



CLEAN COOKSTOVES FOR RURAL INDIA



Document Prepared by - EKI Energy Services Limited

Project title	Clean Cookstoves for Rural India
Project ID	VCS 2944
Monitoring period	01-January-2024 to 30-September-2025 (Inclusive of both dates)
Original date of issue	25-November-2025
Most recent date of issue	16-September-2026
Version	04
VCS Standard Version	Version 4.7 ¹
Prepared by	EKI Energy Services Limited

¹ <https://verra.org/wp-content/uploads/2024/04/VCS-Standard-v4.7-FINAL-4.15.24.pdf>

CONTENTS

PROJECT DETAILS	4
1.1 Summary Description of the Implementation Status of the Project	4
1.2 Audit History	5
1.3 Sectoral Scope and Project Type	5
1.4 Project Proponent	5
1.5 Other Entities Involved in the Project	5
1.6 Project Start Date	6
1.7 Project Crediting Period	6
1.8 Project Location	6
1.9 Title and Reference of Methodology	8
1.10 Double Counting and Participation under Other GHG Programs	8
1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions	8
1.12 Sustainable Development Contributions	9
1.13 Commercially Sensitive Information	15
2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT	15
2.1 Stakeholder Engagement and Consultation	15
2.2 Risks to Stakeholders and the Environment	20
2.3 Respect for Human Rights and Equity	21
2.4 Ecosystem Health	25
3 IMPLEMENTATION STATUS	27
3.1 Implementation Status of the Project Activity	27
3.2 Deviations	29
3.3 Grouped Projects	29
3.4 Baseline Reassessment	29
4 DATA AND PARAMETERS	30
4.1 Data and Parameters Available at Validation	30
4.2 Data and Parameters Monitored	33
4.3 Monitoring Plan	41
5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS	51
5.1 Baseline Emissions	51

5.2	Project Emissions	58
5.3	Leakage Emissions	61
5.4	GHG Emission Reductions and Carbon Dioxide Removals	61
VCS Monitoring Report Template, v4.4		
APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION.....		64

PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The main purpose of the project is the distribution, and installation of high thermal efficient improved cook stoves (ICS) has been undertaken for households in the Indian states by replacing the low-efficient traditional cook stoves.

The ICS utilize the fuel wood more efficiently, thereby improving thermal energy transfer to pots, hence saving fuel wood and reducing greenhouse gases. This not only puts a cease to rapid advancement of deforestation, but also mitigates the health risks associated with indoor air (smoke) pollution. Additionally, there is a reduction in the time women and children dedicate to gathering firewood.

In rural India, a large portion of households rely on mud or three-stone stoves for daily cooking. In addition to having a relatively low thermal efficiency, these mud or three-stone stoves also contribute to health risks from indoor air (smoke) pollution.

As the *target* populations are unable to afford these stoves (ICS), project promoters have distributed ICS free of cost. The installed ICS substitutes the currently common cooking on wood-based mud or three-stone stoves. The baseline scenario is the continued use of non-renewable biomass (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity.

EKI has considered one cookstove as one project activity instance for this group project activity. The project locations for initial Project Activity Instances are in Assam & Madhya Pradesh states of India. The first project activity instance was implemented on 11-May-2022 under this grouped project activity and EKI has distributed 24,996 ICS in Assam and 126,158 ICS in Madhya Pradesh.

The project results in a total emission reduction of 101,273 tCO_{2e} at actual over the monitoring period of 01-January-2024 to 30-September-2025 (inclusive of both the dates).



Photographic representation - beneficiary using Project Cookstove

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	11-May-2022 to 10-May-2029	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	7 years (Crediting Period)
Verification	11-May-2022 to 31-December-2022	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	7 months 20 days
Verification	01-January-2023 to 31-December-2023	VCS	VKU Certification	1 year
Verification	01-January-2024 to 30-September-2025	VCS	RINA Services S.p.A (RINA)	1 year 9 months

1.3 Sectoral Scope and Project Type

Sectoral scope ²	03 – Energy Demand
Project activity type	Type: II – Energy efficiency improvement projects (This project is a grouped project activity)

1.4 Project Proponent

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- 9907534900
Email	manish@enkingint.org and registry@enkingint.org

1.5 Other Entities Involved in the Project

At present, EKI Energy Services Limited is the only sole entity of this project.

Organization name	Not Applicable
Contact person	Not Applicable

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

Title	Not Applicable
Address	Not Applicable
Telephone	Not Applicable
Email	Not Applicable

1.6 Project Start Date

Project start date	11-May-2022
Justification	The date reflects the earliest commissioning date of the 1 st Project Activity Instance in Udalguri district (Assam). Hence, this date adheres to the definitional requirements for the 'Project Start Date' of VCS Standard 4.7.

1.7 Project Crediting Period

Crediting period	☒ Seven years, twice renewable ☐ Ten years, fixed ☐ Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)
Start and end date of first or fixed crediting period	11-May-2022 to 10-May-2029 (inclusive of both the dates)

1.8 Project Location

All the project activity instances installed during the current monitoring period are located within the geographical boundaries of Assam & Madhya Pradesh states of India.

The geographical boundary for the instances installed is delineated in the form of extreme geographic coordinates as follows.

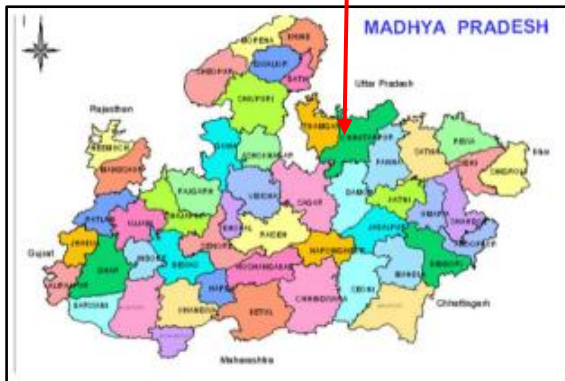
State	Latitude	Longitude
Assam ³	26° 14' 38.9616" N	92° 32' 16.2312" E
Madhya Pradesh ⁴	23° 28' 23.9664" N	77° 56' 52.7928" E

³ <https://assam.gov.in/>

⁴ <https://www.latlong.net/place/madhya-pradesh-india-21644.html>



India Political Map



Madhya Pradesh Political Map



Assam Political Map

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VM0050	VM0050 Energy Efficiency and Fuel Switch Measures in Cookstoves	1.0
Corrections & Clarifications	-	CORRECTION AND CLARIFICATIONS TO VM0050 ENERGY EFFICIENCY AND FUELSWITCH MEASURES IN COOKSTOVES	1.0 ⁵
Tool	33	Default values for common parameters	3.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

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

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

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

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the VCS Program Definitions for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

⁵ https://verra.org/wp-content/uploads/2025/02/CC_VM0050_v1.0_Feb2025.pdf

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the VCS Program Definitions for definition of GHG-related environmental credit system. VCS Monitoring Report Template, v4.4

☐ Yes ☒ No

1.11.3 Supply Chain (Scope 3) Emissions

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

☐ Yes ☒ No

If yes:

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

☐ Yes ☒ No

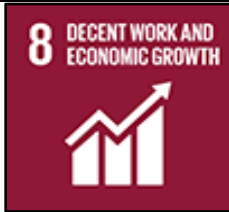
If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through the Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."

☐ Yes ☒ No

1.12 Sustainable Development Contributions

 1.1.1 Proportion of the population below the international poverty line	 3.9 number of users claimed the reduction in particulate matter emissions	 7.1.2 Proportion of population with primary reliance on clean fuels and technology
--	--	---

 8.3 Project specific indicator: Total Number of jobs created.	 13.2.2 Total greenhouse gas emissions per year	 15.2.1 Progress toward sustainable forest management by increasing above-ground biomass in forests
--	---	---

The project includes the distribution of fuel-efficient improved cookstoves thereby replacing the use of inefficient cookstoves. The project contributes to social, environmental, economic, and technological benefits which contribute to the sustainable development of the local environment and the country as follows.

Given the importance accorded by the Government of India to achieving SDGs, NITI Aayog⁶ decided to estimate the progress through a single measurable index that would serve as an advocacy tool and trigger action at the State level. NITI Aayog has constructed the SDG India Index spanning across 13 out of 17 SDGs (leaving out Goals 12, 13, 14 and 17). The Index tracks the progress of all the States and UTs on a set of 62 Priority Indicators, measuring their progress on the outcomes of the interventions and schemes of the Government of India.

Thus, the project contributes to achieve SDG 1,3,7,8 and 15 of nationally stated sustainable development priority SDGs.

Social benefits

1. Reduces drudgery of women (due to reduced firewood use) who spend long hours and travel long distances to collect firewood. Hence reducing the proportion of time spent on unpaid domestic and care work (SDG 5.4.1)
2. Improves the overall health of women and children by reducing smoke in the kitchen, thus reducing health hazards from indoor air pollution. Therefore, contribute to a decrease in the mortality rate attributed to household and ambient air pollution (SDG 3.9)
3. Better cooking time – the materials used in making the ICS transmit the heat effectively, cooking the food faster. Hence reducing the proportion of time spent on unpaid domestic and care work (SDG 5.4.1)
4. Better cooking environment due to less smoke and carbon residue in the kitchen. Therefore, contribute to an increase in the proportion of the population with primary reliance on clean fuels and technology (SDG 7.1.2)

⁶ https://www.niti.gov.in/sites/default/files/2019-01/SDX_Index_India_21.12.2018_1.pdf

5. Better quality of life – the rural communities get family time as the whole family can sit and eat together. As the cooking on ICS is faster due to its thermal energy-based mechanism.

Environmental benefits

VCS Monitoring Report Template, v4.4

1. Improves the local environment by reducing the rate of degradation of forests and deforestation in the project area. (SDG 15.2.1)
2. Reduce indoor pollution – ICS emits less smoke and reduces morbidity from respiratory diseases and other health hazards, as well as the medical expenditure involved. A resource-poor household would need to spend limited available finances on medicines, further exacerbated by the loss of wages from both not being able to work and having to look after the ill person. Therefore, contribute to reducing the poverty of the participating households (SDG 1.1.1)
3. Reduce global and local environmental pollution and environmental degradation by reducing in use of non-renewable biomass thus leading to a reduction in GHG emissions (SDG 13.0)
4. Less water and effort are needed for cleaning vessels as the cooking process is relatively smoke-free.

Economic benefits

1. Creation of new employment opportunities for local communities through the VCS activity which contributes towards the Economic growth of the country (SDG 8.3).
2. Reduces purchase of firewood and/or wage equivalent from reduced firewood collection time.

Technological benefits

1. Introduction of efficient technology to the rural communities

Table 1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	 1.1	1.1.1 Proportion of population below the international poverty line by sex, age, employment status and geographic location (urban/rural)	Implemented activities to decrease	The project has increased the total monthly income of 21 participants' (i.e. people involved in stove manufacturing, distribution & monitoring) to INR (15,000 – 25,000) per month, bringing them above the international poverty line ⁷ .	The project has increased the total monthly income of 21+36+589=649 participants' (i.e. people involved in stove manufacturing, distribution & monitoring) to INR (12,000 – 25,000 per month, bringing them above the international poverty line. ⁸
2)	 3.9	Project-specific indicator: number of users claimed the reduction in particulate matter emissions	Implemented activities to decrease	In the current monitoring period, the project activity continues to reduce the particulate matter in 151,154 households emitted during cooking thereby improving overall health outcomes and reducing burdens of disease.	Reduced the particulate matter in 151,154 households emitted during cooking thereby improving overall health outcomes and reducing burdens of disease.

⁷ (The new extreme poverty line of \$2.15 per person per day) <https://www.worldbank.org/en/news/factsheet/2022/05/02/fact-sheet-an-adjustment-to-global-poverty-lines>
⁸ (The new extreme poverty line of \$2.15 per person per day) <https://www.worldbank.org/en/news/factsheet/2022/05/02/fact-sheet-an-adjustment-to-global-poverty-lines>

3)	 7.1	7.1.2 Proportion of population with primary reliance on clean fuels and technology	Implemented activities to increase	No further changes this monitoring period	Increase access to clean cooking technology with ICS installations in 151,154 households under the project activity.										
4)	 8.3	Project specific indicator: Total Number of jobs created.	Implemented activities to increase	Project activity created a total of 21 new job positions in different roles for post-implementation continuous monitoring activity.	The project activity has created job opportunities for 425 heads in the ICS manufacturing unit and 275 heads the ICS distribution and monitoring activity										
5)	 13.2	13.0 Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	Contribute to greenhouse gas emission reduction of 101,273 tCO2e.	Prevented the release of 971,288 tCO₂e into the atmosphere. <table><tr><td>Audit type & Monitoring period</td><td>Contributions over project lifetime</td></tr><tr><td>Joint Validation and Verification 11-May-2022 – 31-December-2022 (Both Days inclusive)</td><td>164,300 tCO₂e</td></tr><tr><td>Second Verification 01-January-2023 – 31-December-2023 (Both Days inclusive)</td><td>705,715 tCO₂e</td></tr><tr><td>Third Verification 01-January-2023 – 31-December-2023 (Both Days inclusive)</td><td>101,273 tCO₂e.</td></tr><tr><td>Total</td><td>971,288 tCO₂e</td></tr></table>	Audit type & Monitoring period	Contributions over project lifetime	Joint Validation and Verification 11-May-2022 – 31-December-2022 (Both Days inclusive)	164,300 tCO ₂ e	Second Verification 01-January-2023 – 31-December-2023 (Both Days inclusive)	705,715 tCO ₂ e	Third Verification 01-January-2023 – 31-December-2023 (Both Days inclusive)	101,273 tCO ₂ e.	Total	971,288 tCO ₂ e
Audit type & Monitoring period	Contributions over project lifetime														
Joint Validation and Verification 11-May-2022 – 31-December-2022 (Both Days inclusive)	164,300 tCO ₂ e														
Second Verification 01-January-2023 – 31-December-2023 (Both Days inclusive)	705,715 tCO ₂ e														
Third Verification 01-January-2023 – 31-December-2023 (Both Days inclusive)	101,273 tCO ₂ e.														
Total	971,288 tCO ₂ e														

6)	 15.2	15.2.1 Progress toward sustainable forest management by increasing above-ground biomass in forests	Implemented activities to increase	Contribute to the reduction of deforestation of 439,964 tonnes of woody biomass from forests surrounding the communities and reducing pressure on forest reserves.	Reduced deforestation of 1,144,245 (312,468+391,813+439,964) tonnes of woody biomass from forests surrounding the communities and reduced pressure on forest reserves.
----	---	--	------------------------------------	--	--

1.13 Commercially Sensitive Information

No commercial sensitive information has been excluded from the public version of the project description.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	Stakeholder identification is a continuous process to assess the need for engaging entities that are interested in or affected by the project activities. Stakeholders include directly impacted groups such as beneficiary households, as well as other interested parties due to their roles within the local community and at the country level.
Legal or customary tenure/access rights	The manufacturer of the ICSs holds factory ownership and land-use rights, granted through specific legal statutes, for their production facility. End-users possess rights to the ICS, which are secured through an end-user agreement established between the Project Proponent and the end-users.
Stakeholder diversity and changes over time	Stakeholders identified for this project activity are diverse in nature – in terms of socio-economic status, age and gender wise and the diversity is unlikely to change over time.
Expected changes in well-being	Expected changes 1. Economic well-being – the project activity is likely to provide employments to the locality thus economic well beings are expected. 2. Environmental well-being – as this project activity reduces the rate of degradation of forests and deforestation it will bring environmental well-being in the locality.

Location of stakeholders	In the context of the project activity instances situated within the geographical boundaries of India, specifically in the states of Assam and Madhya Pradesh.
Location of resources	In terms of the location of territories and resources owned or accessed by stakeholders, it can be stated that the end-user possesses ownership of their respective houses where Improved Cook Stoves (ICSs) have been installed. Additionally, the manufacturer of ICSs holds ownership of their factory.

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	The process of registering complaint is mentioning below. 1. They can call the customer care number provided by PP to register their complaints 2. They can get in touch with a distribution channel partner's well-trained representative, who is often located near their communities, to record their complaint 3. Also, End user can contact to field officers when they visit beneficiaries to lodge any complaints, who will then share the complaint with HO (Head Office) As a part of ongoing communication with local stakeholders, end users are informed about the grievance register is kept at Head office of PP. PP has provided a customer care number (+91 7507000785) (included in the ICS Card) for beneficiaries to register their complaints. When a complaint is lodged via this customer care number, it is received and managed at the Head Office (HO) of PP located at Indore, MP. Subsequently, the complaint is forwarded to the dedicated local representatives for resolution. In addition, field officers have been employed to visit beneficiaries, solicit any grievances, relay them to HO, and take appropriate actions as necessary. End users also have the option of directly contacting a well-trained representative from a distribution channel partner who typically resides in proximity to the beneficiary communities and visits the
----------------------	---

	beneficiaries periodically, for the purpose of recording their complaints.		
Date(s) of stakeholder consultation	Date of meeting	Village/District	State
	10-May-2022	Udalguri	Assam
	04-July-2022	Dhar	Madhya Pradesh
	19-September-2022	Sheopur,	Madhya Pradesh
	19-September-2022	Shivpuri	Madhya Pradesh
	09-October-2022	Jabalpur	Madhya Pradesh
Communication of monitored results	The monitoring results are communicated to the end users through the distributor’s representatives at the stakeholder consultation. This meeting aimed to keep stakeholders informed about project status and address any potential concerns they might have.		
Consultation records	The consultation/communication meeting MoM, attendance register, pictures etc. are used to document the outcomes of the stakeholder consultation.		
Stakeholder input	There has been not any feedback received for the current monitoring period neither through the feedback register nor during the stakeholder consultation/communication meeting which may require any action.		
	There has been no complaints/replacements request received by end-users during the verification period.		

2.1.3 Free, Prior, and Informed Consent

Consent	The stake holders were invited with prior intimation to them and gathered at the stake holder consultation venue on the stipulated date. Stakeholders were briefed verbally that the project would bring solely positive effects on economic, social, cultural, or environmental aspects, including savings in non-renewable biomass fuel and increased employment opportunities. Moreover, in line with the clause 3.18.8 of VCS standard v.4.7 the project proponent has disclosed following points at the time of stake holder consultation 1. The minimum information, including the nature, size, pace, reversibility, and scope of the cook stove project activity;
---------	--

2. The reason/purpose of the project, which is to efficiently use non-renewable biomass fuel and reduce other environmental and health hazards for the community;

3. The duration of the project activity, set at 7 years;

4. The locations that will be affected, primarily the villages in Dhar, Shivpuri, Sohpur and Jabalpur districts (Madhya Pradesh) and Udalguri (Assam); and

5. A preliminary assessment of the likely economic, social, cultural, and environmental impact, including potential risks and fair and equitable benefit sharing in a context that respects the precautionary principle. The stake holders were invited with prior intimation to them and gathered at the stake holder consultation venue on the stipulated date. Stakeholders were briefed verbally that the project would bring solely positive effects on economic, social, cultural, or environmental aspects, including savings in non-renewable biomass fuel and increased employment opportunities.

6. Moreover, information regarding personnel likely to be involved in the execution of the project, including Indigenous Peoples, private sector staff, research institutions, government employees, and others, was shared with stakeholders, clarifying that they would be the end-users/beneficiaries of the project activity.

Hence, it is evident that the affected community was informed prior to the operational date of the project activity. The carbon credit generation potential of the ICS distributed free of cost was informed to the local stakeholder during stake holder consultation meeting. It also mentioned that PP provides the end-user free of cost maintenance and spare support for the entire lifetime of the ICS. Finally, an end user agreement with the beneficiaries has been signed to get the consent of the beneficiaries on the PP's credit right.

There are no ongoing or unresolved conflicts outcomes of which the project may exacerbate or influence.

Outcome of FPIC	As the project device is installed in the household of the beneficiaries on their own will and PP is having transparent agreement with these concerned. Thus, it can be said that the project has not encroached on land, relocated people without consent, and forced physical or economic displacement.
-----------------	---

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
NA (There have been no grievances received for the current monitoring period.)	As per the grievance redress procedure outlined in Section 3.18.4 of the VCS Standard v4.7, the project proponent ensures that disputes with stakeholders, including those related to benefit sharing and safeguard requirements, are addressed appropriately as described below. The procedure comprises the following stages: 1. The project proponent shall make all efforts to resolve grievances amicably, providing a written response in a culturally appropriate manner. <u>Existing Grievance Redress Procedure:</u> The grievance register is being maintained by the distributors for submission of input/ grievance (if any) related to the project activity. The queries by stakeholders (during question-and-answer session) are noted and documented in the grievance register. In addition, the contact details of the project proponent and local representative/ partner of the project proponent are also provided to the stakeholder's attending the consultation meeting for sharing suggestions/ queries either through call/messaging/ e-mailing post meeting. 2. If unresolved, grievances shall be referred to mediation by a neutral third party. 3. Any grievances unresolved through mediation shall be referred to: a. Arbitration, as permitted by the relevant jurisdiction's laws, or

	b. Competent courts in the relevant jurisdiction, without prejudice to the ability to submit grievances to a competent supranational adjudicatory body, if applicable. It is important to note that, during this monitoring period, no disputes requiring resolution were encountered.
--	--

2.1.5 Public Comments

Summary of comments received	Actions taken
No comments received	No comments received

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

The project proponent (EKI Energy Services Limited) has substantial experience in implementing the project activity, having executed similar projects in VCS and other GHG mechanisms. Also, PP ensures that the involved community in these projects is properly informed about the project's implementation and their opinions/suggestions are duly considered.

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	Risk of smoke inhalation, fire hazards from malfunction, and continued reliance on wood leading to deforestation.	Mitigation or preventative measure(s) taken: The cook stove has been engineered to emit minimal to no smoke, avoiding fire hazards from malfunctions and significantly reducing wood consumption to indirectly combat deforestation. Additionally, the project proponent ensures that the end users receive adequate training in handling the cook stove, mitigating both natural

		and human-induced risks to stakeholders' wellbeing
Risks to stakeholder participation	Risk of exclusion due to poor communication or lack of awareness	Stakeholder engagement ensured through inclusive communication channels, awareness programs, and community involvement to prevent barriers to participation.
Working conditions	Risk of unsafe cooking environments and accidents with traditional stoves	Using ICS is a safer way for cooking as compare to the traditional cookstove thus it will be rather reducing the safety risk.
Safety of women and girls	Risk of exposure to physical harm during frequent wood collection trips.	ICS reduces wood consumption, lowering the number of trips required. This decreases exposure to potential incidents and enhances safety for women and girls.
Safety of minority and marginalized groups, including children	Risk of burns, accidents, or unsafe cooking practices with traditional stoves.	ICS offers safer cooking methods. Training ensures proper use, reducing risks for marginalized groups and children.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified, the project does not involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous materials.	Not applicable, as no risk has been identified.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Risks identified ⁹	Mitigation or preventative measure(s) taken
-------------------------------	---

⁹ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

Discrimination	Risk of discrimination based on gender, race, religion, sexual orientation or other habits	PP has provided declaration that no discrimination has occurred. PP follows national labor laws ¹⁰ prohibiting discrimination and ensures equal opportunity in employment. No cases were reported during the monitoring period.
Sexual harassment	Risk of sexual harassment at the workplace	The PP complies with national laws ¹¹ prohibiting sexual harassment and maintains a safe working environment. Employees are informed about workplace conduct policies, and no incidents were reported during the monitoring period.
Gender equity in labor and work	Risk of gender inequality in labor and work	The PP strictly follows the gender equality in labor and work. Till date PP has provided employment to women in this project activity with an average salary range which is similar to the one which is being paid to other male employees for the same job role. Women employees were recruited as a part of this project for the distribution process, training program and monitoring activities.
Forced labor	Risk of illegal act of recruiting, transporting, harboring, or receiving people through force, fraud.	The PP complies with national labor regulations ¹² prohibiting forced labor. Employment is voluntary, workers are engaged through formal agreements, and wages are paid in accordance with applicable laws. The PP has also provided a declaration confirming that no cases of forced labor

¹⁰ <https://www.labour.gov.in/documents/acts-and-policies?page=1>

¹¹ https://doe.gov.in/files/inline-documents/DoE_Prevention_sexual_harassment.pdf

¹² [Article 23: Prohibition of traffic in human beings and forced labour - Constitution of India](#)

		occurred during the monitoring period.
Child labor	Risk of child labor	The PP complies with national laws ¹³ prohibiting child labor and maintains employee records to verify the legal working age. The PP has also provided a declaration that confirming that no cases of child labor occurred during the monitoring period.
Human trafficking	Risk of human trafficking	The PP strictly follows the national laws ¹⁴ prohibiting human trafficking, and has provided a declaration that no human trafficking has occurred during the monitoring period

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified, the project activity safeguards the rights of Indigenous Peoples (IPs), Local Communities (LCs), and customary right holders in accordance with applicable national laws and relevant international human rights law ¹⁵ frameworks, including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP ¹⁶) and ILO Convention 169. Free, Prior, and Informed Consent (FPIC) has been obtained from local stakeholders, ensuring voluntary participation and informed decision-making. The project ensures non-discriminatory participation in cookstove	Not applicable, as no risk has been identified.

¹³ [India's Constitutional Provisions Against Child Labour: A Closer Look • Law Notes by TheLaw.Institute](#)

¹⁴ [Article 23: Prohibition of traffic in human beings and forced labour - Constitution of India](#)

¹⁵ <https://www.ohchr.org/sites/default/files/Documents/Publications/fs9Rev.2.pdf>

¹⁶ https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

distribution and provides employment opportunities to local community members with fair treatment and wages. The project is not implemented on any tangible cultural heritage site and does not affect intangible cultural heritage, while promoting cultural harmony through engagement with IPs, LCs, and customary right holders.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified, the project activity involves the distribution of cookstoves manufactured outside the beneficiaries' land; therefore, no tangible cultural heritage sites are affected. The project does not interfere with the customs, traditions, or beliefs of stakeholders and has no negative impact on intangible cultural heritage. It promotes cultural harmony by engaging diverse community groups and respecting local cultural practices.	Not applicable, as no risk has been identified.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified, PP involves distribution of improved cookstove to households and communities in India and it does not require acquisition of property, hence no impact on any property rights.	Not applicable, as no risk has been identified.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	The project activity involves the free distribution of improved cookstoves to rural households. It does not affect property rights; therefore, this section is not applicable.
-------------------------------------	--

Benefit sharing during the monitoring period	The project activity involves the free distribution of improved cookstoves to rural households. It does not affect property rights; therefore, this section is not applicable.
--	--

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified, As the ICS consumes less firewood than baseline cooking technologies, it helps to reduce forest degradation. This reduction in demand for fuelwood allows forests to regenerate, protecting wildlife habitats and biodiversity.	Not applicable, as no risk has been identified.
Soil degradation and soil erosion	No risk identified, Improved cookstoves (ICS) reduce the need for woody biomass for cooking. This lowers fuelwood consumption, helps reduce forest degradation, and increases above-ground biomass in nearby forests. Reduced unsustainable wood harvesting also decreases soil erosion and supports improved biodiversity and species richness in the project area.	Not applicable, as no risk has been identified.
Water consumption and stress	No risk identified, the project activity involves implementation and construction of ICS and does not have any negative impacts on water consumption and does not lead to water stress in any way.	Not applicable, as no risk has been identified.

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	Since the project activity involves the distribution of ICS, which is not located in or adjacent to habitats for rare,
--------------------	--

	threatened, or endangered species; hence this cell is not applicable.
Areas needed for habitat connectivity	As mentioned above paragraph Execution of project it does not include any activity that can have risk to Areas needed for habitat connectivity. Since the project activity involves the manufacturing and distribution of ICS, which is not located in or adjacent to habitats for rare, threatened, or endangered species; hence this cell is not applicable.

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No risk identified, the project activity involves the distribution of improved cookstoves (ICS) at the household level and is not located in or near habitats of rare, threatened, or endangered species. Therefore, no risks are associated with such habitats.	Not applicable, as no risk has been identified.
Areas for habitat connectivity	No risk identified, the project activity only involves the distribution and use of improved cookstoves and does not involve land use change or infrastructure development. Therefore, it does not affect areas required for habitat connectivity.	Not applicable, as no risk has been identified.

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
--------------------	----------------	-----------------------	--------------------------------

We are not introducing any live species, so there is no risk of introducing invasive species.	Not applicable	Not applicable	Not applicable
---	----------------	----------------	----------------

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
We are not introducing any live species, so there is no risk of introducing invasive species.	Not applicable

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No risk identified, the project activity is neither ARR, ALM, WRC nor ACoGS; therefore, no risks associated with ecosystem conversion are identified with the project activity.	Not applicable, as no risk has been identified.

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified, the project activity is neither ARR, ALM, WRC nor ACoGS; therefore, no risks associated with ecosystem conversion are identified with the project activity.	Not applicable, as no risk has been identified.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

As of the last date of the monitoring period, 151,154 stoves have been installed under this grouped project activity. No new instances were added in this monitoring period The distribution details under this grouped project activity are provided in the table below:

State	Distribution start date	Distribution end date	Number of ICS installed
Madhya Pradesh	16-July-2022	31-December-2022	126,158
Assam	11-May-2022	07-September-2022	24,996

Only one stove model (AGNEEKAA ECO MINI STOVE MODEL 4 SE) was distributed under this project activity, the technical specification of which is as follows:

TECHNICAL SPECIFICATION OF COOKSTOVE ¹⁷			
A)	Cook Stove Type/Category	AGNEEKAA ECO MINI STOVE MODEL NO. 4 SE	
			
		Natural Draft	
B)	Secondary Air Supply	Through Natural Draft	
C)	Stove Material Used	Body	Galvanised Iron Sheet
		Body Material Thickness	0.6 mm
		Combustion Chamber	Stainless Steel 202 grade
		Combustion Chamber material Thickness	1 mm SS 202 grade
		Insulation Material	Thermal Wool
		Insulation Material Thickness	6 to 8 mm
		Top Plate	Stainless Steel 202 grade
		Top Plate Material Thickness	1mm
D)	Physical Structure	External Dimension	Length: - 260mm
			Weight: - 260mm
			Height: - 248mm
		Combustion Dimension	Diameter: - 125mm
E)	Grate Thickness	2 mm Material HR Sheet	

¹⁷ As provided by ICS manufacturer

F)	Weight Of the Stove	3.8 Kg	
G)	Type of Fuel Wood	Firewood 30 to 50 mm diameter	
H)	Feeding Process	Continuous Feeding Front Loading	
I)	Expected Life of Stove	7 Years	
J)	Box Dimension	Outer Side Box Dimension	Length: - 300mm
			Weight: - 300mm
			Height: - 270mm
K.)	Thermal Efficiency	36.42%	

During the current monitoring period, no incident or event occurred, that could affect GHG emissions reduction and the approved monitoring. There are no any other changes i.e project proponent or other entities occurred during the current monitoring period plan.

3.2 Deviations

3.2.1 Methodology Deviations

No methodology deviations from the applied methodology, VM0050 version 1.0, have been applied during this monitoring period.

The project was originally developed under methodology VMR0006 version 1.1 but has now transitioned to methodology VM0050 version 1.0.

3.2.2 Project Description Deviations

The project was originally developed under methodology VMR0006 version 1.1 but has now transitioned to methodology VM0050 version 1.0. This change was made to better align with the latest best practices and ensure compliance with the most updated requirements under the Verra framework. The deviation is more conservative than what is set out in the old methodology.

It includes several updates and changes that reflect current best practices of project design and implementation in distributed thermal energy generation. It also incorporates streamlined monitoring approaches such as prescribes robust means for the determination of parameter values (like fNRB), and contains updated default values for various ex-ante parameters (like baseline device efficiency).

These updates represent changes to the Project Description resulting from the methodology transition and do not constitute deviations from the applied methodology.

3.3 Grouped Projects

As there are no new instances are added during the current monitoring period this section is not applicable.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	NCV _{b,i} NCV _{p,j}
Data unit	TJ/tonne
Description	Net calorific value of baseline fuel used by baseline device type i Net calorific value of project fuel used by project device type j
Source of data	Option 3 as specified in the methodology guidelines applies the default value for wood fuel provided in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories ¹⁸ .
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	The data is selected in accordance with the applied methodology and relevant guidelines. Since wood is the fuel used in the baseline scenario, the IPCC default value provided in the methodology has been applied.
Purpose of data	Calculation of baseline and project emissions
Comments	Not Applicable

Data / Parameter	EF _{b,i,CO2} EF _{p,j,CO2}
Data unit	tCO ₂ /TJ
Description	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario. CO ₂ emission factor for fuel used by project device type j in the project scenario.
Source of data	Option 3 as specified by the methodology guidelines: default value for wood fuel from the 2019 refinement of the 2006 IPCC Guidelines for National Greenhouse Gas ¹⁹
Value applied	112

¹⁸ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/2_Volume2/19R_V2_2_Ch02_Stationary_Combustion.pdf

¹⁹ 19R_V2_2_Ch02_Stationary_Combustion.pdf

Justification of choice of data or description of measurement methods and procedures applied	The data is selected in accordance with the applied methodology and relevant guidelines. Since wood is the fuel used in the baseline scenario, the IPCC default value provided in the methodology has been applied.
Purpose of data	Calculation of baseline and project emissions
Comments	NA

Data / Parameter	EF _{b,i,nonCO2} EF _{p,j,nonCO2}
Data unit	tCO ₂ /TJ
Description	Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario Non-CO ₂ emission factor for fuel used by project device type j in the project scenario
Source of data	Option 3 as specified by the methodology guidelines: default value for wood fuel from the 2019 refinement of the 2006 IPCC Guidelines for National Greenhouse Gas ²⁰
Value applied	9.46
Justification of choice of data or description of measurement methods and procedures applied	The data is selected in accordance with the applied methodology and relevant guidelines. Since wood is the fuel used in the baseline scenario, the IPCC default value provided in the methodology has been applied.
Purpose of data	Calculation of baseline and project emissions
Comments	NA

Data / Parameter	BC _{ex-ante,b,i}
Data unit	tonnes
Description	Ex-ante annual average quantity of fuel used per baseline device type i
Source of data	Option 1 as specified in the VM0050 v1.0 methodology guidelines: Kitchen Performance Test
Value applied	For Assam: 3.515 For Madhya Pradesh: 3.193
Justification of choice of data or description of	The baseline fuel consumption was determined using “Option 1: Measurement Campaign” conducted by the survey team. The sampling approach is consistent with the CDM Standard for

²⁰ 19R_V2_2_Ch02_Stationary_Combustion.pdf

measurement methods and procedures applied	Sampling and Surveys for CDM Project Activities and Programmes of Activities, Version 9.0. The campaign ensures a minimum confidence and precision level of 90/10 for the target parameter—average daily fuel consumption per adult equivalent. The results are then scaled using the average household size (Hhi) to derive the value of BCB,i,y. <u>Cross-check of ECI,y to address stove stacking:</u> Project proponents address stove stacking (continued use of pre-project devices in project households) by comparing the quantity of baseline energy consumption determined by Option 1 above (ECi,y) to energy used in the project scenario (ECp,y) using back-calculation. Where the results indicate that baseline consumption (ECi,y) is higher than that indicated by back calculation from the project scenario (ECest,y) then stove stacking is occurring (as ECp,y is unable to completely capture household energy consumption from cooking due to the presence/use of pre-project devices). The back-calculation results (ECest,y) must be applied in Equation (1) as a conservative cap.
Purpose of data	Calculation of baseline emissions
Comments	NA

Data / Parameter	$\eta_{old,avg}$
Data unit	Fraction
Description	Weighted average efficiency of baseline devices that are replaced by project devices
Source of data	Option 1 as specified in the VM0050 v1.0 methodology
Value applied	0.15 (wood)
Justification of choice of data or description of measurement methods and procedures applied	For three stone fire using firewood or a cookstove with no improved combustion air supply or flue gas ventilation, default value of 15% as per applied methodology VM0050, v1.0
Purpose of data	Calculation of baseline emissions
Comments	Not Applicable

Data / Parameter	Hhi
Data unit	Equivalent standard male adults
Description	Average household size of the target population using device type i
Source of data	Baseline survey

	The campaign has achieved a confidence and precision of at least 90/10 for the target parameter of average household size.
Value applied	MP: 3.82 Assam: 4.01
Justification of choice of data or description of measurement methods and procedures applied	The data is obtained through a baseline survey conducted in accordance with the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities (Version 9.0). The survey achieves a minimum confidence and precision level of 90/10 for the target parameter (average household size), ensuring statistically reliable and representative data for the project activity. The data will be updated every five years during follow-up baseline surveys.
Purpose of data	Estimation of average energy consumption when applying Option 1: Measurement campaign (Section 8.1.1 of applied methodology VM0050, v1.0) Cross checking energy and fuel consumption values.
Comments	This parameter must be determined ex ante via the baseline survey as described in Section 6.2 of applied methodology VM0050, v1.0.

4.2 Data and Parameters Monitored

Data / Parameter	$N_{j,k,y}$
Data unit	Number
Description	Number of commissioned project devices of type j from batch k in year y
Source of data	Monitoring
Description of measurement methods and procedures to be applied	The following data has been recorded during project activity implementation: 1) Number of new devices distributed under the project activity, identified by the type of device and date of commissioning; and 2) Identification information of the recipient of the device distributed under the project activity (e.g., name, address, phone number). Data management and reporting of this information must adhere to both data privacy requirements and good practice.
Frequency of monitoring/recording	Every time that new project devices are distributed

Value monitored	Assam: 24,996 Madhya Pradesh: 126,158 Total: 151,154²¹
Monitoring equipment	Sample Survey
QA/QC procedures to be applied	-
Purpose of the data	Calculation of baseline and project emissions
Calculation method	The proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value.
Comments	PP has distributed one ICS per household and the same is followed for each project activity instance.

Data / Parameter	$n_{j,k,y}$
Data unit	Fraction
Description	Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y
Source of data	Monitoring
Description of measurement methods and procedures to be applied	Option 2 (Survey method): The adoption rate has been determined through surveys following the latest CDM Standard for Sampling and Surveys with 90/10 confidence precision. The lower value of the 90% confidence interval will be used to ensure conservative estimation. The adoption survey has included: a) Kitchen observation (which includes visual and physical checks of the stove and its components), including photographic evidence; and b) Interview with the primary cook. The project proponent has provided a proof of training and supervision to ensure field teams have the capacity required to complete adoption surveys successfully. The average of the sum of "yes" (1) responses to the adoption survey question "If yes, have you used the stove regularly since you installed it?" (where this response is cross-checked and confirmed with the physical check of the stove and the coherency with the responses to the following questions of the survey), and "no" (0) responses to the questions "do you use the project cookstove?"

²¹ 151, ICS were distributed during validation, while no ICS were distributed during the current monitoring period

	and "If yes, have you used the stove regularly since you installed it?". where the project does not achieve the target precision in a monitoring period, the project proponent will apply an appropriate conservativeness deduction as per Section 4 of the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. As per Correction and Clarifications to VM0050: Energy Efficiency and Fuel Switch Measures in Cookstoves v1.0, Clarification 2, the project will apply survey-based methods and fully comply with all required customer-support criteria. Cookstove technologies have been selected based on local cooking needs and practices. Comprehensive user training, locally translated materials, and ongoing support for operation and maintenance are being provided across the entire target population. A toll-free support system is also available for user assistance. Therefore, the project qualifies for the 90% usage-rate cap, and a value of 0.9 is applied for the ex-ante calculation.
Frequency of monitoring/recording	Option 2 (surveys): annually
Value monitored	0.9
Monitoring equipment	Not Applicable
QA/QC procedures to be applied	Option 2 (surveys): Where the project device is not working or not being used at the time of conducting the survey, it should be conservatively assumed that the project device has not been active since the date on which the last adoption survey was conducted.
Purpose of the data	Calculation of baseline and project emissions
Calculation method	The proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value.
Comments	PP has distributed one ICS per household and the same is followed for each project activity instance

Data / Parameter	BC _{b,i,y}
Data unit	tonnes
Description	Fuel used per baseline device type i during year y
Source of data	Option 1: A measurement campaign following the Kitchen Performance Test Protocol in control households that do not

	participate in the project, established prior to validation as statistically equivalent to the pre-project conditions of project households regarding baseline fuel consumption.
Description of measurement methods and procedures to be applied	Option 1: Follow-up baseline surveys will be conducted every five years in control households that do not participate in the project, established prior to validation as statistically equivalent to the pre-project conditions of project households regarding baseline fuel consumption. Option 1: Follow-up baseline surveys will be conducted every five years in control households that do not participate in the project, established prior to validation as statistically equivalent to the pre project conditions of project households regarding baseline fuel consumption. Measurement campaign shall be updated where follow-up baseline surveys show that the fuels, fuel sources, or technologies used by the control group are no longer statistically equivalent to the pre-project conditions of project households. The measurement campaign will be designed, carried out, and analyzed in compliance with the most recent version of the a) CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities and b) KPT protocols by Clean Cooking Alliance. The result will be scaled appropriately using the average household (<i>hhi</i>) size to obtain the value of $BC_{b,i,y}$. <u>Justification of Data Choice and Description of Measurement Methods:</u> The parameter value is derived from in situ Kitchen Performance Tests (KPTs) conducted for 38 households (Each state) sampled from project activity. The baseline KPT campaign was undertaken between 08-September-2025 to 15-September-2025 in Madhya Pradesh, and from 08-September-2025 to 22-September-2025 in Assam by locally engaged field staff who received specialized training aligned with the Kitchen Performance Protocol v4.0 (March 2018). All measurements followed the procedures, quality control requirements, and data handling provisions of the protocol. In accordance with VM0050, baseline households were identified prior to validation through a structured baseline survey implemented by trained local surveyors. Households were selected to represent the target population's pre project cooking conditions, including baseline fuel types and percentage of use, fuel sourcing patterns, and baseline cooking technologies. Control households were also established prior to validation, following the methodology requirement that they must be statistically equivalent to project households with respect to baseline fuel mix, usage shares, sourcing practices, and cooking technologies. Equivalence was confirmed through comparison of key baseline indicators collected during the initial survey. These control households do not participate in the project and will be revisited every five years from the date of the last survey for follow

	up baseline surveys, ensuring continuity and methodological compliance for future monitoring periods. <u>Sampling and Statistical Justification:</u> As per the sampling approach outlined in Appendix 5 of the methodology, a minimum sample size of 30 households was required to achieve 90/10 confidence and precision (see Section 3.3.1 of PD for detailed calculations). A total of 38 households (from each state) were surveyed, resulting in an oversampling factor of 1.2, thereby increasing the statistical robustness of the parameter estimate. Comprehensive analysis of the monitored data is provided in the accompanying Excel file and in Section 3.3.1 of PD. The observed standard deviation for MP and Assam was 0.22 and 0.29, with a resulting precision of 2% and 3% respectively. These results demonstrate compliance with the methodology's 90/10 confidence precision requirement and justify the use of the measured parameter value for baseline estimation.
Frequency of monitoring/recording	Every Five years
Value monitored	For Assam: 3.515 For Madhya Pradesh: 3.193
Monitoring equipment	KPT measurements Weighing scales & Digital Moisture Meter
QA/QC procedures to be applied	The campaign must achieve a confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent. Where the project does not achieve the target precision in a monitoring period, the project proponent must apply an appropriate conservativeness deduction as per Section 4 of the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The digital moisture meter used for monitoring is auto-calibrated. However, the weighing scales require manual calibration and are calibrated prior to the survey in accordance with national or international standards, or as specified in the respective user manuals. All weighing scales used for monitoring are calibrated before the start of the survey in accordance with applicable national/international standards or manufacturer specifications.
Purpose of the data	Calculation of baseline emissions
Calculation method	Not Applicable

Comments	Sample households assessed during the baseline survey/KPT have been designated as the control group for follow-up surveys. The sample was selected randomly in line with the CDM Sampling and Survey Guidelines and the approach described in Section 3.4 of the PD. These households were non-participants at the time of the survey and had not received project ICS. The dataset includes all required information and unique household identification details to ensure traceability during baseline reassessment after five years, and the records have been submitted to the VERRA Secretariat. To minimize risk, these households will be excluded from stove distribution campaigns. Any independent adoption of improved stoves will be captured during reassessment, ensuring a conservative baseline. If some households are not traceable, new households may be added or reassessment will be conducted with the available control households.
----------	---

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction or %
Description	Fraction of woody biomass that is established to be non-renewable used by device in year y
Source of data	Option (3) Default value of the most recent version of CDM TOOL33
Description of measurement methods and procedures to be applied	The fraction of non-renewable biomass is determined using the default value from Version 3 of CDM Tool 33 ²² , Table 03, as permitted under VM0050 – Energy Efficiency and Fuel-Switch Measures in Cookstoves. -
Frequency of monitoring/recording	Ex ante for each crediting period
Value applied	0.7 or 7%
Monitoring equipment	Not applicable
QA/QC procedures to be applied	Not applicable
Purpose of data	Calculation of baseline and project emissions
Calculation method	Not Applicable, the $f_{NRB,y}$ value is directly sourced as a default value from CDM Tool 33, Version 3, Table 03 as permitted under

²² <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-33-v3.pdf>

	VM0050, requiring no independent field measurement or calculation. This default value is directly applied in the baseline emission reduction formula to quantify project GHG reductions.
Comments	This parameter has been fixed ex ante for the crediting period

Data / Parameter	$\eta_{\text{new,avg,y}}$
Data unit	Fraction/Percentage
Description	Weighted average efficiency of project devices in year y
Source of data	As per section 9.2 of approved methodology VM0050 V1.0, A linear decrease in efficiency is applied over the lifespan of the project device until it reaches the terminal efficiency of 25%.
Description of measurement methods and procedures to be applied	The efficiency is being established using following method, and the corresponding documentation will be presented: - Certification from the host country's national standards body or certifying agency. Certification is provided by the Indian Institute of Technology Delhi (Centre for Energy Studies), which conducted testing in accordance with BIS standards (IS:13152:2013). The decrease in thermal efficiency of project device j from batch k due to aging will be accounted for during the monitoring period, as presented below. - A linear decrease approach, applying a default schedule of linearly decreasing efficiency up to the terminal efficiency (assumed to be 25%) through the lifespan of the project device²³. The weighted average efficiency is calculated by multiplying the energy consumption $EC_{p,j,k,y}$ of the project device j of batch k by its thermal efficiency $\eta_{\text{new,j,k,y}}$ and then summing these values for all project devices. The resulting sum is divided by the total energy consumption of all project devices to determine the weighted average efficiency. <i>As per section 9.2 of approved methodology VM0050 V1.0, A linear decrease in efficiency is applied over the lifespan of the project device until it reaches the terminal efficiency of 25%. Hence, the 4th-year efficiency is considered based on this linear degradation as per VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves.</i>

²³ Consider non-binding best practice example 6 in AMS-II.G

Frequency of monitoring/recording	Annually		
Value monitored		Year	$\eta_{new,avg,y}$
		Year 4	30.71%
Monitoring equipment	Not Applicable		
QA/QC procedures to be applied	Not applicable		
Purpose of the data	Calculation of baseline and project emissions		
Calculation method	Not applicable		
Comments	Not applicable		

Data / Parameter	$BC_{p,j,k,y}$
Data unit	tonnes
Description	Average quantity of fuel used by project device type j from batch k during year y
Source of data	Average quantity of fuel used by project device type j from batch k during year y
Description of measurement methods and procedures to be applied	Option 1 as specified in the VM0050 v1.0 methodology
Frequency of monitoring/recording	PP has chosen Option 1: Kitchen performance test (KPT) as per the applied methodology (VM0050, v1.0). A measurement campaign following the Kitchen Performance Test protocol will be designed, carried out, and analyzed in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The campaign will achieve confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent. The result must be scaled appropriately using the average household size to obtain the value of $BC_{p,j,k,y}$. Project activities applying KPTs will also measure the quantity of fuel used by pre-project devices that are still operational and provide it in the calculation sheet and monitoring reports (this is a reporting-only requirement).
Value monitored	For Assam: 1.708

	For Madhya Pradesh: 1.559
Monitoring equipment	Weigh scales and moisture meters
QA/QC procedures to be applied	The digital moisture meter used for monitoring is auto-calibrated. However, the weighing scales require manual calibration and are calibrated prior to the survey in accordance with national or international standards, or as specified in the respective user manuals. For more detail, please refer section 4.3. All weighing scales used for monitoring are calibrated before the start of the survey in accordance with applicable national/international standards or manufacturer specifications. As in the baseline KPTs, field staff conducting the tests receive specific training to ensure reliable data collection. The test results from each batch must meet the 90/10 confidence and precision requirement specified in the methodology; otherwise, additional sample tests will be conducted until the requirement is achieved.
Purpose of the data	Calculation of baseline and project emissions
Calculation method	Not applicable
Comments	Not applicable

4.3 Monitoring Plan

For measurement/monitoring of two parameters based on a representative sample. The Simple random sampling approach proposed in APPENDIX 5: SAMPLING GUIDANCE of the methodology have been used for determining the minimum sample size in which case compliance with 90/10 confidence precision is not obligatory.

According to the Guidelines on Sampling and Surveys for CDM Project Activities and Programmes of Activities, it is important to distinguish between two categories of data when determining sample size: those related to mean and those related to proportions.

Sample size refers to the number of observations or individuals included in a statistical study or experiment. Determining the appropriate sample size is critical to ensuring that the results of the study are accurate and representative of the population being studied.

- Mean values: Corresponding to average values inferred from data that are often referred to as continuous variables
- Proportion (or percentage) values: Values that are derived from data that are described as attributes, yes/no data, or binary data

The following table specifies the parameters described in the methodology to be considered in relation to the CDM sampling guidelines, together with a description of the type of data to which they correspond (mean or proportion).

Monitored Parameters

The project involves the monitoring parameter set out in Section 4.2 (Data and Parameters Monitored) above are describe below:

No.	Monitoring Parameters	Unit	Parameter type	Monitoring frequency
1	$N_{y,j,k}$ Number of project devices of type i and batch j operating during year y	Number	Mean value	Every time that new project devices are distributed
2	$n_{j,k,y}$ Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y	Fraction	Proportion	Option 2 (surveys): annually
3	$BC_{b,i,y}$ Fuel used per baseline device type i during year y	tonnes	Mean value	Every Five years
4	$\eta_{new,avg,y}$ Weighted average efficiency of project devices in year y	Percentage	Calculated	Annually
5	$BC_{p,j,k,y}$ Average quantity of fuel used by project device type j from batch k during year y	tonnes	Mean value	Biennial
6	Hh_i Average household size of the target population using device type i	-	Mean value	Every five years during follow-up baseline surveys

Sampling Approach

Target Population

The "population" in this applied methodology refers to the total number of project devices commissioned, whereas the sample target represents a specific subset of these devices. The target population for $n_{j,k,y}$ and $BC_{p,j,k,y}$ is the complete set of appliances (ICS) deployed under the project.

The target population for fuel used per baseline device ($BC_{b,i,y}$) is set in control households that do not participate in the project, established prior to validation as statistically equivalent to the pre project conditions of project households regarding baseline fuel consumption

Sampling Method

The project involves the distribution of ICS throughout the project area thereby replacing traditional cooking devices. The population is homogeneous in nature i.e., common technology with similar operating characteristics and dispersed in the project boundary. Since the characteristics of the population (for example quantity of biomass consumed per household) are more similar. Therefore, a simple random sampling technique is being used to calculate the samples. PP have stratified the entire population into single batch per state. Within each state, PP employed a simple random sampling technique to select samples for the monitoring survey.

The project area in rural India comprises a homogeneous population, with all beneficiaries belonging to the Below Poverty Line (BPL) category. This homogeneity suggests that key characteristics, such as biomass consumption per household, are likely similar across our project area.

Sample Size:

A simplified approach is being used for determining the minimum sample size for parameters listed under APPENDIX 5: SAMPLING GUIDANCE of the methodology.

The project proponent has chosen to use the same sample to monitor both parameters. According to the Standard for sampling and surveys for VCS project activities and programme of activities, if there is more than one parameter to be estimated, then a sample size calculation should be done for each of them. Then either the largest number for the sample size is chosen as a sampling effort with one common survey, or separate sampling efforts and surveys are undertaken for each parameter. Therefore, the project proponent has sample a combination of parameters i.e. $n_{j,k,y}$, - Via adoption survey and $BC_{b,i,y}$, $BC_{p,j,k,y}$ - Via KPT in the same sample. For the parameter $BC_{b,i,y}$, sampling will be conducted among controlled households, regardless of the stove model used. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs.

Oversampling is strongly encouraged, not only to compensate for any attrition, outliers or non-response associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved and additional sampling efforts would be required. Therefore, project proponent has selected almost 20% over samples during samples selection.

Simple random sampling is suited to populations that are homogeneous. This method is often used because it is straightforward and ensures that each member of the population has an equal chance of being included in the sample. The sample-based estimate (mean or proportion) is an unbiased estimate of the population parameter.

For $n_{i,k,y}$ - Adoption survey:

The equation for a 90/10 confidence/precision to give the required sample size is:

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

- n = Sample size for households
- N = Total number of households
- p = Expected proportion of parameter of interest
- 1.645 = Represents the 90% confidence required
- 0.1 = Represents the 10% relative precision

Parameter	Assam	Madhya Pradesh
N (Total number of households)	24,996	1,26,158
p (Expected proportion of parameter of interest)	0.75	0.75
1.645 (Represents the 90% confidence required)	1.645	1.645
0.1 (Represents the 10% relative precision)	0.1	0.1
n (Min Sample Size)	90	91

For $BC_{p,i,k,y}$ – Project KPT samples:

Sample size determination for mean parameter:

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

$$V = \left(\frac{SD}{\text{mean}} \right)^2$$

Where:

- n = Sample size for households
- N = Total number of households
- SD = Expected standard deviation
- mean = Expected mean, depends on similar studies or location
- 1.645 = Represents the 90% confidence required
- 0.1 = Represents the 10% relative precision

Parameter	Assam	Madhya Pradesh
N (Total number of households)	24,996	1,26,158
SD (Expected standard deviation)	0.3	0.3
mean (Expected mean) kg/per capita/day	0.91	0.91
1.645 (Represents the 90% confidence required)	1.645	1.645
0.1 (Represents the 10% relative precision)	0.1	0.1
V (Variance)	0.109	0.109
n (Min Sample Size)	30	30

MAX	38	38
-----	----	----

Sampling Frame

The sampling frames has been defined as per below. In overall, each ICS has same group of end users which is household users with similar cooking need and geographical location, thus it is confirmed that the geographical locations do not have influence on the parameter of interest. Therefore, all monitoring parameters can be assumed to be highly regardless of how the end user group and distribution/installation location is defined.

Adoption Survey: -

The details of Adoption surveys conducted on the ground is as follows:

State	Adoption Survey start date	Adoption Survey end date	Sample conducted
Assam	07-October-2025	15- October -2025	107
Madhya Pradesh	03-October-2025	11- October -2025	102

Project KPT: -

The details of Project KPT conducted on the ground is as follows:

State	Project KPT start date	Project KPT end date	Sample conducted
Assam	06-October-2025	20-October-2025	37
Madhya Pradesh	06-October-2025	13-October-2025	36

Data collected as a part of Surveys:

Field Measurement:

$n_{y,j,j}$: The survey involves a visual inspection of the premises to see if ICS is operational and in use. An interview with the end user also been conducted *as per the binding survey questionnaire* given in Appendix 3 of applied methodology. Based on the response received from the end user, the value of the parameter has been calculated.

The details of adoption survey conducted on the ground is as follows:

State	Min sample	Sample conducted
Assam	90	107
Madhya Pradesh	91	102

$BC_{b,i,y}$ and $BC_{p,j,k,y}$: These parameters were calculated via KPT as per the KPT protocol²⁴.

²⁴ Kitchen Performance Test (KPT) Version 4.0. <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

The interviewer has filled out the monitoring questionnaire and KPT form data manually or using an app-based electronic device (e.g., mobile phone) at each sample household. Data recorded through a manual process will be recorded and transferred into the electronic database.

Stoves Users are requested to provide the required information to the interviewer. Users share their background information in several ways, including by speaking directly with designated focal points who may reside in their communities. Surveys have been carried out by a mobile app, and hence soft copies of the surveys and KPT form have been kept in a database with a backup. All data monitored and required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of credits for the project activity, whichever is later.

The table below summarizes field measurement data requirements:

State	Min. sample	Sample conducted	Valid sample
Assam	30	37	34
Madhya Pradesh	30	36	34

Outlier identification calculation is given below:

Outlier identification		
Parameter	Madhya Pradesh	Assam
Mean	1.12	1.18
Standard Deviation	0.12	0.16
COV	0.11	0.13
Upper Quartile	1.18	1.26
Lower Quartile	1.03	1.10
Interquartile Range	0.15	0.16
Outlier Threshold (Upper)	1.41	1.51
Outlier Threshold (Lower)	0.80	0.86

After removing outlier, the total valid sample count comes out to be 34 for each state, which is above minimum sample requirements. The final value arrived from the baseline KPT sample is 1.164 and 1.118 kg wood/capita/day for Assam and Madhya Pradesh respectively.

The campaign achieved a confidence and precision of at least 90/10 and its assessment is given below:

Parameter	Results	Methods to be applied
$n_{y,j}$	Assam: 100% Madhya Pradesh: 100%	Visits to the premises, visual inspection and interview with ICS end-user.
$BC_{b,i,y}$	Assam: 3.515 tonnes/Device/year Madhya Pradesh: 3.193 tonnes/Device/year	KPT Protocol

BC _{p,j,k,y}	Assam: 1.708 tonnes/Device/year Madhya Pradesh: 1.559 tonnes/Device/year	KPT Protocol
-----------------------	---	--------------



Photographic representation - Interaction with beneficiary while Conducting monitoring survey

Quality Assurance/Quality Control

The project proponent has applied measures to ensure the sampling requirement for each sampled parameter is met, allowing for non-response and the possible removal of outliers from the sample, as part of a Quality Control/Quality Assurance system. The choice of measure applied to each parameter is depended on the cost of each data collection approach and logistics required. The project proponent determined the most effective measure for each parameter from the following list:

A sample 20% larger than the minimum required has been drawn to create a buffer. where respondents from the primary sample does not respond, additional data has been collected from the reserve sample to meet the minimum size requirement

The sampling plan has the following procedures in place to ensure good quality data. The project proponent ensured that field personnel have reviewed, understood and have agreed to follow the monitoring plan procedures, including provisions for maximizing response rates, documenting out-of-population cases, refusals and other sources of non-response. A quality control and assurance strategy were documented. Quality control and assurance strategies included addressing non-sampling errors, such as non-response or bias from interviewer. The project proponent with the proper skills was trained the monitoring personnel on how to properly survey households to prevent bias from interviewer. In the case a household refuses to participate, another household was chosen at random. To reduce interviewer bias, good questionnaire design and well-tested questionnaires was used.

The sample data for the mean value parameter is continuous and therefore the presence of outliers is possible. Outliers were identified and removed from the survey results.

Repair and Maintenance - EKIESL/it's representative established service center at project location where end users can repair the cookstoves and can use further. The repair and maintenance will be followed as per manufacturer recommendation. This will ensure that cook stove will operate for longer period. After 7 years of lifetime, a report from Maintenance Company will be provided to confirm the extended life of cook stove. The project will claim credits beyond 7 years only for balanced year till cook stove is replaced by new cookstoves.

In case, the end user experiences any issues with the ICS, he or she can call the service center with the help of customer service number available on the box of ICS, to report the issues. After receiving a complaint, the maintenance team will take the necessary action immediately to resolve the issue. EKIESL/it's representative will distribute the stoves, as well as carry out the monitoring activities that occur during the distribution of stoves. EKIESL or through their associates will ensure that the distributor is trained on how to capture the end user data. The project activity implementer is fully responsible to ensure the correct distribution process and data gathering is followed.

After 7 years of lifetime, a report from Maintenance Company will be provided to confirm the extended life of cook stove. The project will claim credits beyond 7 years only if the end users receive a replacement or retrofit of comparable or higher quality. This will be achieved by:

- Replacing the stove with a comparable or better model, or
- Retrofitting essential components with a performance guarantee.

Projects shall complete these replacements or retrofits within the crediting period. If devices are retrofitted or repaired before or at the end of their technical life, emission reductions will continue to be claimed only if:

1. Detailed documentation is maintained for each device (parts replaced, specifications, personnel involved, and retrofit date), and

A manufacturer warranty or a guarantee from an experienced repair company confirms that the stove's performance (efficiency, safety, indoor emissions) remains comparable to the original.

Calibration procedures for monitoring equipment:

To measure the weight of wood consumed by the project stove in a day, weighing scales are being used. Calibration of weighing scales used for measuring the wood consumption was done in-house before start using on site.

Details of weighing scales is given below:

- Serial No.: EKI-01716, EKI-01715, EKI-01714, EKI-01713, EKI-01712, EKI-01711, EKI-01686, EKI-01682
- Accuray Class: 5g (0-10kg) & 10g (10-20kg)

- Date of calibration: 04-August-2025

Details of moisture meter is given below:

- Serial No.: EKI-01690, EKI- 01695, EKI- 01693, EKI-01696, EKI-01698, EKI-01689, EKI-01708, EKI-01709
- Precision: $\pm 2\%$ gear 1

Data Review and Tabulation

At the first step data related to users/beneficiary information and result of survey was reviewed /triangulated and thereafter tabulated in database/excel spreadsheet by the teammembers of distributor / operational Team (Local Representative) member from the user agreement and survey schedule respectively.

At the next step the database/excel spreadsheet containing beneficiary/ survey information was cross verified by EKI Energy Services Limited (EKIESL) team member with end user agreement and survey schedule to ensure correctness of data transfer.

Analysis

The project proponent managed a project database that includes the following data that can be directly attributable to each instance within the project, thereby allowing unambiguous determination of the emission reductions attributable to each project:

- A list of households participating in the project, including name, community/location, distribution/installation date and unique serial number;
- Where replacements are made, assurance that the efficiency of the new ICS is similar to the specified.

Data obtained from the samples has been used to estimate proportions and mean values for the parameters described above. The values were then factored into the emissions reduction calculations and result in the request for issuance of VERs. The parameters are applied for emission reduction calculations.

Activities and performance related to emissions reduction are monitored by EKIESL. The PP proposed the following roles and responsibilities for data monitoring, collection, data archiving and calibration of equipment for these project activity instances.

The monitoring activities involves data collection during distribution as well as usage information post distribution. The data collected during distribution also involves information about the stove, the end user and location to enable one to uniquely identify each ICS unit and avoid double counting.

Roles and responsibilities of different participators are proposed to be as follows:

Entity/Person	Roles & Responsibilities
EKIESL	✓ VCS documentation development ✓ Communicate with VERRA for all VCS related matters

	✓ Communicate with VVBs for validation & verification ✓ Identify local partners for local representation and support ✓ Identity suitable ICS manufacturers ✓ Design the distribution plan for on ground implementation of ICS ✓ Design the monitoring system (including data collection in an electronic database) ✓ Training and development of local resources (as may be required) ✓ Regular Monitoring and quality assurance of data ✓ Monitor & supervise on-ground distribution, etc. ✓ Annual Review meeting with Local Teams and other associated entity in order to ensure continuous improvements of the project activity
Distributor / Operational Team (Local Representative)	✓ To support & assist EKIESL in achieving the stated goal of the project activity ✓ Assist and facilitate EKIESL in baseline data collection, efficiency testing, data of biomass consumption for new ICS through sampling survey etc. ✓ To be the local representative and communicate, act and engage in implementation activities of project activity ✓ To identify and deploy suitable local team and resources for ICS distribution, data collection, regular spot-check at households etc. ✓ Assist and facilitate EKIESL during training of the Operational Team and capacity building across the end users. ✓ To bridge any gap in between end users of ICS and EKIESL in order to ensure smooth operation of the program to achieve overall objective of the project activity ✓ ICS Distributor(s)-who will be responsible for deploying the ICS at household and register the end user in the digital tool. They will also be responsible for giving demonstration of ICS use, discussing with the end users on its benefits and educate them on continued use of ICS and discontinuation of the use of conventional/traditional open firing practice. They will also conduct periodic check at households to gather feedback, address to any technical concerns, collect necessary data and transmit the information.
ICS Manufacturer or Supplier	✓ To design and develop ICS as per required standard ✓ To provide technical parameters and manufacturer's efficiency etc. at the time of supply ✓ To educate and train EKIESL team on the installation (delivery), uses, handling etc. of the ICS at households.

Monitoring Responsibility

Data/Parameters	Monitoring Responsibility
-----------------	---------------------------

Date of commissioning of batch j	1. Distributor / Operational Team (Local Representative) member is responsible for signing of end user agreement with beneficiary being handed over with the improved cookstoves. The beneficiary information in the end user agreement will be transferred by Distributor / Operational Team (Local Representative) member in excel database/spreadsheet including the information relating to the commissioning. 2. The beneficiary as well as the commissioning data/information in the beneficiary database/excel spreadsheet will be cross verified by EKIESL team member with the hard copy of the end user agreement to ensure correctness of data transfer.
$n_{j,k,y}$ Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y	1. EKIESL team member has followed the adoption survey template given in applied methodology for developing of the structured interview schedule/questionnaire, training of surveyors and cross verify the tabulated data with the original information schedule. 2. The information will be collected by the team members of the Distributor / Operational Team (Local Representative) through sampling survey. The team members will also be responsible for data triangulation and data tabulation in excel spreadsheet. 3. The survey data/information in the excel/spreadsheet will be cross verified by EKIESL team member to ensure correctness of data transfer.
$BC_{b,i,y}$ Fuel used per baseline device type i during year y $BC_{p,j,k,y}$ Average quantity of fuel used by project device type j from batch k during year y	1. EKIESL team member will be responsible for developing of the structured KPT schedule/Form, training of surveyors and cross verify the tabulated data with the original information schedule. 2. The information will be collected by the team members of the Distributor / Operational Team (Local Representative) through sampling survey. The team members will also be responsible for data triangulation and data tabulation in excel spreadsheet. 3. The survey data/information in the excel/spreadsheet will be cross verified by EKIESL team member with the hard copy survey schedule to ensure correctness of data transfer.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

Baseline emissions are calculated as follows:

$$BE_y = \sum_{i,j,k} ECI_{i,y} \times Nj_{k,y} \times nj_{k,y} \times (EFb_{i,CO2} \times fNRB_{i,y} + EFb_{i,nonCO2}) \quad (1)$$

Where:

BE_y	=	Baseline emissions during year y (t CO ₂ e)
$ECI_{i,y}$	=	Average energy consumption of baseline device type i in year y (TJ)
$Nj_{k,y}$	=	Number of commissioned project devices of type j from batch k in year y
$nj_{k,y}$	=	Emission reductions by improved cookstove of type i and batch j during year y in tCO ₂ e
$EFb_{i,CO2}$		CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ /TJ)
$fNRB_{i,y}$		Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not considered for fossil fuels (fraction)
$EFb_{i,nonCO2}$		Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ e/TJ)
i		Baseline device type and its respective fuel type
j		Project device type and its respective fuel type

As per section 8.1.1, Average Energy Consumption of Baseline Device ($EC_{i,y}$)

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

As per Section 8.1.1, Average Energy Consumption of Baseline Device ($EC_{i,y}$)

$$EC_{i,y} = BC_{b,i,y} \times NCV_{b,i} \quad (2)$$

Where:

$BC_{b,i,y}$	=	Fuel used per baseline device type i during year y (tonnes)
$NCV_{b,i}$	=	Net calorific value of baseline fuel for baseline device type i (TJ/tonne)

The quantity of fuel that would be used in the baseline scenario must be determined by one of the following two methods.

PP has chosen option 1 to calculate $BC_{b,i,y}$

Option 1: Measurement campaign- A measurement campaign has been conducted following the procedures in the most recent version of the Kitchen Performance Test Protocol. Appendix 4 of VM0050 methodology provides further guidance on measurement techniques. The sampling complies with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The campaign must achieve confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult

equivalent. The result scaled appropriately using the average household size (Hh_i) to obtain the value of $BC_{b,i,y}$. Where the project does not achieve the target precision in a monitoring period, the project proponent must apply an appropriate conservativeness deduction as per the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. Energy consumption calculated using this option must be determined once prior to validation to obtain $BC_{ex-ante,b,i}$.

The result has been scaled appropriately using the average household size (Hh_i) to obtain the value of $BC_{b,i,y}$.

Follow-up baseline surveys must be conducted every five years in control households that do not participate in the project. These households must be established prior to validation as statistically equivalent to the pre-project conditions of project households regarding fuel consumption. Where the biennial follow-up baseline survey campaigns reflect statistically significant changes to the baseline, baseline energy consumption must be updated (using a new measurement campaign conducted in control households) to obtain $BC_{b,i,y}$.

Cross-check of $EC_{i,y}$ to address stove stacking:

Project proponents address stove stacking (continued use of pre-project devices in project households) by comparing the quantity of baseline energy consumption determined by Option 1 above ($EC_{i,y}$) to energy used in the project scenario ($EC_{p,y}$) using back-calculation. Where the results indicate that baseline consumption ($EC_{i,y}$) is higher than that indicated by back calculation from the project scenario ($EC_{est,y}$) then stove stacking is occurring (as $EC_{p,y}$ is unable to completely capture household energy consumption from cooking due to the presence/use of pre-project devices). The back-calculation results ($EC_{est,y}$) has been applied in Equation (1) as a conservative cap.

$$EC_{est,y} = EC_{p,y} \times \frac{\eta_{new,avg,y}}{\eta_{old,avg}} \quad (3)$$

Where:

$EC_{est,y}$ = Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)

$EC_{p,y}$ = Energy used in project scenario by project devices during year y (TJ)

$\eta_{new,avg,y}$ = Weighted average efficiency of project devices in year y (fraction)

$\eta_{old,avg}$ = Weighted average efficiency of baseline devices that are replaced by project devices (fraction)

$EC_{p,y}$ must be determined as follows,

$$EC_{p,y} = \sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j} \quad (4)$$

Where:

$BC_{p,j,k,y}$ = Average quantity of fuel used by project device type j from batch k during year y (tonnes or m^3)

$NCV_{p,j}$ = Net calorific value of project fuel used in project device type j (TJ/tonne or TJ/ m^3)

The Actual baseline ER calculations for one project activity instance are as below.

Considering ICS date of installation and number of days involved in the monitoring report (MP: 01-January-2024 to 30-September-2025), which comprises of operational year 2, 3 and 4. PP has calculated the baseline emission reduction for each ICS installed under the project activity separately. In this section example for baseline ER calculation of one ICS is provided;

ICS Efficiency (Rated) = 36.42%

$BC_{p,j,k,y}$ has been calculated from the value for Kitchen Performance Test

$f_{NRB,b,y}$ is 0.07 as per the tool 33 version 3.0

Determining Average Energy Consumption of Baseline Device ($EC_{i,y}$):

State	$BC_{b,i,y}$ (tonnes)	$NCV_{b,i}$ (TJ/tonne)
Assam	3.515	0.0156
Madhya Pradesh	3.193	0.0156

For Assam:

Operating Year of ICS	:	$BC_{b,i,y} \times NCV_{b,i}$	=	$EC_{i,y}$
Year 02	:	3.515×0.0156	=	0.05483
Year 03	:	3.515×0.0156	=	0.05483
Year 04	:	3.515×0.0156	=	0.05483

For Madhya Pradesh:

Operating Year of ICS	:	$BC_{b,i,y} \times NCV_{b,i}$	=	$EC_{i,y}$
Year 02	:	3.193×0.0156	=	0.04981
Year 03	:	3.193×0.0156	=	0.04981
Year 04	:	3.193×0.0156	=	0.04981

Cross-check of $EC_{i,y}$ to address stove stacking:

A default schedule of linear decrease in efficiency up to the terminal efficiency assumed as 25 per cent²⁵ shall be applied through the life span of the project device:

The baselines emissions will be calculated for 1 instance as follows:

ICS Efficiency at start of Year	36.42%
Lifetime of ICS	7

²⁵ As per approved Meth Page no 37 option B Data/Parameter $\eta_{new,avg,y}$

ICS Efficiency at end of lifespan	25%				
Linear Decrease in Stove Efficiency	1.63%				
Year	0	1	2	3	4
ICS Efficiency	36.42%	34.79%	33.16%	31.53%	29.89%
Efficiency applied for Each Year		35.60%	33.97%	32.34%	30.71%

Parameter	Value	Source
$BC_{p,j,k,y}$	Assam: 1.708 tonnes Madhya Pradesh: 1.559 tonnes	Project KPT Result
$NCV_{p,j}$	0.0156 TJ/tonne	Option 3 as specified in the methodology guidelines applies the default value for wood fuel provided in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories under the VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves methodology.
$\eta_{new,avg,y}$	30.71%	As per section 9.2 of approved methodology VM0050 V1.0, A linear decrease in efficiency is applied over the lifespan of the project device until it reaches the terminal efficiency of 25%. Hence, the 4th-year efficiency is considered based on this linear degradation as per VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves. The weighted average efficiency of the project devices for the third year has been considered for the back-calculation of energy consumption. Furthermore, the third-year efficiency is comparatively lower than that of the first and second years, making it a conservative.
$\eta_{old,avg}$	15%	As per Methodology

$$EC_{p,y} = \sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j}$$

State	Operational Year	$NCV_{p,j}$	$BC_{p,j,k,y}$	$EC_{p,y}$ (TJ)
Assam	Year 2	0.0156	1.708	0.027
Assam	Year 3	0.0156	1.708	0.027
Assam	Year 4	0.0156	1.708	0.027
Madhya Pradesh	Year 2	0.0156	1.559	0.024
Madhya Pradesh	Year 3	0.0156	1.559	0.024
Madhya Pradesh	Year 4	0.0156	1.559	0.024

Calculations of $EC_{est,y}$ (TJ):

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

State	Operational Year	$EC_{p,y}$ (TJ)	$\eta_{new,avg,y}$ (fraction)	$\eta_{old,avg}$ (fraction)	$EC_{est,y}$ (TJ)
Assam	Year 2	0.027	30.71%	15%	0.05455
Assam	Year 3	0.027	30.71%	15%	0.05455
Assam	Year 4	0.027	30.71%	15%	0.05455
Madhya Pradesh	Year 2	0.024	30.71%	15%	0.04979
Madhya Pradesh	Year 3	0.024	30.71%	15%	0.04979
Madhya Pradesh	Year 4	0.024	30.71%	15%	0.04979

As part of the verification process, baseline energy consumption has been assessed using both the baseline KPT results (as per the registered PD) and the independently calculated $EC_{est,y}$ for cross-check purposes. In line with a conservative approach, the lower of the two values has been considered.

For Assam:

Parameter	Description	Value	Considering Minimum of $EC_{est,y}$ and $EC_{i,y}$
$EC_{est,y}$	Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)	0.05455	0.05455
$EC_{i,y}$	Average energy consumption of baseline device type i in year y (TJ)	0.05483	

For Madhya Pradesh:

Parameter	Description	Value	Considering Minimum of $EC_{est,y}$ and $EC_{i,y}$
$EC_{est,y}$	Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)	0.04979	0.04979
$EC_{i,y}$	Average energy consumption of baseline device type i in year y (TJ)	0.04981	

Parameter	Description	Value	Source
Minimum of $EC_{est,y}$ & $EC_{i,y}$	Considering Minimum of $EC_{est,y}$ & $EC_{i,y}$	Assam: 0.05455 Madhya Pradesh: 0.04979	Considering Minimum of $EC_{est,y}$ and $EC_{i,y}$
$N_{j,k,y}$	Number of commissioned project devices of type j from batch k in year y	1	Considered 01 for calculation
$n_{j,k,y}$	Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)	0.9	As per adoption survey the usage rate has been found 100% i.e. 1. But the usage rate is capped at 0.9, as per Clarification 2 – Corrections and Clarifications to VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves, v1.0 (03 February 2025), which sets a 90% cap for survey-based usage rates.
$EF_{b,i,CO2}$	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ /TJ)	112	The CO ₂ emission factor for wood (112 tCO ₂ /TJ) is taken from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, and is applied as per Section 9.1, Option 3 of VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves (v1.0).
$f_{NRB,y}$	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y (fraction)	0.07	As per VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves (Data/Parameter: $f_{NRB,y}$), using the default value from the version 3 of CDM Tool 33.
$EF_{b,i,nonCO2}$	Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO _{2e} /TJ)	9.46	As per VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves (Option 3 of the methodology guidelines), using the default value for wood fuel from the 2019 Refinement to the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories.

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

State	Operational Year	Baseline emission calculation	Values (BE _y) (tCO ₂ e)
Assam	Year 2	$0.05455 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.849
Assam	Year 3	$0.05455 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.849
Assam	Year 4	$0.05455 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.849
Madhya Pradesh	Year 2	$0.04979 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.775
Madhya Pradesh	Year 3	$0.04979 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.775
Madhya Pradesh	Year 4	$0.04979 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.775

Similarly, for all ICS, the baseline emissions are calculated, and the summarized results for the current monitoring period are presented below:

Year	BE _y - Total
01-January-2024 to 31-December-2024	119,361
01-January-2025 to 30-September-2025	89,032

5.2 Project Emissions

Project emissions are calculated as follows:

$$PE_y = PE_{energy,y} + PE_{others,y} \quad (6)$$

Where:

PE_y	=	Project emissions during year y (t CO ₂ e)
$PE_{energy,y}$	=	Project emissions from energy consumption of project devices in year y (t CO ₂ e)
$PE_{others,y}$	=	Project emissions from other sources in year y (t CO ₂ e) There is no other sources of project emission involved apart from burning of firewood in the project cookstoves

Project emissions from energy consumption of project devices using biomass, fossil fuels, or bioethanol in year y are calculated as follows ($PE_{energy,y}$):

$PE_{energy,y}$ from Biomass is calculated as follows:

Project emissions from energy consumption of project devices using biomass, fossil fuels, or bioethanol in year y are calculated as follows ($PE_{energy,y}$):

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

Where:

Parameter	Description	Value	Source
$BC_{p,j,k,y}$	Average quantity of fuel used by project device type j from batch k during year y (tonnes)	For MP: 1.559 For Assam: 1.708	Project KPT Result
$N_{j,k,y}$	Number of commissioned project devices of type j from batch k in year y	1	Considered 01 for calculation
$n_{j,k,y}$	Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)	0.9	As per adoption survey the usage rate has been found 100% i.e. 1. But the usage rate is capped at 0.9, as per Clarification 2 – Corrections and Clarifications to VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves, v1.0 (03 February 2025), which sets a 90% cap for survey-based usage rates.
$NCV_{p,j}$	Net calorific value of project fuel used in project device type j (TJ/tonne)	0.0156	Option 3 as specified in the methodology guidelines applies the default value for wood fuel provided in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories under the VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves methodology.
$EF_{p,j,CO2}$	CO ₂ emission factor for fuel used by project device type j in the project scenario (tCO ₂ /TJ)	112	The CO ₂ emission factor for wood (112 tCO ₂ /TJ) is taken from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, and is applied as per Section 9.1, Option 3 of VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves (v1.0).
$f_{NRB,y}$	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not	0.07	As per VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves (Data/Parameter: fNRB,y), using the default value from the version 3 of CDM Tool 33.

	considered for fossil fuels (fraction)		
$EF_{p,j,nonCO2}$	Non-CO ₂ emission factor for fuel used by project device type j (t CO ₂ e/TJ)	9.46	As per VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves (Option 3 of the methodology guidelines), using the default value for wood fuel from the 2019 Refinement to the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories.

$BC_{p,j,k,y}$ for Project devices:

The project fuel consumption was determined using “**Option 1: Measurement Campaign**” conducted by the survey team. The sampling approach is consistent with the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities, Version 9.0. The campaign ensures a minimum confidence and precision level of 90/10 for the target parameter—average daily fuel consumption per adult equivalent. The results are then scaled using the average household size (Hhi) to derive the value of $BC_{p,j,k,y}$.

The Actual Project ER calculations for one project activity instance are as below:

Considering ICS date of installation and number of days involved in the monitoring report (MP: 01-January-2024 to 30-September-2025), which comprises of operational year 2, 3 and 4. PP has calculated the project emission reduction for each ICS installed under the project activity separately. In this section example for project ER calculation of one ICS is provided;

ICS Efficiency (Rated) = 36.42%

fNRB = 7%

The project emissions has been calculated for 1 instance as follows:

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

State	Operational Year	Calculation for project emission	$PE_{energy,y}$
Assam	Year 2	$1.708 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.415
Assam	Year 3	$1.708 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.415
Assam	Year 4	$1.708 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.415
Madhya Pradesh	Year 2	$1.559 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.379
Madhya Pradesh	Year 3	$1.559 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.379
Madhya Pradesh	Year 4	$1.559 \times 1 \times 0.9 \times (112 \times 0.07 + 9.46)$	0.379

Similarly, for all ICS models, the project emissions are calculated, and the summarized results are presented below:

Year	PE _{energy,y} - Total
01-January-2024 to 31-December-2024	58,302
01-January-2025 to 30-September-2025	43,487

5.3 Leakage Emissions

As per VM0050 v1.0, Leakage emissions (LE_y) are calculated as follows:

Leakage emission associated with reduced or avoided use of non-renewable biomass use:

- Use of non-renewable biomass by other users and other types of GHG reversals

An adjustment factor of 0.95 is applied to the GHG emission reductions.

$$\text{i.e., } 0.95 \times (\text{BE}_y - \text{PE}_y)$$

5.4 GHG Emission Reductions and Carbon Dioxide Removals

Net GHG emission reductions are calculated as follows:

$$\text{ER}_y = (\text{BE}_y - \text{PE}_y) * 0.95 - \text{LE}_{\text{RB},y}$$

Where:

ER_y: Emission reductions during year y in t CO₂e

BE_y: Baseline emissions during year y in t CO₂e

PE_y: Project emissions during year y in t CO₂e

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

LE_{RB,y} is considered zero, as the project activity does not involve the use of renewable biomass; therefore, no leakage emissions associated with renewable biomass occur, as per approved methodology VM0050, Section 8.3 – Leakage Emissions.

The Net GHG emission has been calculated for 1 instance as follows:

For Assam:

$$\text{ER}_y = (\text{BE}_y - \text{PE}_y) * 0.95 - \text{LE}_{\text{RB},y}$$

$$\text{ER}_y = (0.849 \text{ tCO}_2\text{e} - 0.415 \text{ tCO}_2\text{e}) * 0.95 - 0$$

$$\text{ER}_y = 0.413 \text{ tCO}_2\text{e}$$

For Madhya Pradesh:

$$\text{ER}_y = (\text{BE}_y - \text{PE}_y) * 0.95 - \text{LE}_{\text{RB},y}$$

$$ER_y = (0.775 \text{ tCO}_2\text{e} - 0.379 \text{ tCO}_2\text{e}) \times 0.95 - 0$$

$$ER_y = 0.377 \text{ tCO}_2\text{e}$$

The total actual ER combined for all Project activity Instances is as below:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-January-2024 to 31-December-2024	1,19,361	58,302	0	58,006	0	58,006
01-January-2025 to 30-September-2025	89,032	43,487	0	43,267	0	43,267
Total	208,393	101,789	0	101,273	0	101,273

The percentage difference between the estimated and actual emission reductions are-

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-January-2024 to 31-December-2024	58,148	58,006	-0.24%	A conservative approach was applied by considering the minimum value of baseline energy consumption (between KPT results and $EC_{est,y}$), resulting in a negative variation of -0.24 % between ex-ante and achieved emission reductions.
01-January-2025 to 30-September-2025	43,373	43,267	-0.24%	A conservative approach was applied by considering the minimum value of baseline energy consumption (between KPT results and $EC_{est,y}$), resulting in a negative variation of -0.24 % between ex-ante and achieved emission reductions.

Total	101,521	1,01,273	-0.24%	A conservative approach was applied by considering the minimum value of baseline energy consumption (between KPT results and $EC_{est,y}$), resulting in a negative variation of -0.24 % between ex-ante and achieved emission reductions.
-------	---------	----------	--------	---

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

There is no commercially sensitive information in the monitoring report

Section	Information	Justification
NA	NA	NA