has used default values as per the applied methodology, baseline and monitoring survey conducted pre and during the project implementation respectively, manufacturer product datasheet, analysis report by 3rd party for ICS efficiency and life time.

VVB as a part of desk review and during on-site interviews checked and confirmed these evidences and same were found sufficient and appropriate for the respective values considered. VVB confirms that;

- The submitted evidences were found reliable and the source and nature of the evidence (external or internal, oral or documented) for the determination of GHG emission reductions or removals were checked and confirmed and found appropriate.

[14] The value presented here calculated considering that 5% of the distributed stoves will be non-operational due to unforeseen reasons which is accepted as it is conservative.

- The information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report is checked and confirmed.
- As a part of monitoring, PP has used weighing scale for measurement of firewood. The weighing scale used was checked, which was newly purchased and was calibrated.

Thus, VVB confirms that the evidence to determine GHG Emission Reductions and Removals for this verification period is sufficient and appropriate.

5 VALIDATION AND VERIFICATION OPINION

EKI Energy Services Limited hired LGAI Technological Center, S.A. (also known as Applus+ Certification), to carry out a joint validation and verification of the VCS project activity "The Clean Energy Cooking Initiative."

The VCS Standard (version 4.4), VCS Program Guide (version 4.3), and Registration & Issuance Process (version 4.3)/07/ were all used as the foundation for the Joint validation and verification process.

The findings of the joint validation and verification process can each be summed up as follows:

The project activity complies with the requirements of the applied baseline & monitoring methodology, VMR0006, Version1.1/6/, and according to Applus+ Certification, delivers the information in Joint PD & MR as needed by VCS Standard, version 4.4/7(b) /. As previously mentioned, the validation was carried out utilising a risk-based methodology. The project activity is anticipated to reduce emissions by 979,346 tCO_2e over the length of its crediting period (seven years).

As stated in the Joint PD & MR /1/, Applus+ Certification concludes the validation with a positive opinion and affirms that the VCS Project Activity "The Clean Energy Cooking Initiative" complies with all applicable VCS requirements, including those outlined in the CDM Project Standard, version 3.0, methodologies, tools, and guidelines.

The VVB can conclude that the project is likely to achieve estimated GHG emission reduction or removals based on a positive conclusion of the reasonableness of assumptions, limitations and methods that support the estimations of the future activities, provided that actual results may vary since the estimates are based on assumptions that are subject to potential changes during the implementation and monitoring of the project.

Validation Analysis: During the validation process, VVB has ensured the reasonableness level of all the assumptions/parameters by using random Sampling methods in line with Standard for Sampling and surveys for CDM project activities and programmes of activities, version 9/18/. VVB also confirms that estimated GHG emission reduction for the project activity are reasonable and appropriate. However, actual GHG emission reduction may vary at the time of verification as estimates are based on the assumptions.

Verification Analysis: The verification strategy used by Applus+ Certification is based on an understanding of the risks involved in reporting GHG emission data and the mitigation measures put in place. In order to provide a reasonable level of assurance that reported GHG emission reductions are accurately stated, Applus+ Certification prepared and carried out the verification by gathering documentation, additional information, and justifications.

The GHG statement is the responsibility of the project proponent and the project conforms with the validation and verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 4.0.

In our opinion, the joint PD and MR/01/ accurately states the GHG emissions reductions reported for the project activities for the time period of 20-November-2022 to 30-April-2023 (inclusive of both the dates). Based on the approved baseline & monitoring methodology, as well as the VCS standard, the GHG emission reductions were computed accurately.

Estimated Emission reduction over the crediting period are:

Year	Estimated GHG emission reductions or removals (tCO_2e)
20-November-2022 to 31-December -2022	19,697
01-January-2023-31 to December-2023	169,927
01-January-2024 to 31-December-2024	159,101
01-January-2025 to 31-December-2025	148,538
01-January-2026 to 31-December-2026	138,235
01-January-2027 to 31-December-2027	128,188
01-January-2028 to 31-December-2028	118,391
01-January-2029 to 19-December-2029	97,269
Total estimated ERs	**979,346**
Total number of crediting years	**7**

Average annual ERs	**139,906**

Period of verification: from 20-November-2022 to 30-April-2023 (including both days). Verified reduction to and removals from GHG emissions over the aforementioned verification period:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2022 (20-November-2022 to 31-December-2022)	5,704	-	-	5,704
Year 2023 (01-January-2023 to 30-April-2023)	52,262	-	-	52,262
Total	**57,966**	**-**	**-**	**57,966**

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
20-November-2022 to 31-December-2022)	19,697	5,704	-71.04%	During these vintages, as confirmed from the submitted ER sheet and monitoring database, it was confirmed that All the project ICS were not installed/ commissioned on one date i. e on the first date of crediting period hence the emission reduction
01-January-2023 to 30-April-2023	55,085	52,262	-7.13%	

				achieved during the monitoring period is lower than the emission reduction estimated ex-ante for the same period. VVB found this appropriate. Also, on a conservative side, PP has considered 5% ICS as non-operational for the current monitoring period.

APPENDIX 1: DOCUMENT REFERENCES

No.	Author	Title	References to the document	Provider
1.	PP	Joint PD & MR (Initial) Joint PD & MR (Final)	Version 01 dated 14-March-2023 Version 05 dated 12-June-2024	PP
2.	PP	Ex-post Emission reduction spreadsheet (final) FNRB calculation sheet (Final) Estimated Emission reduction spreadsheet (Final)	Version 03 dated 24-February-2024 Version 04 dated 12-June-2024 Version 03 dated 24-February-2024	PP
3.	NA	ICS Distribution data and carbon waiver records of ICS	-	PP
4.	PP	Declaration(s) from Project proponent on double accounting	23-February-2023	PP
5.	NA	Efficiency certificate of ICS issued by IIT Delhi	09-July-2022	PP
6.	NA	VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves	https://verra.org/methodologies/vmr0006-methodology-for-installation-of-high-efficiency-firewood-cookstoves/	VERRA
7.	NA	VCS Requirements: a) Verified Carbon Standard Program Guide, version 4.3 b) VCS Standard, version 4.4 c) VCS Program Definitions, version 4.3 d) VCS Registration and Issuance Process, version 4.3 e) VCS Joint Project Description & Monitoring Report Template, version 4.2 f) VCS Joint Validation & Verification Report Template, version 4.1	-	VERRA
8.	NA	Cookstove Life span certificate		PP
9.	NA	On-Site assessment –interviews of staff personnel, photographs, end-user interviews	-	PP
10.	PP	Employment records	-	PP
11.	PP	Training records	-	PP
12.	PP	Local Stakeholder Meeting records	-	PP

No.	Author	Title	References to the document	Provider
13.	PP	ICS Monitoring Survey Report	-	PP
14.	UNFCCC	Methodological Tool: Calculation of the fraction of non-renewable biomass, version 4.0	https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf	UNFCCC CDM page
15.	PP	Photos of grievance register	-	PP
16.	PP	Sample copy of carbon waiver records (end user agreement)	-	PP
17.	-	Technical Specifications of the ICS	-	PP
18.	UNFCCC	Sampling and surveys for CDM project activities and programmes of activities, version 9.	https://cdm.unfccc.int/filestorage/e/x/t/extfile-20210531160756474-Meth_Stan05.pdf/Meth_Stan05.pdf?t=a0h8cmdjY2hufDB3trwzZ7tid7m_L2VQB0SR	UNFCCC CDM page
19.	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories	https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf	IPCC
20.	Other	Weighing scale invoice	06-April-2023	Other
21.	Forest Survey of India	Report by Forest Survey of India in 1987 https://fsi.nic.in/documents/sfr_1987_hindi.pdf		PP
22.	CDM	CDM Website	https://cdm.unfccc.int/Projects/projsearch.html	Publicly available
23.	GCC	GCC Registry	https://projects.globalcarboncouncil.com/pages/submitted_projects	Publicly available
24.	Gold Standard	Gold Standard for Global Goals (GS4GG) Registry	https://registry.goldstandard.org/projects?q=&page=1	Publicly available

APPENDIX 2: ABBREVIATIONS

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM VVS	Clean Development Mechanism Validation and Verification Standard
ER	Emission Reductions
CL	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
Joint PD & MR	Joint project description and monitoring report
MP	Monitoring Plan
MR	Monitoring Report
PD	Project Description
PP	Project Proponent
PS	Project Standard
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

APPENDIX 3: FINDINGS OVERVIEW

Table 1: CL from this validation and verification

CL ID	01	Section no.	3.1	Date : 07-June-2023
Description of CL				
1. As observed during the assessment, the project title of this project activity VCS 3030 is *"THE CLEAN ENERGY COOKING INITIATIVE"* and the PP has submitted the corrected PD&MR to the VVB. However, the PD&MR uploaded on the VERRA Registry of the project webpage is titled *"GLOBAL COOKSTOVE PROGRAM (EKI PHASE 11)"*. PP to clarify the inconsistency for the same. 2. PP to submit the PD&MR with latest issue date.				
Project participant response				**Date:** 09-June-2023
1. Request was made to VERRA for name change and the same was approved. The copy of the letter submitted to VERRA submitted. 2. Revised version of the Joint PD_MR submitted				
Documentation provided by project participant				
1. Letter to VERRA for title change 2. Revised version of the Joint PD_MR				
VVB assessment				**Date:** 12-June-2023
1. PP has now submitted the request letter copy as made to VERRA for the title change, also cross checked from PP and was confirmed regarding the approval of the same from VERRA, hence this point is closed. 2. Latest submitted PD&MR from PP was checked and was found to be of latest issue date as well as version, hence this point is closed. CL 01 is **closed.**				

CL ID	02	Section no.	3.1	Date : 07-June-2023
Description of CAR				
1. Under section 1.12, PP to clarify the location of project activity as the location provided in PD&MR & location as observed during on-site visit was found to be inconsistent, PP to rectify the correct locations. 2. PP to provide the supporting records for SDG indicators considered in Section 1.17.2.				
Project participant response				**Date:** 09-June-2023
1. The location of the project activity instances is updated in the revised version of the Joint PD_MR. 2. Declaration by Manufacturer and distributors towards employment generated submitted				
Documentation provided by project participant				

1. Manufacturer declaration for Employment 2. Distributor declaration for Employment 3. Revised version of the Joint PD_MR
VVB assessment | **Date:** 12-June-2023
1. The revised PD&MR submitted by PP was checked. It was found that the section 1.12 was now rectified with the accurate project locations as observed during the on-site visit, alongwith geo-coordinates, which was cross-checked from GPS software i.e. Google Earth, hence this point is closed. 2. PP has now submitted both – declaration of employment generated by the Distributor i.e. 'Aaransh Agrotech' & the manufacturer i.e. 'GHG Reduction Technologies Private Limited' which clearly mentions about the no. of employees (along with female staff), which backs the claim for SDG 1.1 & 8.5 as mentioned in table 1 under section 1.17.2 of the submitted PD&MR, hence acceptable to the VVB. This point is thus closed. CL 02 is **closed.**

CL ID	03	**Section no.**	3.4.3	**Date :** 07-June-2023
Description of CAR				
1. As checked by the assessment team, it was found that PP has mentioned "Tool 30 - calculation of the fraction of the non-renewable biomass" under the section 6.1 of the submitted PD&MR. PP shall demonstrate the applicability of the mentioned tool under the section 3.2 in accordance with the template requirements of the latest version of VCS PD&MR. 2. Under the sections 5.1 and 5.2, it is stated that *"Please refer to section 5.4".* PP to clearly state the reference of the section.				
Project participant response | **Date:** 09-June-2023				
1. Applicability of Tool 30 is justified under section 3.2 of the joint PD_MR 2. Section 5.1 and 5.2 is elaborated in the the revised version of the Joint PD_MR.				
Documentation provided by project participant				
Revised version of the Joint PD_MR				
VVB assessment | **Date:** 12-June-2023				

1. The revised PD&MR was checked and it was found that the section 3.2 was now updated with the applicability criterias defined for Tool 30: Calculation of the fraction of non-renewable biomass – Version 4.0, hence fulfilling the VCS PD&MR version 4.2 template guidelines. This point is thus closed. 2. As checked under the section 5.1 & 5.2 of the revised PD&MR submitted by PP, it was found that the statements are now revised and completed as *'Please refer to Section 5.4 below for the procedure for quantification of emission reduction'*, hence elaborating the estimated net GHG emission reductions & removals in the below section 5.4, which now is made in line with the VCS PD&MR version 4.2 template guidelines, hence found acceptable. This point is thus closed. CL 03 is **closed.**

CL ID	04	**Section no.**	3.1	**Date :** 12-June-2023
Description of CAR				
As per the project start date evidence submitted by PP, the details provided regarding the project start date, beneficiary name, cookstove serial no, district etc. were unable to be located in the Monitoring database submitted, moreover the project start date was found to be inconsistent as mentioned under the section 1.8 of the PD&MR. PP shall clarify the same.				
Project participant response				**Date:** 12-June-2023
Start date has been made consistent throughout. End user agreement dated 20-November-2022 in consistent with database and Ex-post ER estimation sheet submitted.				
Documentation provided by project participant				
1. Revised version of the Joint PD_MR 2. End user agreement dated 20-November -2023				
VVB assessment				**Date:** 13-June-2023
As checked in the revised PD&MR and also the project start date evidence – Carbon Credit Ownership Agreement - submitted by PP, it was found by the assessment team that the project start date is now made consistent with each other, hence acceptable. CL 04 is **closed.**				

Table 2: CAR from this validation and verification

CAR ID	01	**Section no.**	3.4.3	**Date :** 07-June-2023

Description of CAR	
1. As per the Joint PD&MR template V4.2, PP shall mention the table including all the monitoring periods, including the one for current verification under section 1.1. Corrective action sought. 2. Under the section 1.4, Eligibility criteria (grouped project), PP shall justify/explain how the project activity instances complies with the applicability of the applied methodologies & tools. Correction sought.	
Project participant response	**Date:** 09-June-2023
1. The joint PD_MR has been revised as per the Joint PD&MR template V4.2 2. Eligibility criteria of the project activity instances elaborated.	
Documentation provided by project participant	
Revised version of the Joint PD_MR	
VVB assessment	**Date:** 12-June-2023
1. As checked in the revised PD&MR submitted by PP, the section 1.1 has now been updated with the table including the current monitoring period, hence made in line with the VCS PD&MR version 4.2 template guideline, thus this point is closed. 2. The section 1.4 of the revised PD&MR submitted was checked and it was found that it now contains the eligibility criteria of the project activity instances as per the applied methodology VMR0006 version 04.0 which is in line with the clause 3.6.16 of the VCS Standard version 4.4, hence acceptable. This point is therefore closed now. CAR 01 is **closed.**	

CAR ID	02	Section no.	3.4.3	Date : 07-June-2023
Description of CAR				
1. As per the template requirements of the latest VCS PD&MR, section 3.3 states, *"Define the project boundary and identify the relevant GHG sources, sinks and reservoirs for the project and baseline scenarios (including leakage if applicable)"*, however in the submitted PD&MR the following section alongwith the relevant justification/ explanation for the emission sources was not found to be consistent as above. Correction sought for the same. 2. Under section 3.4 of the submitted PD&MR, PP shall justify the baseline scenario with stepwise elaboration in accordance to the applied methodology & tools along with the outcome. Corrective action sought.				
Project participant response				**Date:** 09-June-2023
1. The project boundary has bene updated in accordance to the template filling guidelines 2. Baseline scenario has been elaborated under section 3.4 of the joint PD_MR				
Documentation provided by project participant				

Revised version of the Joint PD_MR
VVB assessment **Date:** 12-June-2023
1. The revised PD&MR submitted by PP was checked and it was found that the section 3.3 – Project Boundary was now updated with the major emission sources along with their justification table, which is now made in line with the VCS PD&MR version 4.2 template guidelines & fulfilling the clause 3.12.1 of the VCS Standard version 4.4, hence this point is closed by the VVB. 2. The revised PD&MR submitted by PP was checked and it was found that the section 3.4 – Baseline Scenario was now updated with the proper identification & justification in accordance with the procedure set out in the applied methodology and any relevant tools hence made in line with the VCS PD&MR version 4.2 template guidelines & fulfilling the clause 3.13 of the VCS Standard version 4.4, hence this point is closed. CAR 02 is **closed.**

CAR ID	03	**Section no.**	3.4.6	**Date :** 07-June-2023
Description of CAR				
Under the section 5.4 of the submitted PD&MR, *the annual stove loss rate is estimated at 0%* has been mentioned. However, the same is not a part of ex-post parameters in section 6.2 & also section 7.5 of the PD&MR. Corrective action sought for the same.				
Project participant response				**Date:** 09-June-2023
Annual stove loss rate of 5% is assumed for ex-ante emission reduction with the condition that for ex-post emission reduction the value of drop in cookstove usage will be based on the finding of survey. Section 7.5 of the PD &MR has been updated to include the information relating to proportion of ICS usage drop. Although there is no drop in the ICS usage the project proponent has voluntarily included an 5% reduction in ICS usage for estimating the value of emission reduction for the monitoring period				
Documentation provided by project participant				
Revised version of the Joint PD_MR				
VVB assessment				**Date:** 12-June-2023

It was confirmed by the PP that the annual stove loss rate of 5% has been assumed with the condition that the value of drop in cookstove usage which is based on the finding of first monitoring survey, cross checked by VVB as submitted by PP, wherein a reduction of 5% has already been considered by the PP in the period for which the ICS is in operation for current monitoring period thereby resulting in 5% reduction applied for ex-ante emission reduction. This has also been justified under the section 7.5 of the PD&MR, hence found ok. CAR 03 is **closed.**

CAR ID	04	**Section no.**	3.4.8	**Date :** 07-June-2023
Description of CAR				
Under the section 6.3 - Monitoring Plan of the submitted PD&MR: 1. The organizational structure, responsibilities and competencies of the personnel that carried out monitoring activities & the procedures used for QA/QC. 2. Under section 6.3 of the submitted PD&MR, *"750 samples were selected (considering 20% non-response) from each location (i.e. Maharashtra, Chhattisgarh, Gujarat, Madhya Pradesh, Rajasthan and Bihar) for all monitoring parameters by section 8.4 option (b) of the applied methodology VMR0006. The survey team has surveyed 678 samples each on the ground from the 750 selected samples. The objective was to obtain reliable and unbiased estimates of the monitoring parameters."* is mentioned, which seems irrelevant with the information provided for this project activity. PP shall furnish accurate information regarding the no. of samples with their location.				
Project participant response				**Date:** 09-June-2023
1. Organisation structure responsibilities and competencies of the personnel that carried out monitoring activities & the procedures used for QA/QC included in the revised version of joint PD_MR 2. Since the project activity instances is distributed in the state of Madhya Pradesh therefore 125 samples have been selected and survey is being carried out in 106 sample beneficiary. Details of the same is included in the revised version of joint PD_MR.				
Documentation provided by project participant				
Revised version of the Joint PD_MR				
VVB assessment				**Date:** 12-June-2023

1. Section 6.3 of the revised PD&MR submitted by PP was checked & it was found that it is now updated with the information regarding Monitoring & Reporting, Repair & Maintenance and the organizational structure that shall monitor the project activity accordingly, hence made in line with the instructions as indicated in VCS PD&MR version 4.2 template guidelines under the above stated section, hence this point is closed. 2. As checked in the revised PD&MR submitted by PP, under the section 6.2, the above stated information was not able to be traced, hence this point is open. CAR 04 is **open.**
Project participant response **Date:** 12-June-2023
Information relating to number of 106 beneficiaries surveyed is included in the monitored parameter under section 6.2 of the revised version of joint PD-MR.
Documentation provided by project participant
Revised PD-MR
VVB assessment **Date:** 13-June-2023
Revised PD&MR was checked by the assessment team and it was found that the section 6.2 – *Data and parameters monitored* is now updated under the parameter $B_{y=1,new,l,j,survey}$, which is found to be appropriate. Hence this point is closed. CAR 04 is now **closed.**

Table 3: FAR from this validation and verification

~~**FAR ID**~~	~~00~~	~~**Section no.**~~		~~**Date :** 07-June-2023~~
~~**Description of CAR**~~				
~~No FAR has been raised.~~				
~~**Project participant response**~~				~~**Date :**~~
~~**Documentation provided by project participant**~~				
~~**VVB assessment**~~				~~**Date:**~~

APPENDIX 4: COMPETENCY STATEMENTS

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interviews	Verification findings
1.	Lead Audit/Technical Expert	OR	Kumar	Pankaj	TQC-Outsourced entity	Yes	Yes	Yes	Yes
3.	Auditor in Training	OR	Singh	Ritu	TQC-Outsourced entity	Yes	No	No	Yes
4.	Observer	OR	Shrivastava	Shruti	TQC-Outsourced entity	No	No	No	No
5.	Observer	OR	Jain	Sarthak	TQC-Outsourced entity	No	No	No	No

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e. g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer (TR)	EI	Shen	Simon	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

Short CVs of the Team:

1. **Mr. Pankaj Kumar** worked as team leader – Bihar for South Asia Climate Proofing and Growth Development (CPGD) – Climate Change Innovation Programme (CCIP) supported by DFID that seeks to mainstream climate change resilience into planning and budgeting at the national and sub-national level

in India, Pakistan, Nepal, and Afghanistan. Pankaj Kumar has worked previously with IL&FS Infrastructure Development Corporation and BUIDCO (Bihar Urban Infrastructure Development Corporation), Govt. of Bihar as Environmental Specialist for WB & ADB funded projects. Prior to this, he worked with Carbon Check (UNFCCC accredited DoE), Johannesburg, RSA as Team Leader for validation, verification of around 100 GHG projects in Asia, Africa, USA, Asia Pacific & Americas. Pankaj is accredited Lead Auditor, Validator, Verifier and Technical Expert for Sectoral Scope/Technical Area – 1.1, 1.2, 3.1 & 13.1 by UNFCCC DoE (Designated Operational Entity), APPLUS, Spain. He is also member of task force on climate change & human health, Health Department, GoB and on roster of UNICEF's WASH experts. He is an experienced, qualified and result oriented Environment Professional having more than 14 yrs. of relevant experience in Climate Change (Mitigation &Adaptation), Environmental Due Diligence, Disaster Risk Reduction, Validation and Verification of GHG project under CDM, Verified Carbon Standard, Gold Standard & Social Carbon Standard, Brazil. He provides technical support for environmental investigative, consultative and remedial projects involving air, water and soil, Waste management, EIA, Environmental Compliance, ISO 14001, OHSAS 18001, GHG accounting (ISO 14064) and Carbon foot printing. Pankaj Kumar is Masters in Environment Management from Forest Research Institute (University), I.C.F.R.E, Dehradun, which is Centre of Excellence in South East Asia for Forestry education & research and PGDEL from National Law School of India University, Bangalore (India).

2. **Ms. Ritu Singh** has done Masters in Environmental Science from Central University of South Bihar, Gaya and bachelor of Science in Zoology from Magadh Mahila College, Patna University, India. She has done Masters' research focused on solid waste management during and post covid-19 pandemic and conducted a survey in Medical Colleges of Bihar to study the trends of waste management. Currently, She is working in True Quality Certifications Pvt. Ltd. (An outsource entity for LGAI Technological Center, S.A. (Spain) "Applus+ Certification") since 2021 and has been involved in supporting Audit teams for Verifications of Project Activities (Renewable and non-Renewable projects) under CDM/VCS/GS4GG programs.
3. **Ms. Shruti Shrivastava** holds a Master's degree in Environmental Sciences from Amity University, Noida completed in 2021, and completed Bachelor's in Zoology Honors. She has a working experience of over one & a half year in the climate change field. Currently, she is associated with True Quality Certifications Pvt. Ltd. (An Outsourced entity for LGAI Technological Center, S.A. (Spain) since March 2023, wherein she has been involved in supporting Audit teams for the validation & verification of Project activities (renewable & non-renewable projects) under different GHG schemes such as CDM, VCS, GS & GCC. She started working professionally with KBS Certification Services Pvt. Ltd. since October 2021.
4. **Mr. Sarthak Jain** has done Bachelor of Technology in Information Technology Engineering from Walchand Institute of Technology, Solapur, Maharashtra, India affiliated with Solapur University. Currently, He is working in True Quality Certifications Pvt. Ltd. (An outsource entity for LGAI Technological Center, S.A. (Spain) "Applus+ Certification") since 2021 and has been involved in supporting Audit teams for Verifications of Project Activities (Renewable and non-Renewable projects) under CDM/VCS/GS4GG/GCC programs.
5. **Mr. Simon Shen** (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of working experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD for 3.5 year before he joined Applus+. Mr. Simon Shen has extensive experience also former Applus+ Shanghai CDM Technical Manager. Mr. Simon Shen is based in shanghai, China. Mr. Simon Shen participates in the project technical review team.